central T subway

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Transmittal

CS Transmittal No. 2234

To:	Jeff Davis FTA 201 Mission Street, Suite 1650 San Francisco, CA 94105	**From:**	John Funghi
		Project No./Contract No.:	M544.1, CS-149
		Task No./Title:	1-1.02 Project Management Plan
		Project Phase:	
Date:	May 20, 2013	**Subject:**	Project Management Plan
Reference:			

Sent via:	☐ *mail*	☐ *overnight*	☐ *messenger*	☐ *hand-delivered*
	☐ *fax – No:*		☒ *email – **Address:***	jeffrey.s.davis@dot.gov

The following:		***For your:***	***Due date:***
☐ *copy of letter/memo*	☐ *estimate*	☒ *information/use*	N/A
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☐ *presentation*	☐ *review comment form*	☐ *response to comment*	
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☐ *specifications*	☐ *review comments*	☐ *incorporation of comments*	
☐ *half-size drawings*	☐ *response to comments*	☐ *verification*	
☐ *full-size drawings*	☐ *concurrence with response*	☐ *signature*	
☐ *sketches/maps/layouts*	☐ *verification of incorporation*	☐ *acceptance/approval*	
☐ *reference material*	☐ *acceptance/approval*	☐ *other* _____	
☐ *other* _____		_____	

Item No.	***Copies***	***Description***	***Rev. No.***	***Date***
1	1	Project Management Plan	3	05/1/13
2	1	PMOC Appendix A – PMP Actions and SFMTA Response		Not dated

If enclosures are not as noted, kindly notify us at once.

Remarks: Enclosed please find updated Project Management Plan and PMOC Appendix A.

John Funghi
Program Director

JF:ES:smk

cc: David Kuehn, STV (w/attachments) david.kuehn@stvinc.com
Brad Lebovitz, STV (w/attachments) bradley.lebovitz@stvinc.com
Eric Stassevitch, CSP (w/attachments)
CS File No. M544.1.5.0210

APPENDIX A

Actions Recommended by the PMOC for SFMTA to address in the next annual PMP Update							
PMP Report Reference	**Action #**	**Priority**	**Action Description**	**SFMTA Response**	**PMOC Position/ Deliverables**	**Action By**	**Date**
Gen.	1	2	Links to standalone documents are not active or up-to-date in the PDF provided to FTA/the PMOC. An explanation should be given of how someone using the PMP gets access to the documents.	Will address in next revision	To be actioned	SFMTA	
1.2	2	2	Revise as needed; recommend annually.	Section updated to incorporate recommended comment	To be actioned	SFMTA	Nov-11
2.1 - 2.3	3	2	There are several disconnects between titles shown on the organizational charts and the written text. Suggest use of titles in text and correct titles in organizational charts.	Organization Chart updated for Design Package Managers; Design Oversight Managers shown in Chart; PMP updated for PM Project Delivery and Project Officer; Discipline Leads not included in Chart - this level of detail not appropriate.	To be actioned	SFMTA	Nov-11
2.3	4	2	Add a section for Program Manager Project Services, like the ones for Program Manager Project Development and Program Manager Project Delivery.	See Section 2.3	To be actioned	SFMTA	May-13
2.3	5	2	There is no text for any position that cites the needed qualifications required to serve in that function, nor is there any text about training of staff to fit the needs of this particular project. Suggest adding qualifications for the key staff.	See Section 2.4	To be actioned	SFMTA	May-13
2.3	6	2	There are positions shown in other sections of the PMP, such as the "Project Controls Manager" and "Document Controls Manager" that are not listed in this section. In addition, there is no text for document control staff. Suggest adding the qualifications required, duties, responsibilities and associated reporting structures of the manager positions and text for their staff.	See Section 3.3 and 3.7	To be actioned	SFMTA	May-13
2.3	7	2	The duties and responsibilities indicated for various staff seem to be the same throughout a given discipline area from manager down to the lower levels. Suggest clarifying by eliminating duplicate duties and responsibilities.	Reviewed and no changes made	To be actioned	SFMTA	May-13
2.3	8	1	There are no monetary authorization levels for any staff members. Suggest adding a table that indicates authorization amounts by position.	Table added in Section 2.1.4 With text added to explain current delegation of authority.	To be actioned	SFMTA	Nov-11
2.3, Appendix B	9	2	For positions that require multiple staff, such as; resident, office, field engineers and inspectors, there is no indication of how many people are needed or assigned to the individual construction contracts. Suggest adding the field staff by position to the organization charts.	See Appendix B for update org charts	To be actioned	SFMTA	May-13
2.3.6	10	2	Under the Program Manager Project Delivery position there is the function of integration testing but no one identified as a member of an integration team or integration manager. Suggest text that explains how the agency will address the integration need.	Will address in next revision	To be actioned	SFMTA	

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Table 2.1	11	1	There are two Construction Managers shown in the organization chart. Typically there is only one construction manager. Suggest explaining the need for two, and who is responsible.	A. Wong (SFMTA) is responsible for administrative functions; M. Benson (PMCM) is responsible for day-to-day ConstructionManagement activities. No change to Org Chart. Added text to article 2.3.7	To be actioned	SFMTA	Nov-11
2.3.10	12	1	Under the Staff Mobilization Plan subsection it is written for final design phase. Suggest a rewrite that addresses the construction phase.	Revised to relect current Staff mobilization for Final Design, Utility Relocation and TBM Procurement.Section. Next revision will address construction phase in more detail.	To be actioned	SFMTA	Nov-11
2.3.10	13	2	Add to first paragraph, last sentence: "and Utility Relocation Contract 2"	Comment incorporated	To be actioned	SFMTA	Nov-11
2.3.10	14	2	Update second paragraph since the selection of the Final Design Consultant took place a year ago and FDC is already located at Brannan office.	Comment incorporated	To be actioned	SFMTA	Nov-11
2.4.1 & 2.4.2	15	1	These sections should be fully developed by this phase of the project.	PMP Section updated. Article 2.4.2 to be expanded in next revision	To be actioned	SFMTA	Nov-11
3.1.2	16	1	Staff identified throughout the PMP are not identified in the organization chart and need to be added. For example: 3.1.2 b) Design Package Mgr. and d) Discipline /Task Leads. Also: 3.2.8 SFMTA Project Officer; 3.2.15 Design Oversight Manager; 3.3.2.1 Project Services Manager should be Program Manager Project Services; and 3.3.3.5 (also 3.3.4.2) Project Execution Managers.	Organization Chart updated for Design Package Managers; Design Oversight Managers shown in Chart; PMP updated for PM Project Delivery and Project Officer; Discipline Leads not included in Chart - this level of detail not appropraite. Articles 3.3.2.1, 3.3.3.5, & 3.3.4.2 corrected and updated.	To be actioned	SFMTA	Nov-11
3.2 General	17	2	Sub-sections shall identify the specific applicable project procedures relative to that topic. (Only procedure numbers and descriptions are necessary, not latest revision number.)	Will address in next revision	To be actioned	SFMTA	
3.2.8 and following	18	2	The sub-section numbering needs to be corrected as follows; o 3.2.8 should be 3.2.7.1 o 3.2.8.1 should be 3.2.7.2 o 3.2.8.2 should be 3.2.7.3 o 3.2.9 should be 3.2.8, and thereafter corrected o Sub-section parts 3.2.26 – 3.2.30 should be numbered 3.2.25.1 – 3.2.25.4 (subsection 3.2.30 should be eliminated and included in the newly numbered 3.2.25.4)	Sub section numbering corrected for 3.2.7 and adjusted for subsequent sections. Sub sections for 3.2.26 thru 3.2.30 updated and corrected to be compliant with previous section adjustments.	To be actioned	SFMTA	Nov-11
3.2.15	19	2	Sub-section 3.2.15 Quality Audits and Surveillances should be combined with sub-section 3.2.24 of the same title. Sub-section 3.2.30 should be eliminated by either adding to sub-section 3.2.29 or combining with the 3.2.15. It is confusing having this essential task spread throughout the plan.	Quality Audit and Surveillance sections reviewed and combined into one subsection that has moved to the end of section 3.2	To be actioned	SFMTA	Nov-11

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3.2.20	20	2	Sub-section 3.2.20 should include a statement that, "Factory acceptance Tests shall be recorded and documented as project records.", or equivalent.	Factory Acceptance Tests has new sub-section number 3.2.14.3 as a result of resequencing the entire section after 3.2.7. Text added to comply with action.	To be actioned	SFMTA	Nov-11
3.2.21	21	2	Sub-section 3.2.21 should include a statement that "Material Test results shall be recorded and documented as project records" or equivalent.	Material Tests has new subsection number, 3.2.14.4 as a result of the resequencing of the entire section after 3.2.7. Text added to comply with action.	To be actioned	SFMTA	Nov-11
3.3.1	22	2	Should say "Project Controls provides tools for Project Management to control project schedule, cost and all documentation."	Text added to comply with action	To be actioned	SFMTA	Nov-11
3.3.2.2	23	1	Who is this on the project?	Steve Sanchez	To be actioned	SFMTA	Nov-11
3.3.3	24	2	Appendix D is the Project Schedule and does not depict the schedule for submittal of data and internal reports (actually in paragraph 3.3.3.6).	Revise text to direct the reader to section 3.3.3.6 for schedule of internal report preparation.	To be actioned	SFMTA	Nov-11
3.3.3.1	25	2	Add: "the Schedule Report will be submitted to FTA."	Added text to comply with action	To be actioned	SFMTA	Nov-11
3.3.3.1	26	2	Bullet #5 should read "detailed three month look-ahead"	Revised text to comply with action	To be actioned	SFMTA	Nov-11
3.3.3.3	27	2	Add: "The Cost Report will be submitted to FTA."	Added text to comply with action	To be actioned	SFMTA	Nov-11
3.3.3.5	28	2	Add: "The Strategy Report will be provided to FTA."	Added text to comply with action	To be actioned	SFMTA	Nov-11
3.3.3.5	29	2	Has this report been developed?	Not at this time - Report to be developed by Jan 2012	To be actioned	SFMTA	Nov-11
3.3.4.1	30	2	Add: "The Monthly Report will be submitted to FTA."	Added text to comply with action	To be actioned	SFMTA	Nov-11
3.3.4.2	31	2	Add: "The Quarterly Report will be submitted to FTA."	Added text to comply with action	To be actioned	SFMTA	Nov-11
3.6.1	32	2	Needs a bullet stating "as design progresses, changes that are incorporated need to be implemented into the construction schedule."	Added text to comply with action	To be actioned	SFMTA	Nov-11
3.6.2.1	33	1	Appendix D is not the current baseline schedule. The data date is Jan. 31, 2011. The PMP is dated March 2011.	Appendix D Updated	To be actioned	SFMTA	Nov-11
3.6.2.1	34	2	Page 3-27 it states that the schedule report is formally transmitted both electronically and by hard copy on the 10th of the ensuing month. This should be changed to the 15th of the ensuing month which reflects the current process.	Revised text to comply with action	To be actioned	SFMTA	Nov-11
3.6.2.1	35	2	The project controls section has language on reviewing and approving the various design schedules but to date we have only been reflecting the lack of progress vs. holding the designer to the baseline schedules that were submitted. Although realizing that there is significant buffer float in the current schedule, due diligence must be done on holding the designers to their perspective milestones in the contract.	Design Contract milestones have been revised and approved by SFMTA.	To be actioned	SFMTA	Nov-11

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3.6.2.1	36	2	States that the master schedule will be cost loaded with the current baseline cost estimate figures but currently the schedule has $798,800,334 reflected for construction and the vehicles. The latest cost report for February reflects $977,300,000 for construction and the vehicles. There seems to be cost missing in the master project schedule. A comparison between the costs of each construction contract in the estimate needs to be reconciled with the master project schedule.	Comment has been addressed in updates to the Master Project Schedule, no change required for text in PMP.	To be actioned	SFMTA	Nov-11
3.7.6	37	2	Change "will be" to "are"	Revised text to comply with action	To be actioned	SFMTA	Nov-11
3.7.7	38	2	Change "will be" to "is"	Revised text to comply with action	To be actioned	SFMTA	Nov-11
3.7.7.3 & 3.7.8.4	39	2	Purge Project Manager throughout and replace with appropriate responsible staff (Project Manager no longer exists in section 2 or the org. chart).	Revised text to comply with action. Replaced Manager with Director	To be actioned	SFMTA	Nov-11
3.7.8	40	2	It is our understanding that baseline documents are no longer issued as controlled copies. Clarify.	Revised test to clarify. Baseline documents are posted to EDMS as controlled copy.	To be actioned	SFMTA	Nov-11
5.7	41	2	Refers to Project Execution Plan (Agreement) document. This Plan was never an agreement and the Plan no longer exists. Replace PEP with Risk and Contingency Management Plan.	Revised test to comply with action.	To be actioned	SFMTA	Nov-11
5.8	42	2	Delete PEP.	Updated to comply with action	To be actioned	SFMTA	Nov-11
6.0	43	1	The PMP Section 6.0 should provide a description of how the mitigation measures identified in the MMRP will be incorporated into the contract drawings and technical specifications. This is covered in more detail in the Design Program section of the PMP.	PMP Section updated.	To be actioned	SFMTA	Nov-11
6.0	44	1	State that provisions to handle issues related to hazardous materials, noise and vibration, or other environmental related issues will be provided for and incorporated into the contract Drawings or Technical Specifications.	PMP Section updated.	To be actioned	SFMTA	Nov-11
6.3	45	1	Under Section 6.3 for Cultural Resources, state that Archaeological Resources will be supported by documents found and referenced in the contract Special Provisions. And Archaeological monitoring and testing for construction contracts will be incorporated into construction documents as part of the Special provisions and possible in Section 01 57 23 Management of Excavated Materials of the Technical Specifications.	PMP Section updated.	To be actioned	SFMTA	Nov-11
6.6	46	1	Under Section 6.6 for Hazardous Materials, provide the inclusion of a Phase II Environmental Site Characterization for the Moscone Station site.	PMP Section updated.	To be actioned	SFMTA	Nov-11

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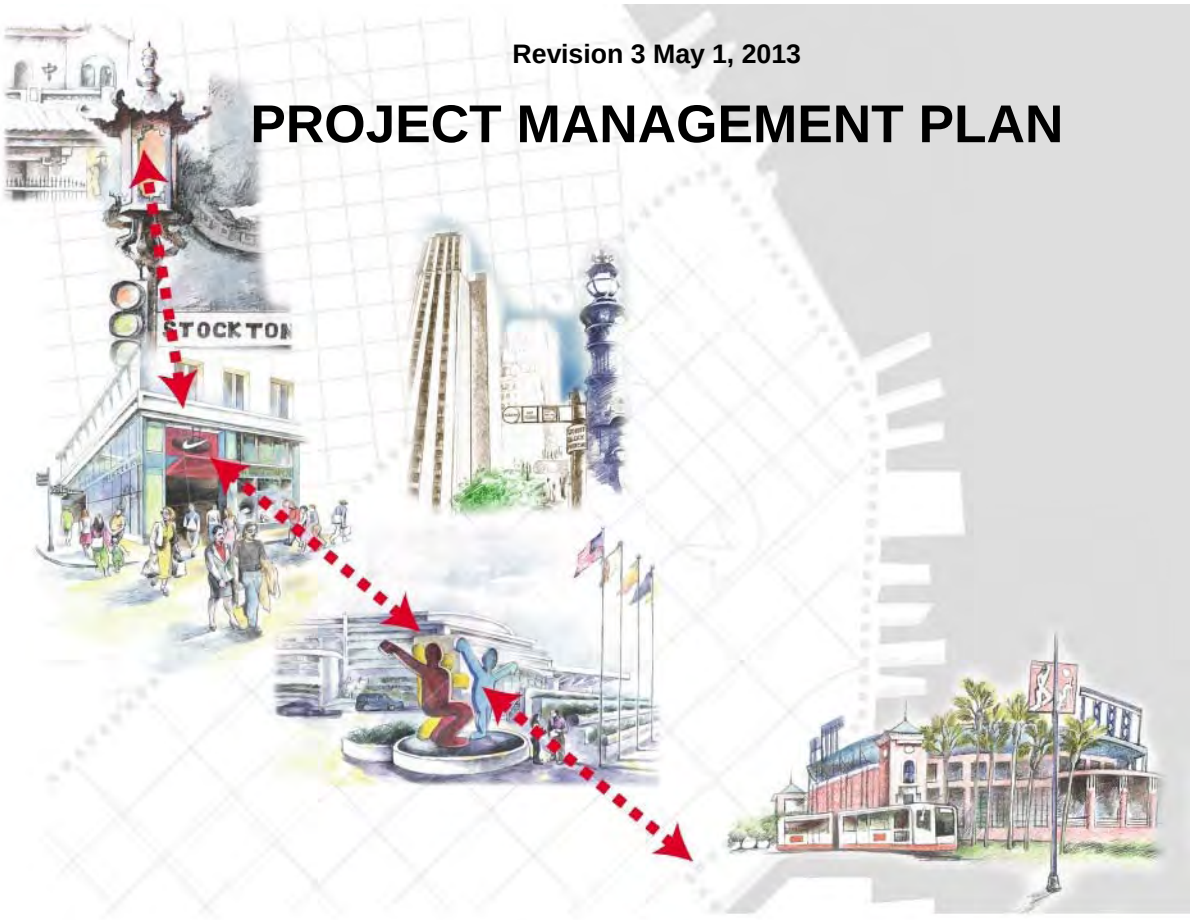
6.9	47	1	References have been made to a Soil Quality Investigation and a Soil Analysis Report. Please clarify the existence and or inclusion of these documents.	PMP Section updated.	To be actioned	SFMTA	Nov-11
7.2	48	2	Add Tunnel Designer.	Updated to comply with action	To be actioned	SFMTA	Nov-11
9.0	49	1	The development and management of design integration between the various design teams and the implementation of the Integration Matrix should be included in this section.	PMP Section updated.	To be actioned	SFMTA	Nov-11
9.1	50	2	First sentence: The Design Criteria was not completed by the PE Consultant and is not totally approved to date. Correct statement.	Statement is correct at shown, no change to wording.	To be actioned	SFMTA	Nov-11
9.3	51	1	Add bullet to submittal routing procedure that "original reviewer will backcheck that their comment has been acceptably addressed."	PMP Section updated.	To be actioned	SFMTA	Nov-11
13.6.3	52	2	Contracts Administration Manager: duties are not detailed in Section 3 nor is the position shown on the org. chart.	Contract Administration duties are outlined in Section 2.1.3 and are depicted on the org chart as a direct report to the Director of Transportation and a staff position under Project Controls.	To be actioned	SFMTA	Nov-11
14.0	53	1	The agreement matrix should be updated formally at least quarterly and a copy provided to the PMOC.	PMP Section updated.	To be actioned	SFMTA	Nov-11
15.3.4	54	1	Does not totally agree with paragraph 13.6.3. Clarify.	PMP Section updated.	To be actioned	SFMTA	Nov-11

Revision 3 May 1, 2013

PROJECT MANAGEMENT PLAN



Prepared by:

SFMTA

CITY AND COUNTY OF SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY
821 Howard Street, 2nd Floor
San Francisco, CA 94103

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CENTRAL SUBWAY PROJECT

PROJECT MANAGEMENT PLAN

REVISION 3

May 1, 2013

Prepared by: _____

Eric Stassevitch, P.E., CCM

Program Manager Project Services

Accepted by: _____

Ross Edwards

Program Manager Project Development / Project Delivery

Accepted by: _____

John Funghi, P.E.

Program Director

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Table of Contents

Page

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1.0 INTRODUCTION

1.1 PROJECT OVERVIEW

The Project Management Plan (PMP) presents the resource plans and controls for documents, scope, budgets, and schedules to complete Final Design and continue through the Construction Phase for the 1.7 miles of surface/subsurface extension of the San Francisco Municipal Transportation Agency (SFMTA) light rail system.

The project will extend the Third Street Light Rail Transit Project Phase 1 Initial Operating Segment now in operation. Phase 2, the Central Subway Project (CSP), continues the initial operating segment from King Street north on the surface along Fourth Street, entering a subway portal between Bryant and Harrison Streets. The CS will then run under Fourth Street to Market Street, cross beneath the Muni/Bart Powell Street Station, and continue under Stockton Street (and the Stockton Street tunnel) to a terminus at Washington Street. The Project will involve tunneling, mining and/or cut-and-cover type of construction that will impact utilities, buildings, businesses, traffic, parking, transit and pedestrians for an estimated six years.

Four LRVs will be procured to serve the extension.

1.2 PMP – PURPOSE

The PMP will be used as a management tool to guide SFMTA, and as an informational overview for participants and interested parties. The purpose of the PMP is threefold:

- It establishes the framework for the management of the federally funded portion of the CSP, in accordance with the Federal Transit Administration (FTA) Project and Construction Management Guidelines 2003 Update, and Title 49 Code of Federal Regulations (CFR) Part 633
- It specifies the management organizational structure and outlines the procedures for effective administration of the Program
- It defines the relationship between members of the Project Team and those agencies having an interest in or jurisdiction over aspects of the Program; and further provides a guideline for the orderly interaction of all parties involved

This PMP was prepared as part of the application for the New Starts Full Funding Grant Agreement (FFGA). This PMP describes the current status, the implementation plan, management organization, budget and schedule, and procedures for completing Final Design, progression into construction, and SFMTA system testing and startup.

The PMP is a dynamic document which will be reviewed periodically and revised as needed, at least annually, as CSP progresses.

1.3 PROJECT OBJECTIVES

The objectives and benefits of the Project are to:

- Reduce travel time in the Bayshore Boulevard/Third Street/Fourth Street/Stockton corridor.
- Improve transit service reliability and efficiency to reduce congestion in the Downtown core.
- Increase transit connectivity of the Chinatown and southeast sections of the City with the rest of the City.
- Support the revitalization of the Bayview-Hunters Point community and Visitacion Valley.
- Support the economic and physical development of Mission Bay.
- Serve future increases in the corridor transit demand.
- Improve air quality by reduction of diesel coaches and vehicular traffic in a section of the City where there is a disproportionately higher percentage of citizens with asthma.

1.4 PROGRAM SCOPE

Table 1-1 summarizes the Phase 2 scope elements.

Table 1-1: Phase 2 Scope Elements

1.	Subway Stations	Three subway stations will include ticket vending machines, signage, advertising panels, public address system, talking signs, closed circuit television cameras, Translink, Nextbus, pay phones, seats, trash receptacles and art enhancements.
2.	Above Ground Stations	Station platform will include canopy, windscreens, ticket vending machines, signage, advertising panels, talking signs, closed circuit television cameras, Translink, Nextbus, pay phones, seats, and trash receptacles.
3.	Art Enhancement	The Project will commission artists to create and work with the community to develop art enhancement for the Project.
4.	Subway Overhead Contact System	The Overhead Contact System (OCS) wires will be suspended 12.5 feet above the centerline of the track alignment supports will be mounted to the ceiling or walls of the subway, spaced approximately 50 feet apart
5.	Surface Overhead Contact System	The OCS wires will be suspended 18.5 feet above the centerline of the track alignment, from poles located on the sidewalks, spaced approximately 100 feet apart.
6.	Traction Power:	Two traction power substations will support a two-car train at 2 to 5-minute headways. The substations are located at the proposed Moscone and Chinatown Stations.
7.	SCADA	Supervisory Control and Data Acquisition (SCADA) systems will be provided for the traction power system and for the network communication system, which consist of platform equipment such as TVMs, CCTVs, and subway intercom system. A new mimic panel section will be added the traction power system at the Power Control Center.

8.	Track Switch and Signal & Crossover Control System	On the surface, crossovers and turnouts will be activated by the vehicle tagging system. Track switch controllers using track circuits for train detection, combined with track signals will be used to control train movement at crossovers and turnouts.
9.	Train Control	In the subway, crossovers and turnouts will be activated by a signaling system compatible with the Market Street subway and the equipment currently onboard Muni LRVs.
10.	Traffic Signals:	All surface intersections will be signalized with traffic signal priority for LRV service.
11.	Rail:	• 9,000 meters +/- of Tee Rail 115 will be installed in the subway. • 2,000 meters +/- of Ri-60 girder rail will be installed on the surface alignment. Based on SFMTA's previous experience, it is anticipated that the girder rail will likely be manufactured by a European company. If so, then a waiver of the Buy America (including Mexico and Canada) provision will be requested.
12.	LRV Procurement	Four new LRVs will be needed in 2030 for Central Subway service. LRV procurement will be a separate procurement by Muni's Fleet Engineering Section.

1.5 PROJECT INTERFACE AND COMPANION RESOURCE DOCUMENTS

Table 1-2 summarizes companion documents, procedure manuals and reports to use as with the PMP.

Table 1-2: Companion Resource Documents

	Project Interface	**CS Project Name**
1.	Detail Design Work Plan	Preliminary Engineering Report (Mar. 2008)
2.	Design Criteria and Standards	Preliminary Engineering Report (2008)
3.	NEPA – CEQA Compliant EIS/EIR	CSP Supplemental FEIS / FEIR (Aug. 2008)
4.	FTA New Starts Report	CSP New Starts Reports (2009, 2010)
5.	Baseline Cost Estimate	2009 Capital Cost Estimate (Aug. 2009)
6.	Project Specific Procedures	CSP Procedures
7.	Progress Reports	CSP Monthly and Quarterly Progress Reports

1.6 PROJECT ISSUES AND POTENTIAL CONSTRAINTS

The summary of issues includes potential constraints that will be considered and addressed as appropriate in Final Design drawings and specifications.

1.6.1 NEPA / CEQA Compliance

1. NEPA / CEQA Compliance: The Final Design will carry out necessary detailed analysis and develop specifications to implement the project mitigations identified in the Mitigation Monitoring & Reporting Program. The San Francisco City Planning Commission certified the FEIR for the project on

August 7, 2008. On November 26, 2008, the FTA issued a Record of Decision (ROD), completing the environmental process for the project.

2. Portal location: The portal of the subway and surface alignments under Hwy 80 is at a strategic location that has the potential to limit the impact to surrounding development and traffic during construction to remove tunnel spoils and access the tunnel construction. The potential portal retrieval for tunnel access at Washington Square Park will require a separate traffic and mitigation plan. To minimize impacts, Final Design documents will describe site specific phasing, mobilization guidance, monitoring and mitigations during construction.

1.6.2 Detail Design Elements

1. Construction Contracting Strategy: Final design will carry out the selected alternative procurement strategy of Design-Bid-Build.
2. Schedule Control: The project construction involves a high degree of closely linked and continuous activities. In addition overall construction costs are related to the schedule and its milestones and targets. The schedule must be carefully evaluated in order to control and reduce project costs.
3. Protection of BART and MUNI tubes: Final Design documents will describe the special approaches so that the BART and MUNI tubes and Powell Street Station access and use will be protected and maintained.
4. Connection to a future Geary Subway: The design will provide for future connections to a future Geary Subway. Options for Howard Street as an alternative to the Folsom Street 'Geary turn-out' will be addressed.
5. System safety and security /Fire / Life Safety: Conformance to ventilation standards NFPA 130 and CBC 414A as well as providing adequate emergency evacuation points are key features.
6. Utilities and Adjacent Buildings: Assessment and treatment of construction induced settlements will be defined. Utility relocation plans have been produced that clearly show where existing utilities need to be re-routed in advance of the main construction work and where utilities can be left in place and supported and protected during construction.

1.6.3 Project Interface, Community Relations and Impacts

Section 12 presents the Community Relations information. The project community interface issues include:

1. Station Entrance Locations: The impacts and benefits of proposed locations will be established and addressed in community outreach.
2. Construction Disruption: The Project team will identify all businesses and residences directly and indirectly affected by construction activities and develop plans to minimize or mitigate the impacts. The BART staff will be a key interface to achieve agreement on Final Design at Market Street.
3. Transbay Terminal: The Project surface alignment on Fourth Street will cross over the proposed Transbay Terminal Caltrain Downtown Extension that is expected to be a tunnel under Townsend Street. Design and implementation

coordination will be established with the Caltrain Joint Powers Board and the Downtown Extension project staff.

1.6.4 Legal Authority and Requirements

The San Francisco Municipal Transportation Agency under its seven-member Board of Directors is a department of the City and County of San Francisco with the legal authority to undertake the requisite studies and contracts to plan, design, and construct, own and operate the Central Subway, vehicles and systems.

2.0 ORGANIZATION AND STAFFING

2.1 CENTRAL SUBWAY PROGRAM MANAGEMENT

The Central Subway Program falls under the responsibility of the Director of Transportation. Organization charts in Appendix B show the overall SFMTA organization. More detailed organization charts for the Program schematically show the functions of the Project team for Construction. Key SFMTA roles that are part of the Program Management are listed below.

2.1.1 Director of Transportation – Central Subway Project Officer

The SFMTA Director of Transportation has overall responsibility for the Central Subway Program and is the designated Central Subway Project Officer (Project Officer). The Project Officer oversees and provides general direction to the program and works with SFMTA Senior Management to ensure that the program achieves SFMTA's goals and has the full support of the Agency.

2.1.2 SFMTA Quality Assurance Office

The SFMTA Quality Assurance Office functions independently from the project team, and consists of the SFMTA Quality Assurance Manager and SFMTA Quality Assurance staff. For Quality Assurance matters, the SFMTA Quality Assurance Manager reports directly to the Director of Transportation. The Quality Assurance Manager is responsible for managing and coordinating the development, implementation, and continuous evaluations of the Quality Management Program.

The project Quality Assurance Manager shall report directly to the SFMTA Quality Assurance Manager as the project Quality Assurance Manager is an extension of the SFMTA Quality Assurance staff. The SFMTA Quality Assurance Office will closely manage Quality Assurance efforts and staff of the project and require corrective actions as necessary to effectively implement SFMTA's Quality Assurance program. The project Quality Assurance Manager shall keep the SFMTA Quality Assurance Manager, Project Services Manager, and other managers informed of the status of any Quality issues and corrective actions.

See the Quality Management Plan in Section 3.2 for additional information.

2.1.3 SFMTA Contract Administration Office

The SFMTA Contract Administration Office functions independently from the project team, and consists of the SFMTA Contract Manager and SFMTA Contract Management staff. The SFMTA Contract Manager reports on SFMTA Contract Administration to the Director of Transportation. The Contract Administration Office is responsible for developing, implementing, monitoring, evaluating, and corrective actions with regard to SFMTA's Contract Management activities. The Contract Administration Office is responsible for Contract General Conditions, Requests for Proposals, Selection of Contractors, and Contract Modifications, including cost and price analysis of contracts and changes and compliance with FTA Best Practices and City requirements. The Contract Administration Office has the authority and freedom within SFMTA to return Contract documents to the project team until they have been properly justified and are in

compliance with FTA Best Practices and City contracting requirements. The SFMTA Contract Administration Office consists of the SFMTA Contract Manager and Contract Administrators. A full time dedicated Contract Administrator is assigned to the Cnetral Subway Program due to the size, complexity and volumne of work related to the Program.

Contract Administrators are responsible for the review, approval and processing of all contract-related documents. The duties and responsibilities of Contract Administrators include:

- Solicit proposals for all contracts, obtains required documents including bonds, insurance, and contract compliance documentation, and checks all submitted documents for accuracy, completeness and responsiveness.
- Review cost & price analysis for all contracts and contract changes.
- Prepare, review, approve and/or process contracts, contract modifications, agreements, calendar items and other documents. Assure that the latest FTA, State, and City requirements are included in all appropriate documents. Work with Grants Unit to assure grant requirements are included in documents and/or carried out.
- Obtain certification of contracts and contract modifications.

2.1.4 Authorization Levels

Delegation of authority has been established by the SFMTA Board Resolution 10-008 to give the Executive Director/CEO broader discretion to approve contracts and contract modifications in order to reduce admisitrative paperwork and streamline processing of certain contract approvals. Provisions for re-delegation of authority are outlined in the resolution for both Contract approval and Change Orders or Amendments.

Current levels of authorization and re-delegation of authority are shown in table 2-1

Table 2-1 Authorization Level

Position	Original Contract	Authorization Level
Executive Director/CEO	$500,000 to $9,999,999	Greater of 25% or $250,000 - Cumlulative
Executive Director/CEO	$10,000,000 to $50,000,000	Greater of 10% or $2,500,000 - Cumulative
Executive Director/CEO	Greater than $50,000,000	$5,000,000 - Cumulative

Executive Director/CEO may re-delegate:		
Deputy Executive Director		$500,000
Chief Construction Officer		$250,000
Director		$150,000
Deputy Director		$50,000
Project Manager		$25,000
Resident Engineer, Contract Admin.		$10,000

Authority levels outlined above reside with the new Director of Transportation. The Project Director for the Central Subway has been delegated an authority level of $100,000 by the Director of Transportation without authority to re-delegate.

Note: Refer to Appendix E for details.

2.2 INTEGRATED DESIGN / CONSTRUCTION SUPPORT TEAM

The Project team is an integrated team composed of City staff and staff from the Project Management/Construction Management Consultant (PM/CM), Final Design Consultant (FDC), Project Controls Consultant (PCC), and other consultants available to the SFMTA.

The integrated Project Team will present opportunities for staff development. The team will include staff from multiple disciplines with varied experience. City staff and Consultants will have the opportunity to learn from each other for the benefit of the project.

2.3 KEY STAFF

Resumes of current key staff are included in Appendix C. SFMTA is fortunate to have obtained staff of high qualifications and experience. Staffs assigned to the project have many years of experience performing similar roles on other projects. As additional key staff are selected for the project team, their qualifications and experience will be required to match or exceed the qualifications and experience of existing staff. Their resumes will be provided to FTA.

This section refers to the roles and responsibilities of staff. A list of current staff in these positions and shown in organization charts in Appendix B can be found in Table 2-2 at the end of this section. For information about processes for controls, please refer to Section 3.

2.3.1 Program Director

The Central Subway Program Director (Program Director) is responsible for the day-to-day management of the project and reports to the Director of Transportation. The Program Director is responsible for ensuring that the overall project scope, budget and schedule are achieved and assigns and oversees the work to all staff and consultants working on the project. The Program Director develops and implements the communications/public outreach plan, with assistance from SFMTA Corporate Communications. The Program Director is assisted by the Central Subway Design Management, Project Management, Construction Management, and other functions shown on the detailed project Organization Charts in Appendix B.

2.3.2 Program Manager Project Services

The Program Manager Project Services reports to the Program Director and is responsible for providing overall management of the Project Controls, Document Control, Financial Management, Configuration Management and Risk Management functions and activities in support of achieving the Program's overall project scope, budget and schedule.

2.3.3 Project Controls Manager

The Project Controls Manager is responsible for developing, establishing, and issuing policies and procedures for project controls; assisting project staff in all aspects of project controls including scheduling, estimating, claims avoidance and mitigation, and claims management; and the preparation, analysis and issuance of management reports. Project Controls prepares templates/standard formats for all project control reports. In addition, Project Controls has the following functions:

- Update and implement work breakdown structure for use in managing cost, schedule, scope and resources.
- Develop and maintain Project master schedule. Review and analyze overall progress during the design and construction phases. Review and analyze design and construction schedules for compliance with contractual and project requirements. Identify areas of concern and provide input on corrective action plans as necessary.
- Develop and update each contract package schedule. Provide current information regarding critical and near-critical activities, milestones, progress and outstanding issues affecting the schedule.
- Collect, analyze, track, monitor and separately report on a monthly basis the project cost and budget information, including encumbrances, commitments, and actual expenditures. Develop earned value, trends, forecasts and variance information. Provide, implement and follow up on corrective/control measures where required.
- Assist the SFMTA Project Controls Section to prepare its monthly and quarterly reports.

SFMTA has completed the procurement of an Agency Program Controls System and Assistance contract (PCC). Final Design Project Controls was initially provided by the

Program Management/Construction Management (PMCM) consultant. The PMCM worked with the PCC to provide and train the PCC on existing Project Controls for the project. The Program Director has determined that the PCC is able to maintain the Project Controls set up by the PMCM and effective February 2011 the PCC and SFMTA now provide Project Controls for the remainder of the project. With the completion of the Captital Progran Control System (CPCS) by the PCC, the Program Director has determined that the Program would be best served with an SFMTA employee in the postion of Project Controls Manager, effective April 2013.

2.3.4 Program Manager Project Development

The Program Manager Project Development is responsible for design management of the project including Project and Quality Control of design and design construction support activities. These activities include approvals, configuration management, and management of consultant design staff.

During Design, the Program Manager Project Development follows design control procedures and is supported by Design Oversight Managers (DOM) assigned as needed to lead the design efforts for important elements of the project. See the separate Design Control Procedures and Section 9 of the PMP for further information about design.

During Construction, the Program Manager Project Development will assign Design Oversight Managers as needed to assist the Construction Manager with Design Coordination and to individual contracts as needed to provide on-site design support to Resident Engineers.

The Program Manager Project Development plans, organizes and controls design to ensure well-managed execution of Design documents that meet SFMTA requirements. This position is accountable for design schedule and budget adherence, achievement of design scope requirements and quality control of design documents. The Program Manager Project Development assures design quality by the implementation of the Quality Management Plan and Design Control Procedures. Additional duties and responsibilities of the Program manager Project Development include:

- Effectively oversee all aspects of Design from Preliminary Engineering through construction, testing, startup, turnover, and start of revenue service.
- Lead the Design team.
- Preparation and adherence to the Design scope, budget and schedule, and approves/recommends all major changes thereto.
- Prime person responsible for contact and coordination on the Design with SFMTA, consultants and outside agencies.
- Assure expeditious response to design concerns that need review, resolution and decisions by SFMTA and others.
- Conduct meetings as required to coordinate design activities and to keep all parties informed of immediate and upcoming design activities.
- Work in conjunction with other project team members and keeps them informed of activities and decisions that concern their areas of accountability.

- Provide support for construction and assist in startup and turnover of completed contracts.

2.3.5 Design Oversight Manager

Design Oversight Managers (DOM) are responsible for all technical aspects for their assigned element of the project, including complying with Design criteria, scope, schedule and budget, and supervising, and safety & security certification and quality control of design work for their element of the project. During Construction, DOMs will assist the Construction Manager with Design Coordination and provide as-needed on-site design support to Resident Engineers. The duties and responsibilities of DOMs include:

- Lead and supervise Designers assigned to the work. Coordinate with the client and other agencies and design teams. Resolve conflicts between work on their elements and work of others.
- Coordinate the reviews of all engineering reports, designs and analyses at various milestones, consolidate all comments and concerns, and respond to the originators.
- Assure that the design is cost effective, consistent with the established design criteria and scope of work, and compatible with existing facilities and utilities. Assure that plans and specifications meet project requirements, are constructible, are checked, back-checked and verified, and crosschecked with designers of adjacent work.
- Develop requirements and plan for operational and integration testing and start-up and commissioning. Ensure that appropriate spare parts, O&M manuals and training are specified such that the client will have the capability to maintain the completed facilities. Assist the Client with maintenance planning.
- Assist Resident Engineers during construction with requests for information, submittals, changes, negotiations, among others. Review and approve all O&M manuals, training, factory, operational, and integration testing, start-up, commissioning, and check record and as-built drawings.
- Provide technical information for public information efforts.
- Responsible to keep the Program Manager Project Development informed of design and other problems, and for performance, quality, staffing and all other matters.

2.3.6 Designer

Designers are responsible for providing design services including the preparation of calculations, plans, specifications and cost estimates; providing construction and client support within his/her technical area; and coordinating and cross-checking the interface of their work with the work of the other designers. This position is responsible for compliance with the design scope, codes, standards, client, safety & security requirements, economics and constructability for their designs. The duties and responsibilities of Designer's include:

- Adhere to the approved design criteria & scope, client, safety & security requirements, codes and standards.
- Provide a cost-effective design to meet the scope of the work. Prepare contract documents, including plans and technical specifications.
- Specify requirements for spare parts and training to enable maintenance personnel to maintain the work they design and operations personnel to fully use all functions, safely and efficiently.
- Develop testing requirements and witness factory and operational tests for the work they design.
- Coordinate with other team members. Ensure that the work they design is compatible with existing facilities and utilities, and with work designed by others. Report to the PE actions and activities which affect other teams.
- Check, back-check and verify work as assigned by their PE.
- Review and promptly comment on contractor's submittals. Review and promptly respond to Requests for Information (RFI's).
- Propose corrections for field problems and/or conflicts.
- Report to the PE for performance, methods, quality and timeliness.
- When assigned by the Design Oversight Manager, act as lead designer, assisting the PE by assuming a portion of the PE's duties for the assignment.

2.3.7 Program Manager Project Delivery

The Program Manager Project Delivery is responsible for overall construction management of the projects, including Project Controls, Quality, integration testing, safety and security certification, start-up, commissioning, and turnover of construction.

During Construction, the Program Manager Project Delivery will be supported by Project Administration & Controls staff, Construction Manager and Resident Engineers (RE) assigned to manage individual contracts.

The Program Manager Project Delivery is accountable for schedule and budget adherence, achievement of scope requirements and assuring the quality of the completed product. Duties and responsibilities of the Program Manager Project Delivery include:

- Effectively oversee all construction from Notice to Proceed through testing, startup, turnover, and the start of revenue operations and lead the Contract Management teams.
- Preparation and adherence to the construction scope, budget and schedule, and recommends all major changes thereto and approves changes within the Program Manager Project Delivery's authority.
- Manage construction outreach to and coordination with clients, consultants and outside agencies. Assures expeditious response to contract concerns that need review, resolution and decisions by SFMTA and others.

- Effectively and promptly disseminate contract management information including reporting of schedule and budget adherence.
- Conduct meetings as required to insure coordination of all contract activities and to keep all parties informed of immediate and upcoming contract activities.
- Assure that all client, City, State and Federal requirements are implemented during construction.
- Work in conjunction with other project team members and keeps them informed of activities and decisions that concern their areas of accountability.
- Manage startup coordination with operations and maintenance.

2.3.8 Construction Manager

During Design, the CM is responsible for Pre-Construction Management, including Construction planning, procedures, scheduling and estimating. The CM will review and provide input to the plans and specifications at various milestones relative to constructability develop contract schedules, sequencing, delivery and staging areas, bid items, and assist in the development of Division 1 and Special Provisions. Effectively oversee all aspects of the contract from Notice to Proceed through testing, training, startup and turnover. The Program Organization charts depict three CMs working in concert with one another. One CM is an SFMTA employee responsible for the administrative functions associated with construction management activities within SFMTA, the second and third CM are a consultants responsible for the day to day construction management activities for the Tunnel and 1300 contracts. The three work together to properly execute CM functions on the program and within the agency.

Construction Manager (CM) is responsible for the overall management of their assigned contract(s) to ensure that the contract is completed in accordance with the contract documents, including containing contract scope, schedule and budget, and Quality Assurance, safety, security, testing, training, safety & security certification, start-up, commissioning, and turnover of the contract work. The CM is supported by Project Administration and Controls staff (Estimators and Schedulers) assigned as needed and Resident Engineers (RE) who do the day-to-day management of field construction. CMs are responsible for supervising and quality control of the work of assigned staff. The duties and responsibilities of CM's include:

- Assure expeditious response to concerns that need review, resolution and decisions by SFMTA and others.
- Clarify and interpret the contract. Provide consistency across all contracts.
- Ensure that reports and other contract documents required to manage the contract are completed, filed and maintained in the proper manner, consistent with all grant requirements.
- Approve contract payment and modification documents.
- Monitor and review contractor's schedule and costs and assist the contractor to resequence or revise work to mitigate delays and damages. Actively pursue the resolution of contractor disputes. Keep the Program Manager Project Delivery informed of contract changes, disputes, problems, delays and overruns.

- Provide Public Outreach with a layperson's version of updated look ahead schedule and support to the public outreach program.
- Lead the Contract Management team.
- Conduct meetings as required to insure coordination of all contract activities and to keep all parties informed of immediate and upcoming contract activities.
- Monitor construction quality control, safety & security, and compliance with certified payroll and other contract requirements. Initiate corrective actions to resolve issues.
- Assure that all training, spare parts and other deliverables are provided to the appropriate parties. Assure that all O&M manuals, as-built drawings, warranties and closeout documents required by the contract are obtained, and accepted by the appropriate parties. Review and resolve warranty issues.
- Arrange for walk-throughs and startup coordination with operations and maintenance. Conduct final inspections and walk-throughs, develop final punchlist and prepare final inspection reports. Conduct contract performance reviews to evaluate contractors' and consultants' performance on the contract.

2.3.9 Resident Engineers

Resident Engineers (RE) are responsible for the day-to-day management of field construction and assure that the contract is completed with safety, quality and minimum disruption to the businesses, pedestrians and traffic, in accordance with the contract documents and as scheduled. The RE shall report to the CM and shall act as the CM in the CM's absence. The RE is assisted on an as-needed basis by Office/Field Engineers, Inspectors, Quality Assurance staff, and surveying, testing, safety, environmental and special inspection services. REs are responsible for supervising and quality of the work of assigned staff, and assuring the quality of contractor activities. The duties and responsibilities of RE's include:

- Prime contact person with the contractor and liaison between the contractor and SFMTA, other City agencies, and the public for coordination of contract work, and investigation, and resolution of complaints.
- The RE is the "Engineer" as used in the contract documents. Manage, answer (whenever possible) and approve responses to Requests for Information (RFI's). Manage, review (whenever possible) and approve submittals.
- Lead and supervise Engineers and Inspectors assigned onsite to manage contract activities, known as the construction team. Assure that all required tests, operations, measurements and inspections are satisfactorily completed and documented.
- Monitor the construction quality control, safety, security, traffic and pedestrian routing & facilities, clean-up, and compliance with contract requirements. Initiate corrective actions to resolve issues.
- Prepare contract payment and modification documents.

- Issue all changes to the contract, determine schedule impacts, and estimate the cost of changed work. Negotiate, recommend and approve contract changes within his/her authority.
- Ensure that reports and other field documents required to manage the contract are completed, filed and maintained in the proper manner.
- Monitor and review contractor's schedule and assist the contractor to resequence or revise work to mitigate delays and damages. Actively pursue the resolution of field disputes. Keep the CM informed of field changes, disputes, problems, delays and overruns.
- Report on performance, quality, staffing and other matters to the CM.
- Investigate and assist Public Outreach with public complaints.

2.3.10 Field/Office Engineers and Inspectors

Office/Field Engineers and Inspectors are responsible for assisting the RE to ensure that contract work is performed and completed in accordance with the contract. Their duties and responsibilities include:

- Inspect the work for compliance with plans, specifications, safety and security requirements and monitoring progress against the schedule.
- Assist the resident engineer in interpreting plans and specifications and resolving disputes over meaning and intent of same.
- Prepare daily and other reports.
- Assist in preparation of progress estimates, contract payment documents and contract modification documents.
- Prepare or assist the RE in checking and/or maintaining as-built and other record documents.
- Conduct and witness tests upon contract material, equipment, installations, etc.
- Prepare and maintain records for Force Account work, quantity, equipment, manpower, and such records.
- Monitor the construction traffic and pedestrian routing & facilities, clean-up, quality control, safety, security, and compliance with contract requirements. Identify issues to the contractor. Request corrective actions and refer unresolved issues to the appropriate authority, i.e. QA Manager, RE, among others.

2.3.11 Staff Mobilization Plan

SFMTA and consultant Project Management staff are located in the project office at 821 Howard Street, San Francisco. Construction Management staff are also located in the project office at 821 Howard Street, to manage Utility Relocation contract 1 and 2. Constrution Management staff for the Tunnel Contract 1252 is located in project offices established by the contractor under the freeway near the Lauch Box on 4th street. Construction Management staff for Contract 1300 is currently mobilizing and located at the 821 project office awaiting establishment of the project field office by the contractor.

Final Design is performed under three consultant contracts; one each for tunneling, the three underground stations, and one for the surface track and station and project-wide systems. The Final Design consultant staff is supplemented by City staff assigned to work under the direction of the consultant. The Program Director works with the consultants to forge a single integrated design team composed of consultant and appropriate City staff managed by the Project Engineer and the Project Management consultant. The design team works side-by-side, co-located, in an office at 651 Brannan, which is near the existing project office at 821 Howard. The 651 office was shut down in June 2012 to coincide with the completion of Final Design. Design team members supporting the procurement and construction process work out of 821, Howard, the project field office of from the Final Design Consultants home office.

The following table, Table 2-2, lists currently identified staff supporting Construction.

Table 2-2: Current Staffing List

Position	Identified Staff Member
Central Subway Program Director	John Funghi
Deputy Program Manager	Albert Hoe
Capital Controls & Project Relations	Drew Howard
Contracts & Quality Oversight	Shahnam Farhangi
Project Services	Eric Stassevitch
Project Development	Jane Wang
Project Delivery	Ross Edwards/Richard Redmond
Quality Assurance	Roger Nguyen / Mark Latch
Configuration & Risk Management	Beverly Ward/Alex Clifford
Project Controls	Vivian Chow
Contract Administrator	Brian Kelleher
Document Control	Susan MacKenzie
Environmental Mitigation Monitoring & Reporting	Lewis Ames
Community Relations/Public Outreach	Betty Chau / Charles Chan
Financial Management	Lewis Ames
Design Oversight Manager Stations	Quon Chin
Design Oversight Manager Systems	Sanford Pong
Tunnels & Utility Relo - Design Project Manager	Matt Fowler
Stations – Design Project Manager	Aileen Read
UMS Station Design – Pkg Mgr	Dan Yavorsky
Chinatown Station Design – Pkg Mgr	Dennis Henmi
Moscone Station Design – Pkg Mgr	Jeff Tusing
Systems, Track & Surface – Design Project Mgr	Chuck Morganson
Regulatory & Interagency Approvals	Alex Clifford
Safety & Security Certification	Wayne Gilles
Partnering, Dispute Resolution & Closeout	PMCM
Construction Management	Rich Redmond/Arthur Wong
CM Support	SFMTA PMCM & DPW
Construction Scheduling & Estimating	PCC
MOS & UMS Utility Relocations - RE	Michael Acosta
Tunnel CM	Mark Benson
Tunnel RE	Sarah Wilson

FDC – Final Design Consultant

PMCM – Project & Construction Management Consultant

PCC – Project Controls Consultant

DPW – San Francisco Department of Public Work

2.4 SUCCESSION PLANNING

The Project Services, Development and Delivery Managers shall understand the knowledge, ability and skills required to perform each assigned task for which they are responsible. Experience has shown that on similar projects staff could turnover as much as once every three years. As a result, the above managers shall work with the appropriate consultant and City managers to maintain a list of possible replacements for key project staff. Additionally, the managers shall keep themselves informed of the availability and plans of assigned staff to identify the need for potential replacements months before they will occur. Once the need for a replacement is identified, the managers will attempt to have a replacement work alongside the staff member who will be leaving to learn to perform the staff member's assigned work.

2.4.1 Training Plan

Project success will be achieved only through talented and highly engaged people who continuously learn and explore new opportunities on the CS Project. The Project is committed to helping prepare staff to excel in their current role and to prepare them for future roles. SFMTA and it s consultant teams have talent management processes and talent development programs for the staff.

Employees and their managers collaborate to set goals and expectations to align them with critical project needs, create development plans, and have meaningful discussions about progress toward those goals. Performance management is comprised of three equally important stages: Planning, Coaching and Assessing.

Training is facilitated by the encouragement and mentoring of staff by Managers and by access to project information by all staff. Key issues are discussed at multiple levels of management on a weekly basis, thus providing exposure and training to all levels of staff. The Project Office culture also encourages communication that can lead to improved skills for staff. This availability and transparency of information and demonstration of management principals is important to keeping an informed staff and facilitaes staff development over the life of the project. Training encompasses not just changed titles but is also exemplified in added skills and responsibilities in on-going positions. Both City and Consultant staffs have seen a continuous expansion of technical and management skills supported by thorough processes and the encouragement of managers.

2.4.2 Grantee Policies

Grantee policies support development of staff through independent Consultants. SFMTA reserves the right to require a Consultant to reassign any individual on the Consultant's team if SFMTA is unsatisfied with that person's performance or that person fails to demonstrate the required qualifications or expertise. SFMTA reserves the right to review and approve replacement team members.

3.0 MANAGEMENT CONTROL

3.1 CONFIGURATION AND CHANGE CONTROL PLAN

This Configuration and Change Control Plan describes how the Project Team will provide overall management control of the Central Subway Project through the following activities:

- Configuration and Change Control
- Quality Management
- Cost Control
- Budget Control
- Schedule Control
- Document Control

These activities are discussed regularly at project meetings during the various phases of the project.

3.1.1 Introduction

The Project Team must have accurate and current information regarding project definition, design criteria, and other standards to produce an integrated and fully functioning system, and ensures that project requirements are clearly defined, documented, and controlled throughout the project. This Configuration and Change Control Plan includes:

a) The establishment of the Project Baseline Documents, those documents critical to the definition of the functional and physical characteristics of the Project, and

b) A systematic review of changes to or deviations from the Project Baseline Documents to assure that the impact of the changes on project performance is identified and thoroughly evaluated prior to incorporation.

Changes to or deviations from the Project Baseline Documents will require detailed analysis of their impact on budgets, schedules, interfaces with other contracts, interdisciplinary work, environmental mitigation commitments and community commitments. The documentation requirements to identify such impacts will include the reason and justification for the change, technical description of the change, supporting analysis and supporting documents.

3.1.2 Organization and Responsibilities

a) **Program Director:** The Program Director is responsible for overall project direction and management from Conceptual Engineering, through Final Design, Construction, Start-Up and Operation phases, and serves as the Chair for the **Central Subway Configuration Management Board (CMB).**

b) **Design Package Managers:** The Design Package Managers are responsible for ensuring that the project's technical aspects are adequately met. The Design

Package Managers work with the task leads to perform interdisciplinary reviews of engineering change proposals. The Design Package Managers are permanent members of the CMB, and will review proposed changes from the perspective of technical adequacy, feasibility, constructability, and cost.

c) **Quality Assurance Manager:** The Quality Assurance Manager is delegated the authority and organizational freedom to identify and evaluate quality problems; to initiate, recommend or provide solutions; and to control further processing, delivery or installation of non-conforming or deficient items. The QA Manager is a permanent member of the CMB.

d) **Discipline/Task Leads.** Discipline or Task Leads are responsible for managing all activities related to their respective technical discipline on the project (e.g., trackwork, structures, etc.), including coordination with Design Package Managers and other Discipline/Task Leads. The Task Leads are responsible for the development of Engineering Change Proposals and providing interdisciplinary reviews of Engineering Change Proposals related to their disciplines or tasks. Discipline/Task Leads are responsible for coordinating and responding to Engineering Change Proposals (ECPs) to identify impacts, resolutions and mitigations.

e) **Configuration Manager:** The Configuration Manager carries out functions and duties related to configuration management. The Configuration Manager's primary role is to manage, document and coordinate the change control process to ensure that the status of the Project Configuration is continually documented and distributed to the Project Team.

f) **Configuration Management Board (CMB).** The CMB is a project-level, decision-making body that reviews and approves or recommends approval to SFMTA Management all change requests to Project Baseline Documents before implementation. The CMB will act on those changes that modify or deviate from the Project Baseline Documents, including reports, design criteria, plans, specifications, budget, project schedule, and interface characteristics with other systems and projects.

   The CMB will have representation from affected areas including, but not limited to: management, contracts, engineering, quality, operations, and safety.

g) **SFMTA Change Control Board (CCB).** The SFMTA CCB is an agency-level change control body that approves changes which impact existing SFMTA operations or facilities. The SFMTA CCB is comprised of representatives from various divisions throughout the SFMTA, including Operations, Maintenance, Safety, Security, and Development.

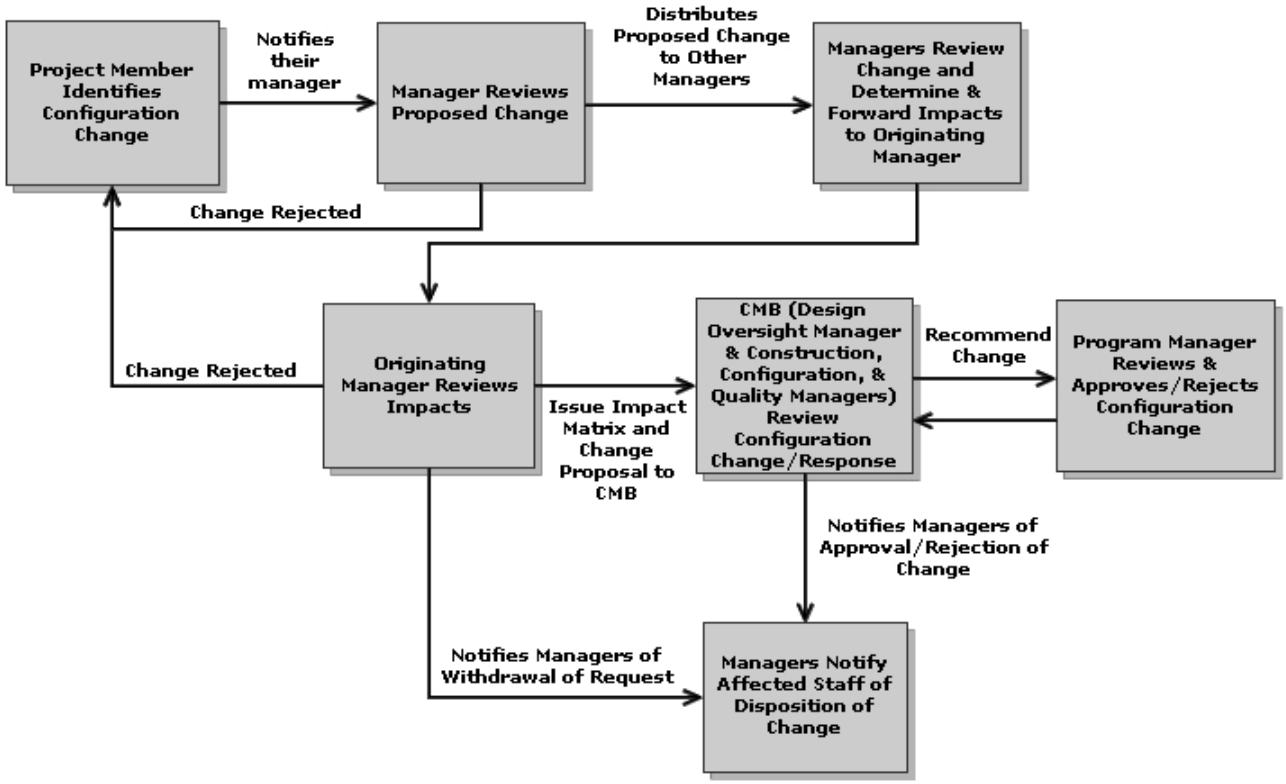

Figure 3-1: Configuration Management Flow Chart

3.1.3 Project Baseline Documents

The Project Baseline Documents serve as the foundation for the project and its activities. For configuration and change control, a baseline document explicitly defines the current configuration, including functional and physical characteristics, of the Central Subway Project. Changes to Project Baseline Documents are approved by the CMB through the life of the Project and may include, but are not limited to, plans, estimates, schedules, Preliminary Engineering Report and contract documents, which are formally accepted and acknowledged as forming the basis for the work.

At stages of design development, as determined by the project design team, the set of plans and documents will be baselined. From that point on, changes made during design and construction that modify or deviate from the Baseline Documents will be subject to the change control process defined in the controlling procedures.

The Project Baseline Documents are identified and updated in Table 3-1, Project Baseline Documents, of this Configuration Management Plan. When additional Project Baseline Documents are identified, modified or revised, the Configuration Manager will update and reissue Table 3-1.

Table 3-1: Project Baseline Documents

Baseline Document	**Purpose of Document**	**Author /Source**	**Date Implemented / Revised**
Project Baseline Documents			
Design Criteria	Outlines standards and guidelines that are the basis for design of the Central Subway.	SFMTA CS	Oct. 26, 2010
Quality Management Plan	A collection of documents that maintain quality control for the design portion of the project.	SFMTA CS	April 13, 2009
Final SEIS/SEIR	Provides environmental and feasibility review for the project.	SFMTA/PB/ Wong	Sept. 2008
Record of Decision (ROD)	Provides federal approval to proceed with the project upon completion of environmental review.	FTA	Nov. 26, 2008
Mitigation Monitoring & Reporting Program	Monitor and control noise and other aspects of construction.	SFMTA	Nov. 26, 2008
CADD Standards	Defines design standards using CADD software.	SFMTA/PB/ Wong	Oct. 7, 2008
Real Estate Acquisition Mgmt Plan	Guides implementation of real estate requirements for the Project	SFMTA CS	Feb. 17, 2011
Risk Management Plan	Defines the CSP's risk management policy and outlines processes for executing a Risk Management Program.	SFMTA CS	July 13, 2009
Hazards Analyses	Identify hazardous materials that could be harmful to workers and public as well as handling and disposing of such materials.	SFMTA/PB/ Wong	April 23, 2009
Threat and Vulnerability Analyses	Defines issues to be considered for security of the project.	SFMTA CS	May 20, 2009
Safety and Security Management Plan	This is the road map to integrate safety and security into the Project, achieve SFMTA's safety and security commitment, and implement all FTA and California Public Utilities Commission (CPUC) requirements.	SFMTA CS	Feb. 24, 2011

Safety and Security Certification Plan	Identify the processes to verify and document that the design, construction, and installation of facilities, systems and equipment are incompliance with safety and security requirements.	SFMTA	Oct. 10, 2008
Master Project Schedule	Provides updated schedule of all project milestones.	SFMTA CS	Jan. 2011
Final Design Phase Baseline Documents			
Preliminary Engineering Report	Documents the work performed during the entire Preliminary Engineering effort.	SFMTA/PB/ Wong	Oct. 2008
Construction Phase Baseline Documents			
Conformed Contract Plans (Drawings)	Provides drawings of all components of the project.	SFMTA CS	July 2010
Conformed Contract Specifications	Provides contractual and project details about the execution of a contract for the project.	SFMTA CS	Jan. 2011
Resident Engineer Manual (Construction Management Procedures Manual)	A collection of documents that maintain quality control for the construction portion of the project.	SFMTA CS	Jan. 14, 2010
Rail Activation and Pre-Revenue Operations Phase Baseline Documents			
Rail Activation Plan (RAP)	See PMP Section 18	SFMTA CS	To be developed
Systems Integration Test Plan (SITP)	See PMP Section 18	SFMTA CS	To be developed
Pre-Revenue Operations and Start-up Plan (PROP)	See PMP Section 18	SFMTA CS	To be developed

3.1.4 Change Control Procedures

The change control procedures developed for the final design phase and the construction phase are contained in the respective procedure manual. The change control procedures along with other procedures describe the process of initiating, reviewing and managing changes to the Project Baseline Documents and subsequent revisions, and also identify the levels of authority for approving the change requests. The CMB, which is part of the change control process, is used to manage proposed changes above established thresholds, including approving, recommending approval or rejecting the change requests.

3.2 QUALITY MANAGEMENT PLAN

3.2.1 Introduction

This section describes the Quality Management Plan and is consistent with the San Francisco Municipal Transportation Agency's (SFMTA) quality policy.

SFMTA has a quality program that provides controls for design, procurement, construction, systems integration and start-up, and allows SFMTA management to be confident that the quality necessary for safe and reliable operation of the completed projects is achieved.

The quality program establishes quality related controls and provides procedures to implement the controls. The controls facilitate early identification of conditions that might adversely affect satisfactory completion of the project, and allows for timely corrective action to minimize repetition of problems.

The following is a summary of the three general areas of control necessary for preserving the integrity of quality-related activities and the required documentation of the results:

- Review of design, contract and procurement documents, and testing and start-up procedures, including that of system integration, to verify that quality aspects have been considered.
- Audits and surveillances of design, manufacturing, installation, construction, system integration, and testing and start-up activities to verify adherence to design, contract and procurement requirements.
- Audits of internal program quality activities to ensure compliance with procedures and documentation of the activities.

3.2.2 Quality Policy

SFMTA's quality policy is as follows:

"SFMTA's ability to provide superior service to its customers and provide the safest and most productive work place for its employees requires that we develop and procure products and service of the highest quality and reliability, and in strict conformance with applicable specifications, procedures, and regulations. It is the responsibility of all employees, suppliers, subcontractors, and consultants supporting the procurement of any Project to comply with the quality program and perform their responsibilities in a manner that will enhance SFMTA's ability to develop this new facility, and to conduct themselves to the highest professional standards."

3.2.3 Quality Objectives

The objectives of the Quality Management Plan are to:

- Implement a comprehensive, integrated quality plan to achieve compliance with contractual requirements and statutory regulations with regard to performance and reliability.

- Implement a quality plan consistent with SFMTA procedures and policies, and meeting the intent of the requirements described in the Federal Transportation Agency Quality Assurance and Quality Control Guidelines.

3.2.4 Definitions

Key definitions for this section of the Project Management Plan are as follows:

Quality Assurance	All planned and systematic actions necessary to provide adequate confidence that an item is conforms with established requirements. The activity of providing the evidence needed to establish confidence that quality functions are being performed adequately. Quality Assurance is a management tool.
Quality Assurance Audit	A systematic independent examination that verifies and evaluates compliance to the operational requirements of a quality program specification or contract requirements of the product or service.
Quality Assurance Engineering	The specific quality function entailing the interpretation of specified system design requirements into a series of planned actions which provide objective evidence of acceptability.
Quality Management Plan	A written description of intended actions to control and ensure quality. The Plan defines applicable quality policy and procedures for the Project.
Quality Assurance Procedure	A procedure describing the method(s) used to meet quality requirements and specifying how functional organizations interrelate to accomplish these requirements.
Quality Assurance Surveillance	Monitoring or observing an item or event to verify it conforms to specified requirements.
Quality Control	Those functions which provide a means to control and measure characteristics as related to established system design requirements. The techniques and activities which sustain the quality of an item to satisfy given needs; also the use of such techniques and activities. Quality control is a production tool.
Quality Management Program	An agency wide program, endorsed by Executive Management, and developed to assure quality in all aspects of its work.
Technical Specialist	Specialist in a particular area of engineering, construction or quality control. Participates in quality audits under the direction of the Quality Assurance Manager.

3.2.5 Scope

The Quality Management Plan applies to all activities relative to the development of the Central Subway Project. SFMTA staff, consultants, contractors, subcontractors and suppliers will conform to this Plan.

3.2.6 Federal Transit Administration (FTA) Quality Assurance and Quality Control Guidelines

FTA-IT-90-5001-02.1, Quality Assurance and Quality Control Guidelines, February 2002, are applicable to FTA grantees that are undertaking design, construction or equipment acquisition programs. FTA requires grantees undertaking major capital programs to prepare a Project Management Plan which includes a Quality Management Plan. The Quality Management Plan addresses the fifteen quality elements identified in the FTA guidelines.

3.2.7 Quality Management Responsibility

The following section identifies the integrated Quality Management team comprised of SFMTA staff and consultant staff, including the SFMTA Quality Assurance Manager, Project Quality Assurance Manager and Construction Quality Control.

3.2.7.1 SFMTA Director of Transportation – Central Subway Project Officer

The SFMTA Project Officer (Project Officer) has overall responsibility for the Quality Management Plan.

3.2.7.2 SFMTA Quality Assurance Manager

The SFMTA Quality Assurance Manager functions independently from the project team and Sections within the SFMTA, and reports directly to the Project Officer for Quality Assurance matters. The SFMTA Quality Assurance Manager is responsible for managing and coordinating the development, implementation and continuous evaluation of the Quality Management Plan.

The SFMTA Quality Assurance Manager is delegated the authority and organizational freedom to identify and evaluate quality problems; to initiate, recommend or provide solutions; and to control further processing, delivery or installation of nonconforming or deficient items. When necessary to stop work, the Quality Assurance Manager will recommend to the Project Officer to have a stop work action issued to the consultant/contractor through the Program Director, Construction Manager or Resident Engineer. An order of stop work issued in this manner can only be removed after the resolution of the quality issue(s) have been obtained and accepted by the Quality Assurance Manager.

The SFMTA Quality Assurance Manager is responsible for evaluating compliance to established quality requirements and reporting results to the Project Officer. The Quality Assurance Manager is responsible for performing process and product audits and surveillances including: program and procedure compliance of design activities, procured items and services, construction program, construction testing, and systems integration testing to ensure compliance with contract documents and/or controlling procedures.

Audit and surveillance reports are provided, on a regular basis, to the Project Officer, other appropriate SFMTA managers, the Program Director, Project Managers, Design Oversight Manager, Construction Manager, Resident Engineers and/or the audited/surveyed organization to inform of the program effectiveness and to identify conditions requiring corrective action. Audit and surveillance reports, including all non-

conformances, are tracked, and their status reported to management to assure that corrective actions are implemented and accepted by the Quality Assurance Manager.

3.2.7.3 Project Quality Assurance Manager

The Project Quality Assurance Manager is assigned the responsibility for implementation and management of Quality Assurance for the project. The Project Quality Assurance Manager reports directly to the SFMTA Quality Assurance Manager.

3.2.7.4 Quality Assurance Support

The Project Quality Assurance Manager is supported by Technical Specialists and Quality Assurance Professionals.

Technical specialists may be utilized under the direction of the Quality Assurance Manager, to independently review/assess technical adequacy and acceptance of specialized products being audited. Technical Specialists can only perform audits after receiving training in the audit process by the Quality Assurance Manager or designated representative.

Quality Assurance Professionals perform audits and surveillances. Quality Assurance Professionals report to the Project Quality Assurance Manager.

3.2.7.5 Consultants and Contractors

Consultants, contractors, and suppliers are responsible for developing, implementing and maintaining quality programs, including first level inspection and testing, that meet the project quality requirements.

Quality control programs are prepared by the designers specifically for design activities, while quality control and assurance programs for each construction or procurement contract are prepared by contractors or suppliers, in accordance with contract provisions.

In the event a primary contractor subcontracts all or any portion of the contracted work, the accountability for the quality program remains with the primary contractor. The primary contractor delegates responsibility for implementation of that part of a quality program that is consistent with the subcontractor's scope of work. The contractor's quality program is subject to acceptance by the Project Quality Assurance Manager before related work is authorized to start.

Similarly, in the event a primary consultant subcontracts all or any portion of the contracted work, the accountability for the quality program remains with the primary consultant. The primary consultant delegates responsibility for implementation of that part of a quality program that is consistent with the subconsultant's scope of work. The consultant's quality program is subject to acceptance by the Project Quality Assurance Manager before related work is authorized to start.

3.2.8 Quality Management Training

The Project Team is trained in quality requirements applicable to their duties and responsibilities. The training is documented and retained as quality records. All

personnel who manage or perform activities affecting quality are qualified on the basis of appropriate education, training and experience. Training will be provided for project personnel as necessary. QA/QC training is performed, and will continue to be so, on a regular basis. Personnel qualification or certification records, where required by contract specifications, are maintained as project quality records. Additionally, the SFMTA Quality Assurance Office has the authority to request the retraining/replacement of staff, including Contractor staff, as necessary to correct Quality problems.

3.2.9 Document Control

Document control procedures have been established to ensure that all Project documents are current and available to the Project Team.

The Quality Assurance Manager conducts audits and surveillances of Document Control activities and project team's compliance to the document control procedures.

3.2.10 Design Control

The design process includes the following activities that ensure the completed design documents comply with the requirements defined in contract documents and/or controlling procedures.

Design control shall be performed as outlined in the "Design Control Procedures."

Design and Construction Documents shall be prepared consistent with the Design Criteria, Baseline Documents and approved revisions. The Design Control Procedures shall provide a method to control the design process regarding the work. Any changes to or deviations from the approved Design Criteria during the design phase or construction phase shall be subject to the change control process (refer to Section 9 of this PMP for design procedure information).

Consultant(s) and their Sub-consultants responsible for design shall comply with documented procedures to ensure that all applicable requirements of the Contract are met. Consultants shall be responsible for monitoring and controlling the quality of work performed by their Sub-consultants.

3.2.11 Design Review

Design reviews are conducted at appropriate stages by a team of design, construction, operations staff, and other pre-determined third party representatives, as applicable, to ensure the design basis is accurately incorporated, applicable lessons learned from other projects are incorporated, to compare design conformance with applicable design criteria and standards and to assure a constructible design. The design review process is accomplished in accordance with established procedures (refer to Section 9 of this PMP for design procedure and review information).

3.2.12 Configuration Management

Configuration management procedures are established to ensure the integrity of all project baseline documents, and to ensure design changes are controlled in accordance to contract documents and/or controlling procedures. The Quality Assurance Manager

conducts audits and surveillances to verify compliance to the configuration management procedures and to ensure documentation of design requirements is maintained through all phases of the project.

3.2.13 Quality of Procurements

The procurement process includes the following activities that ensure procured materials, hardware and services comply with quality requirements defined in contract documents and/or controlling procedures.

3.2.13.1 Request for Proposal

It is the responsibility of the Quality Assurance Manager to review requests for proposals/bids prior to issuance to determine the scope of the quality program to be implemented by the consultant/contractor/subcontractor.

The Quality Assurance Manager develops appropriate quality requirements, based on the importance, criticality and complexity of the procurement, for inclusion in the solicitation package. Contractors are formally notified of quality requirements through contract documents.

Project quality requirements are outlined and discussed by the Quality Assurance Manager at pre-bid conferences, post-bid negotiations and pre-construction meetings.

3.2.13.2 Bid/Proposal Evaluation

Based on the criticality, complexity and importance of the procurement, the Quality Assurance Manager participates in the review of bid proposal/submittals to evaluate the bidders' quality assurance/quality control capabilities. These quality assurance/quality control capabilities include, but are not limited to, quality planning, control of processes, quality coordination, quality control inspection, tests, audit, and analysis activities as applicable to the scope of the contract.

Bidders are required to submit references and past experience to allow for review of their work. Managers can check the references and past performance to ensure the quality of prior work is acceptable.

Contractors/Consultants are required to acknowledge their understanding of and ability to adhere to quality control/quality assurance requirements as a pre-requisite to acceptance of their bids and proposals.

3.2.14 Quality of Construction

The construction process includes the following activities to ensure that completed work complies with quality requirements defined in contract documents and/or controlling procedures.

3.2.14.1 Construction Work Plans

The Resident Engineer ensures that contractor’s construction work plans are submitted, accepted, and control all elements of the work applicable to the represented task before

related work is authorized to start. In conjunction with the construction work plans, the Resident Engineer conducts readiness review meetings and addresses topics such as details of the scope of the task, submittal requirements, testing, inspection requirements, inspection resources and hold points, and other related issues to assure an orderly completion of the work within the requirements of the contract. Assigned Construction Inspector(s) will also participate in the readiness reviews. The Project Quality Assurance Manager participates in these meetings in cases where the issues are critical and/or complex.

3.2.14.2 In-Process Inspection by Resident Engineer

Resident Engineer's Inspection Staff Inspectors are assigned to each construction site to conduct in-process inspections of work activities through all construction phases. Inspections are accomplished in accordance with accepted Construction Management procedures. Inspection activities are documented and retained as project records. Nonconformance's noted during inspections are documented, processed and controlled in a closed loop system as defined in establish procedures. For items of non-conformance, work for that specific item does not proceed until corrective action has been taken and inspection is completed and the item accepted.

The Project Quality Assurance Manager conducts audits and surveillances of the Construction Management (Resident Engineer and Inspectors) and the contractor's implementation of the quality control inspection program through all phases of the project work. The Inspectors will monitor the day-to-day work conformance of the contractor. Inspection activities shall be subject to quality assurance audits and surveillances.

Identified quality issues will be tracked, reported and controlled through resolution by the Resident Engineer. The Resident Engineer shall coordinate the resolution with the Inspectors, Construction Manager, Project Quality Assurance Manager, Quality Assurance Manager and the Project Officer, as applicable.

3.2.14.3 Factory Acceptance Tests

Equipment may be subject to the performance of a factory acceptance test. When required by contract, a factory acceptance test may be performed on articles manufactured or processed to assure by physical inspection/test that the article is fully conforming to the requirements of the procurement and referenced documents. Failure of the manufacturer to produce or process equipment/materials which successfully meet the contract requirements may result in a request for corrective action or the issuance of a stop work notice. Factory acceptance tests shall be recorded and documented as projects records properly transmitted to the Resident Engineer.3

3.2.14.4 Materials Testing

Materials are subject to test in accordance with contract documents and approved test plans. Responsibility for the performance of appropriate and required materials testing rests with the contractor and/or supplier. The Construction Manager will perform and the Quality Assurance Manager may perform, additional materials testing to ensure the effectiveness and validity of the contractor's or supplier's material testing program. Material Tests results shall be recorded and documented as project records maintain by the Resident Engineer.

3.2.14.5 Equipment Acceptance

When procured equipment has been completely assembled and tested, the Resident Engineer may perform inspections and tests prior to final acceptance. Final inspections and tests may be performed at the manufacturer's facilities, SFMTA facilities, or both locations. Identified defects are documented and corrected by the manufacturer. As required by procurement specifications, contractors provide drawings showing the as-built configuration of structures and equipment; operating and maintenance manuals and quality documentation records as defined in the contract documents.

3.2.14.6 Receiving and Storage

The SFMTA ensures, through contract documents, the establishment of procedures for the receipt and storage of spare parts, hardware and materials. Materials received are inspected for identification, damage, required documentation and test reports provided by the manufacturer or supplier. Spare parts, hardware and materials are stored and issued in accordance with controlling procedures.

3.2.14.7 Construction Final Inspections

Final inspection walkthroughs are conducted when construction activities, including required documentation, have been completed. The team will include representatives from the Construction Management team (Construction Manager, Resident Engineer, Inspectors and other field staff), Design Oversight Manager, Quality Assurance, and may include Operations, Maintenance, consultant, contractor or supplier and any other organizational representative having a responsibility for the completion and/or operation of the constructed facilities, systems or equipment. Any identified defects are documented, and the contractor is required to take corrective action. After defects have been corrected and verified, the Program Director may issue a Substantial Completion notice to contractor for the facility and/or equipment. The Construction Management team, verifies that required training, maintenance materials, and spare parts have been satisfactorily provided, checks as-built and record drawings, contractor procured or developed operating and maintenance manuals, construction records, and any other record documents defined in the contract documents. All as-built and record drawings, manuals and training are subject to the approval of the Engineer.

3.2.14.8 Construction, Operational and Integration Testing and Start-Up and Commissioning

Testing is accomplished in progressive levels consisting of contractor construction testing, operational and integration testing, and start-up and commissioning of completed work. Tests are accomplished in accordance with approved test program plans and test procedures for each level. Inspectors are assigned to each level of testing to ensure conformance to functional requirements defined in test program plans, test procedures and other applicable contract documents. Results of inspection are documented and retained as project records. The Engineer and Quality Assurance Manager will participate in the review and acceptance of contractor testing, and start-up and commissioning procedures. Non-conformances noted as a result of inspections are documented, processed and controlled in a closed loop system defined in established procedures. All contractor functional, operational and integration testing, and start-up and commissioning is subject to the approval of the Engineer.

The Quality Assurance Manager or designated representative conducts audits and surveillances of construction and testing activities to ensure compliance to contract documents and/or controlling procedures. The frequency of audits and surveillances are based on the level of activities, criticality, complexity, and quality history of the activity.

3.2.15 Quality Records

Quality records are project documents that relate to the design, procurements, construction, inspections, reviews, tests, Quality audits and surveillance, and all other related project documents. Quality records are collected, stored and preserved in a manner that precludes damage, loss or deterioration in accordance with approved procedures. Quality records are maintained in an organized manner and are readily available to authorized individuals upon request.

3.2.16 Quality Assurance Audits and Surveillances

The Quality Assurance Manager conducts audits and surveillances of design, construction, and other project activities to ensure compliance to contract documents and/or controlling procedures. The controlling procedures include quality control procedures, and others developed by the organizations responsible for the work and approved by SFMTA. The frequency of audits and surveillances are based on the criticality, complexity and quality history of the activity.

Discrepancies with established requirements identified during quality assurance audits and surveillances are documented on the required quality report form, and resolved within the scheduled time frame agreed upon by the Quality Assurance Manager and the audited organizations. The quality report will identify and document the nonconforming work, root cause and appropriate disposition. In response to the quality report, a corrective action will be developed by the project staff responsible for the work, and will be tracked, including reporting to management, by the Design Oversight Manager during the design phase and by the Resident Engineer during the construction phase.

3.3 PROJECT CONTROLS

3.3.1 Scope

Project Controls provides the tools for Project Management to control project schedule, cost and all documentation.

3.3.2 Responsibilities

3.3.2.1 Program Manager Project Services

The Program Manager Project Services has overall responsibility for Project Controls.

3.3.2.2 Project Controls Manager (PCM)

The Project Control Manager's responsibilities are:

- Obtain input from appropriate managers to provide accurate project controls for estimating, monitoring, forecasting, and reporting;

- Analyze Project Controls data to identify project schedule and cost opportunities and concerns;
- Recommend actions to mitigate schedule and cost concerns; and
- Preparing and issuing project reports.

3.3.2.3 Supervisors

Supervisors have the responsibility to:

- Train assigned staff to understand and comply with project procedures; and
- To verify staff compliance with project procedures.

3.3.2.4 Managers

Managers, including Design Oversight Managers, Construction Manages and Resident Engineers, have the responsibility to:

- Review the Schedule and Cost Reports.
- Take actions as necessary to monitor progress of the project and control cost and schedule affected by activities within their area of responsibility.
- Provide input to Project Controls as needed to enable accurate reporting.

3.3.3 Internal Reporting

Internal reports are prepared to provide detailed information and recommendations to assist project management to progress and control the project. Internal Reports include the Schedule and Cost Reports. The required inputs, contents, and schedule are described below.

Section 3.3.3.6 depicts the schedule for submittal of data and preparation of internal reports.

3.3.3.1 Schedule Report

The Schedule Report is intended to track uncompleted project activities to allow effective management of the project. The report should focus on facts, projections and exception reporting, and shall refrain from reporting progress that occurred earlier than the period being reported. The Schedule Report is to be issued by the 15th of the month following the month being reported. The schedule report will be submitted to the FTA.

Information in the Schedule Report should include the following:

- Summary level master project schedule for uncompleted activities.
- Summary level schedule for each contract for uncompleted activities.
- Progress for the month comparing actual to planned progress for each contract and other important activities.

- Critical and near critical path and interface milestone analyses for each contract and important non-contract activities.
- Detailed three month look-ahead schedule for each contract and other project activities, all comparing the PCM's projections to the current plan.
- Concerns based upon the analyses above.

3.3.3.2 Schedule Update

Input data for the report shall include an update of all contract tasks and progress, including updated forecasts of task completion dates, milestones, interface activities, installed quantities, milestones attained and other information necessary to ensure that the submitted progress and logic accurately reflects existing conditions at the end of the month being reported. Schedule update data shall be submitted by the responsible managers to the PCM not later than the 10th of the month following the month being reported.

3.3.3.3 Cost Report

The Cost Report is intended to provide project staff with cost data to allow effective management of the project budget. The report should focus on facts, projections and exception reporting, shall assume that the reader is knowledgeable about project cost components and previous cost reports, and refrain from reporting costs that occurred earlier than the period being reported. Previously reported actual costs shall be summarized, not detailed. The Cost Report is to be issued by the 15th of the month following the month being reported. The Cost report will be submitted to FTA.

Information in the Cost Report should include the following:

- Summary level comparison of projected remaining project expenditures to the planned budget.
- Summary level comparison of projected remaining contract expenditures to the planned budget.
- Expenditures for the month comparing actual to planned expenditure for each contract and other important activities.
- Detailed one year look-ahead of projected expenditures for each contract and other project activities, all comparing the PCM's projections to the current plan.

3.3.3.4 Cost Update

Input data for the cost report shall include cost projections and data for all project / contract tasks. The cost update must include progress payment estimates and other projected expenditures for the month, change orders resolved this month, projected change orders, estimated additional future commitments, and updated forecasts of costs at completion. The cost update data shall be submitted by the responsible managers to the PCM not later than the 10th of the month following the month being reported.

3.3.3.5 Internal Report Preparation Schedule

To assure that internal reports are completed on time, it is imperative that the schedule for submittal schedule, cost and other information be followed. Figure 3-2 below, shows the necessary schedules for all internal reports and their inter-relationships with data updates. The 10th of each month is the cutoff date for data and status information to be incorporated into the previous month's report.

Figure 3-2: Schedule for Internal Report Preparation

Date	Cost Updates & Report	Schedule Updates & Report	Strategy Report
10	**Data Cutoff** Managers submit data to PCM, PCM prepares report	**Data Cutoff** Managers submit data to PCM, PCM prepares report	**Data Cutoff** PCM prepares report
11			
12			
13			
14			
15	PCM issues report →	PCM issues report →	PCM distributes report for comment to Project Services, Development & Execution Managers
16			↓
17			↓
18			↓
19			↓
20			PCM issues report

3.3.4 External Reporting

3.3.4.1 Monthly Report

Monthly reports will at a minimum outline and update information with respect to progress and cost and conform to the format for standard SFMTA Monthly reports. The Monthly Report will be submitted to FTA.

3.3.4.2 Quarterly Report

The Quarterly Report is intended to provide the SFMTA Board, project funding agencies and other interested parties with an overview of project status to allow monitoring progress compared to project objectives and constraints. Information in the Quarterly Report is presented in five main sections:

- Section One, is an Executive Summary that focuses on the condition and anticipated progress of the Project. Project observations and activities are reported in this section. The section will include tables of significant events and funds committed and expended.
- Section Two, provides summary information and a progress narrative by contract.
- Section Three, provides summary schedule information for each contract comparing projected progress with the current schedule and FTA milestones. This section will project schedule trends and schedule contingency drawdown curves.
- Section Four, provides summary cost information for each contract comparing projected expenditures with the current budget. This section will project cost trends and cost contingency drawdown curves.
- Additional sections may be included in the Report, such as photographs of construction or appendices.

Unless otherwise directed, the Quarterly Report is based on data cutoff dates March 30, June 30, September 30 and December 30. The PCM will provide a draft of the Quarterly Report to the Program, Project Services, Project Development, and Project Delivery Managers for comment by the 20th of the month following the quarter to be reported. The report must be issued by the 1st of the second month following the quarter.

A distribution list, as approved by the Program Director, shall be included in the report. The Quarterly Report will be submitted to FTA.

3.4 COST CONTROL

Cost controls are used to analyze, forecast, monitor, and report cost data for the purpose of giving accurate and timely cost information about the project. Actual and forecasted costs are compared to an established baseline or budget showing where deviations have occurred. A cost control system is developed that at all times enables a full understanding of the financial situation of a project by the integration of the schedule, budget, costs and future cost together with other financial commitments. This system consists of the following:

- A detailed Work Breakdown Structure.
- A well defined control base (budget).
- An efficient interactive cost tracking, accounting and reporting system.
- A reporting system that can efficiently produce routine detailed and summary cost reports while flagging deviations from the control base.
- A forecasting mechanism that accurately reflects the current cost outlook.
- Effective change order control and valuation and negotiation system.

Report formats, data selection, and the timing of reports shall support the management reporting requirements. Major categories of cost data include:

- Budget – The current control base as approved by the SFMTA Board of Directors.
- Expenditures – Actual costs expended during the period and also for the project to-date.
- Commitments – The value of contracts and purchase orders awarded to-date.
- Estimated Total Cost – The latest forecast of the total estimated cost.
- Value of change orders negotiated, pending and forecasted.
- Other costs (claims, disputes etc) that will affect the overall cost of the project.

The Project Baseline Cost has been established before starting detailed design and will be adhered to unless specific instructions are given allowing a change to be made.

3.4.1 Organization and Responsibilities

The PCM draws on full-time and part-time project controls resources to develop and maintain the regular project cost reporting deliverables, as well as:

- Develop major or spot estimates throughout the life of the project;
- As requested, participate in the development and negotiation of proposed design or construction changes;
- Evaluate proposed design and construction changes for reasonableness and assess the impacts to the budget in support of the Configuration Management Board;
- Recommend, institute and maintain appropriate software tools for estimating and for cost tracking and reporting;
- Maintain the project cost system -- tracking trends, proactively identifying potential areas of concern, providing timely recommended actions to avoid or mitigate negative budget impacts;
- Evaluate and comment as warranted on cost estimating and reporting requirements in contract specifications;

- Provide comprehensive assessments and recommendations with regard to the drawdown of Cost Contingency at the identified Hold Points;
- Develop and maintain reasonable cash flow projections;
- Evaluate designers' and contractors' invoice/request for payment submittals and cost-to-complete projections.

3.4.2 Cost/Budget Deliverables

The PM/CM Project Controls Group is responsible for providing the following cost/budget deliverables on a regular basis:

3.4.3 Capital Cost Estimate

The Capital Cost Estimate is one of the key baseline documents and presents total cost of the project in a disciplined format, reflecting the entire scope and required services to deliver the project. Figure 3-3, below, is the baseline, as submitted to the FTA.

Third Street LRT Phase 2 Cost	YOE Dollars % of Const.	YOE Dollars Total Cost
Standard Cost Categories		
10 GUIDEWAY & TRACK ELEMENTS (route miles)	32%	328,923
20 STATIONS, STOPS, TERMINALS, INTERMODAL	50%	505,871
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	0%	0
40 SITEWORK & SPECIAL CONDITIONS	6%	56,750
50 SYSTEMS	12%	123,149
Construction Subtotal (10 - 50)	100%	1,014,693
60 ROW, LAND, EXISTING IMPROVEMENTS		35,147
70 VEHICLES		29,085
80 PROFESSIONAL SERVICES		326,903
Subtotal (10 - 80)		1,405,828
90 UNALLOCATED CONTINGENCY (at the pre FD stage level per RA)		172,472
100 FINANCE CHARGES		-
Total Project Cost (10 - 100)		**1,578,300**

Figure 3-3: Capital Cost Estimate

3.4.3.1 Standard Cost Category (SCC)

Initially the detailed "bottoms up" estimate is formatted in accordance with the prescribed FTA Standard Cost Category (SCC) format. This is a format that must be maintained throughout the project. Thus, the elements must be coded accordingly for sorting by SCC. It is expected that such estimates will be performed at intermediate design completion and when the construction packages are essentially complete.

3.4.3.2 Work Package – Work Breakdown Structure (WBS)

The elements of the project and their incremental costs as estimated are then allocated to work packages – consultant agreements, internal agreements with City agencies for services, construction contracts, material/equipment or vehicle purchase orders, etc. The Work Breakdown Structure (WBS), Figure 3-4 is the framework for identifying and organizing these work packages in such a manner that the entire project scope is included, the costs reflected in the corresponding packages can be tracked, and the systematic execution of the work is measurable as it progresses against the schedule. As new work elements are added, revised, transferred to other work packages, or result in a modification of the project scope, all these changes must be formally tracked and documented in accordance with the Configuration Management process. Cost sorting and reporting will be by work package as well as by SCC.

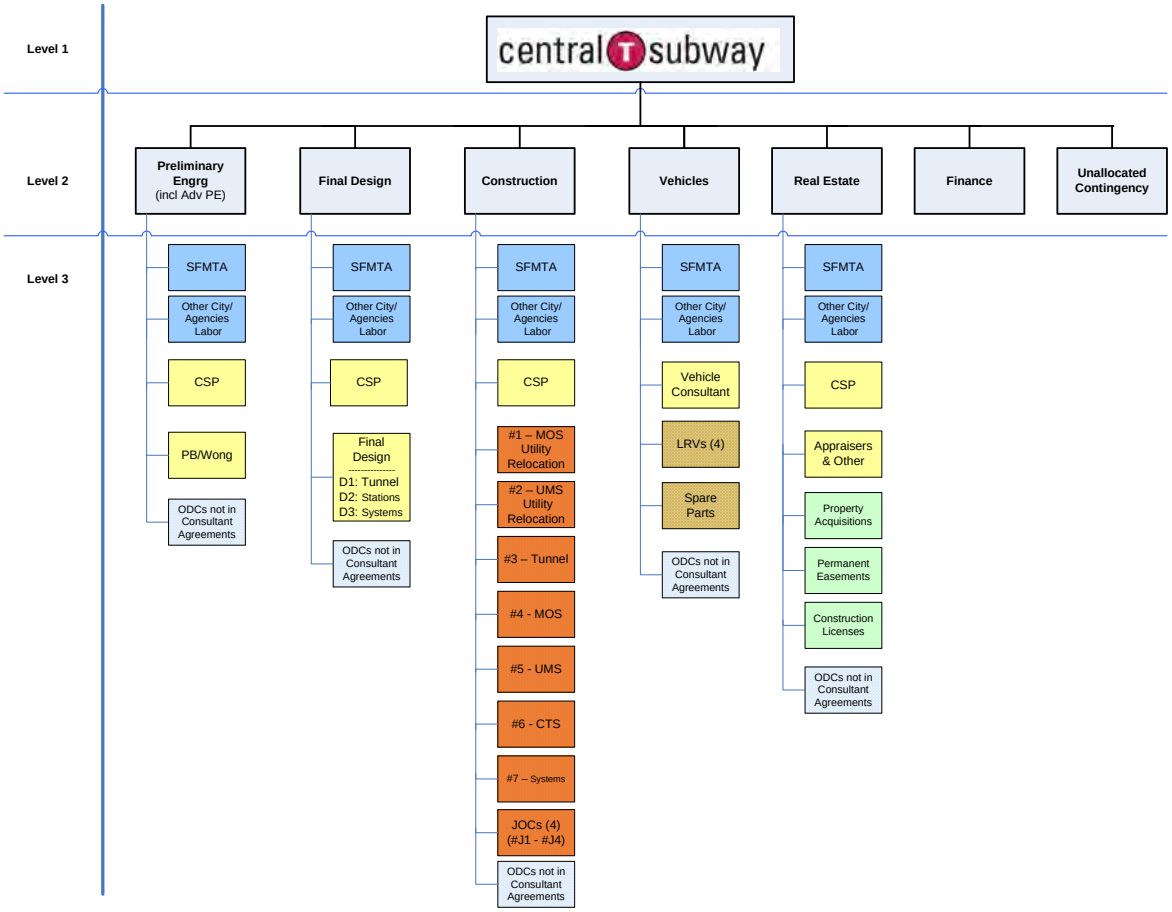

Figure 3-4: Work Breakdown Structure

3.4.3.3 Change Order and Extra Work Check Estimates

As requested, the Project Controls cost estimators will prepare independent cost estimates as a basis for comparison to designers' or contractors' proposed change orders or extra work requests. (A schedule/time impact analysis accompanies each of these estimates as well.) Project Controls will participate in the negotiations if requested.

3.4.4 Cost Tracking and Control System

Project Controls is responsible for the production and issuance of timely and accurate cost reporting with respect to the approved budget.

3.4.4.1 Design Cost

Internal monthly cost reports are generated by Project Control Group to be used by Project Managers to monitor the design cost expended by SFMTA staff, other City personnel and consultants, and to compare these costs against the budget and progress. Additional monthly cost reports are obtained from Department of Public Works (DPW) and consultants.

3.4.4.2 Maintaining Baseline Project Cost

The initial implementation of the cost control system will begin with the approved control estimate. This estimate will be entered into the cost control system as the control budget, until Full Funding Grant Agreement, it will usually be duplicated as the estimated total cost. The initial control budget was based on preliminary design cost estimates and is subject to approved change during the design process. In setting the WBS it is important to remember and use or integrate the FTA work categories. By employing these group work categories (required on FTA funded projects) it will help to cover the project fully and greatly enhance the supportive role the FTA will be performing on the project.

Any subsequent budget updates or changes require SFMTA Board of Directors approval, per the Project Change Request procedure, and FTA oversight review. As the project progresses and more detailed values become known, actual prices, quantity updates, and other relevant data will be input to the cost control system to develop the estimated total cost. The cost control data base will contain detailed information which is available for reporting at various levels within the WBS coding structure. The system will be implemented to provide flexibility for selective reporting, providing the user with the ability to request reports at the desired level of detail.

3.4.4.3 Work Breakdown Structure (WBS)

The organizing structure for the distribution of budget and schedule components is the breakdown of the work. It services project needs by providing a structure that reflects the manner in which the work will be performed, and reflects the way in which control data, both cost and schedule, will be summarized and reported, allowing meaningful schedule analysis, earned value reporting, and cost estimating. The WBS is shown in Figure 3-4.

3.5 BUDGET CONTROL

A detailed budget developed and refined during the Preliminary Engineering phase will serve as control base during Final Design. Project controls will prepare the control base budget estimate for each submittal package.

3.5.1 Invoice Control Procedures

The Invoice control process initially begins with SFMTA's procurement system. An invoice can only be processed once the contract or agreement has been established in

the accounts payable system. Once an agreement has been executed, the procurement system electronically notifies the accounting department that a new agreement, or an amendment, is in place.

All invoice payments related to the Central Subway Project are reviewed and approved by the Program Director. The Program Director is authorized to approve individual invoices up to $25,000. Invoices above this amount require an authorizing signature from the Project Officer.

The accounting department maintains audited detailed procedures for integrated invoice payment and posting processes in conformance with the Interactive Fund Accounting System requirements.

3.5.2 Project Close-out

The close-out process is something that should not be delayed to the end of project completion. Each phase or element of the overall project will be properly closed and reconciled upon completion. The timely closure of contracts, funding agreements, and project elements will allow for more accurate and up-to-date cost control data and ensure that important and useful information is not lost or destroyed.

Project Controls staff, in conjunction with project management, contracts, and accounting staff, are responsible for the closure of contracts and agreements. The following is a checklist of final activities and actions required for closing-out agreements:

- Verify that all work/tasks associated with the agreement has been performed and carried out in accordance with the agreement documents/specifications and design to the satisfaction of the project manager and the quality control manager.
- Resolve any contractual disputes or entitlement claims.
- Process any final changes (amendments) to the agreement.
- Request a financial audit of the agreement if required.
- Process the final invoice and payment. The final payment shall include assessment of liquidated damages or deductions, and release of retention.
- Close agreement and record final cost in the accounting system.

The expedited closure of project agreements will assist controls staff in monitoring the total estimated cost of the project. As various agreements are closed and finalized during the design and construction process, final costs recorded in the accounting system will be uploaded to the cost control data base replacing estimated total cost values and further refining the project's overall cost estimate.

3.5.3 Performance Measurement

A monthly report will be generated describing the status of all contracts and aspects of the project, and activities underway. Cost, schedule, and other project issues; potential problems; and variances will be included as they relate to both individual contracts and the overall project.

3.5.4 Cash Management

Cash flow projections will be prepared using the estimate and schedule to calculate fully the monthly expenditure commitments for the project. These projections will be compared to the anticipated cash available, and any discrepancies will be identified. Thus, cash requirements can be managed to meet available funds and/or additional funds can be located in advance of the cash flow requirements.

3.5.5 Escalation Factor Derivation

Generally, escalation for expenditures beyond the current year will be computed by applying a projection of the appropriate Engineering News Record Construction Cost Index (highway, building, etc.) to the estimated cash flow in current dollars for the San Francisco area. In addition this percentage may be adjusted based upon local future market conditions and material price fluctuations.

Project Controls prepares a cash flow projection and escalate each year's costs by construction type, using the appropriate Construction Cost Index.

3.5.6 Grantee Force Account Plan

Force account (labor) plans will be prepared at the beginning of each project phase and updated annually. The basis for these force account plans will be the project work plans prepared by the Project Manager, Design Oversight Manager, and Construction Manager, similar to work plans developed by other SFMTA managers. The work plans project monthly grantee labor usage and cost. Actual grantee labor usage and costs will be tracked monthly and compared to the planned labor usage and cost shown on the work plans.

3.5.7 Contract Payments

Project Controls evaluates designers' and contractors' cost-to-complete projections, reviews requests for payment/invoice submittals for reasonableness, completeness, accuracy and compliance, then recommend acceptance, rejection or further actions as required in accordance with contract stipulations.

3.6 SCHEDULE CONTROL

Similar to the section 3.4, Cost Control, the project will employ proven practices and apply team experience for project planning, scheduling, monitoring progress and implementing cost and time-effective methods to deliver the project on time as well as within the established budget. As CSP proceeds into the Final Design and Construction Phases, the level of control policies, procedures and management tools evolves as well to meet the requirements for proper project schedule monitoring and progress reporting.

3.6.1 Organization and Responsibilities

The overall responsibility for schedule control rests with the Project Controls Manager (PCM).

The PCM draws on full-time and part-time project controls resources to develop and maintain the regular project schedule deliverables, as well as:

- Develop feasibility schedules for determining reasonable project durations for design, procurement, construction or specialty work scopes;
- As requested, participate in constructability reviews during Final Design and/or when construction alternatives proposed by contractors or other project participants;
- Provide a comprehensive assessment and recommendations with regard to the drawdown of Schedule Contingency at the identified milestones;
- Interact with the other Project Team members to provide schedule insights and options in the development or modification of cash flow analyses, risk assessments, project presentations and reports, etc.;
- Evaluate and comment as warranted on schedule and progress tracking contract specifications;
- Evaluate designers' and contractors' schedule submittals for compliance and feasibility and recommend acceptance, rejection or further actions as required in accordance with contract stipulations;
- Evaluate proposed design and construction changes for reasonableness and assess the overall project impacts;
- As design progresses, changes that are incorporated need to be implemented into the construction schedule.
- As requested, participate in change order negotiations; and
- Proactively participate in the avoidance or mitigation of potential or actual delay claims.

3.6.2 Schedule Deliverables

The Project Controls Group is responsible for providing the following schedule/progress deliverables on a regular basis.

3.6.2.1 Master Project Schedule (MPS)

The Master Project Schedule (MPS) is one of the key baseline documents and presents all the project activities of significance and their interactions throughout the various phases to ultimately complete the entire project scope. See Appendix D which is the current baseline, as approved by the FTA. The MPS is created using a critical path method (CPM) and includes all the activities, their durations, their interdependencies and relationships to other activities or milestones in a logical, reasonable fashion and of adequate detail that Project Controls can monitor progress and identify in a timely manner obstacles to attaining the established Revenue Service Date. The activities include: critical FTA submittals and milestones; design and construction contract selection processes and notices to proceed; real estate/right-of-way acquisitions; environmental and construction permits; impacted transit operation work-arounds (such as the trolley re-routing); design deliverables; key equipment and vehicle procurements; construction operations; certification, startup and commissioning.

With the establishment of a baseline, Project Controls conducts a monthly update – with a data date of the last day of the month – that reflects the progress and any changes

based on a prescribed procedure with inputs provided by designated responsible managers. Once updated, a critical path analysis is performed, the MPS as statused is generated, and a Schedule Report is prepared. The Schedule Report presents a critical path/near critical path evaluation, reconciles all the active project elements with the previous update, identifies any new or changed items, and documents the responses to questions/comments submitted by the FTA's Project Management Oversight Consultant (PMOC) from the previous update. The Schedule Report may also include recommendations or explanations as warranted. In accordance with the procedure, the monthly update – the updated MPS and the accompanying Schedule Report -- is formally transmitted both electronically and by hard copy by the 15th of the ensuing month to the PMOC for review. A Schedule Review is then conducted with the PMOC, Project Controls and other CSP staff to discuss the status of the MSP, subsequent actions and any concerns that may surface between the updates.

The MPS, which is cost-loaded with the current baseline cost estimate figures, is the vehicle for producing an up-to-date CSP cash flow curve. See Appendix D for the MPS. Project Controls conveys this information monthly to the SFMTA finance/grants staff to ensure that adequate project funding is maintained to address the project's needs over the project life and thereby fulfilling the ongoing obligation by SFMTA that, as the grantee, it can meet its capital, operating, and maintenance commitments each year, including providing an allowance for contingencies.

3.6.2.2 Real Estate Acquisition Schedules

Project Controls works with the key Property Acquisition staff to develop and maintain working copies of the individual processes required to acquire or otherwise secure access to these designated parcels/takes along the planned Right-of-Way. These schedules are the bases for developing and executing appropriate strategies with the City Attorney's Office and have been deemed confidential materials. However, the schedule information, because of its importance in the critical nature to the construction contracts, has been summarized and incorporated into the MPS and updated monthly.

3.6.2.3 Final Design Schedules

The CSP Final Design has been split into three separate packages – Tunnel, Stations and Systems/Integration. These detailed schedules must be developed in such a manner that the design consultants can adequately deal with the project risks and achieve the key milestones in accordance with the current baseline MPS. Project Controls staff will evaluate, comment and work with the individual design consultants and appropriate staff to ensure that these objectives are attainable. Once the design schedules are finalized to the satisfaction of the responsible managers, they will be approved as the baseline for the Final Designers and Project Controls will incorporate these elements into the MPS as appropriate.

Project Controls will then monitor Final Design Consultants' progress by reviewing their monthly progress/schedule/staffing submittals and assessing the performance against the approved baseline. If the designers fall behind the baseline critical path, recovery plans must be submitted in accordance with the work specifications in their contracts. Similarly, design changes or proposed changes will be presented as they potentially impact the baseline schedules and/or the MPS and will be analyzed by Project Controls prior to any approval or incorporation.

3.6.2.4 Construction Schedules

The successful bidders for the construction contracts will have several schedule submittals, first to establish their performance baseline and then to comply with the regular progress reporting in the contract work specifications. Project Controls will be an integral part of the review and approval/acceptance process for the following:

- A detailed CPM Schedule (in Primavera format) – the baseline and all subsequent monthly updates
- A bar chart schedule graphic
- Monthly narrative reports – documenting and reconciling all schedule changes from the previous submittal, resource or other delays impacting performance to affected activities, proposed changes or potential claims, other pertinent information (particularly as construction activities may impact traffic or nearby projects or events)
- A 3-Week Look Ahead Schedule (bar chart)
- Time Impact Evaluations and supplemental schedules -- To substantiate any proposed changes
- As-Built Schedule – as part of the contract closeout process

Project Controls will participate in the regular field meetings and address planned and actual progress and voice any concerns that could result in delays or other impacts to the scheduled work.

3.7 DOCUMENT CONTROL

3.7.1 Introduction

This Section addresses Document Control. Document control will ensure that:

- All relevant documents are current and available to all users that require them
- All documents are reviewed by the appropriate authorized personnel
- Documents are managed, retained, controlled, and distributed in a proper and consistent manner
- The integrity, quality, and status of the project design and baseline documents are maintained throughout the various project phases
- Project team members' responsibilities related to configuration and document control activities are defined and executed in a consistent and coordinated manner
- Documents relating to the project will be distributed to all relevant parties in a timely efficient manor, together with a realistic set time period for responding.

The requirements for the Document Control Plan apply to the preparation, review, approval, release, reproduction, distribution, revision, maintenance, retention and disposition of all project-related documents for the Central Subway Project.

Document Control and Configuration and Change Control form an integral framework for addressing the requirements of controlling the baseline documents, the change control process, and baseline revisions thereafter.

This Document Control Plan may be updated as the project proceeds through final design, construction, testing and startup. All Central Subway Project team members are required to comply with the requirements of this Document Control Plan.

3.7.2 Organization and Responsibilities

3.7.2.1 Program Manager Project Services

The Program Manager Project Services has overall responsibility for Document Control. The responsibility of various team members as related to document control is defined below.

- Document Control Manager: The Document Control Manager is assigned the tasks of receipt, distribution, storage and retrieval of specific Central Subway Project documents. The Document Control Manager will process, control, and coordinate the creation or revision of the controlled documents, including tracking, revision status, maintenance, and distribution of information relating to these documents. The Document Control Manager will perform duties in accordance with this Document Control Plan and Document Control Procedures. The Document Control Manager will report to the Project Controls Manager.
- Project Team Members: The Project Team Members are responsible for performing work based on the latest approved set of Project Baseline Documents. If revisions to the Project Baseline Documents are required, the Project Team shall recommend and administer such revisions in accordance with the Configuration and Change Control and the Document Control Plans and Procedures. The Project Team will perform its duties based on the latest approved revisions of the Project Baseline Documents. The Project Team Members are responsible for ensuring that documents are filed in accordance with the Document Control Procedures.
- Information Technology. Information Technology is responsible for maintenance of a system for retaining and retrieving electronic copies of project documents and for backup copies of electronic files in emergency situations.

3.7.3 Project Baseline Documents

Project Baseline Documents are those documents identified as critical to the definition of the functional and physical characteristics of the Project. These documents are listed in Table 3-1. Additional Project Baseline Documents may be identified through the Final Design phase by the Configuration Management Board (CMB). Project Baseline Documents will also be identified and controlled through the subsequent phases of the

Project. These drawings and documents used for the baseline estimate and schedule shall be kept to allow for referencing and for comparison as the design develops.

3.7.4 Controlled Documents

All Project Baseline Documents shall be Controlled Documents and are subject to change control under the Configuration and Change Control Plan. .

A Controlled Document Distribution List maintained by the Document Control Manager and approved by the Project Manager will ensure that authorized Document Holders will always have the latest version of a document. Each Document Holder will be requested to sign an acknowledgement of receipt of the latest version of the document and to replace the previous version with the updated version.

3.7.5 Document Control System

The Document Control System provides the framework for development of procedures for review and approval of documents by authorized personnel, the distribution and storage of these documents, the elimination of obsolete documents to prevent inadvertent use, and the control of changes to the documents. The Document Control System consists of the following elements:

- Processing incoming and outgoing documents
- Format and content of outgoing documents
- Processing and control of electronic files
- Processing and control of e-mail correspondence
- Confidential Files
- Correspondence Logs
- Project Filing System
- Controlled Document Management
- Action Items and Status Reports
- Document Revision Control
- Document Distribution
- Controlled Document Distribution List
- Document Control Database
- Document Control Center
- Disaster File

Document Control Procedures shall be developed at each phase of the project by SFMTA, Consultants and Contractors to address the Document Control System requirements identified in this plan. All consultant and contractor document control procedures shall be subject to the approval of SFMTA before related work is authorized to start.

3.7.6 Document Processing

Document Control Procedures are developed to control the processing of all documents and correspondence, including incoming and outgoing documents, electronic files and correspondence. These procedures will describe the following:

- All reviews necessary for various documents prior to the release of such documents.
- Receipt of transmitted project documents.
- Disposition of project documents, including necessary actions, responsibility, and status of the document.
- Maintenance of correspondence logs, action items and status reports.
- Reproduction and distribution to project team members.
- Filing of all project documents in both chronology and subject files.
- Maintenance, processing and distribution of confidential files.

3.7.7 Project Filing System

A location at the Project Office is designated for the organization, storage and retrieval of project documents. Storage locations and project file folders will be clearly labeled to identify the contract number and phase such as preliminary engineering, final design, bid, conformed, or as-built. Specific instructions for organization, storage, and retrieval of project documents, including security checkout procedures, are described in the document control procedures.

3.7.7.1 File Coding System

The Document Control Manager is responsible for assigning file codes to all documents received for processing, maintaining the Central Subway Project File Index, revising and update Project File Index, and distributing the updated index to project team members as required.

Documents will be filed chronologically as the Document Control Manager receives them, and will also be filed in accordance subject file per the project file index established for this project.

As the Project progresses from the Final Design Phase to construction, start up, and operation phases, additions or changes to the file code and index will be implemented as necessary. Project Team members may request a change to the File Code and Index List by sending a request to the Document Control Manager. If it is determined a new file code is needed, the Document Control Manager will assign the applicable file code.

3.7.7.2 Obsolete Documents

Obsolete documents that exist in hard copy are required to be promptly eliminated from each work location and archived. Any hard copy superseded documents retained for the record at work locations must be clearly identified as, ”superseded.”

3.7.7.3 Controlled Document Management

Project Baseline Documents must be controlled, revised and released in accordance with the Configuration and Change Control Procedures. The initial set of Project Baseline Documents is to be approved and released by the Configuration Management Board and released as Revision 0.

Changes to documents will be reviewed and approved by the same authorized personnel who reviewed and approved the original documents. Changes to documents shall be promptly distributed to work locations and a master list of documents shall be made available that enumerates the current revision levels of each document. A project reference system shall be developed and used for all revised or changed documents; each document or drawing will be clearly marked and dated with the issuing dated, together with the authorization.

The Document Control Manager's responsibilities include:

- Ensure that baseline documents are modified and released only when authorized by the Configuration Management Board (CMB) and the Project Director.
- Release baseline documents/electronic files for revision only to authorized personnel.
- Review the initial baseline issue and revised/marked-up documents to ensure proper approvals. All revisions must be approved by the CMB and the Project Director prior to reproduction and distribution.
- Distribute revised baseline documents by controlled copy as approved by the Project Director and in accordance with the document distribution procedure.
- Maintain a log to record the current and historical revisions of all baseline documents and determine which documents have been released for revision and to whom.

3.7.8 Document Distribution

All documents shall be routed through Document Control for distribution. The Document Control Manager will make distribution of documents through electronic and/or hard copy media. The Document Control Manager will also maintain hard copies of documentation in the Central Subway Document Control Center. To ensure the integrity of the documents, access to both hard copy and electronic files will be controlled.

All baseline documents are posted to the project EDMS as a controlled copy to ensure that all document holders have the current revision of the document. Only a select number of controlled sets will be issued and maintained in the Document Control Center.

3.7.8.1 Document Control Database

The Document Control Manager will maintain records electronically in a document control database accessible at the Project Office. Only the Document Control Manager and SFMTA Project Manager will be authorized to enter or revise the database.

Database logs will keep track of the status of project documents and the review activities for project deliverables. Fields for these logs will be clearly defined in the document control procedures.

Database logs will have electronic files of project documentation attached to them. The document control procedures will specify the documents that will require scanning, the location and organization for these electronic files, and their naming convention.

The Document Control Database will be maintained on a server equipped with automatic daily backup. In case of a disaster which damages or destroys the master database or if the master database is corrupted, the backup copy will be retrieved by the IT Department.

Periodically, the Document Control Manager will verify the accuracy of the data in the document control database by comparing the original documents to the applicable data included in the database. Any problems detected will be corrected.

3.7.8.2 Document Control Center

All project and contract documents, including, but not limited to, plans, specifications, conformed documents, correspondence, invoice payments, reports, inspections, investigations, schedules, cost estimates, meeting minutes, legal agreements, cost reports, and financial records will be maintained in a central file, within the Document Control Center.

The Document Control Center will also maintain copies of technical documents, standards, industry codes, studies and other general information related to project design, development, construction and implementation.

Project team members may remove a document from the Document Control Center for copying, review, or other uses. Only Project team members are allowed access to the Document Control Center without approval from the SFMTA Project Manager. Documents may only be removed from the Document Control Center area through permission of the Document Control Manager. Documents will need to be signed out with a date signed out and due back. For protection, the drawing and document control files are locked when not in use.

The Document Control Manager will:

- Maintain and update Document Control Center copies of all design review, solicitation, conformed documents, change orders, project record documents, baseline controlled documents and other documents to support project participants.
- Develop and maintain a Document Control Center Log that lists the documents maintained in the Document Control Center.
- Issue a controlled copy of all baseline documents and as-built to the Document Control Center.

Specific instructions for storage of documents in the Document Control Center will be provided in the document control procedures.

3.7.8.3 Offsite File Storage

The Document Control Manager will work with the Project Manager to identify an offsite location to serve as a repository for one copy of all Project Baseline Documents in a catastrophic event. Steps to follow in the submission of these documents to the offsite file storage area will be specified in the document control procedures.

The backup copies of electronic files maintained by SFMTA Information Technology will serve as backup files for project electronic records. The electronic files will be backed up on tape on a daily and monthly basis. The backup tapes will be stored at a separate location from the File Server location. These activities will be performed per SFMTA Information Technology procedures. A member of the SFMTA Information Technology department is identified to be responsible for the Central Subway files and the work of that individual is verified by that person's supervisor.

The Document Control Manager is responsible for:

- Arranging transportation of the records to the offsite location
- Organizing the offsite files
- Tracking records location
- Records retrieval

3.7.8.4 Confidential Documents

Confidential documents shall be designated by the Project Director. Confidential Documents shall be stored in a specific location designated for confidential documents, with limited and controlled access as defined by the Project Director. The Document Control Manager shall identify, distribute and store confidential documents in accordance with the Document Control Procedures and as approved by the Project Director.

3.8 REFERENCES

- FTA-IT-90-5001-02.1, Quality Assurance and Quality Control Guidelines, February 2002
- FTA's Project and Construction Management Guidelines, 2003

4.0 LABOR RELATIONS AND POLICY

4.1 STATUTORY AND REGULATORY REQUIREMENTS

In implementing the Central Subway Project, SFMTA is following all applicable Federal and State regulations and internal procedures relating to human resources and labor relations. The areas covered in the policy manual directly related to the Project and as discussed in this section, are:

- Recruitment and staffing;
- Salary Administration;
- Training; and
- Civil Rights Compliance.

Recruitment, staffing, salary administration, and Civil Rights compliance are under the Administration Division. Training is provided by several divisions, depending on the subject.

4.1.1 Federal Requirements

By use of Federal funds on the Central Subway Project, SFMTA must conform to certain Federal requirements in the personnel/labor area, plus meet other Federal regulations that apply regardless of funding sources. Those cited here cover most of the applicable requirements. All required civil rights program submissions must be approved by the FTA and periodically updated in accordance with program guidelines.

4.1.2 Nondiscrimination

SFMTA places all Civil Rights compliance under the Labor Relations and Civil Rights Division. This includes compliance with Title VI and Title VII of the Civil Rights Act of 1964 as amended as well as the Americans with Disabilities Act, the Age Discrimination in Employment Act and related federal and state laws prohibiting discrimination. .

The Labor Relations and Civil Rights Division will also review hiring and pay practices to ensure non-discrimination in these areas.

4.2 STAFFING

4.2.1 Internal Staffing

In order to support the Project, the Employment Section of Human Resources is prepared to hire staff to support project management, subject to budget department review, approval and compliance with internal hiring practices. All positions will be advertised both internally and externally.

4.2.2 External Staffing

On an as needed basis, consultants may be retained to provide technical and/or management assistance under well-defined contractual agreements.

4.3 SALARY AND EMPLOYEE CLASSIFICATION ADMINISTRATION

Salary administration and the management of employee classifications are conducted in accordance with SFMTA's internal procedures relating to human resources and labor relations. Regular salary surveys for the local area are used in the administration of salaries. SFMTA encourages high performance through the appropriate use of performance bonuses built into its labor contracts.

4.3.1 Unions

Most SFMTA employees are represented by a union or other employee bargaining unit recognized by CCSF for labor relations matters. SFMTA employees are not allowed to strike and mandatory arbitration is provided to resolve disputes.

4.3.2 Wage and Hour Requirements

Wage and hour requirements are subject to negotiation by the Employee Relations Department of the Human Resources Division, and documented in various letters and memoranda of understanding (agreements) with the respective labor organizations. Wage rates for several labor bargaining units may be adjusted annually following a salary survey of similar types of positions in the regional area. The Department of Human Resources annually issues a compensation manual for all CCSF employees. The compensation manual can be viewed online through:

http://www.sfgov.org/site/uploadedfiles/sfdhr/employee_services/CompManual.pdf

4.3.3 Staff Training

SFMTA staff is principally involved in managing the Project. The staff needs wide-ranging educational backgrounds with significant work experience related to the needs of the Project. In order to maintain and enhance the background of its staff, SFMTA will provide training programs as necessary.

4.3.4 Project Management – Technical

SFMTA will take advantage of numerous courses offered by various companies and agencies. Staff are encouraged to attend these courses covering such topics as project management, computer scheduling, database management, environmental law, quality assurance auditing, and other specialized courses or seminars relating to their project responsibilities.

4.3.5 General Skills

SFMTA currently offers and will continue to offer matrix management courses in general areas such as effective writing, word processing skills, and time management.

4.3.6 Health, Safety, and Environmental Compliance Training

Training shall consist of general and site-specific training. Prior to onsite activities, Transportation Systems Development staff shall attend the general health, safety and environmental compliance training provided under the Injury and Illness Prevention Program. Additionally, all onsite personnel shall receive site-specific hazard awareness

training and be familiarized with the current Health and Safety Plan. Training for Project Management staff shall be included as part of the overall training. All onsite personnel shall be required to attend the contractor's "tailgate" safety meetings which shall be held at least every 10 days or more frequently as detailed in the Health and Safety Plan. Records of attendance shall be maintained by the contractor and transferred to the Central Subway Project Manager at the conclusion of the Project.

4.4 EQUAL EMPLOYMENT OPPORTUNITIES (EEO)

SFMTA shall fully commit to an affirmative action plan for the Project. All employment practices shall be in accordance with the applicable California Equal Opportunity laws and regulations. SFMTA's Executive Director, Labor Relations, DBE and EEOC will participate in internal hiring activities and monitor enforcement of these regulations.

Every effort shall be made to recruit applicants from underutilized groups to fill any position. However, there is no quota system, and a needed position will not be held vacant if a reasonable recruiting effort fails to identify a fully qualified candidate from such groups.

4.5 CONSTRUCTION WORK

Construction will be conducted by SFMTA contractors selected in accordance with SFMTA procurement policies.

4.5.1 Davis-Bacon Wages

Where applicable, contractors will be required by their construction contracts to pay Davis-Bacon wages.

4.5.2 Project Labor Agreements

At this time, no Project Labor Agreements exist. Prior to the start of station construction, SFMTA will make a determination regarding the use of Project Labor Agreements for construction.

4.6 REFERENCES

- Civil Rights Act
- Americans with Disabilities Act
- Age Discrimination in Employment Act
- Memoranda of Understanding
- Health and Safety Plan
- Project Labor Agreements

5.0 RISK MANAGEMENT

5.1 PURPOSE AND SCOPE

The purpose of project risk management is to improve the chances for project success by early identification of risks to cost, schedule, and all other objectives that define a successful project. Risk management fosters proactive management and identification of opportunities for improvement.

The Risk Management Plan is considered part of this PMP and is maintained as a separate subplan to better facilitate updates and reviews as required.

The risk management process consists of:

1. Risk Identification
2. Risk Assessment
3. Risk Evaluation
4. Risk Allocation Strategies
5. Risk Management

The risk management process, in parallel with other cost and schedule control processes, is applied to the identified uncertainties (risk) developing strategies to mitigate risks, thereby reducing uncertainty and contingencies, resulting in an optimal range of probable costs and schedule for delivering the project. The process is outlined in Figure 5-1 below.

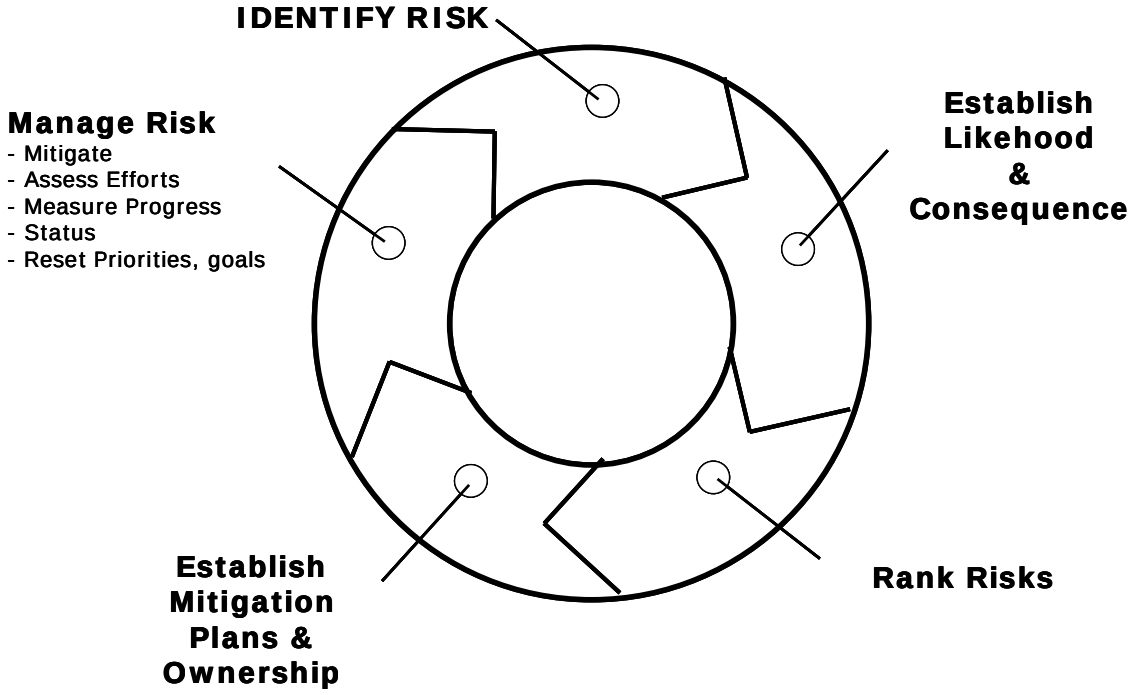

Figure 5-1: Risk Management Process

5.2 RISK IDENTIFICATION

Design, construction, cost and finance risks could influence the final capital cost estimate and financial results of the Project. Risks to be considered in the Risk Identification phase can be broken down into several main categories:

5.2.1 Design Risks

Risks during design on the Central Subway Project may be related to the following:

- Scope of work
- Schedule
- Design standards
- Design complexity
- Construction plans
- Environmental mitigation
- Quality and performance
- Regulatory requirements
- Cost estimating errors
- External relations
- Constructability
- Design criteria
- Data reliability
- Design completeness
- Engineering competence
- Site conditions
- Construction methods
- Safety program
- Real estate acquisitions
- Labor and Material Shortages

Design and construction activities on the Project critical path are subjected to special risk assessment, since any delays in completion of critical activities will impact Project milestone and completion dates. These risks have added potential costs associated with their occurrence.

5.2.2 Construction Risks

Potential risks related to the construction phase of the Central Subway Project might include the following:

- Unforeseen site conditions
- Accidents
- Unidentified utilities
- Endangered species on site
- Lack of materials or equipment
- Subcontract problems
- Weather, floods and fires
- Labor strike
- Contract disputes
- Hazardous materials on site
- Interferences
- Other utility-related delays
- Archaeological delays
- Third party litigation
- Design scope changes
- Permitting delays
- Delays related to real estate or right-of-way acquisitions
- Community and business needs

Many of these potential construction risks can be avoided or reduced through effective planning and other pre-construction measures. Of particular concern are tasks and activities on the Project critical path, which can delay the entire Project if they are at risk.

5.2.3 Cost Risks

Both capital and operating costs are subject to inflation uncertainty related to the global markets for raw materials such as concrete and steel, energy, and labor. For example, the recent volatility of fuel prices could affect the magnitude of operating expenditures for

providing existing and programmed transit services. This could greatly impact rubber-tired or diesel-fueled operations as well as electrical surcharges for operations.

Changes in Project scope, bid quantities or unexpected utility relocation are very likely to occur. The Project cost estimate therefore includes cost contingencies. If the Project budget exceeds this built-in contingency, the SFMTA will have to obtain additional funds.

Market conditions can also greatly affect the cost of a project even when careful planning has taken place. An example of this is when local construction activity is high and contractors can be selective and obtain high than normal profit margins. Most work then is negotiated and the projects that are bid receive lower coverage and consequently, less completion bids and higher prices.

5.2.4 Finance Risks

The Central Subway Project must maintain a federal New Starts Cost Effectiveness Rating of “Medium” to receive a Full Funding Grant Agreement (FFGA). The Project’s capital funding is dependent upon FTA New Starts Funds. SFMTA is preparing a Plan to resolve issues that the Federal Transit Administration has indicated need to be addressed to maintain a rating of “Medium”. After SFMTA receives FTA New Starts funding commitment, there could be a risk that the committed New Starts funds will not be appropriated in accordance with the funding schedule in the FFGA.

Additional finance risk lies mostly in variations in interest rates that could affect the total capital cost estimate. Both long term and short-term borrowing are dependent on this variable.

5.3 RISK ASSESSMENT

The general outline of the risk assessment procedure is to brainstorm risks, define the risk as specifically as possible, translate the risk into actionable risk statements and evaluate the risk in qualitative terms. Procedures for risk assessment are outlined in the Central Subway Risk Management Plan.

Workshop risk identification sessions will be held with the various project disciplines. Individual discipline leads and their teams will "walk the project" identifying risks that could have an impact on the project and opportunities that will result in cost and schedule reductions. In these sessions a risk assessment form will be generated for each identified risk and it will be assigned reference numbers that link the risk to a specific location on the project, a cost category, subcategory, and schedule activity.

Risks are captured in a Risk Register recording the risk, its cost impact, schedule activity impact, an unmitigated qualitative assessment, mitigation measures, a re-assessment on the mitigated risk, and status. The individual or organization responsible for managing each risk will be identified, and recorded. This will be the party best placed to manage the risk, or the party with the greatest incentive to manage it. The main consideration for SFMTA and the project team in making these decisions will be what ownership and responsibility produces the best outcome for the project in terms of cost and schedule certainty.

The risk workshops will achieve several objectives: a high degree of understanding of the project issues among all parties concerned (SFMTA, Stakeholders, Consultant Team,), narrowing the choices available for SFMTA decision, and identification of actions for timely completion of the final design.

5.4 RISK ANALYSIS

To perform Risk Analysis, numerical ranges for probability and severity replace qualitative descriptions. Probabilistic ranges will depend on the quality of the information supporting the assessment including the experience of the experts, any relevant historical data and the confidence of the project team in the assessment. Ranges for the severity are project dependent and the thresholds for what is considered low, medium or high will be decided by the project team based on the estimated cost of the project (or element of the project) without contingency and any relevant budgetary constraints.

The analysis will also give the applicable ranges of probability and cost for each activity which can serve to inform the SFMTA and the Project Team about which risk areas have the greatest potential impact to ability to complete the project within budget and on schedule. This list will highlight areas in which the project team, through risk mitigation activities, can obtain the greatest returns in terms of maximizing project success. As risks are mitigated, probabilities and impacts of the managed activities and the risk analyses are rerun to see how mitigation efforts affect the overall risk exposure for the project.

Detailed procedures for risk analysis are outlined in the Central Subway Risk Management Plan.

5.5 RISK MANAGEMENT

The project team has produced a detailed Risk Management Plan. An ongoing risk management process provides SFMTA with information, assessments and strategies to efficiently and effectively manage and mitigate risk on the project. The objective of the Risk Management Plan is to instill a 'total risk management mindset' in all members of the project team, so that result can reflect the confidence of an on-time, on-budget delivery.

Regular monitoring of the status of the risks, opportunities and effectiveness of the action plan are embedded in the project's culture and procedures to ensure that actions are being implemented and are effective. This will be linked to the release of float and contingency through the project control, change control and cost management systems.

5.5.1 Risk Allocation

The Risk Management Plan includes the project's consensus regarding the allocation of each risk. Risk allocation options include avoidance, acceptance, mitigation, transfer, sharing of risks, and purchasing insurance to cover the expected impacts of a given risk. In general, risk transfer or sharing should be accomplished by assigning responsibility for the risk to the party that has the most capacity to manage that risk.

SFMTA uses contract documents to address major risk allocation and mitigation issues, including the following:

- Quantify insurable risks and make recommendations for appropriate insurance programs to be incorporated into contracts. Depending upon the most cost-effective approach, SFMTA, a contractor, or both may provide insurance coverage.
- Transferring design-related risks to design firms, which are required by contract to purchase project-specific professional liability insurance. The Design Consultant procures a project professional liability program to cover professionals working on the Project.
- Managing construction-related risks through several mechanisms, including contract requirements, insurance, on-site monitoring, and implementation of a comprehensive construction safety program. Contract documents are used by SFMTA to transfer responsibility to contractors for providing a safe work site for employees, the public and other contractors.

5.5.2 Risk Avoidance

In instances where a risk impact is significant and the Project believes it has no effective option to treat the risk, it may decide to avoid it by selecting another design, method, or process.

5.5.3 Risk Acceptance

SFMTA accepts risks associated with general economic, political, social, and legislative issues, including changes in laws and regulations, inflation, and relations with local stakeholders. Certain risks may be less expensively covered via self-insurance rather than requiring contractors to carry insurance, especially where policies and coverage can be closely monitored and changed as a project nears completion and risk levels are reduced. SFMTA will consider an Owner Controlled Insurance Program.

5.5.4 Risk Mitigation

SFMTA has taken appropriate steps to reduce or eliminate as many risks as possible during the final design and pre-construction stage on the Central Subway Project.

Many design and construction risks can generally be reduced or eliminated by completing the design prior to start of construction. Site and environmental risks are reduced through site assessments, advance investigations of underground conditions, and follow-up on environmental issues identified. Risks associated with real estate acquisition, site access, interferences and logistics are reduced with good planning, coordination and application of lessons learned in the transit industry. Risks associated with quality, safety and security will be reduced through the implementation of formal systems and procedures to ensure appropriate protection and quality on the Project, by all organizations involved. SFMTA maintains an aggressive outreach program to reduce the risks of conflicts with local stakeholders, including neighborhood groups and other City agencies.

5.5.5 Risk Transfer

Risk transfer is generally accomplished by allocating risks contractually to either:

- Contractor, designer, material supplier, subcontractor, or
- Insurance or bonding companies.

Equitable allocation of project risks is an important component in reducing cost and schedule overruns. Unfair allocation of risks to a contractor, however, may increase the bid price or reduce the number of potential bidders on a project. It may also result in an increase in the number of disputes and claims, both of which can lead to litigation and delays on a project.

5.5.6 Risk Sharing

Certain risks may be better managed through a "risk sharing" process, whereby SFMTA and a contractor both assume responsibility for bearing the costs of certain risks. Risks associated with schedule, inflation, and a number of other aspects of construction work may be shared. Some of the most common risk sharing techniques to be considered by SFMTA are:

- Contract provisions that require construction contractors to indemnify SFMTA for negligent acts arising out of performance of the contracts.
- Geotechnical Baseline Report that establishes the basis for ground conditions accompanied by Changed Condition clauses in the contracts
- Inter-local agreements that allocate risks based upon who are best able to manage the risks.
- Alternative dispute resolution employed to manage potential economic and scheduling delays associated with contract claims.
- System designers and suppliers sharing risks during startup.

5.5.7 Insurance

The project may find that the most effective way to deal with a particular risk is to purchase insurance to cover its expected impacts. The project will provide adequate financial justification to support this option.

5.6 MONITORING AND CONTROL

Project risks must be monitored after they have been identified, assessed and measured, and after risk allocation strategies have been selected and implemented. As the Project progresses and work is completed, the contingencies that need to be maintained generally decrease. In addition, the characteristics of certain risks may change over the life of the Project.

Once risks have been avoided, transferred or mitigated, the project is reassessed to determine its overall risk exposure and isolate any remaining high valuation risks. A risk profile will be generated that details the following:

1. Existing contingency in the cost estimate to cover risk
2. Identified risks together with action taken to avoid, transfer or mitigated each

3. Level of mitigation achieved and cost of mitigation measures
4. Identification of how risk has been mitigated in the contract documents and specifications
5. Cost-Benefit analysis and remaining contingency
6. Outstanding risks, ownership and status.

The above will be captured in a risk management report initiated in preliminary engineering, revisited and updated during final design, preparation of bid documents, through construction and in the testing and commissioning phase of the project.

5.7 CONTINGENCY MANAGEMENT

The Project will work with the PMOC to establish minimum contingency drawdown curves, ties to strategic hold points, for both cost and schedule contingencies. The Project and the FTA will agree to these minimum curves in the Risk and Contingency Management Plan (RCMP).

The Project will determine status of actual drawdown curves for cost and schedule and report on the frequency agreed in the RCMP. The RCMP will define acceptable levels of actual contingency in relation to the minimum drawdown curves and specify the remedial measures to be applied when contingency is used more rapidly than planned and has the potential to become less than the minimum amounts agreed.

5.8 REFERENCES

- Risk and Contingency Management Plan

6.0 ENVIRONMENTAL ASSESSMENT

The San Francisco City Planning Commission certified the FEIR for the project on August 7, 2008. On November 26, 2008, the FTA issued a Record of Decision (ROD), completing the environmental process for the project. The project Mitigation Monitoring and Reporting Program (MMRP) contains provisions for monitoring and reporting of project mitigation measures for adverse significant and non-significant impacts. Updates of the MMRP are presented to the SFMTA Board on a quarterly basis. Updates to the MMRP document the status of the action and how the action was incorporated into the design documents and monitored during construction.

6.1 COMMUNITY FACILITIES AND SERVICES

Public outreach to establish plans, information programs, signage, and staging will be performed to ensure access to all users in construction zones at all times. During construction, temporary detours that permit continued access to public facilities along Fourth Street are being developed and identified during final design. Noise and vibration limits are being included in construction specifications.

6.2 PARKS AND RECREATIONAL FACILITIES

During construction, noise and vibration that will impact parks and recreational facilities will be controlled by temporary construction walls and by muffling equipment. Construction crews will take steps to control dust and particulate matter, such as spraying water. Requirements for this are being included in construction specifications.

6.3 CULTURAL RESOURCES

6.3.1 Archaeological Resources

SFMTA will comply with the Programmatic Agreement signed by SFMTA, FTA, SHPO, and the Advisory Council on Historic Preservation in 1999 to mitigate potential adverse effects of the Central Subway Project on archaeological resources. An Archaeological Research, Design, and Treatment Program is currently under development. Archaeological Monitoring and Archaeological Testing Plans are also under development. The contract documents will require that for areas of archeological sensitivity an archeological consultant shall be present during excavation operations as defined in the SEIS/R. Native American Monitoring is also being performed in sensitive areas.

Archaeological resources will be supported by documents found and referenced in the contract Special Provisions. And archaeological monitoring and testing for construction contracts will be incorporated into construction documents as part of the Special Provisions and in Section 01 57 23 Management of Excaved Materials.

6.3.2 Historic Architectural Resources

MTA will document as much as possible any historic architectural resources prior to demolition, and will preserve and incorporate significant architectural details into a display or the design of the Chinatown Station. A Historical Architect will physically

conduct a survey of the property to document its historical significance and develop a report of this. In addition, the contractor will be responsible for the protection of vibration-sensitive historic building structures that are within 200 feet of any construction activity.

6.4 GEOLOGY AND SEISMICITY

- SFMTA will require contractors to submit a site-specific earthquake preparedness and emergency response plan as part of compliance with bid specifications.
- The project will be designed to withstand effects from the design earthquake on the San Andreas Fault (magnitude ~7).
- Provisions such as concrete diaphragm walls and instrumentation to monitor settlement and deformation will be used to ensure that structures adjacent to tunnel alignments are not affected by adjacent and nearby excavations.

6.5 BIOLOGICAL RESOURCES

Any street trees removed or damaged would be replaced at a 1:1 ratio.

6.6 HAZARDOUS MATERIALS

- A Phase I Site Assessment and Site History Report has been developed.
- Soil Quality Investigation: A soil quality investigation will be performed by qualified environmental professionals.
- Soil Analysis Report
- Site Mitigation Report: A Site Mitigation Report will be prepared, containing a description of environmental conditions, a Health and Safety Plan (HSP), guidelines for the management and disposal of excavated soils, and a certification statement to confirm the mitigation required.
- Phase II Environmental Site Characterization for the Moscone Station site is currently in development.
- Provisions addressing Hazardous Materials will be incorporated into the Contract Drawings and Technical Specifications.

6.7 NOISE AND VIBRATION

6.7.1 During Construction

- Noise control devices will be used, such as mufflers, enclosures, and barriers.
- Residential areas will be avoided when planning haul truck routes.
- Where possible, quieter equipment will be used in lieu of noisier equipment.
- The noisiest construction operations will be scheduled to avoid sensitive times of day.

- Contractors' will be required to have an acoustical consultant to prepare and oversee implementation of the contractor's Noise Control and Monitoring Plan.
- In the event that nighttime construction must occur, the contractor will comply with the provisions of the nighttime noise variance issued by the San Francisco Police Department.
- Periodic noise measurement will be conducted.
- The contractor will be responsible for keeping peak particle vibration (PPV) below 0.12 inches/second when working within 200 feet of vibration-sensitive historic buildings (identified in the Historic Architectural Survey Report).
- Provisions addressing Noise and Vibration will be incorporated into the Contract Drawings and Technical Specifications.

6.7.2 During Operation

- Measures for the abatement of noise levels from the vent shafts will be determined during final design.
- Vibration impacts will be reduced to meet the FTA criteria using high resilience direct fixation fasteners underneath the track-way where needed.

6.8 MAJOR UTILITIES

The construction documents will be developed to involve minimum inconvenience to both the users, pedestrians and traffic. Utility relocation coordination will take place during detailed design in consultation with the utility agencies and the design team. All utilities will be properly relocated and service will be restored as part of the project. Utilities are being relocated as needed prior to the start of TBM launch box construction and at the Moscone and Union Square/Market Street Stations.

6.9 REFERENCES

- Programmatic Agreement
- A Phase I Site Assessment and Site History Report
- Soil Quality Investigation – documented during Construction
- Soil Analyst Report - – documented during Construction
- Site Mitigation Report
- Health and Safety Plan
- Noise Control and Monitoring Plan

7.0 PROCUREMENT OF SERVICES

The Central Subway project will rely on a variety of consultants to accomplish specialized tasks and serve as extension of staff for the SFMTA. These tasks will likely include final design, project management assistance, construction management and inspection, ROW assistance, and environmental services, among others.

7.1 PROGRAM MANAGEMENT/CONSTRUCTION MANAGEMENT (PM/CM) CONSULTANT

SFMTA selected a consultant to provide program management and construction management services for the project. This consultant will assist SFMTA in the management of design and construction including providing project controls, utility coordination, and tenant relocation services and assistance with third party coordination. During the construction phase of the project the PM/CM consultant will provide as needed field support. The PM/CM consultant was in place at the beginning of calendar year 2009.

7.2 FINAL DESIGN (FD) CONSULTANTS

SFMTA completed selection of final design consultants in October 2009 to continue design development of the tunnel, stations and systems beyond the preliminary engineering phase. The consultants are responsible for the development of tunnel, stations and system construction bid documents, procurement specifications for SFMTA-furnished materials and equipment.

7.3 AGENCY PROGRAM CONTROLS SYSTEM AND ASSISTANCE CONSULTANT

To assist in the management of the project, SFMTA has procured an Agency Program Controls System and Assistance consultant.

7.4 ROW ASSISTANCE

The PM/CM consultant is providing ROW assistance for property acquisition, easement, and relocation needs of the project.

7.5 ENVIRONMENTAL SERVICES

The FD consultants provide assistance with Environmental Mitigation Monitoring and Reporting and continuing environmental consulting services for the project.

7.6 OTHER PROFESSIONAL, TECHNICAL AND CONSULTING SERVICES

Other consultants will be identified and retained throughout the Central Subway implementation as needed to effectively and efficiently execute the project goals and objectives.

7.7 LEGAL SERVICES

Legal services for SFMTA are obtained through the City of San Francisco City Attorney's office. Specialty legal services will also be obtained as determined by the City Attorney's office. SFMTA procurement policies will be used for the solicitation and award of these contracts.

7.8 PUBLIC RELATIONS

Public and community relations support for the project will be provided as needed by the PM/CM and FD consultants.

7.9 DATA PROCESSING

SFMTA anticipates that all data processing needs will be met by SFMTA staff or under the scope of other consulting contracts, as required to support their specific work. A separate contract for data processing support is not contemplated at this time.

8.0 PROCUREMENT OF MATERIALS AND EQUIPMENT

Procurement of materials and equipment shall follow Section 6 of the CCSF Administrative Code.

8.1 SYSTEM-WIDE MATERIALS AND COMPONENTS

All long lead items will be identified early in the design process. Materials and fixed asset procurements will also be used for the purchase of these long lead items. All other materials and components will be procured by the contractor. The technical portions of any material-supply contracts will be developed by the designer and approved by the SFMTA. The contract terms and conditions will be developed by the SFMTA. Central Subway project staff will perform contract administration and inspection as required.

8.2 CONSTRUCTION EQUIPMENT

Each contractor will be required to provide all construction equipment required for its own work. SFMTA will not provide any construction equipment as owner-furnished equipment.

8.3 VEHICLE PROCUREMENT

SFMTA will purchase vehicles from vendors under a competitive procurement process. The SFMTA Fleet Management Plan is discussed in Section 11 and shows that the vehicles will be purchased along with other vehicles being procured for the Agency.

8.4 REFERENCES

- CCSF Administrative Code

9.0 DESIGN PROGRAM

9.1 DESIGN CRITERIA

SFMTA and PE consultant developed and approved the Design Criteria for the Project. The document outlines those standards and guidelines which provide a uniform basis for design and meet the requirements, including operations and maintenance, of SFMTA. It also serves as a guideline, but does not substitute for engineering judgment and sound engineering practice. In addition, procedures have been established for calculations, drawings, drafting, and contract specifications, checking/coordinating of documents, construction costs, and right-of-way acquisition.

The design criteria sets the tone for the project as it directs adaptation of design principles, which integrate project quality goals and are schedule and cost effective. The proper use of proven materials, proven assemblies, and proven technology is based upon quality engineering and operating experience.

The team is required to prepare drawings and technical specifications for the project in accordance with the design criteria. Deviations may be made to the framework of the design criteria to meet the requirements of a particular problem. However, any deviation, discrepancy, or unusual solution must be approved by the Configuration Management Board before it can be included in the design. The team has identified, explained and justified any deviation from the established criteria and secure the necessary approvals from the Central Subway Project Team and SFMTA for their respective work.

9.2 DESIGN SUPERVISION

All design shall be supervised by a qualified design professional, licensed in the State of California according to the discipline under which the individual is in responsible charge. The Final Design Team will provide lead designers in responsible charge of the work that have the relevant qualifications and experience under their area of discipline. Design supervision, design coordination, and design change control shall be conducted in accordance with the Quality Management Plan.

9.3 DESIGN REVIEWS

Design and engineering review management is the process of maintaining control over the design work as it progresses. The total scope of services to complete the planning, design and construction of the Central Subway Project involve complex and interrelated tasks for the subway system. The objectives of the design management control process are as follows:

- Ensure the design effort is adequately staffed by qualified professionals.
- Check and provide for consistency and accuracy in design criteria, drawings, specifications, and other planning and design goals set by SFMTA.
- Provide for conceptual and preliminary design, leading to detailed design, and contract documents to be developed, reviewed, monitored, and finalized in a quality, timely and cost effective manner.

- Promote technical refinement of the design process and achievement of design uniformity.
- Ensure that schedule reviews of planning, design tasks and documents are conducted in a timely manner.
- Conduct specific reviews, such as value engineering and peer reviews, in a timely manner so as to not delay the design progression.
- Ensure that systems components are compatible throughout design of all existing and future developments.

SFMTA will also establish a rigorous submittal routing procedure so as to ensure that the design phase progresses in a timely manner. The following procedure has been implemented:

- All documents requiring review and approval by the Central Subway Project Team or SFMTA shall be forwarded to the Document Control Manager (DCM) for internal distribution.
- All comments shall be forwarded back to the DCM within the scheduled time.
- All responses to the comments shall be addressed in writing and incorporated into the document as required.
- Responsibility for resolving conflicting comments rests with the Design Oversight Managers or Project Manager.
- Original reviewer will backcheck that their comment has been acceptably addressed.

Prior to the conclusion of each design phase, the Central Subway Project Team shall compile all comments and, together with the responses made relative to each, submit a final report as to the dispensation of each. All 100% design packages together with relevant supporting documents shall be forwarded to SFMTA for review and preparation for advertisement.

9.4 OPERATIONS REVIEW

A significant body of rail operating and maintenance experience has been assembled by the SFMTA. This existing knowledge will be applied to this project. The operating and maintenance divisions will review and provide input during the design and implementation process in the following ways:

- Participate in reviews at various stages of design to determine operability, maintainability, safety and convenience.
- Review designs for compatibility of bus-rail passenger transfer facilities.
- Participate in establishing test requirements and provide requirements for on-site test (acceptance, systems and pre-revenue).
- Coordinate support requirements for on-site tests (contractor).
- Provide support to on-site acceptance testing as required.

- Participate in the planning, test procedure writing, management and implementation of LRT systems and pre-revenue tests.
- Establish test procedures, including safety rules for test operations, general operating rules for conducting test operations, equipment operating procedures and test scheduling procedures.

9.5 SYSTEM INTEGRATION

The purpose of systems integration is to ensure compatibility among the various light rail systems. An equally important purpose is to ensure compatibility between the individual systems, and the facilities provided for those systems.

During the design phase of the project, SFMTA will take the lead in the review of compatibility and integration of the various systems for their respective work. Systems integration consists of:

- Verification that the documents under review fulfill the functional requirement of the design criteria and are consistent with operating plans, procedures and rules.
- Verification that the train signaling, traffic signaling, vehicle, traction power, fare vending and communication system documents are mutually compatible.
- Verification that the right-of-way, trackwork, stations, maintenance storage facility, and other permanent facilities defined in the documents will accommodate the systems elements.

The system integration review will be performed on a bi-weekly basis at technical review meetings and formally during design progress submittals. System integration review on specific features or systems may be performed before the design is complete, where such review would be helpful in making final design decisions.

9.6 DESIGN INTEGRATION

The success of the Central Subway Project will be largely determined by the degree to which the consultants responsible for each of the three Design Packages implement the integration and coordination roles. Design Package 3 (DP3) is responsible for integration between DP1, DP2 & DP3. DP3 will develop and implement the CSP overall Interfacing and Integration Management Plan which will form the basis for the systems integration coordination effort between DP1, DP2 and DP3. Design integration includes:

1. Development of the CSP Integration Management Plan, a comprehensive, systematic, documented, verifiable, and continuous integration plan. The Plan will describe the Interface Management System in organizing information, tracking progress, and in providing a permanent record of integration activities.
2. Develop a CSP Interfacing and Coordination Database to identify the interfaces between design elements, construction contract packages, and design team members including sub-primes, subconsultants and City staff. It also will identify the individual responsible for ensuring that the requirements at each interface boundary are met in the design.

3. Conduct regular Interface Coordination Meetings to discuss design requirements and resolve issues related to each interface. Consultant will organize, schedule, invite appropriate designers, and record minutes of meetings.

9.7 MILESTONE REVIEW

To ensure that contractor designs for major systems procurements, such as vehicles, traction power and fare collection systems, adhere to all established design criteria and standards, incremental design reviews will be conducted by SFMTA. As part of these reviews, other elements of the design including tunnels, stations, utilities, other systems and others will also be included in these design review cycles. All reviews necessary are conducted as a team review utilizing input from all team members as appropriate to perform interdisciplinary, interdisciplinary and third party reviews. Third party reviews shall include project stakeholders and regulatory agencies.

The following design reviews are for major systems design elements:

- Preliminary design review
- Intermediate design review
- Final design review

These reviews are conducted to evaluate the progress and technical adequacy of the design and its compatibility with the performance requirements of the contract. Prior to each review, the contractor submits a data package that includes all required construction data related to specifications and other items required for the review. Checklists for design review, including those at various milestones shall be developed in accordance with the Design Control Procedures.

9.7.1 Preliminary Design Review

The preliminary design review was conducted at the early stages of design to evaluate the progress and technical adequacy of the selected design approach and its compatibility with contractual performance requirements and interfaces.

Design data covering each subsystem was submitted prior to the preliminary design review and is at a level of detail consistent with the preliminary stages of design. Each data submittal contained functional and interface descriptions, applicable engineering calculations, schematic layout and general arrangement drawings.

9.7.2 Intermediate Design Review

The intermediate design review is conducted when design is advanced enough to evaluate progress achieved since the preliminary design review. The purpose of this review is to ensure: the technical adequacy of the design approach; that all major features are progressing in accordance with prior direction; that major engineering decisions have been made; and that most drawings, specifications and other documents are well advanced. This review will provide a check on the design to ensure that the design could advance to the final design review process.

9.7.3 Final Design Review

The final design review is conducted incrementally when the design is essentially complete and production drawings are ready for release. The final design review confirms that the detail design satisfies design and establishes the exact interface relationships between the system and other items of equipment or facilities that are furnished through other contracts.

9.7.4 Design Support During Construction

The design team shall provide design support during construction. This will include review various construction documents that affect the design and/or design interpretation, including, but not limited to, submittals, RFIs, and Change Orders.

9.8 DESIGN CONTROL

Design control is addressed in Section 3.2, Management Control of the PMP.

9.9 VALUE ENGINEERING

Value Engineering (VE) was performed during 2008 and included an organized, rigorous analysis of the project's cost/functionality relationship by a multi-disciplined team of professionals specifically assembled for this purpose. The VE professionals performing the analysis were not involved in the preparation of the design documents and as a result were able to review and question them independently.

The VE study identified cost saving suggestions that will be further investigated and implemented during Final Design as indentified in the VE report. The Project Manager will review the suggestions from the study with the appropriate stakeholders within SFMTA and verify compliance with functional, scope and budget requirements to determine which suggestions will be implemented.

The Program Manager Project Development will be responsible to ensure that all agreed-upon VE proposals are incorporated into the design documents.

9.10 CONSTRUCTABILITY REVIEW

The constructability of a project is a matter of continual evaluation during the design process. During final design, the PM/CM consultant staff will review design work in progress to help assure the evolving facilities and systems can be constructed in the most efficient way. A formal constructability review shall be performed by the PM/CM consultant on the Intermediate Design documents for each contract. Whenever possible, constructability reviews shall include contractors experienced in the construction of the design package. These reviews may be conducted either via industry review or by retired contractors.

The need for contractor's work and materials storage space and for site access, traffic maintenance, long lead-time procurements, and availability of utilities connections will be identified during design, among other constructability factors the following will be considered:

- Emergency access for fire, police, and emergency medical services;
- Operational access for building tenants, customers, delivery service, and trash removal;
- Mobility across the corridor;
- Disruption due to noise, vibration, dust and silting;
- Conformance with noise ordinances;
- Access to construction work areas, storage areas and truck haul roads;
- Reduced street parking;
- Bus stop and route disruption;
- Access to businesses;
- Parking for Contractor Personnel;
- Transport to work site;
- Daily work hours, work days per week, impact on commuter hours, and special holiday considerations for shopping and traditional parade routes;
- Traffic disruptions at intersections for trackway and catenary installation, or for grade crossing construction;
- Practicality of traffic maintenance;
- Impacts on traffic on other streets from construction detours and activities;
- Utilities disruptions;
- Safety to the general public coordination with other projects
- Conformance with local air quality requirements; and
- Holiday moratorium

For each contract, the project team will:

- Define construction area control requirements that must be addressed in the requirements of the local traffic jurisdiction for maintenance of traffic at reduced levels, varying by hours of the day and days of the week, and hours of construction operations
- Develop plans and/or specifications for spoil disposition; truck routing; noise, dust and erosion control; temporary fencing, lighting, and signing; and other constraints on the contractors.

In addition to matters of constructability that are due to site and institutional constraints, SFMTA will review the facility design work in progress to determine that there is at least one practical way of constructing the facility under design. Project technical staff will monitor the following evolving details:

- Structures;

- Architectural features;
- The installation of trackwork;
- The sequence of construction and assembly;
- The provisions for waterproofing and leak interception and containment;
- The difficulty of forming and making field connections; and
- Other challenges to reasonable, economic, and universal construction capability.

Near the completion of final design, formal constructability reviews for each major civil and systems contract will be conducted. The plans and specification will be reviewed for:

- Completeness of scope,
- Practicability of design,
- Conformance to efficient field methodology, elimination of ambiguous terms,
- Clarity of details,
- Correctness of cross references from drawing to drawing, specifications,
- Agreement of intent between general conditions, special provisions, and technical sections of the specifications.
- Bid documentation and contract conditions will encourage contractor and sub-contractors to bid on the project, thus giving good coverage with not only the general contractor, but with suppliers and sub-contractors.
- Documents and drawings used for bidding will be of such high quality and substance that they will not prevent the contractor in anyway from performing the work in the most efficient way and thus lowering the likelihood for extra later cost and claims.

Central Subway Construction Manager is ultimately responsible to conduct the constructability review and may use any member of the project management consultant team, final design team, construction team, or outside professional consultants, or others, depending on the expertise required. Consultants may also be used to perform a constructability review to provide an independent assessment of methods, sequence and phasing, contractor interface with other project work, and general conditions language specific to each contract.

Review comments will be coordinated and assembled by the Program Manager Project Development for action by the design team. The noted action or response will be verified by the Design Quality Control Manager to ensure compliance with the final set of contract documents.

9.11 CITY AGENCY REVIEWS

SFMTA has involved other City agencies in the design organization to ensure that the proposed work conforms to City requirements established by these agencies for public safety, health and service. The City agency personnel in the organization will participate in the design reviews. Construction documents for utility work and road work will be

checked for consistency with the respective standards and specifications. The other agency personnel will also be involved with review of constructability and phasing.

9.12 ENVIRONMENTAL CONSIDERATIONS

The SEIS/FEIR identifies several measures to mitigate environmental impacts identified. These mitigation measures will be incorporated into the design and construction documents. The Environment Mitigation and Monitoring manager will review the design and construction documents to ensure that the mitigation measures identified are incorporated into the documents and resolve the environmental problem. Since the mitigation measures will be incorporated into the design and construction documents, these measures will then be incorporated into the construction contracts. The result will be the implementation of the mitigation measures during the construction phase of the project. For additional information on environmental issues and responsibilities, see Section – 6.0 Environmental Assessments.

9.13 REFERENCES

- Central Subway Design Criteria

10.0 REAL ESTATE

The Central Subway Real Estate Acquisition Management Plan serves as a guide for implementing the real estate requirements for the Project. The overall goal and focus of the Plan is to assist the SFMTA Real Estate staff and other Project staff in directing a common effort to secure real property in support of the Project. The intent of the Plan is to provide an overview of the acquisition process, outline acquisition strategies and decision making, identify coordination requirements, define tasks and assign responsibility for them, establish Project controls, monitor acquisition schedule, costs, and quality controls, organize and coordinate any necessary relocations, monitor progress to completion and monitor adherence to laws, regulations and procedures, including procedures of the City, the State of California Department of Transportation and the Federal Transit Administration.

The Real Estate Acquisition Management Plan is considered part of this PMP and is maintained as a separate subplan to better facilitate updates and reviews as required.

11.0 FLEET MANAGEMENT

The Fleet Management Plan maps out a systematic approach to the ongoing management and planning for rehabilitation and replacement of the SFMTA's fleet of transit vehicles over the next 20 years. This Plan anticipates changes in service delivery, vehicle demand, fleet composition, rehabilitation, replacement, and ridership, employing these factors to determine the number and mix of vehicles that the SFMTA needs to meet its peak transit demand. The Plan guides the programming of funds from multiple sources for vehicle replacements and potential fleet expansions. Additionally, the Fleet Management Plan demonstrates SFMTA's focus on maintaining the vehicle fleet needed to provide the level of service necessary to meet current and anticipated transit demand. It also ensures that sufficient managerial, mechanical and financial resources are coordinated to maintain and replace the vehicle fleet in such a manner as to adequately meet existing and future service demand levels.

The Fleet Management Plan is considered part of this PMP and is maintained as a separate subplan to better facilitate updates and reviews as required.

12.0 COMMUNITY RELATIONS

The Central Subway Communications/Outreach Plan serves as a guide for implementing a strategic community outreach framework for the Project. The overall goal and focus of the Plan is to guide the project team in connecting with and communicating to the people and organizations within the community about the project and impacts of construction on local neighborhoods. The intent of the Plan is to organize community outreach about the project and motivate individuals or groups to become involved and support the project. The Plan's goal is to see that diverse community interests such as commuters, residents, businesses, environmentalists, tourists, and shoppers are provided ample opportunities to learn about the project, ask questions, voice concerns, offer creative ideas, and participate in meaningful ways as the project progresses. The Plan also identifies key project milestones and concurrent outreach goals to proactively and strategically raise awareness of project developments.

The Communications/Outreach Plan is considered part of this PMP and is maintained as a separate subplan to better facilitate updates and reviews as required.

13.0 CONSTRUCTION PROGRAM

13.1 Construction Contract Management

The construction contract management function is generally performed by City forces. Construction Management is performed and supported by consultants or other City forces.

The Procedures Manual for Resident Engineers and Inspectors contains detailed instructions and guidelines for management of construction projects. The contents of this document are incorporated by reference. This Manual was revised and updated to be project specific for Central Subway and will be implemented accordingly.

13.2 CONSTRUCTION SAFETY

Requirements for construction safety, including protection of MUNI patrons and the public throughout construction, are contained in standard special contract provisions. Monitoring and inspecting the work for compliance with safety provisions are addressed in SFMTA Procedures Manual for Resident Engineers and Inspectors, Section 900. Key elements of Construction Safety include the submittal, approval, and implementation of the Contractor's Safety Program; training; safety audits and inspections; and weekly safety meetings.

The project will consider a special provision for a safety incentive program. The program provides a formula to reward contractors for good safety performance and penalize contractors for poor safety performance. Incentive values, break-even loss ratios, and penalties are defined in the contract. Safety incentive programs can be structured in many ways, but under law the contractor should be subject to both a bonus and penalty such as tying safety to the contractor's workers' compensation loss ratio. Other indices can be used such as accident incident rates or frequency of incidents by the types of injuries.

13.3 LOGISTICS PLAN

13.3.1 Temporary Site Facilities

Temporary site facilities are identified as much as possible for construction contracts. If CCSF sites are available for mobilization or stockpiling, the construction contract sets forth their availability to the contractor to minimize contract costs. In general, the sites are City-owned lots or rights-of-way. If necessary, the Project Manager obtains the services of the Real Estate Department (DRE) to negotiate real estate transactions and acquisitions. The Real Estate Department reports to the CCSF Administrative Services. At the completion of the project the site area or areas used for mobilization, material storage and temporary facilities, if not incorporated into part of the project, will be returned to the state as found at the commencement of the work or in a state acceptable by the project manager.

13.3.2 Traffic and Utilities Provisions

See Administrative Code Chapter 5, Article VII, Sections 5.60-5.66. This section includes the establishment and workings of a Street Utilities Coordinating Committee (SUCC) and Citizens Advisory Committee for Street Utility Construction (CACSUC). Additionally, two subcommittees are established, the Committee for Utility Liaison on Construction and Other Projects (CULCOP) and the Committee for Planning Utility Construction Program (CPUCP).

The stated purpose of these committees is to formulate policy as it affects the use of public streets by public and private utilities during utility construction and maintenance, utility advance planning, and other means to ensure minimal disruption and inconvenience to the general public. Members of these committees are drawn from various CCSF departments and public utility agencies.

The California Department of Transportation (CalTrans) may be involved in a project if the project limits include a state highway, right-of-way or highway structure (e.g., freeway overpass). Any use of CalTrans land even for deliveries or staging requires an encroachment permit which process takes several months. Consideration should be given to location for delivery trucks, storage, pedestrian protection, necessary tree removal, etc., during the detail design phase.

The Department of Parking and Traffic (DPT) is responsible for establishing and inspecting traffic-controls for construction in City streets. During the design phase, DPT staff works closely with MUNI to develop traffic controls to support construction sequencing.

13.3.3 Maintenance of Existing Transit Operations

Standard construction contract provisions specify maintenance of transit operations during the contract period. As an example, transit service may be provided by motor coach vehicles when fixed guideway construction occurs.

13.4 CONSTRUCTION CONTROL

13.4.1 Construction Schedule

For policies and procedure regarding construction scheduling see Section 3.6, Schedule Control, of this project management plan.

13.4.2 Change Order Control

Change orders are the result of user-driven changes in scope, unanticipated circumstances or conditions, or design or omission errors. The change order procedures are delineated in Procedures Manual for Resident Engineers and Inspectors, Section 1100 Change Orders can be initiated from several sources ranging from owner, consultants, and/or contractors. These will be documented on a Change Request Form and tracked through resolution in accordance with the Procedures Manual for Resident Engineers and Inspectors. Contractor change requests will be evaluated for merit, cost, and schedule by the Resident Engineer and applicable support staff.

Requests for Information (RFI) can also generate change orders. If the contractor believes that a RFI response is a change to the contract, then a Change Request Form shall be submitted and tracked accordingly. Prior to this stage, RFIs will be processed and tracked in accordance with the Procedures Manual for Resident Engineers and Inspectors, Section 503.

13.4.3 Document Control

For policies and procedure regarding construction scheduling see Section 3.7, Document Control, of this project management plan.

13.4.4 Materials Testing

The policy and procedures for materials testing are described in the Procedures Manual for Resident Engineers and Inspectors, Section 806 and testing will be performed in accordance with the technical specifications prepared during final design.. Specific implementation of the general procedures to be utilized for materials testing is included in this PMP.

13.5 VALUE ENGINEERING

For policies and procedure regarding value engineering see Section 9.8, Value Engineering, of this project management plan.

13.6 CLAIMS AVOIDANCE

Claims avoidance involves the process necessary to reduce the incidence of claims on construction projects. The most important tool for avoiding claims is to maintain communications between the owner and contractor to address problems as they arise.

The administration of claims is contained in the Procedures Manual for Resident Engineers and Inspectors, Section 1101. If the claims cannot be resolved and results in litigation, the CCSF City Attorney's staff serves as legal counsel. All claims will be tracked through final resolution similar to change orders.

The procedures for claim settlement are established in City and County of San Francisco Administrative Code Chapter 10, Finance, Taxation and Other Fiscal Matters, Article II, Settlement of Claims For and Against the City and County.

13.6.1 Claims, Disputes, and Conflict Resolution

SFMTA's philosophy is to identify and resolve claims, disputes and conflicts as early as possible at the lowest level possible without litigation. Central Subway contracts will clearly set forth the processes for preventing and resolving claims, disputes, and conflicts. If a claim, dispute, or conflict arises, the contract will be consulted first to identify the resolution process specifically agreed to by the parties involved. An administrative procedure will record and track the claim, dispute, or conflict to a timely resolution.

SFMTA will "partner" with its Central Subway contractors. Under the partnering concept, the SFMTA and the contractor attend workshops designed to help them work together rather than working as opposing parties. The goal of these workshops is to modify the parties' behavior throughout the work so that they share information and responsibility, rather than blaming others or withholding information. By fostering a cooperative relationship based on trust, the parties are more apt to find a way to identify and work out disputes or claims early on rather than letting them escalate to litigation. Partnering sessions can result in a list of principals or a dispute resolution policy that enhances and augments the process specified in the contract.

13.6.2 Contractor Change Orders

All changes during construction will be tightly controlled, in accordance with Central Subway's change control procedures. A change order must be issued whenever a contract is changed to adjust scope of work for a contractor, dollar amount of a contract, contract schedule, or other contract terms or conditions. Change orders provide a documented record of approved contract changes. Requests for contract changes may be submitted by either the contractor or SFMTA (generally by the resident engineer). For each construction contract, the Central Subway Project Control Division will establish a contract change order log and identify review and approval responsibilities. Contract change orders will be processed in accordance with change control procedures established within procurement procedures.

13.6.3 Construction Claims

Whenever there is a disagreement between a contractor and SFMTA, the resident engineer at the site will attempt to affect a fair and reasonable solution as soon as possible. Every effort will be made to resolve disagreements amicably before they escalate to become claims. If a disagreement cannot be resolved at the site, it may be elevated to one or more appropriate SFMTA and contractor management levels for resolution. An amicably resolved disagreement may then result in a contract change order. At any time during construction, however, contractors may file claims against the SFMTA. See Section 15.3.4 Processing of Construction Claims.

Documentation, including communications related to a claim, will be collected by the resident engineer and included in a claim log, which will be maintained by the resident engineer. Project control information in the claim log may serve as backup for forecasting or trending. The degree of certainty of any particular claim may determine whether or not the claim is included in the project forecast. The claim and pertinent documentation will then be forwarded to the Construction Manager, the Project Manager, and the Contracts Administration Manager within SFMTA, who review the document and the governing contract and request background information, clarification, and other data from appropriate SFMTA staff and consultants. If the contractor has not met the contractual requirements for submittal of the claim, the claim may be held up or denied. An important element of the General Provisions is that adequate notice must be given to SFMTA to allow staff to take any appropriate action. A SFMTA claims team will be formed to review claims on the Central Subway Program. The SFMTA claims review team will include the SFMTA Construction Manager and a City Attorney representative.

13.7 COMMISSIONING

For policies and procedure regarding commissioning see Section 16, Planning for Operation Start-Up, of this project management plan.

13.8 PAYMENTS AND CLAIMS CLOSEOUT

The Procedures Manual for Resident Engineers and Inspectors, Sections 1000 and 1200 details procedures for contract closeout and turnover of the project to Muni's operating divisions.

13.9 REFERENCES

- Construction Management Procedures
- CCSF Administrative Code Chapter 10

14.0 INTERAGENCY AND MASTER UTILITY AGREEMENTS

Entity coordination is critical to the design, construction and operational success of the Central Subway Project. Inter-agency agreements are being pursued to assure successful completion of this project. The agreements developed with participating entities provide for planning, plan review, and construction coordination of Central Subway Project work within their jurisdictions. Provisions for public works coordination, facilities coordination, right-of-way, traffic control, fire safety inspection and other impacts are agreed upon and documented in specific agreements.

SFMTA staff is working with third party agencies and utilities in relocation of conflicting structures. SFMTA staff will also monitor and verify the progress of work and review as-builts. SFMTA staff will participate in the review of contractor submittals for final approval in regards to implementation of the work to be performed. SFMTA staff will also monitor and verify the progress of the work and review as-builts.

14.1 PARTICIPATING ENTITIES

The Project relies on involvement, cooperation and participation of a number of City, County, State and utility entities for design, design review and construction coordination of this light rail project. The participating entities include, but are not limited to, the following:

City and County of San Francisco

- San Francisco County Transportation Authority
- Department of Public Works
- Police Department
- Fire Department
- Department of Technology & Information Systems (DTIS)
- Recreation and Parks Department
- Public Utilities Commission, San Francisco Water Department
- Public Utilities Commission, Hetch Hetchy Power Distribution
- Department of Building Inspection
- Sheriff's Department

Participating Entities

- AT&T
- AT&T Broad Band
- MCI
- California State Department of Transportation (Caltrans)
- Pacific Gas and Electric Company (PG&E)

- AT&T Local Services
- Verizon Wireless
- Verizon Local
- Comcast Cable Inc.
- Bay Area Rapid Transit District (BART)
- Federal Transit Administration (FTA)

14.2 COOPERATIVE AND FORCE ACCOUNT WORK AGREEMENTS WITH PUBLIC AND PRIVATE ENTITIES

SFMTA will negotiate agreements with the various public and private utilities during the design phase of the Project. These agreements provide the legal framework for SFMTA and owners to identify, plan, design, rearrange and inspect affected facilities and equipment in a cost effective manner with the construction schedule. The agreements also provide the basis for issuing directives, which identify the scope of work, the authorized costs and betterment credits, if applicable.

The precise roles and responsibilities of SFMTA and the public and private agencies/organizations will be or have been outlined in the cooperative agreements. These agreements cover design, design reviews, construction of utility rearrangements, fire/life safety, traffic control, environmental compliance, inspection and other services jointly agreed upon and the costs associated with these activities. SFMTA staff, design consultant engineers, construction managers and affected entities will work together to develop an overall scope, budget and schedule for work to be performed on the Project. Project Control staff shall develop project schedules which will be monitored and updated. SFMTA Project Manager shall coordinate reviews to evaluate the progress and to identify potential schedule conflicts between utility and third party agency activities and SFMTA work. The staff shall notify the Project Control Manager and the Program Director of any impacts to the project schedule and budgets resulting from necessary utility modifications.

During the Final Design, the PM/CM and Final Design Consultants, SFMTA staff, and outside entity representatives are working together to develop detailed plans for facility modifications and/or rearrangements to integrate these proposals into the project plans. Utility and agency representatives have been included in the discussion of the Project scope and regular progress meetings will be held to discuss and review progress and exchange technical data. SFMTA staff coordinates with agency and utility representatives throughout the design and will do so in construction and operational start-up of the Project to assure their concerns are addressed at regular team meetings.

Funding agreements through the FTA provide for the reimbursement of costs incurred by facility owners for design rearrangement and inspection of facilities and modifications required for the development of the Project from Preliminary Design through Operations. SFMTA will complete the scope identification for specific tasks for each entity and issue directives, as required. These specific directives will authorize work and provide for reimbursement of actual costs for design and construction of facility rearrangements upon submittal of adequately documented invoices. Betterment credits are established in

the directives for improvement(s) to third-party facilities over and above the necessary rearrangements and payment will not be approved for unauthorized activities.

14.3 PRIMARY PUBLIC AND PRIVATE AGENCIES/ORGANIZATIONS, PARTICIPATIONS

14.3.1 San Francisco County Transportation Authority

As a funding partner for the Central Subway, the San Francisco County Transportation Authority (SFCTA) monitors the progress of the project. SFMTA provides the appropriate City agencies with copies of monthly and quarterly status reports identifying the project's cost and schedule status, areas of concern, and recommended corrective actions.

14.3.2 San Francisco Department of Public Works

The San Francisco Department of Public Works (DPW) is comprised of several bureaus; Bureau of Engineering (BOE) is responsible for design approval involving rearrangement of City sewer facilities and Auxiliary Water Supply System (AWSS). The Bureau of Construction Management (BCM) will provide construction inspection of new facilities to be maintained by DPW. Site Assessment and Remediation (SAR) section of BCM monitors the project for discovery, testing and clean up of hazardous waste sites encountered during design and construction. Bureau of Street Use and Mapping (BSM) manages the public right of way and provides survey information for the project. Bureau of Architecture (BOA) will provide design support to certain elements of the project. SFMTA issues work orders to DPW for needed design and for construction support.

14.3.3 San Francisco Planning Department

The Planning Department is responsible for all land use planning throughout the City of San Francisco, including the establishment of zoning regulations, which is occurring during the Environmental phase. SFMTA will coordinate with Planning Department as necessary to ensure that land use in the area of the Central Subway facilities is integrated with the transit system in advance and throughout the design process. SFMTA issues work orders to Planning Department for needed design and for construction support.

14.3.4 San Francisco Department of Building Inspection

The San Francisco Department of Building Inspection (DBI) is responsible for approval of design and inspection of work involving private property. SFMTA will issue work orders to the Department of Building Inspection for design review and inspection of modifications to private property required as a result of the project, as well as serving as a review agency as part of the DBI permit process for applications requesting approval to work near the Project facilities.

14.3.5 San Francisco Recreation and Park Department

The San Francisco Recreation and Park Department is responsible for public parks. SFMTA will work with the Real Estate Department to consummate agreements with the Recreation and Park Department that grant the rights required for project construction

and operation through public parks and assure the satisfactory restoration of impacted areas. SFMTA works directly with Recreation and Park Department staff to ensure proper coordination and continue access to all park facilities along the Project.

14.3.6 San Francisco Fire Department

A Fire/Life Safety Committee comprising members from the San Francisco Fire Department (SFFD) and SFMTA meet regularly to resolve fire and safety matters on all rail projects. The Committee facilitates the exchange of information, makes evaluations and recommendations and sets requirements relative to system design, construction and operation of fire suppression systems and materials to minimize fire and safety hazards to the public, construction workers, and operating employees. SFMTA staff, Safety, and Construction will conduct regularly scheduled meetings between Fire/Life Safety Committee and California Public Utilities Commission (CPUC) to ensure that technical details of the project are fully coordinated.

SFMTA issues work orders to the San Francisco Fire Department for support services. SFMTA maintains continuous contact with representatives from the department so that emergency action can be initiated immediately following discovery of a waste site. The Fire Department representatives also participate in emergency exercises as revenue service for the Central Subway approaches.

14.3.7 San Francisco Police Department (SFPD)

SFMTA coordinates with the Police Department regarding enforcement for noise and construction activities in compliance with issued permits. SFMTA issues work orders to SFPD for these support services. As revenue service approaches, SFPD participates in emergency drills. Upon commencement of operations, SFPD assumes the full time task of security of the SFMTA as they have on other SFMTA lines in coordination with the County Sheriff.

14.3.8 State of California Department of Transportation (Caltrans)

Caltrans is responsible for planning, design, construction, operation and maintenance of state highways in California, and for development and operation of public transportation services. SFMTA must coordinate with Caltrans and obtain permits for encroachments by the Project facilities upon Caltrans' right-of-way and incorporate Caltrans' requirements as part of the design and construction of project facilities. Payments to Caltrans for permit and other support functions costs will be covered by agreement.

14.3.9 San Francisco Public Utilities Commission

The San Francisco Public Utilities Commission (SFPUC) is a department of the City and County of San Francisco that provides water, wastewater, and municipal power services to San Francisco. Several PUC departments will be affected by the Central Subway Project.

City Distribution Department (CDD) stores, distributes, and delivers water to San Francisco. They also structurally maintain the water distribution system within the City. CDD installs new fire lines, water mains and laterals, provides materials for contractor water rearrangements, and makes new service connections as required by passenger

station and line section construction. CDD also supplies water services to the operating system. CDD staff inspects contractor rearrangements of their facilities.

The Wastewater Enterprise operates and maintains the City's water pollution control plants, sewage pumping stations and combined sewer system. Design services to the Wastewater Enterprise are provided by DPW BOE.

Hetch Hetchy Water and Power (HHWP) provides electric power for all San Francisco municipal uses, such as MUNI. SFMTA will coordinate with HHWP to provide power to the new project facilities, including traction power and power for passenger stations.

A division of HHWP, the Bureau of Light, Heat & Power (BLHP) is responsible for providing and maintaining adequate and energy efficient lighting on San Francisco's streets. BLHP designs and approves contractor submitted temporary streetlights and permanent rearrangement plans.

SFMTA will coordinate with all PUC departments to ensure that designs incorporate provisions for required services and integrate these provisions into the project schedule to ensure installation and testing in a timely manner. SFMTA will enter into cost sharing agreements with PUC and issue work orders for design and relocation of existing facilities and to provide service required for the construction of LRT facilities.

14.3.10 San Francisco Department of Parking and Traffic

The San Francisco Department of Parking and Traffic (DPT) designs and approves contractor submitted work site traffic control plans, traffic signal rearrangement plans, traffic management plans, detour plans, and monitors the implementation of those plans by project contractors to assure that the impact of project construction on vehicular and pedestrian traffic is kept to acceptable levels. Revisions to DPT supplied plans proposed by contractors are submitted to DPT for approval and processed in a timely manner. SFMTA issues work orders to DPT for these support services.

14.3.11 San Francisco County Coroner/Medical Examiner

CPM coordinates with the San Francisco County Coroner/Medical Examiner (through a consultant archaeologist) in the event that human remains are encountered during construction. A representative from the Coroner/Medical Examiner’s office serves on the CPM Security Subcommittee.

14.3.12 Bay Area Rapid Transit District

SFMTA will coordinate with BART in accordance with the existing “Muni/BART Joint Station Maintenance Agreement” for the Powell Street Station. SFMTA and BART are meeting with BART on a regular basis to develop a plan for coordinating the project with BART. This plan is known as the “Coordination Plan for Design and Development of Shared Use of the Powell Street Station”.

14.3.13 Federal Transit Administration

SFMTA is required to comply with federal regulations and is subject to project management oversight by the Federal Transit Administration (FTA), a division of the U.S.

Department of Transportation (USDOT). The FTA maintains a Project Management Oversight Program for all major high-capacity transit projects that receive federal funds.

A Project Management Oversight Consultant (PMOC), selected by the FTA from a national inventory of qualified firms, assists the FTA in the implementation of the oversight program. The PMOC functions as an extension of FTA staff and provides oversight for a broad range of functions, including periodic evaluations of SFMTA's technical and management systems and staff capabilities.

SFMTA benefits from the PMO program and views the PMOC as a valuable resource that brings experience from projects elsewhere to SFMTA. SFMTA managers meet with the PMOC regularly to review plans and progress. SFMTA looks to the PMOC for comments and advice on project management plans, systems, and practices.

14.3.14 Pacific Gas and Electric Company

SFMTA will enter into a Utility Agreement with PG&E that assigns responsibility for design, design review, construction, inspection, and costs for rearrangement of gas and electric distribution and transmission facilities impacted by construction, as well as, design and construction services for new facilities required to provide power to the new LRT facilities.

14.3.15 AT&T

SFMTA will enter into a Utility Agreement with AT&T that assigns responsibility for design, design review, construction, inspection, and costs for the rearrangement of telephone facilities impacted by construction and for telephone service to the project.

14.3.16 MCI Telecommunications

SFMTA will enter into a Utility Agreement with MCI that assigns responsibility for design, design review, construction, inspection and costs for the rearrangement of telecommunications facilities impacted by construction.

14.3.17 Comcast Cable, Inc.

SFMTA will enter into a Utility Agreement with Comcast that assigns responsibility for design, design review, construction, inspection and costs for the rearrangement of cable TV facilities impacted by construction.

14.3.18 California Public Utilities Commission

SFMTA will have to obtain approval form the California Public Utilities Commission (CPUC) for the installation of at-grade roadway crossings of the railroad.

14.3.19 Other Agencies/Utility Companies

SFMTA will negotiate cooperative agreements and issue directives for rearrangement and inspection of the facilities of other agencies and utility companies that are to be impacted by Project.

During the design phase, the following will be accomplished:

- Real Estate Assessment - Understand the project impacts to existing single family and multiple family residences, commercial properties, historic sites, and public facilities such as streets, bridges, and highways. The design engineer will also assess those properties already purchased under the previously approved subway project as to what can be used and what is excess property. Yard facilities will also be a key part of this planning as well as assessment and identification of construction easements.
- As-Built Utility Information - Ensuring all underground and overhead utility facilities are identified in the design phase will allow for early assessment of possible impacts, identification of relocations necessary before and during construction, utility feeds to the LRT facilities, establishment of Dig Alert contact and completion of agreements with all entities involved. Standards to be used for structures, streets and utility construction will also be identified.

Utility Relocation - During design, any relocation of underground utilities is identified. This is especially critical in the underground station and portal locations where early relocation by the owner has been beneficial in cost and schedule. There will also be other utility, streetlight, traffic signal, etc. modifications identified during design which will be reviewed by the third party entities. The SFMTA staff will define scope for each entity and identify betterments per task and issue directives or negotiate agreements for completion of that specific task. SFMTA staff will closely monitor the work efforts and billing by these entities.

Agreements - Upon completion of design, the SFMTA will have identified all entities and has a clearer picture of modifications necessary to bridges, highways, streets, drainage systems, utility modifications, etc., and permit completion of the final agreements for specific project components. This allows SFMTA staff to issue directives to the various entities for specific tasks to ensure proper review, design and construction coordination for each agency requiring an annual work plan.

Design Coordination - Design engineering coordination with utilities, city, county, and state agencies is essential to completing all Central Subway design. Scopes for each entity will be developed and agreed upon for these efforts involving the following list:

Design Reviews	City and County of San Francisco - All entities impacted Utilities Caltrans BART
Street Light Designs	PUC - BLHP PG&E
Fire, Life, & Safety	San Francisco Police Department San Francisco Fire Dept.
Traffic Signal Designs	SFMTA - DPT
Utility Modifications	All entities impacted
Freeway Modifications, R/W, PSSR, and Encroachment Permit Issues	Caltrans

During design, the need for utility relocations by the utility agency/owner was identified. Utility relocation, scope definition and issuance of directives have been and will continue to be accomplished by SFMTA staff. SFMTA staff monitor the work to ensure completion in accordance with construction contractor interfaces and the schedule for project completion. SFMTA staff monitor all areas of agency and utility work affecting the work done by the contractors and facility owners to ensure proper interface with those affected by the utility agency work and minimize/eliminate potential change orders. Criteria for standards agreed upon during design are adhered to and ensure any permit restrictions identified are incorporated in the design and construction document packages.

14.4 AGREEMENT MATRIX

Figure 14-1 indicates agreements in discussion and scheduled due date for resolution. Updates to be provided on a quarterly basis and submitted to the FTA. Appendix F has been added to include current status of all Property License Agreements, currently updated weekly and sent to the FTA.

Figure 14-1: Agreement Matrix

central subway
Connecting people. Connecting communities.

Agreement/ Permit Matrix

Contract Name	Description	Responsible Person	Construction Contract	Scheduled Due Date	Forecast Completion Date	Status/Comments
Joint Trench Participation Agreement - Private Utility Agencies (1250)	Negotiate scope of work and cost allocation for participation in joint utility trench	Greenaway/ Wilson	MOS & Portal Utility Contract #1	8/14/2009	N/A	Complete
License Agreement - 425 Fourth ST (Speedway)	Negotiate vacation of sub sidewalk basement and installation of settlement monitoring equipment	Greenaway/ Hollins	MOS & Portal Utility Contract #1	12/31/2009	N/A	Complete
License Agreement - 801-805 Howard ST (TODCO)	Negotiate installation of underpinning and settlement monitoring equipment	Greenaway/ Hollins	MOS & Portal Utility Contract #1	12/31/2009	N/A	Complete
License Agreement 765 Harrison ST (Gardens at Harrison)	Negotiate installation of underpinning and settlement monitoring equipment	Greenaway/ Hollins	MOS & Portal Utility Contract #1	12/31/2009	N/A	Complete
Consent Agreement - 747 Howard ST (Moscone Center)	Negotiate internal utility realignment; including sewer lines and fire protection piping	Greenaway/ Hollins	MOS & Portal Utility Contract #1	12/31/2009	N/A	Complete
Encroachment Permit - CA Department of Transportation (Caltrans)	Negotiate work hours and traffic lane restrictions on freeway off ramp for utility relocations including installation of temporary water line on State property	Hoe/ Hollins	MOS & Portal Utility Contract #1	8/21/2009	N/A	Complete
Permit Engineering Evaluation Report - CA Department of Transportation (Caltrans)	Documentation needed for Project Approval and Environmental Document Phase	Greenaway/ Hollins	Tunnel Contract	5/2/2011	N/A	Complete
Lease Encroachment Permit - CA Department of Transportation (Caltrans)	Construction of shaft, installation of temp tiebacks, office trailers and workshops	Hoe/ Clifford	Tunnel Contract	12/1/2011	N/A	Complete
Portal Encroachment Permit - CA Department of Transportation (Caltrans)	Confirm installation of portal structure will not have an adverse impact on the performance of I-80 freeway structure above	Benson / Wilson	Tunnel Contract	12/1/2011	N/A	Complete
Lease Agreement - CA Department of Transportation (Caltrans)	Negotiate lease for contractor lay down area on Fourth ST under I-80 freeway	Greenaway/ Hollins	Tunnel Contract	12/1/2010	N/A	Complete
Joint Trench Participation Agreement - PG&E (1251)	Negotiate scope of work and cost allocation for participation in joint utility trench	Greenaway/ Wilson	UMS Utility Contract #2	9/8/2010	Complete	Complete
Joint Trench Participation Agreement - AT&T (1251)	Negotiate scope of work and cost allocation for participation in joint utility trench	Greenaway/ Wilson	UMS Utility Contract #2	4/1/2010	40592	Complete
Joint Trench Participation Agreement - QWest (1251)	Negotiate scope of work and cost allocation for participation in joint utility trench	Greenaway/ Wilson	UMS Utility Contract #2	9/8/2010	N/A	Complete
Joint Trench Participation Agreement - TCG (1251)	Negotiate scope of work and cost allocation for participation in joint utility trench	Greenaway/ Wilson	UMS Utility Contract #2	9/8/2010	N/A	Complete
Joint Trench Participation Agreement - UCCO (1251)	Negotiate scope of work and cost allocation for participation in joint utility trench	Greenaway/ Wilson	UMS Utility Contract #2	9/30/2010	Complete	Complete
Department of Building Inspection Permits 150 Stockton (1251)	Permit required in order to do work within the property line	Greenaway/ Wilson	UMS Utility Contract #2	2/18/2011	N/A	Complete
License Agreement for Access To and Abandonment Of Sub-sidewalk Encroachment - 800 Market	Negotiate SFMTA access to 800 Market sub-sidewalk space	Greenaway/ Hollins	UMS Utility Contract #2	6/31/10	N/A	Complete
Utility Relocation Agreement - 800 Market	Provides SFMTA with authority to relocate utilities in the 800 Market sub-sidewalk space if the owner fails to do so in a timely manner	Greenaway/ Hollins	UMS Utility Contract #2	6/31/10	N/A	Complete
Default License Agreement for Access To and Abandonment Of Sub-sidewalk Encroachment - 2 Stockton	Negotiate SFMTA access to 2 Stockton sub-sidewalk space	Greenaway/ Hollins	UMS Utility Contract #2	6/31/10	N/A	Complete
Default License Agreement for Access To and Abandonment Of Sub-sidewalk Encroachment - 48 Stockton	Negotiate SFMTA access to 48 Stockton sub-sidewalk space	Greenaway/ Hollins	UMS Utility Contract #2	6/31/10	N/A	Complete
Settlement Agreement - Barney's & Stockton Street Properties	Negotiate agreement for the abandonment of improvements within the sub-sidewalk spaces at 2 and 48 Stockton Street	Greenaway/ Hollins	UMS Utility Contract #2	6/31/10	N/A	Complete
Trolley Re-route Agreement (Eyebolt) 333 O'Farrell	Install Eyebolt support for Muni Trolley Bus Re-route	Norris/ Hollins	UMS Utility Contract #2	6/31/10	N/A	Complete
Trolley Re-route Agreement (Eyebolt) 901 Market	Install Eyebolt support for Muni Trolley Bus Re-route	Norris/ Hollins	UMS Utility Contract #2	6/31/10	N/A	Complete
Trolley Re-route Agreement (Eyebolt) 865 Market - Westfield	Install Eyebolt support for Muni Trolley Bus Re-route	Norris/ Hollins	UMS Utility Contract #2	6/31/10	N/A	Complete
Trolley Re-route Agreement (Eyebolt) 44 5th Street	Install Eyebolt support for Muni Trolley Bus Re-route	Norris/ Hollins	UMS Utility Contract #2	6/31/10	N/A	Complete
Trolley Re-route Agreement (Eyebolt) 901 Mission - SF Chronicle	Install Eyebolt support for Muni Trolley Bus Re-route	Norris/ Hollins	UMS Utility Contract #2	40592	N/A	Complete
Trolley Re-route Agreement (Eyebolt) 833 Mission	Install Eyebolt support for Muni Trolley Bus Re-route	Norris/ Hollins	UMS Utility Contract #2	6/31/10	N/A	Complete (SFMTA Property; no agreement needed)
Trolley Re-route Agreement (Eyebolt) 391 Sutter - Starbucks	Install Eyebolt support for Muni Trolley Bus Re-route	Norris/ Hollins	UMS Utility Contract #2	6/31/10	8/31/2010	Complete
Trolley Re-route Agreement (Eyebolt) 562 Sutter	Install Eyebolt support for Muni Trolley Bus Re-route	Norris/ Hollins	UMS Utility Contract #2	6/31/10	N/A	Complete
Trolley Re-route Agreement (Eyebolt) 50-68 Mason	Install Eyebolt support for Muni Trolley Bus Re-route	Norris/ Hollins	UMS Utility Contract #2	6/31/10	N/A	Complete
Trolley Re-route Agreement (Eyebolt) 899 Howard	Install Eyebolt support for Muni Trolley Bus Re-route	Norris/ Hollins	UMS Utility Contract #2	6/31/10	N/A	Complete
Easement Agreement - 801 Market ST (Old Navy)	Purchase permanent easement for tunnel alignment	Greenaway/ Hollins	Tunnel Contract	7/5/2011	N/A	Complete
Temporary Construction License - 801 Market ST (Old Navy)	Install Compensation Grouting Shaft and Piping	Clifford	Tunnel Contract	10/28/2011	N/A	Complete
Easement Agreement - 2 Stockton (Virgin Megastore)	Purchase permanent easement for tunnel alignment	Greenaway/ Hollins	Tunnel Contract	7/5/2011	N/A	Complete
Temporary Construction License - 2 Stockton (Virgin Megastore)	Install Compensation Grouting Shaft and Piping	Clifford	Tunnel Contract	10/28/2011	N/A	Complete
Easement Agreement - 1455 Stockton ST (Bank of America)	Purchase permanent easement for tunnel alignment	Greenaway/ Hollins	Tunnel Contract	7/5/2011	N/A	Complete
Temporary Construction License - 1455 Stockton ST (Bank of America)	Install Compensation Grouting Shaft and Piping	Clifford	Tunnel Contract	10/28/2011	10/28/2011	Complete - condemnation filed 4/9
Acquisition Agreement - 266-286 Fourth ST (76 Station)	Purchase real estate for Moscone Station	Clifford	Moscone Station Contract	10/28/2011	N/A	Complete - pre-judgment possession granted, trial commenced 5/13/13 to determine final purchase price
SFMTA - Mayor's Office of Housing Memorandum of Understanding	Agreement between SFMTA and MOH to transfer non-federal funds for the construction of replacement housing in Chinatown	Magary/Gallegos	Chinatown Station Contract	9/15/2010	N/A	Complete
Acquisition Agreement - 935 -949 Stockton (Hogan & Vest)	Purchase real estate for Chinatown Station	Greenaway/ Hollins	Chinatown Station Contract	11/1/2011	N/A	Complete
Garage Stall Acquisition Agreement - Union Square Garage	Purchase 34 to 50 parking spaces for UMS Station	Clifford	UMS Station Contract	12/6/2011	12/6/2011	Complete
Coop Agreement - BART	Negotiate scope and fee for BART's involvement in design review, and oversight of CS Project interfaces at Powell ST Station and ongoing operations and maintenance	Funghi	Tunnel and UMS Contract	12/31/2009	2/18/2011	Complete

5/1/2013

15.0 PARTNERING AND CONFLICT RESOLUTION

The Central Subway Project Team will use a formal partnering process with stakeholders that are directly involved in the final design and construction as well as consultants and contractors to achieve effective Project delivery and reduce conflicts. The Partnering Process to develop team work and reduce waste will be in the Contract Specifications and on going partnering will be included in the Project Management contract and the Project staff management. Where needed, sessions will be led by an experienced partnering facilitator. Although extensive coordination and communication has already been conducted with the public agencies, the formal partnering process will start in late-2008 and continue through the Final Design and Construction phases.

Conflict resolution will be made by a decision ladder starting with the Resident Engineer, then the Construction Manger, then the Program Director, and then the Project Officer for Transportation Planning and Development. In addition for appropriate contracts, SFMTA is considering the use of a Disputes Resolution Board (DRB) consisting of three independent experts in the contract work. Construction claims arising from contracts can be avoided by following the guidelines for Claims Avoidance outlined in Section 12 of this PMP. Conflicts should be resolved expeditiously and at the lowest administrative level possible. Several provisions will be included in selected contracts to achieve this goal.

15.1 PURPOSE

It has become a common practice, particularly on public works contracts, for bidders to reduce their bid margins to the bare minimum to ensure continuity of work, and then gamble on recovering additional revenue from claims. Many contractors have full-time claims specialists on their staffs to identify the loopholes in the bid documents and to watch for and exploit other claims opportunities during construction, a practice that has come to be known as “claims engineering.” The purpose of this procedure is to sensitize SFMTA personnel to potential areas of claims and to minimize the occurrence of claims. Mitigating claims will save the Owner money, and conserves Owner and Contractor energy for more productive activities.

15.2 RESPONSIBILITY

The Project Manager has overall responsibility for the mitigation, avoidance and resolution of construction claims. The responsibility for fair, firm, consistent, cooperative and time contract administration, which helps avoid claims, extends to all members of the project staff.

15.3 PROCEDURE

15.3.1 General

Once a claim has been made, it is frequently too late to do anything more than attempt to resolve it on the most economical basis. The most effective claims mitigation measures are those which applied to the bid documents. These will circumvent or prevent many

potential claims. The next most effective claims mitigation measures are those related to competent and intelligent contract administration by the Construction Manager.

Early recognition of a potential claims situation can often provide time to arrive at a cost-effective alternative solution, such as an acceleration, a workaround, or cancellation of nonessential extra work or change requests.

15.3.2 Pre-Bid Mitigation Measures

The aim of such measures is to produce "claims resistant" contract documents. Much care is required in producing bid documentation which is as detailed and specific as is reasonably possible.

A review of the finished bid documents by an independent party who was not involved in their preparation provides the last opportunity to improve the bid documents and to locate and remedy any prone to claims areas. The following are examples of pre-bid mitigation measures that should be incorporated into the contract specifications:

a. Require the Contractor to submit a 90-Calendar-Day (CD), Critical-Path-Method (CPM) schedule between the Award of Contract and the Notice to Proceed (NTP) if time restraints allow. This schedule should be reviewed and approved before the Contractor receives a NTP. Within 90 CD, the complete CPM schedule shall be reviewed and approved or the Construction Manager will withhold a percentage of the progress payment. Such a clause will prevent the typical problem of analyzing project delays without an approved schedule. It is much easier to negotiate time extensions with a schedule that both parties agree to. Thorough and careful review of the contractor's schedule is imperative.

b. Require the Contractor to resource load (i.e., manpower, material, equipment) the 90 CD CPM schedule and the Complete Schedule. Also require the contractor to identify crew size and crew composition for itself and its subcontractors in a report to be submitted with the schedules.

   Before claims can be successfully mitigated in the field, it is imperative that the Construction Manager has full disclosure of the Contractor's true plan and schedule to complete the project. On many projects, this type of information is not known until the project is completed and the Contractor has submitted a multimillion-dollar claim.

c. Require the Contractor to include a specific activity, with a specified duration for anticipated weather delays. Contractors typically allege that weather was considered when developing activity durations, but they can't tell you how many days were actually allocated for weather. To avoid this problem, it is best to have a specified quantity of days for weather that is clearly shown in the schedule.

d. Require the Contractor to identify the activity impacted (I/J #), and its scheduled early and late start dates for each Request for Information and Field Question. In addition, require the Contractor to classify the RFIs. The contract Specifications should allow a specific amount of time for the Architect/Engineer to respond to RFI's before the early start of impacted activities. In other words, Contractors

should be required to review the plans and specifications in a timely manner and not wait to the last minute to submit RFIs as proof that the plans and specifications were faulty and that the project was impacted; therefore, it is important that the Construction Manager has the above information to quickly and cost-effectively determine if the RFI had an impact on the project.

e. The Contract Specifications should identify which holidays are considered non-work days, and those non-work days should be incorporated into the schedule.

f. The Contract Specifications should address the issue of the Contractor's right to finish early (i.e., scheduled completion prior to contract completion) and who owns the float (i.e., Contractor, Owner, Project). In regard to who owns the float, it is SFMTA's position that the Project owns the float on a first come, first served basis.

g. Require the Contractor to submit its Daily Inspection Reports to the Construction Manager on a weekly basis. The contract specifications may also require the information be reported using a specified format (i.e., similar to the Construction Manager's).

15.3.3 Mitigation Measures during the Construction Phase

Construction phase measures are aimed at claims mitigation through competent contract administration, and minimizing the impact of claims which may arise during construction despite the pre-bid measures taken. They include:

a. Intelligent and reasonable field management. Interference with the contractor's work plan and/or sequence of operations will result in a claim and must be avoided.

b. Resistance to changes and extra work. The cumulative effect of an unreasonably large number of changes will probably be reflected in a delay/disruption/loss of productivity claim.

c. Contractor's baseline CPM schedule. Before approving or accepting a Contractor's schedule, it must be reviewed for practicality, feasibility, and realistic logic and activity durations. It must also be reviewed for "claims engineering" items such as a schedule showing completion before the required contractual date. Such a schedule should not be approved unless it is realistic.

If a shortened schedule is approved, it must be on the express condition that the period between the scheduled and contractual completion dates will be regarded as project float, available to both parties, and that extension of time to the completion date will not be granted until this float is absorbed. Another alternative is to require as condition of approval that the Contractor agree to a change order shortening the contract time to its schedule time. The consequence of an unqualified acceptance of a shortened schedule is that the Owner is automatically exposed to delay claims for any act or omission of the Owner that delays the shortened completion period or date.

Contractors frequently prepare shortened schedules they have no chance of achieving, for just this reason. If approved or accepted, the Contractor has a cushion against liquidated damages, but any delay by the Owner has the potential to become the basis for a delay claim.

Frequent schedule reviews and updates followed by recovery action, if necessary, are essential.

The schedule impacts of changes and extra work must be analyzed as they occur.

An as-built should be initiated at the start of construction and kept current throughout the project. It is imperative that Inspectors use a uniform method of documenting daily activities. The general format should be as follows: Location (i.e., Area, Level, Subarea), contractor, Task/Specification Section, and Work Description (i.e., manpower, equipment, quantities, change orders, force account, inspections, directives, tests, deliveries and other pertinent comments.) In regard to change order and force account work, it is very important to document when the work is performed and how many hours were expended. (A sample format is available at the Home Office.) As it pertains to inspections, Contractors are submitting claims for "over inspection," so it is necessary to document each inspection and reasons for rejection. If the failed inspection impacts the project, such as delaying a pour, then such an impact should be documented.

d. Recording and retrieval systems. Document Retrieval Systems for correspondence, submittals, RFIs, meeting minutes, etc. are very valuable for assembling documents to mitigate claims. With retrieval systems a simple coding system to retrieve pertinent documents is essential. The codes should identify the location, contractor(s), and work (i.e., specification section) referenced in the document.

e. Timely and proper performance of all Owner obligations. These include timely granting of access, timely responses to submittals, delivery of owner-furnished materials, timely giving of contractually valid notices, and timely response to the Contractor's notices. The timeliness and proper performance of the complementary Contractor obligations should also be monitored, since certain types of claims, under some circumstances, can be invalidated by untimely of defective notices and actions.

f. Extensions of time requests. They must be dealt with and a decision given, in a timely manner. If not done within a reasonable time, a claim for the cost of a constructive acceleration is likely.

g. Early anticipation, identification, and recognition of potential claims. Alertness enables SFMTA to get an early start on collecting data to determine the merit and entitlement of a potential claim, and to explore possible alternatives, workarounds, or acceleration if cost-effective in mitigating the potential claim. Any unusual activity on site or in correspondence, notices, Requests for

Information, etc. will give a preliminary indication that a claim may be made. Another indication can be schedule slippage.

h. Prompt responses. Communications setting the scene for a claim need prompt attention. Any untimely or defective notice, or any erroneous communications should be rejected or rebutted immediately.

If the contractor is delinquent in any aspect of performance, ensure that this is recorded immediately by formal correspondence, and proper performance demanded within a specific time. If this is not done, the Owner's rights to such performance may have been waived by omission or default.

i. Waivers. If it is intended to waive any performance requirement, not necessarily related to the work of the contract itself but possibly related to notices or other actions required of the Contractor, make sure that the waiver is given in writing and is specifically limited to the particular event and contract requirement concerned. If this is not done, the waiver may extend to all similar future circumstances, and the contract requirement may be unenforceable.

15.3.4 Processing of Construction Claims

a. Most construction claims are the result of interpretations made by the Construction Manager and/or Architect/Engineer. Therefore, the Request for Information/Clarification is the precursor of a claim and becomes the heart of the tracking system for claims as well as changes.

b. Initially the Architect/Engineer answers a Request for Information (RFI) or provides a clarification which is viewed as a change by the Contractor and the Contractor will issue a request for change on their letterhead.

c. Upon receipt, the CM must review the request for a change to determine if it is a change in accordance with the contract documents. Concurrently, the CM will ask that the A/E provide comments on the request for change.

d. If the CM interpretation and related information from the A/E does not support that a change is warranted, the CM will issue a letter to the Contractor explaining his findings and determination for denial and will reference the Contractor to the disputes clause of the contract. The CM will track the request for a change as a potential claim on the claims log.

e. If the Contractor considers the work demanded of him to be outside the terms of the contract the Contractor will file written protest within 7 days (or as prescribed by the contract) to the CM stating clearly and in detail his objections and reasons.

f. The Contractor must comply with the work demanded of him even though a written protest has been filed. If a written protest is not issued within 7 days (or as required by the contract) the Contractor will waive his right to further claims on the specific issue.

g. The CM will review the Contractor's written protest and provide a CM decision.

h. If, after receiving the CM decision, the Contractor still considers the work demanded of him to be outside the requirements of the contract, he shall notify the CM in writing within 7 days (or as prescribed by the Contractor) after receiving the CM decision that a claim will be filed. In addition, within 30 days after receiving the CM decision, the Contractor will submit his claims and all arguments, justification, cost or estimates, schedule analysis, and detailed documentation supporting his position.

i. If a notice is not given within the 7 days referenced above, the Contractor shall be deemed to have concurred with the CM decision and no further protest or claim will be considered with respect to the issue. No claim, arguments, justification, cost or estimates, schedule analysis, or documentation in support of the Contractor's position will be accepted after the 30 days referenced above.

j. Upon receipt of the Contractor's claim, including all arguments, justification, cost or estimates, schedule analysis, or documentation supporting his position as outlined above, the CM will review the issue and within 30 days from receipt of the Contractor's claim render a final CM decision.

k. The final determination will stand until after acceptance of the work when the CM will submit to the Contractor a statement of the sum due to the Contractor under the contract and obtain a release of claims. The statement will take into account the contract price, adjusted change orders, amounts already paid, amounts to be withheld for incomplete work, liquidated damages, and for other cause under the contract. Within 30 days after receipt thereof, the Contractor shall approve the statement or shall file for litigation on the claim issue. Approval of the statement and the release of claims or failure to file litigation and acceptance of payments made by the owner shall become a complete settlement between the County and the Contractor.

   This procedure process is recommended and should be include in the contract documents if at all possible. If it has not been included in the contract documents, it is suggested that the Project Director establish a similar procedure with the Contract.

16.0 SAFETY AND SECURITY

All aspects of project safety and security are fully described in the Central Subway Safety and Security Management Plan (SSMP). This includes amplified descriptions of the safety and security certification process that is briefly discussed in Section 17.0 and the system start-up process discussed in Section 18.0. The SSMP also describes the process for updating the System Safety Program Plan (SSPP) and System Security and Emergency Preparedness Program (SSEPP), submitting them to the CPUC, and securing CPUC approval prior to start of revenue operations.

The Safety and Security Management Plan is considered part of this PMP and is maintained as a separate subplan to better facilitate updates and reviews as required.

17.0 SAFETY AND SECURITY CERTIFICATION

17.1 FEDERAL TRANSIT ADMINISTRATION REQUIREMENTS UNDER CFR 49

The Federal Transit Administration (FTA), under Code of Federal Regulations (CFR) 49, Part 659, requires transit agencies who are building rail fixed guideway systems to establish a System Safety and Security Program. Within the System Safety and Security Program, there is a requirement to perform safety and security certification for rail transit projects. The California Public Utilities Commission (CPUC) is designated as the state safety oversight agency for California. The CPUC has issued General Order 164-D to implement the provisions of 49 CFR 659. The CPUC requires a safety certification program to be in place for major projects, as part of General Order 164-D. The San Francisco Municipal Transportation Agency has developed the Safety and Security Management Plan (SSMP) and Safety and Security Certification Plan (SSCP) for the Central Subway Project to comply with FTA and CPUC requirements. The Central Subway Project safety and security certification requirements are described in SSMP and the details of how those requirements will be met are detailed in SSCP.

The Safety and Security Certification Plan is considered part of this PMP and is maintained as a separate subplan to better facilitate updates and reviews as required.

17.2 REFERENCES

- SFMTA Rail System Safety Program

18.0 PLANNING FOR OPERATIONS START-UP

18.1 SYSTEM INTEGRATED TESTING

System integrated testing is defined as any tests (or test related activities) involving more than one system and their integration with each other or with the existing SFMTA system. Integrated tests are performed in accordance with a submitted and approved Test Program Plan, to ascertain that the equipment operates as specified when installed with one or more other systems.

The contractor will be responsible to conduct integrated testing per the submitted and approved Test Program Plan until all end-to-end testing is successfully completed and in accordance with all safety certification requirements. The responsibility for proper performance, as defined by the contract documents, includes the interfaces with the existing system and with the Control Center communications and computer equipment. The SFMTA has the following responsibilities during integrated testing:

- Review and approve test plans, test procedures, and test results
- Monitor and witness selected tests
- Provide SFMTA staff as required

SFMTA, however, under the direction of the SFMTA, may elect to perform duplicate tests in random order as may be desired.

Test Program Plan development requirements and responsibilities for conduct and oversight of system integrated testing are outlined in the Safety and Security Management Plan (SSMP).

System integrated testing shall be included as a certifiable item in the Safety and Security Certification Plan (SSCP).

Responsibilities of Contractor:

- Develop tests to be performed and the criteria and procedural requirements for test planning, performance, recording of data, and reporting of test results for systems components of the Project, including but not limited to, traction power, train control, communications, overhead contact, facilities mechanical and electrical systems and corrosion control testing. Requirements for performance of qualification (proof of design), factory acceptance, field acceptance, dynamic acceptance and system integration tests are included. Provide timely notification of testing to SFMTA to permit witnessing of testing by interested staff.
- Plan, schedule, allocate manpower; conduct integrated tests; and pre-revenue operations.
- Complete Safety Certification documentation.

18.2 PRE-REVENUE OPERATIONS

Once Pre-Revenue Operations begins Muni will assume control of project facilities and contractors will require clearance from Muni to access project facilities. Activities occurring during Pre-Revenue Operations will be limited to those needed by Muni to prepare for Revenue Operations, including operating trains, especially multiple trains, on the complete system. Expected revenue operations are rehearsed, as directed on a daily basis by Muni staff, as well as abnormal and emergency scenarios in which random combinations of system interactions are tested. During this time, equipment may be "burned-in," and training takes place for Muni staff who will operate and maintain the extension and for emergency services personnel. Drills covering emergency situations with participation by police and fire service personnel are conducted by SFMTA or a consultant.

The commencement of pre-revenue operations will be determined by the SFMTA. Contractor construction, integrated testing, and startup and commissioning will have to have been completely satisfied and no contractor tests, except reliability demonstrations, will be outstanding without the specific approval of the SFMTA.

Primary objectives of Pre-Revenue Operations include:

- On-site familiarization by SFMTA personnel;
- Training of SFMTA personnel;
- Training of emergency services personnel;
- Verification of extension's operating capability at the specified service levels (both to schedule and randomly) and for failure management scenarios; and
- System burn-in.

Pre-Revenue Operations shall be included as a certifiable item in the Safety and Security Certification Plan (SSCP).

Plan development requirements and responsibilities for conduct and oversight of Pre-Revenue Operations are also outlined in the Safety and Security Management Plan (SSMP).

18.3 TESTING METHODOLOGY

The Safety and Security Management Plan (SSMP) is the guiding document for the management of all project safety and security activities.

THE SSMP outlines the plans needed prior to revenue operations. These plans include the Rail Activation Plan (RAP), the System Integration Test Plan (SITP), the Safety and Security Certification Plan (SSCP), and the Pre-Revenue Operations and Start-up Plan (PROP).

18.3.1 Rail Activation Plan

A Rail Activation Committee (RAC) shall be formed during the construction phase of the project. The RAC will consist of a team of SFMTA personnel and PMCM or other consultant service involved in the testing and commissioning of the Project. The committee shall establish and implement the RAP. The committee is chaired by the SFMTA Rail Activation Manager with meeting frequency increasing as testing and start-up oversight needs dictate.

The RAC shall manage the rail activation efforts through coordination with the System Integration Testing Committee, Project Safety and Security Certification Committee, and the Pre-Revenue Operations and Start-Up Committee. The RAC will produce and manage the RAP.

18.3.2 System Integration Test Plan

Tests that are required to assure proper integration of systems, or are safety or security intensive, are included in the System Integration Test Plan (SITP). The Rail Activation Committee (RAC) is responsible for assuring the development and implementation of the integrated and pre-revenue test demonstration procedures along with documenting and logging the results of all safety-related tests. A SITP will be developed to identify the tests needed to ensure that the elements placed by the various civil and system contracts will operate together safely, securely, and reliably. This plan will be an independent document developed during the construction/acquisition phase. It will include test procedures and acceptance criteria for all required system integration tests and emergency response drills. The System Integration Tests (SIT) will be performed during the integration testing phase of the project, which begins after all contractual testing is done and substantial completion is given to the contractor. After all SIT are satisfactorily completed and reports accepted and results verified by the Start-Up Committee, SIT will be safety and security certified by the procedures in the SSCP. Copies of all applicable tests and inspection reports will be included in the Safety Certification Program files.

18.3.3 Safety and Security Certification Plan

The SSCP will detail the requirements for verification and certification of the safety and security of all project elements. The Project SSCP will be developed and implemented in compliance with FTA rules, 49 CFR Part 659 – Rail Fixed Guideway Systems: State Safety Oversight; and CPUC General Order 164-D. The SSCP will be submitted and approved by CPUC which has the California State Oversight Agency responsibility for the Project.

The goals of the SSCP will be to verify that the Project safety and security requirements have been met and to provide evidence that safety and security critical systems, equipment, and facilities that may impact passenger, employee, or public safety are operationally ready to enter revenue service.

18.3.4 Pre-Revenue Operations and Start-up Plan

The Pre-Revenue Operation and Start-Up Committee (PSC) will be formed during the construction phase of the Central Subway project. It will be chaired by the SFMTA

Operations Manager. The PSC will oversee the day-to-day details of the start up. These will include, Operations Maintenance Facility (OMF) set up, operations safety and security and training, Rulebook and Operating Procedure development, new employee hiring and training, policy and procedure development, and Pre-revenue Operations. The PSC will produce and manage the Pre-Revenue Operations and Start-up Plan (PROP). The PSC shall consist of SFMTA and may include PMCM and other consultant services.

19.0 JOINT DEVELOPMENT/TRANSIT ORIENTED DEVELOPMENT (TOD) PLAN

19.1 INTRODUCTION

The San Francisco Municipal Transportation Agency ("SFMTA"), a department of the City and County of San Francisco (the "City"), operates the Municipal Railway ("Muni"), which serves approximately 700,000 riders per day. In the mid-1990s, SFMTA completed expansion of the Muni light rail vehicle ("LRV") tracks from Market Street to Mission Bay. Between 2000 and 2006, SFMTA planned, funded and built 5.4 more miles of tracks, Right of Way ("ROW") and public benefit infrastructure improvements through Mission Bay, Southeast Waterfront, India Basin, Bay View and Visitacion Valley, and into Daly City. In the Fall of 2008, Metro East, SFMTA's new LRV rail maintenance yard, was completed.

The Central Subway Joint Development / Transit Oriented Development Plan (the "JD/TOD Plan") serves as a guide for planning and implementing joint development projects related to the ROW acquisition needs for the Central Subway Project (the "Project"). The JD/TOD Plan is intended as a supplement to the Right of Way Acquisition Management Plan (the "RAMP") presented in Section 10 of this Project Management Plan ("PMP"), and provides further information about potential joint development opportunities, the joint development process, and adherence to applicable laws, regulations and procedures, including procedures of the City, the State of California Department of Transportation ("Caltrans"), and the Federal Transit Administration ("FTA").

The overall goal and focus of the JD/TOD Plan is to provide a framework for SFMTA Real Estate staff and other Project staff to capitalize on joint development opportunities in order to support the Project. The JD/TOD Plan is placed in the context of the broader PMP.

The Plan is presented in three sections; these sections are summarized as follows:

Introduction—provides a summary of the JD/TOD Plan, its purpose and content.

Approach to Joint Development /Transit Oriented Development (TOD) — describes joint development and Transit Oriented Development (TOD), the FTA regulations relating to joint development and the Real Estate Team's approach to implementing the JD/TOD Plan, including City and SFMTA approval processes.

Properties with Joint Development/Transit Oriented Development Potential—identifies potential joint development/TOD opportunities related to the Project.

19.2 APPROACH TO JOINT DEVELOPMENT/ TRANSIT ORIENTED DEVELOPMENT

19.2.1 Project Description

The Project is a critical transportation improvement linking neighborhoods in the southeastern part of San Francisco with the retail and employment centers in downtown and Chinatown. It will add 1.67 miles of light rail track north from the northern end of the new Third Street Light Rail at Fourth and King Streets to a terminal in Chinatown. The tracks will be on the surface from Mission Bay through SOMA, enter the Central Subway near Bryant Street, have a station in Moscone Center serving the City's convention center, cross underneath Market Street to serve Union Square, the City's major downtown retail district, and continue north under Stockton Street to Chinatown, one of the City's most densely populated residential and retail areas. The current approved alignment places the subway in the SOMA area under Fourth Street, with a total of three new underground subway stations located at Moscone Center, Market Street/Union Square, and Chinatown.

19.2.2 Description of Joint Development/Transit Oriented Development

Joint development/Transit Oriented Development is an asset management program designed to secure the most appropriate public sector and/or private development on SFMTA and City property adjacent to transit stations and corridors, including real property to be acquired pursuant to the RAMP. The JD/TOD Plan seeks to enable comprehensive planning and appropriate development around Project station sites and along the Project's transit corridor while also generating revenue to the SFMTA to support transit operations.

FTA regulations recognize the potential benefit of joint development to transit agencies. An FTA joint development project is typically a construction project undertaken jointly by an FTA grantee with another party aside from the FTA. It occurs in, on or adjoining a transit facility, uses real estate in which the FTA has an interest, and involves land acquisition that is subject to the Uniform Act (defined below). In order to receive Federal funding, a joint development project must:

(i) Enhance economic development or incorporate private investment; and

(ii) Enhance the effectiveness of a public transportation project and relate physically or functionally to that public transportation project, or

Establish new or enhanced coordination between public transportation and other transportation; and

(iii) Provide a fair share of revenue for public transportation that will be used for public transportation.

In addition, any person making an agreement to occupy space in a joint development facility shall pay a reasonable share of the costs of the facility through rent or other means. FTA regulations specifically recognize the eligibility of commercial and residential development for joint development.

Costs related to joint development improvements must be included in a budget contained in an approved grant in order to be eligible for Federal funding. Eligible costs

may include real estate acquisition, demolition of existing structures, site preparation, building foundations, utilities (including utility relocation and construction), walkways, open space, safety and security equipment, project development activities (including design, engineering, environmental analysis, construction cost estimating, real estate packaging and financial projections, negotiations to secure financing and tenants), transportation-related furniture, fixtures and equipment, and related professional services.

SFMTA has a Transit Oriented Development (TOD) Policy (see Figure 19-1), including managing growth in support of transit with TOD objectives of:

- Becoming a leader in TOD
- Seeking input from various stakeholders
- Bringing development to transit
- Bringing transit to development
- Strategically using SFMTA's property assets
- Maximizing long term benefits to the community and region
- Partnering with private and public entities

SFMTA's first Transit Oriented Development (TOD), is Hotel Vitale, 8 Mission Street at Steuart Street and across The Embarcadero from San Francisco Bay and the Ferry Building - Hotel Vitale (Italian for "vitality") Project is an innovative development of property, owned by the City of San Francisco and under the jurisdiction of the Municipal Transportation Agency (MTA). The Mission and Steuart site, a former MTA bus layover yard, was selected in 1996 in the Municipal Railway Assets Development Study as a site for commercial development to increase MTA's revenues. The study concluded that a hotel had the best potential to provide SFMTA with substantial long-term revenues on the site, and would be the use that would be the most compatible with the surrounding area. The RFQ and RFP for the Mission and Steuart Hotel were approved by the Public Transportation Commission (PTC) and issued in 1997. After a competitive process, the PTC approved the selection of the Emerald Fund as the developer and Joie de Vivre as the hotel operator. Heller Manus was the Architect. After 3 years of public process, the Mission and Steuart Development Agreement (DDA) and Lease were executed in September 2001 with the Emerald Fund. However, then the tragedies of September 11, 2001 occurred. The Project was delayed for 2+ years. Finally, close of escrow was October 3, 2003. As of that date, the Emerald Fund and Joie de Vive had paid MTA a total of $1,485,683 in Development Agreement fees and extension fees. Groundbreaking for Hotel Vitale was celebrated on October 9, 2003, and construction started the next day. Hotel Vitale opened March 9, 2005. As of September 30, 2007, Hotel Vitale has been very successful, and has paid SFMTA a total of $3,486,387, including $2,235,683 in Development Agreement Fees, and $1,250,704 in Base and Participation Rent.

19.2.3 Guiding Documents

The City and the SFMTA will conduct all joint development activities consistent with applicable City, State and Federal procedures. The following specific Federal regulations apply to the Project's property acquisition and joint development programs:

- *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* and subsequent amendments (the "Uniform Act")

- 49 CFR Part 24, dated January 4, 2005, titled *Uniform Relocation Assistance and Real Property Acquisition Regulations for Federal and Federally-Assisted Programs, Final Rule, and Notice* and subsequent updates.

- *FTA Circular C5010.1D dated November 1, 2008, titled Grant Management Guidelines*.

- *Notice of Final Agency Guidance on the Eligibility of Joint Development Improvements under Federal Transit Law,* dated February 7, 2007.

Please see the RAMP for further information relating to the Guiding Documents.

Two key planning and policy documents guide the Project joint development program. The PMP is the guide for the Project as a whole. This JD Plan, along with the City Real Estate Department's policies and procedures, will provide the process for implementing the joint development program. The PMP, the JD/TOD Plan, and the City Real Estate Department's policies and procedures will be reviewed periodically and revised as necessary.

As mentioned in Section 18.2.2 above, see Figure 19-1 for SFMTA's Transit Oriented Development (TOD) Policy.

19.2.4 Staffing and Coordination

Please see the RAMP. The staffing and coordination for the JD/TOD Plan will be the same as the staffing and coordination described in the RAMP.

19.2.5 Approval Processes

Please see the RAMP. The approval processes of the SFMTA and the City set forth in the RAMP for right of way acquisition also describe the approvals that will be needed for the SFMTA to undertake joint development.

19.2.6 Budget and Schedule

Please see the RAMP. Costs for joint development are included in the overall ROW property acquisition budget. The schedule for joint development will parallel the schedule for property acquisition; in each case, the primary determinant of the schedule will be the Project construction schedule.

19.3 PROPERTIES WITH JOINT DEVELOPMENT POTENTIAL

The properties to be acquired for the Project were identified during the Project conceptual design. A master list of the parcels for the proposed acquisitions is attached to the RAMP: Properties Proposed for ROW Acquisition.

Joint development opportunities will be identified and coordinated by SFMTA Real Estate staff. Examples of sites on which joint development, including revenue-producing opportunities, can occur include stations, excess property that had to be acquired for the Project, sites redesigned or reserved for future uses, and/or the air rights above SFMTA uses. SFMTA Real Estate staff has currently identified the following properties as having potential for joint development:

(i) 935-949 Stockton Street; and

(ii) The Conoco gasoline filling station located at the northwest corner of Fourth and Folsom Streets.

SFMTA Real Estate staff may be assisted in their joint development efforts by consultant(s) experienced in property development. Consultant(s) will be hired through a request for proposals ("RFP") process that follows City contracting procedures, Federal and State contracting guidelines, and the FTA regulations listed under "Guiding Documents" above.

19.4 REFERENCES

- Real Estate Acquisition Management Plan
- Transit Oriented Development (TOD) Policy (Figure 19-1)
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and subsequent amendments (the "Uniform Act")
- 49 CFR Part 24, dated January 4, 2005, titled Uniform Relocation Assistance and Real Property Acquisition Regulations for Federal and Federally-Assisted Programs, Final Rule, and Notice and subsequent updates.
- FTA Circular C5010.1D dated November 1, 2008, titled Grant Management Guidelines.
- Notice of Final Agency Guidance on the Eligibility of Joint Development Improvements under Federal Transit Law

Figure 19-1: SFMTA's Transit Oriented Development Policy (DRAFT)

WHY DOES SFMTA SUPPORT TRANSIT ORIENTED DEVELOPMENT (TOD)?

Managing Growth in Support of Transit

By 2025, the number of households in San Francisco are expected to grow between 20,000 and 30,000 while the number of jobs are projected to grow between 115,000 to 135, 000[1]. This growth, in a City with limited land, will require optimal policies to address congestion, housing, environmental sustainability and quality of life. SFMTA recognizes that land use decisions in concert with the City's Transit First Policy offer TOD as the ideal tool to address growth by maximizing transit use thereby enhancing an urban quality of life and supporting an environmentally sustainable future.

What is TOD?

Mixed-use development located near major transit corridors designed to facilitate transit use, particularly for pedestrians. TOD can include individual residences, whole neighborhoods, open space, retail and the infrastructure supporting livable communities[2].

SFMTA TOD Policy Statement

SFMTA will use TOD to: (1) increase the use of public transit through coordinated land use policies and development without negatively impacting transit operations; (2) generate revenue; and (3) promote a high-quality, sustainable urban lifestyle.

Policy Objectives

1) Become a leader in TOD

Demonstrate leadership in TOD

2) Seek input from various stakeholders

Involve city departments, regional agencies, transit providers, developers, residents, businesses, community groups, transit advocates and other stakeholders to plan TOD that ensures:

- safe, walkable neighborhoods
- supportive community features and services
- thriving local business
- preservation of neighborhood character

3) Bring development to transit

Encourage intensive, high quality, mixed-use infill development along transit corridors that will increase use of public transit and decrease automobile trips

[1] City Planning Department and Association of Bay Area Governments

[2] A livable community is one that has affordable and appropriate housing, supportive community features and services, and adequate mobility options, which together facilitate the engagement of residents in civic and social life.

4) Bring transit to development

Increase transit service and capacity to anticipate and meet needs of development.

5) Strategically use SFMTA property assets

Use SFMTA property for TOD without negatively impacting operational needs

6) Maximize long term benefits to community and the region

Link Bay Area transit corridors through TOD to meet regional goals of clean air, open space and increased mobility.

7) Partner with private and public entities

Leverage private and public sector resources

APPENDIX A
ACRONYMS

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LIST OF ACRONYMS

ACI	American Concrete Institute
APTA	American Public Transit Association
AREA	American Railway Engineering Association
ASCE	American Society of Civil Engineers
ATCS	Advanced Train Control System
AWSS	Auxiliary Water Supply System
BARTD	Bay Area Rapid Transit District
BOA	DPW Bureau of Architecture
BOE	DPW Bureau of Engineering
BLHP	HHWP Bureau of Light, Heat & Power
BSM	DPW Bureau of Street Use and Mapping
CAC	SFMTA Community Advisory Committee
CACSUC	BSM Citizens Advisory Committee for Street Utility Construction
CAG	Central Subway Community Advisory Group
CalTrans	California Department of Transportation
CaPWoC	Capital Projects Working Committee
CCB	SFMTA Change Control Board
CCSF	City and County of San Francisco
CCTV	Closed Circuit Television
CDC	Community Development Center
CDD	SFWD City Distribution Department
CEQA	California Environmental Quality Act
CE	Conceptual Engineering (also called Preliminary Engineering)
CER	Conceptual Engineering Report
CEO	Chief Executive Officer
CFR	Code of Federal Regulations
CIP	Capital Improvement Program

CMB	Central Subway Configuration Management Board
CPM	Critical Path Method (schedule)
CPMP	SFMTA Comprehensive Project Management Plan
CPR	Cardiopulmonary Resuscitation
CPUC	California State Public Utilities Commission
CPUCP	Committee for Planning Utility Construction Program
CSP	Central Subway Project
CULCOP	BSM Committee for Utility Liaison on Construction and Other Projects
DBI	Department of Building Inspection, CCSF
DOM	Design Oversight Manager
DPT	SFMTA Department of Parking and Traffic
DRE	Department of Real Estate, CCSF
DPW	Department of Public Works, CCSF
DRB	Central Subway Disputes Resolution Board
DTIS	Department of Technology & Information Systems, CCSF
EAC	Estimate at Completion
ECP	Engineering Change Proposals
EIR/S	Environmental Impact Report/Statement
EMI	Emergency Management Interface
ESA	Environmental Site Assessment
FFGA	Full Funding Grant Agreement
FTA	Federal Transit Administration
HHWP	Hetch Hetchy Water and Power, SFPUC
HSP	Health and Safety Plan
IEEE	Institute of Electrical and Electronics Engineers
JD/TOD	Joint Development/Transit Oriented Development
LRT	Light Rail Transit
LRV	Light Rail Vehicle
LRV2	Light Rail Vehicle 2 (procurement)
MMT	Muni Metro Turnback

MMX	Muni Metro Extension
MSSPP	SFMTA Rail System Safety Program Plan
MTA	San Francisco Municipal Transportation Agency
MTC	Metropolitan Transportation Commission
Muni	San Francisco Municipal Railway, SFMTA
NEC	National Electric Code
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NTI	National Transit Institute
NTP	Notice to Proceed
NTSB	National Transportation Safety Board
OCS	Overhead Contact System
OES	Office of Emergency Services, CCSF
PCR	Project Change Request
PE	Preliminary Engineering
PMO	Project Management Oversight
PMOC	Project Management Oversight Consultant
PMP	Program Management Plan
PRO	Pre-Revenue Operations
PROP	Pre-Revenue Operations and Start-Up Plan
PTR	Preliminary Title Report
QAP	Quality Assurance Plan
RAMP	Real Estate Acquisition Management Plan
RAP	Rail Activation Plan
RDT	Reliability Demonstration Testing
RFQ/RFP	Request for Qualifications/Request for Proposals
ROD	Record of Decision
ROW	Right of Way
SAR	Site Assessment and Remediation
SCADA	Supervisory Control and Data Acquisition

SF	San Francisco
SFCTA	San Francisco County Transportation Authority
SFFD	San Francisco Fire Department, CCSF
SFPD	San Francisco Police Department, CCSF
SFPUC	Public Utilities Commission, CCSF
SFMTA	San Francisco Municipal Transportation Agency, CCSF
SFWD	San Francisco Water Department, SFPUC
SHPO	California State Historic Preservation Officer
SITP	System Integration Test Plan
SRTP	Short Range Transit Plan
SSCP	Safety and Security Certification Plan
SSCVR	Safety and Security Certification Verification Report
SSEPP	System Security and Emergency Preparedness Program
SSMP	Safety and Security Management Plan
SSPP	System Safety Program Plan
SUCC	BSM Street Utilities Coordinating Committee
TAC	Technical Advisory Committee
TPSS	Traction Power Sub-Station
TSM	Transportation Systems Management
USDOT	United States Department of Transportation
VE	Value Engineering
WBS	Work Breakdown Structure

APPENDIX B
ORGANIZATION AND STAFFING

Click on a Division's title to navigate to the individual Division's site page *or* click on a Section's title to navigate to the individual Section's site page.

SFMTA
Municipal Transportation Agency

Board of Directors

TOM NOLAN | Chairman
CHERYL BRINKMAN | Vice-Chairman
LEONA BRIDGES | Director
MALCOLM HEINICKE | Director
JERRY LEE | Director
JOEL RAMOS | Director
CRISTINA RUBKE | Director

ROBERTA BOOMER | Board Secretary

Director of Transportation

ED REISKIN

- Communications
- Government Affairs
- Central Subway Program
- Van Ness Bus Rapid Transit (BRT)

CAPITAL PROGRAMS & CONSTRUCTION
VINCE HARRIS

- Capital Quality Assurance
- Construction Management
- Contract Administration
- Engineering
- Job Order Contracting
- Program Management

FINANCE & INFORMATION TECHNOLOGY
SONALI BOSE

- Administration
- Accounting & Operating Budget
- Administrative Hearings
- Capital Grants & Budgeting
- Contracts & Procurement
- Financial Services
- Real Estate
- Revenue Collection & Sales
- Technology & Performance

HUMAN RESOURCES
DONALD ELLISON

- Employee & Labor Relations
- Equal Employment Opportunity
- HR Operations
- Organizational Development
- Training & Instruction
- Wellness
- Workers' Compensation

SUSTAINABLE STREETS
BOND YEE

- Administration
- Field Operations
- Livable Streets
- Off-Street Parking
- Security, Investigations & Enforcement
- Strategic Planning & Policy
- Transportation Engineering

SYSTEM SAFETY
MELVYN HENRY

- Administration
- DriveCam
- TransitSafe
- Transportation Safety

TAXI & ACCESSIBLE SERVICES
CHRISTIANE HAYASHI

- Accessible Services
- Taxi Services

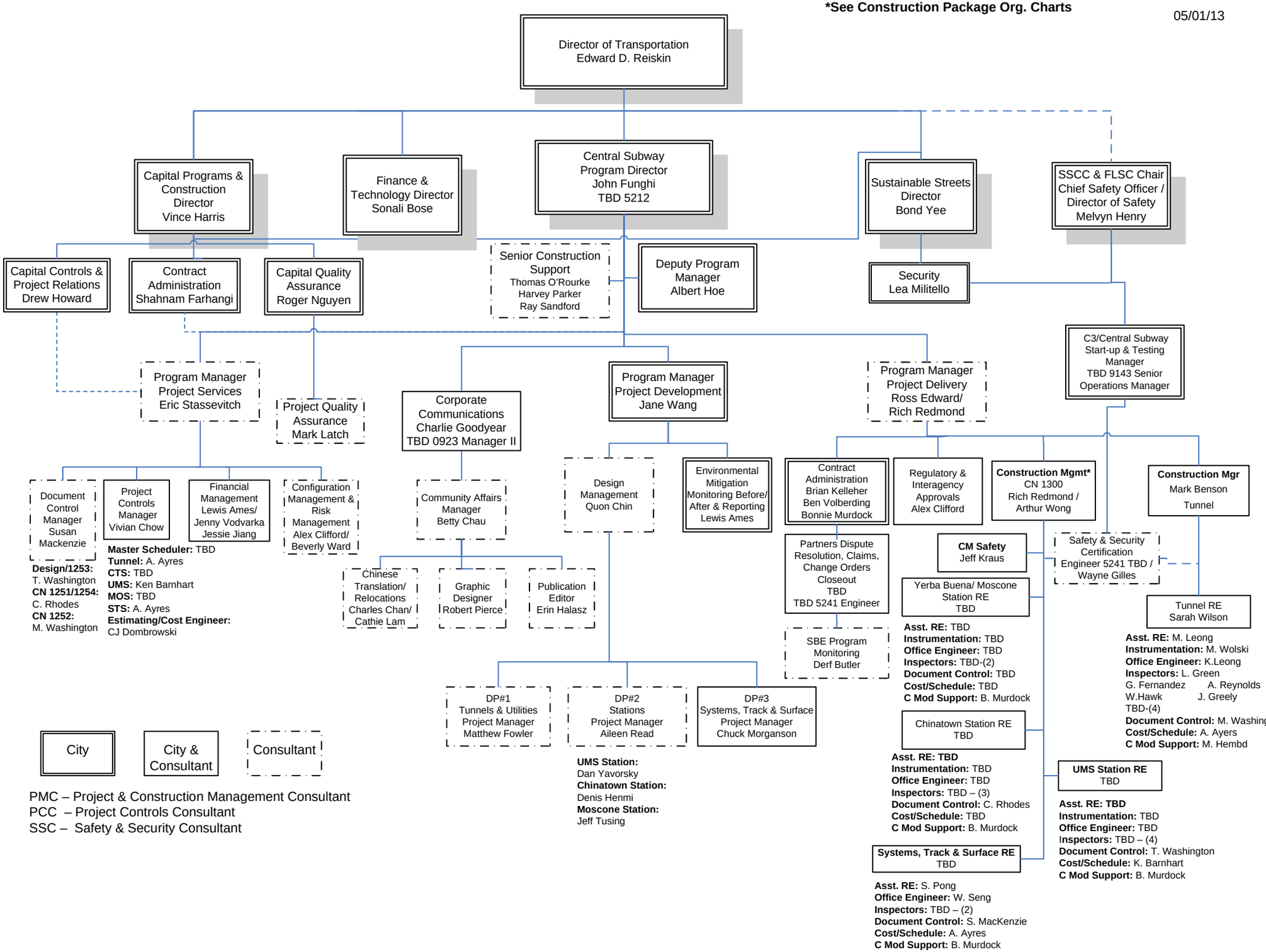
TRANSIT
JOHN HALEY

- Administration
- Operations Planning & TEP
- Transit Services
- Transit Management
- Bus Maintenance
- Rail Maintenance
- Maintenance of Way

M544.1 Construction

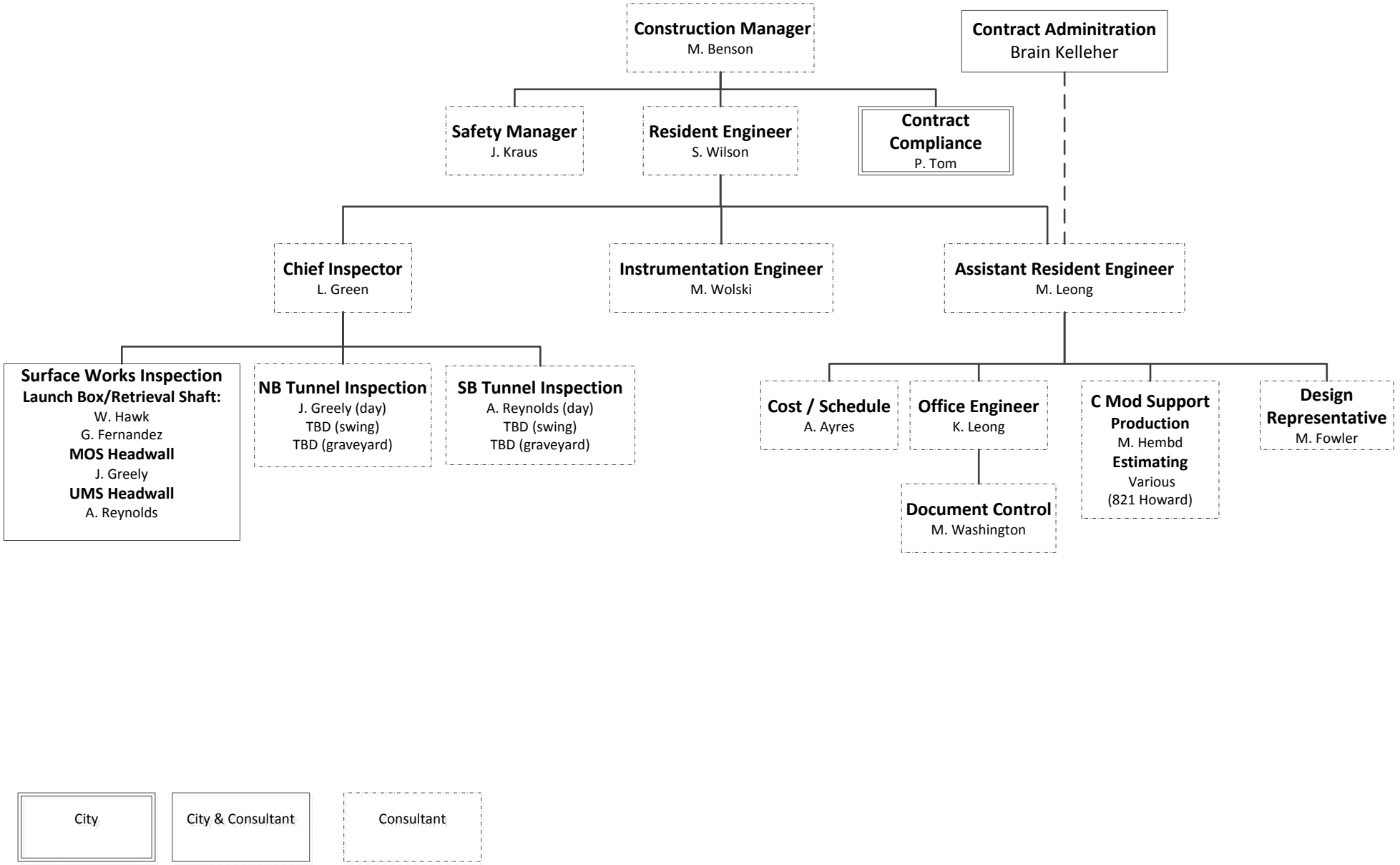
***See Construction Package Org. Charts**

05/01/13



PMC – Project & Construction Management Consultant
PCC – Project Controls Consultant
SSC – Safety & Security Consultant

CN 1252 Tunnel Construction Management Organization Chart



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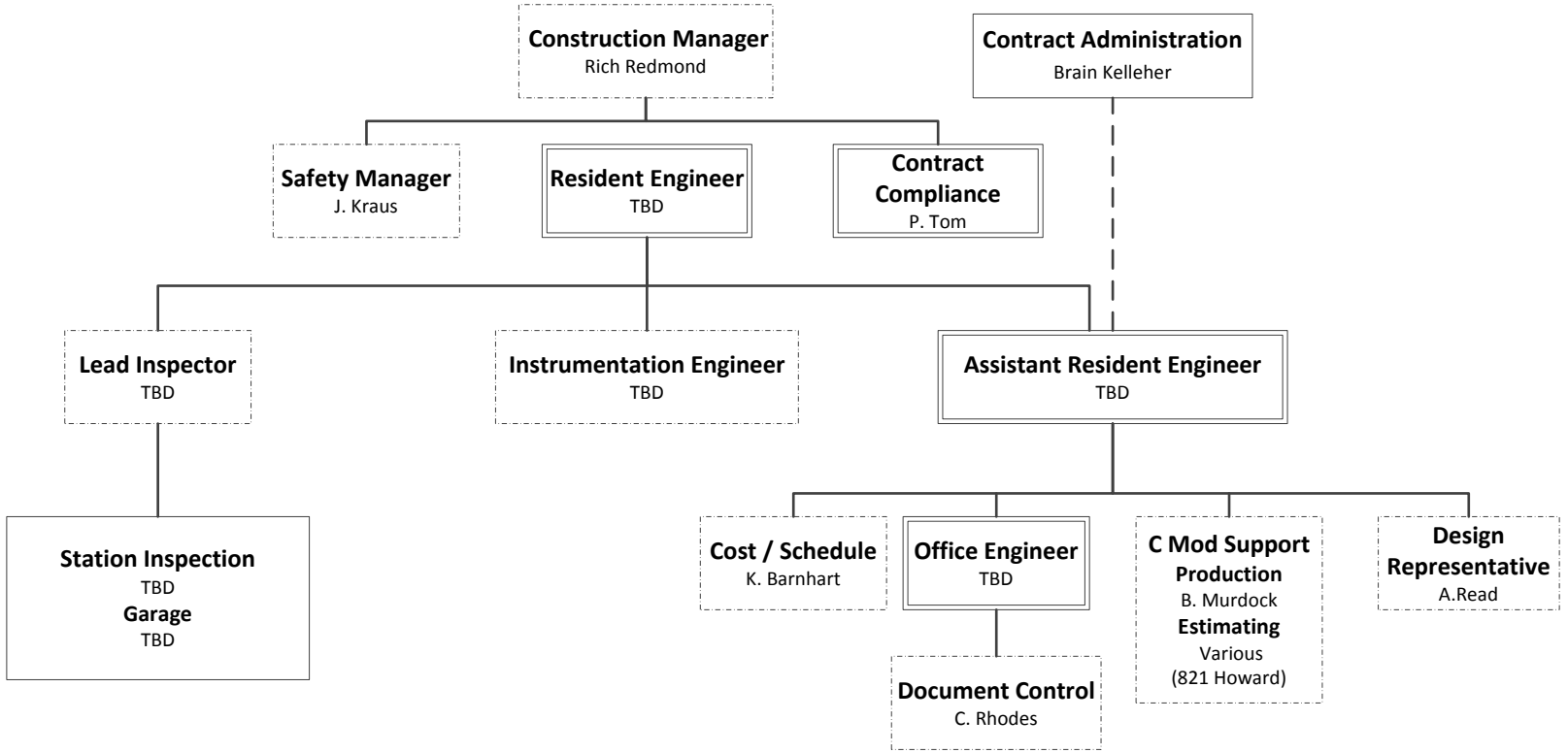
CN 1300 – WP 1253 UMS Construction Management Organization Chart



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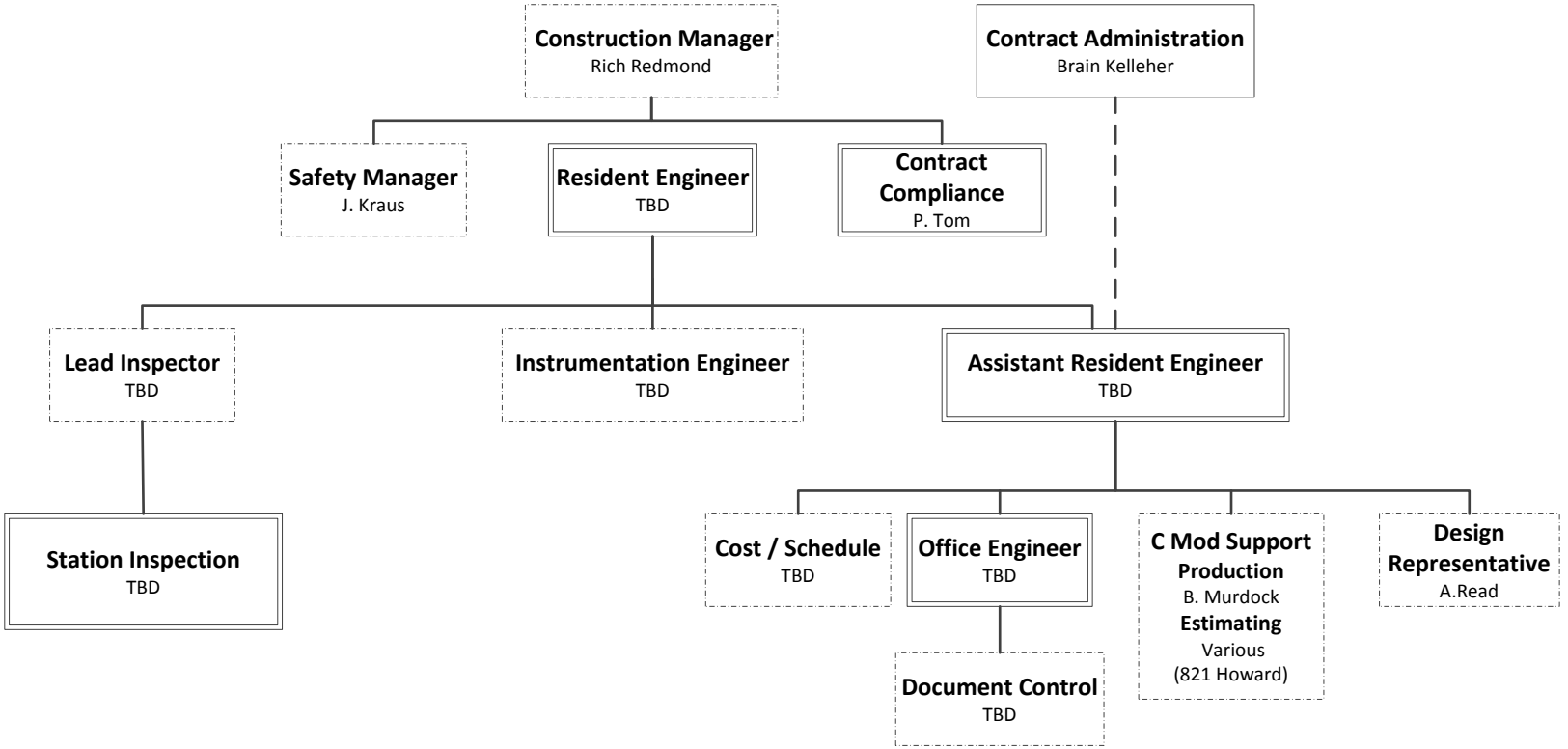
CN 1300 - WP 1254 CTS Construction Management Organization Chart



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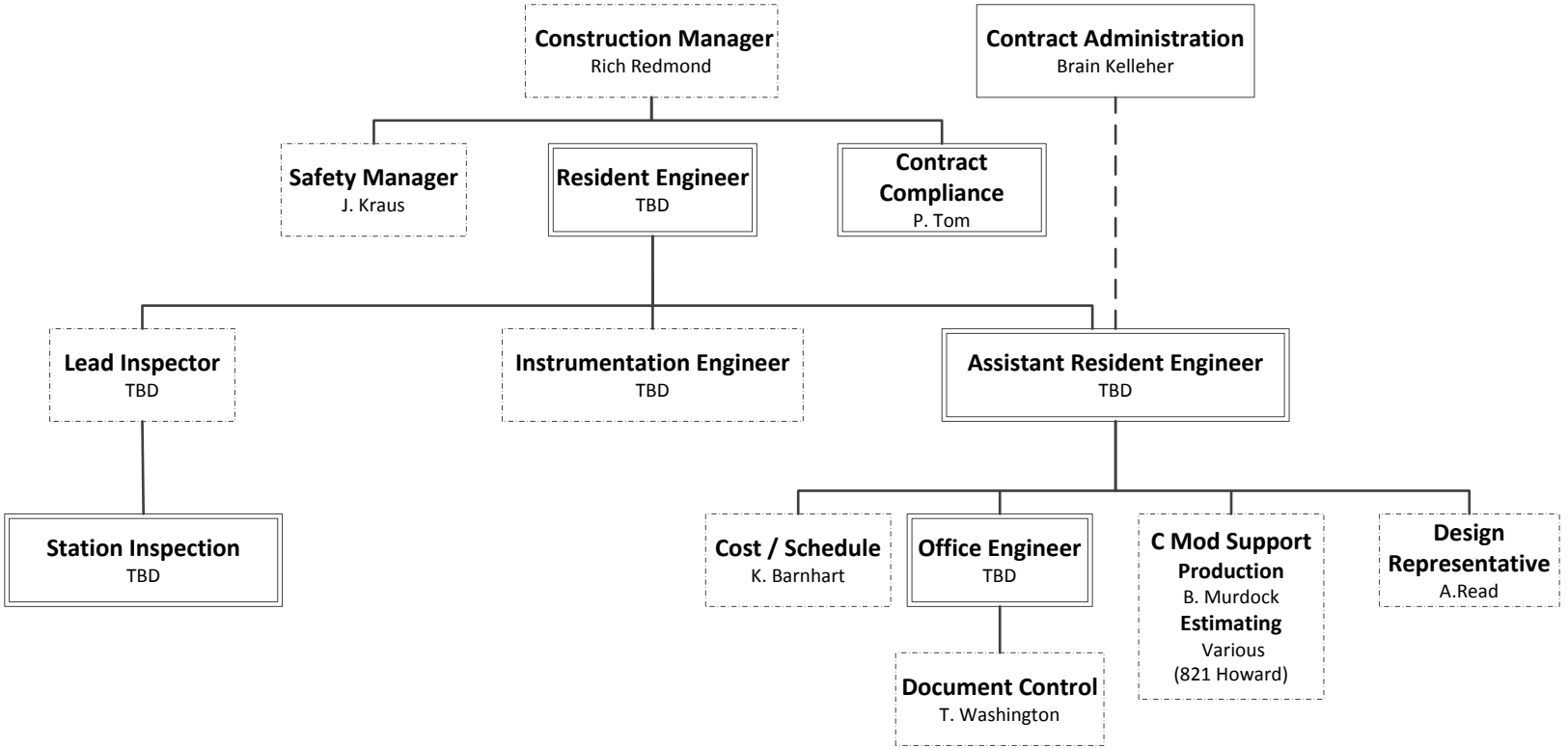
City & Consultant

Consultant

05-01-2013

CN 1300 – WP 1255 YBM Construction Management Organization Chart



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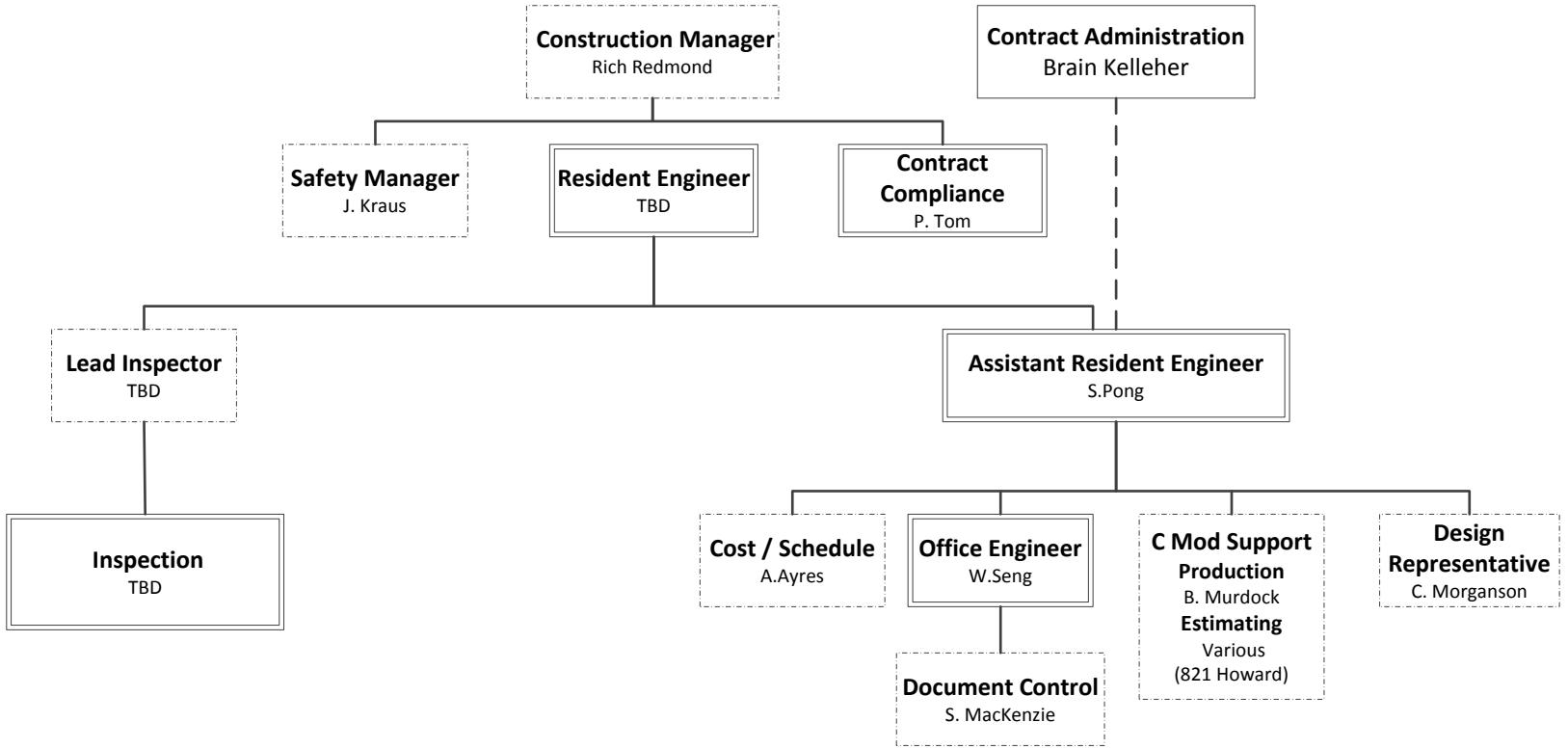
CN 1300 – WP 1256 STS Construction Management Organization Chart



City | City & Consultant | Consultant

05-01-2013

APPENDIX C
RESUMES

Appendix C Resume Update

New resumes included in Appendix C May 2013 update:

1. Kenneth Barnhart
2. Vivian Chow
3. Alex Clifford
4. Gabe Fernandez
5. James Greely
6. Larry Green
7. Erin Halasz
8. William Hawk
9. Matthew Hembd
10. Nicolas Huff
11. Jessie Jiang
12. Brian Kelleher
13. Jeff Kraus
14. Wyman Lee
15. Kristie Leong
16. Mun Leong
17. Bonnie Murdock
18. Sanford Pong
19. Dennis Oates
20. Paul Osburn
21. Cea'mon Rhodes
22. Richard Redmond
23. Audie Reynolds
24. Wuthea Seng
25. Marlon Washington
26. Tanya Washington
27. Sarah Wilson
28. Michael Wolski
29. Blanca Villasenor
30. Jenny Vodvarka
31. Ben Volberding
32. Jin Zhao

Resumes of staff no longer on Project as submitted in Appendix C November 2011 update:

1. Cara Baker
2. Joginder Bhore
3. Carlos Campillo
4. Mennor Chan
5. David Greenaway
6. Guy Hollins
7. Malcom Hudson
8. William Jaeger
9. Elissa Lau
10. Denise McDonald
11. Nasri Munfah
12. Brajah Norris
13. James Oswell
14. Steve Sanchez
15. Carrie Sandman
16. Prester Wilson

APPENDIX C:
RESUMES

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LEWIS TOWER AMES, AICP

Project Manager

Education:

Certificate in Project Management, New York University 1-year program.
MA, Urban Transportation Administration, San Jose State University
Working Internship: San Francisco Municipal Railway Operations Central Control Upgrade
BS, Business Administration, University of San Francisco
BA, Sociology, University of California, Berkeley

Key Qualifications:

Mr. Ames has a record of developing public agency organizations and systems. He has managed departments and staff for consulting firms and transportation agencies including contracts, budgets, and proposals for planning and engineering teams. Mr. Ames has played an active role in successful federal, state and regional grants initiatives. He led integration of business planning with the operating budget of a $600 million regional railroad and managed budget, consultants and skilled craftsmen in a $4.5 million restoration of six vintage streetcars.

- **SF MTA LRT Extension and Start Up** – Produced:
  - FRA Shared Use Petition - freight-to-light rail crossings / interlockings **–** FRA Approved.
    - Risk Assessment, update of rail service operating rules and SSPP.
    - Stakeholder inputs from UPRR, Port of SF, rail freight customers, Caltrain, Railroad Museum and State CPUC.

  Produced and implemented system-wide training programs and MTA procedures for:
  - Track Inspection & Maintenance **–** APTA and FRA standards based**.**
  - On Track Safety Program / RWP FRA Approved. Trained > 400 MTA staff & Contractors.
  - Grade Crossing / Interlocking Inspection & Maintenance **–** CFR Part 234 / 236 based.
  - Central Control Access Permit & Clearance **–** Integrated with On Track Safety/RWP.
- **SF MTA Budget Management -** Led construction budget administration and analysis of $600 million project budget and coordination multiple contract segments. Produced budget revision documentation, prepared FTA quarterly and CMA progress reports; developed team approach with Grants, Finance and Construction; initiated steps to improve manual documentation and control system; and, increased transparency and access to records.
- **Portland Tri-Met System-wide Safety Review** - Project Manager of 33-mile light rail line safety review. Recommendations implemented include:
  - Reconstruction of higher speed crossings with sight line and alignment constraints.
  - Safety Education and Outreach Program – public service announcements; web site page.
  - Safety enhancements of extensions under final design.

  Prepared agency staff roll out of new safety program at press conference with AP, Wall Street Journal and NBC. Made press conference presentation well received by client and media.
- **Caltrain PCJPB** - Project Manager of Joint PCJPB and Amtrak System Safety Program Plan resulting in more safety-focused maintenance and operations.
  - Participated in FEMA emergency drills/debriefings regional response program.

  Project Manager over two-year period of annual customer satisfaction survey covering 40 trains. Developed and led training of survey takers.

821 Howard Street
San Francisco, CA 94103
415.701.4280 Phone
415.701.5222 Fax

- **MTA Metro-North Railroad** – Managed planning staff, led environmental analyses and public - local official outreach. Produced EIR analysis of noise, station location, maintenance base location, project costs, and ridership resulting in project implementation.
  - Produced first Key Station Plan to implement Americans with Disabilities Act.
  - Presented capital projects at community planning forums including South Bronx.
- **Other SF Bay Area and U.S. Regional Rail Development and Projects** – Produced:
  - First detailed BART to San Jose, Transit Board approved, corridor description using UPRR alignment. First Transit Board approved description of two new LRT lines resulting in local approval of all three corridors.
  - Fremont-South Bay Station and terminal location analysis of 16-mile commuter rail plan.
  - Union City connection with BART and Dumbarton Bridge service Conceptual Plan, schematics and artist conception drawings for– study led to EIR to implement proposal.
  - And implemented first demonstration of passenger rail service between San Jose and Gilroy resulting in full implementation of the prototype.
  - And managed Georgia DOT Norfolk Southern - Atlanta Regional Rail Capacity Analysis using simulation program for shared corridor with constrained freight mainline and branch line operations.
  - Capitol Corridor seven-county Joint Powers Board integrated program to significantly enhance and expand regional rail service from 6 to > 16 trains per day. Produced service O&M costs, ridership forecasts, performance measures; and local transit fare coordination program. The submitted recommendations are fully implemented.
  - Southern California Intercity Rail program of institutional arrangements and costs to implement Amtrak – SCRRA Rail 2 Rail Program. Program was implemented.
  - Monterey - Santa Cruz DMU Service Plan rail transit program study of vehicles, funding, operating and capital costs, station location and agreements.
- **Other Transit Projects and Extensions** – Produced:
  - Downtown Santa Clara VTA LRT Alignment Study to link Vasona Line and East Valley lines: Operations, Connectivity, Patronage, Station Locations, Pedestrian Safety, Transit Design Elements and Report Recommendations.
  - Deputy PM, the Capitol Avenue LRT DEIS analysis of four-mile traffic, pedestrian, bus and parking impacts. Evaluated neighborhood access, safety, and transit connectivity.
  - Led Tasman East LRT Supplemental EIR of stations impacts and ridership analysis. The results were implementation of Capitol Avenue and Tasman East LRT projects.
  - Seattle Sound Transit LRT EIS Analysis of historical data at six comparable LRT systems to estimate 2020 accident exposure in Central Link EIS for twelve segment alignments.

EMPLOYMENT HISTORY:

Project Manager Central Subway Project 2007 to Present
San Francisco Municipal Railway

Senior Project Management Analyst/Construction Division 2001 to 2007
San Francisco Municipal Railway

Office Manager/Project Manager 1998 to 2001
Korve Engineering, San Francisco, California 94105

Rail Systems Project Manager 1995 to 1998
SYSTRA Consulting, San Francisco, California 94102

Manager, Long Range Planning 1990 to 1995
MTA Metro-North Railroad, New York, New York 10017

Senior Transportation Planner 1981 to 1990
Santa Clara County Transit District Board of Supervisors, San Jose, California 95110

Alexis Ayers, PSP
Scheduler

Education
2002, BS – Management Science, University of California, San Diego, CA

Professional Background
Planning and Scheduling Professional, AACE certification Association of Advancement of Cost Engineering

Background
Alexis Ayers has over 7 years experience as project controls professional. She is experienced in providing costs, scheduling and estimating support for infrastructure projects.

Representative Project Assignments
Central Western Region Scheduler for Amtrak Program Management Projects, San Diego, CA. Lead scheduler on a program that includes over 400 projects with a cumulative budget of over $750 million Total Installed Cost (TIC). Worked with scheduling team to create and update a monthly cost loaded master schedule. Assisted in creating a work breakdown structure that integrated client's project numbering with contract bundle numbers. Generated weekly look-ahead schedules for Jacob's design and procurement status. Audited multiple Contractor's baseline schedules and monthly updates with comments and critical path analysis. Integrated Contractor's monthly progress into the master schedule. Travel to multiple project offices for added scheduling support and to meet with the Project Team and Contractors.

San Diego County Water Authority, at Lake Hodges Pump Storage Project, San Diego, CA. Scheduler for $150M project and worked on critical path analysis of Contractor's CPM schedule supported by letters, emails, and schedule comments for documentation against claims. Led schedule review meetings on the Contractor's Monthly Draft Schedule Update to help mitigate corrections, questions, and problems in the Contractor's schedule. Produced weekly schedule audits comparing actual and forecasted dates with recent schedule updates from the Contractor. Completed field walks to verify progress. Met with inspections, project mangers, engineers, and superintendents to forecast dates and validate logic. Generated a monthly PM Report to capture the project progress, major issues, budget and change order status and review and update RFI logs, and progress photos.

San Diego County Water Authority Projects, San Diego, CA. Project scheduler supporting more than 40 projects with a cumulative budget of over $17 million. Issued weekly cost report, processed monthly invoices from sub contractors and monthly invoice to client. Administered labor corrections and budget changes, released money to sub contractors, generated cost forecast and cost analysis reports to the client, and monthly margin analysis for upper management.

Project Controls Support. Assisted in creating and testing a web based electronic schedule update tool according to the business rules of the client to update Primavera schedules. Lead classes to client teaching them how to use the updating software. Analyzed schedules, variances, and earned value for reports to upper management and the public website. Helped create and update resource loaded, base lined project schedules for Caltrans and SANDAG.

BP Flare Gas Recovery Project. Lead Planner/Scheduler for $250 million TIC. Planned and developed project from FEL to construction. Facilitated planning meeting with engineers, project managers, sub contractors, clients, and construction mangers. Built resource loaded, critical path, base lined, fully integrated EPC schedules ranging from a few hundred to thousands of activities.

Worked on Turn Around Schedules with two a day updates, earned value, field labor analysis, and deviation reports. Experience with Pertmaster risk analysis, IPA, integrating subcontractors work into master schedules, work break down structures, trackers, and construction progress curves. Produced weekly updates and schedule analysis. Generated monthly analysis of manpower and resource leveling for individual projects and multiple projects.

ValleyCrest Landscape Development. Project Estimator responsible for gathering, calculating, and compiling takeoff data for use in bid proposal estimates for projects. Maintained current, accurate information on prices from suppliers and contractors through direct contact and historical data. Calculated and prepared conceptual budgets and evaluated and revised estimates when given updated plans.

Kenneth James Barnhart, LEED GA

Assistant Project Engineer

Kenneth J. Barnhart has more than 3 years of experience in the construction industry. Mr. Barnhart's areas of expertise include project management, estimating, construction management, and surveying. His projects consist of sports facilities and resorts in the United States.

During his internship, Mr. Barnhart was responsible for quantity surveying and pricing of mechanical, electrical, and plumbing (MEP) systems for a sports stadium project. He also performed hardscape quantity surveying for a project involving the construction of a resort. Mr. Barnhart attended weekly construction coordination meetings, monitored projects to identify and document construction issues, and compiled spreadsheets for use in takeoff pricing.

As Founder and Ex-President of the Student Chapter of the U.S. Green Building Council at Oregon State University, Mr. Barnhart is versed in green building concepts and strategies.

Mr. Barnhart's specialized computer software skills include Primavera P6, Sage Timberline, On-Screen Takeoff, and Google Sketch-Up.

SPORTS EXPERIENCE

Salt River Pima-Maricopa Community, Arizona Diamondbacks and Colorado Rockies Spring Training Facilities Project, Scottsdale, Arizona, Intern

This project involved the construction of a spring training facility on land owned by the Salt River Pima-Maricopa Indian Community. The facility included an 11,000-seat ball park, 12 replica and practice fields, Major and Minor League signature clubhouses, training facilities, and offices for each team. The community partnered with the Diamondbacks and Rockies to build the first Major League Baseball spring training facility on Native American land.

Education:
Coursework, Construction Engineering Management, Oregon State University, 2007-2011, 0
Coursework, Business Administration, Southern Oregon University, 2006-2007, 0

Registrations:
LEED Green Associate
Engineer-in-Training, Oregon

Professional Memberships:

Awards/Honors:
2010 AGC Education and Research Foundation Scholarship

Publications:

Seminars:

To meet a fast-track occupancy deadline, Hill International was engaged by the client to deliver an initial budgetary estimate and fully integrated master schedule. We evaluated design drawings and Construction Manager At Risk (CMAR) costs, participated in systems selection and value engineering, and attended construction meetings. In addition to reviewing change orders, payment applications, requests for information (RFIs), and specifications, Hill was responsible for site visits and observations, delay and cost ramification analysis, shop drawing review, and quantities and pricing checks. We also assessed claims and requests for adjustment and conducted quality assurance field checks to provide independent evaluation and reporting.

On behalf of Hill, Mr. Barnhart performed quantity surveying for mechanical, electrical, and plumbing (MEP) systems and pricing of certain portions of the takeoffs. He attended weekly construction coordination meetings, conducted on-site monitoring of projects to identify and document construction errors, and produced spreadsheets for the pricing of various takeoffs.

HOTEL AND RESORT EXPERIENCE

Hyatt Development, Andaz Wailea Hyatt, Maui, Hawaii, Intern

The opening of Andaz Wailea Resort and Residences marked the expansion of Hyatt's Andaz brand into the key resort market. Located along 600 feet of Mokapu Beach, the master plan for the resort included a 1.2-mile-long oceanfront beach path connecting world-class beaches, a premier shopping center, restaurants, a 54-hole golf club, and a tennis club. The hotel featured 255 rooms and 35 suites ranging in size from 456 SF to 2,321 SF, four-bedroom villas (3,500 SF), cascading outdoor pools, a 15,000-SF spa, a gym, a lobby lounge, and meeting space. On behalf of Hill, Mr. Barnhart performed hardscape (pavement, pavers, and pool/patio area) quantity surveying, attended weekly construction coordination meetings, monitored projects on-site to identify and document construction errors, and prepared spreadsheets for the pricing of various takeoffs.

PRIOR EXPERIENCE

Construction, Maintenance and Repair, and Facility Management Projects, Belfair, Mukilteo, Leavenworth, Seattle, and Paine Field/Snohomish County Airport (Everett), Washington, Assistant

As an intern for a general contractor, Mr. Barnhart served as an assistant to the Facility Manager. His tasks comprised reclaimed timber construction, sport court construction, and roadway maintenance and repair. He was also responsible for completing the punch list on a condominium building project in Seattle.

RiteAid, Construction Projects, Belfair, Washington, Laborer

Mr. Barnhart worked as a laborer for a general contractor as part of his internship. His duties included presenting safety meeting minutes and completing various on-site construction tasks, including bollard placement, column base grouting, concrete saw cutting, and temporary construction and deconstruction. Mr. Barnhart also participated in weekly construction coordination meetings.

Costco Wholesale Corporation, Bend, Oregon, Front-End Worker

Mr. Barnhart provided customer service on behalf of an international chain of membership warehouses.

Mt. Ashland Ski Resort, Ashland, Oregon, Snowboard Instructor

Employed by a 200-acre ski resort in southwestern Oregon, Mr. Barnhart was responsible for teaching snowboarding to clients.

Mark Benson, P.E.

Program/Construction Manager

Summary:
Mr. Benson has 20 years of experience with program management, construction management, design, and construction in the transit, highway and water industries. He has worked on some of the largest transit projects in the United States including Los Angeles MTA, San Diego MTDB, BART and Santa Clara VTA, as well as the $2.3 billion Puerto Rico Tren Urbano project. He is experienced in all aspects of project management and interfacing with clients, government agencies, third party stakeholders and contractors. His wide range of experience has included conceptual through final designs, construction management, design-build and design, build, operate and maintain projects.

Years of Experience: 20

Education:
San Jose State University, San Jose, CA, 1991, *BS Civil Engineering*

Registration:
1994/Civil Engineer/ CA License #C56443

Project Experience:

Delta Habitat Conservation and Conveyance Project (DHCCP), Sacramento, Yolo, Contra Costa and San Joaquin Counties, CA, California Department of Water Resources (DWR), 2008 – Present
Assistant Program Manager: Mr. Benson's responsibilities include management and oversight for the Conceptual Engineering of the five conveyance options for the DHCCP; management and oversight of all engineering, scheduling, cost estimating, safety, quality, value engineering, and stakeholder coordination. His oversight also included development of engineering management plans, engineering and geotechnical work plans, design standards and developing task order scopes, budgets, schedules and staffing plans.

Phase 1 Houston Metro Solutions Light Rail DBOM Project, Houston, Texas, 2007 – 2008
Deputy Program Manager: The $77 million Phase 1 portion of the project included advancement of the preliminary engineering that will add 19.8 miles and 26 new stations divided among four corridors and an Intermodal Facility. Responsibilities included the development, management and oversight of all engineering, scheduling, safety, quality, value engineering, agency coordination, stakeholder relations, community outreach and SBE/DBE program management; management of the four Selected Civil Engineering firms and the Intermodal Terminal Engineering firm and coordination of these firms with the Systems Engineering Preliminary Engineering design. Major third party coordination elements included various alignment studies for the City of Houston and TxDOT, floodplain mitigation studies and hydraulic modeling for channel modifications of the White Oak Bayou for the Harris County Flood Control District and operational analysis for the location of several maintenance facilities with METRO Operations.

Metro Gold Line Eastside Extension, Los Angeles County Metropolitan Transportation Authority, 2005 – 2007
Construction Engineering Manager: The goal was to design and build a 6-mile-long extension to the Metro Gold Line light rail system. He was responsible for overseeing the final design development of the civil, architectural, structural, track guideway and systems final design. Four miles of the dual-line extension is being constructed at ground level or on bridges or other structures and 1.7 miles in 21-foot-diameter twin tunnels. The tunnels were excavated using two earth pressure balance (EPB) machines. His responsibilities also included responding to RFIs, field design change requests, as-builts, review of submittal packages, and coordination with fire/life/safety committee; quantity tracking of each design package to ensure compliance with the bid and managed the design team schedule to ensure design packages were completed in time for construction activities.

Mission Valley East LRT Extension, Metropolitan Transit Development Board, San Diego, California, 2000 – 2005
Project Manager/Resident Engineer: Provided program management/ construction management services for the extension of the existing Mission Valley West light rail transit line. The 5.9-mile segment extends the San Diego Trolley's Blue Line along I-8 from the Mission San Diego Station to a connection with the existing Orange Line near Baltimore Drive in La Mesa. The

Project Experience:

MVE line encompasses four new stations (one elevated, two at-grade and one underground) that travels primarily adjacent to Interstate 8, with a diversion from the freeway to serve San Diego State University where an underground station is connected on both ends with a 1000-foot NATM tunnel and approximately 3000-foot of cut-and-cover tunnels serving 32,000 students. Project Manager for or the testing, commissioning and start-up phase of the project; responsible for the implementation of the System Safety Certification Program; member of owner's Start-up & Rail Activation Committee and was responsible for the oversight of the testing and start-up construction activities. Resident Engineer for the San Diego State University Tunnel and Underground Station segment. Responsibilities included constructability reviews, preparation of contract documents for bid, reviewed and prepared specifications, reviewed submittals and shop drawings, prepared and negotiated change orders, coordinated with subcontractors and stakeholders, and provided overall project oversight, scheduling, and contract compliance. Also acted as the liaison for the client with San Diego State University; worked directly with the VP of Operations for the University in the planning, scheduling and negotiations of the construction agreement between the client and the University.

Vasona Light Rail Extension, Santa Clara Valley Transportation Authority, San Jose, CA, 1999 – 2000
Design Project Manager: Responsible for overseeing the production, budget, and quality control of the OCS design and for the System Safety Certification of the design documents. Washington Group, in joint venture, provided general engineering consultant services that included engineering and design of a new overhead contact system (OCS) for a 5.5-mile-long extension to the existing light rail transit system. The Vasona alignment required 14 at-grade crossings, a new tunnel close to the San Jose Arena, the reconstruction of the West Street/Carlos Street Overpass, and two new single-track bridges to cross over Meridian Avenue, and over SR 17 at Hamilton. The new system connects the existing line from downtown San Jose to the City of Campbell utilizing an existing Union Pacific Railroad right-of-way for a major portion of the alignment.

Tasman East Light Rail Extension, Santa Clara Valley Transportation Authority, San Jose, CA, 1999 – 2000
Design Project Manager: Oversaw the production, budget, system safety certification and quality control of the OCS design; design of maintenance facility and yard expansion. Also coordinated TES construction support activities in conjunction with other parts of the project. Washington Group, in joint venture, served as the general design consultant and provided preliminary and final design services for 19 kilometers of new line and 3.8 kilometers of existing line, which included 18 new stations and modifications to three passenger stations. The design services included design of facilities, design of systems, preparation of final design plans, specifications, and bidding documents, managing the work of 20 subconsultants, and coordinating the design work with federal, state, and local agencies.

Tren Urbano DBOM Turnkey Transit, San Juan, Puerto Rico, Puerto Rico Department of Transportation and Public Works (DTPW), 1997 – 1999
Senior Project Engineer: Responsible for engineering and systems-to-fixed facilities interface coordination and concurrent field construction quality control oversight of six facility design-build contractors. Oversight areas included transit

Project Experience:

architecture, civil, systems, and construction integration engineering, as well as the related field oversight of the at-grade, tunnel and aerial facilities. Tren Urbano is a 16-station, high-capacity third-rail system. The 10-mile (17.2 km) first phase is a mix of at-grade, aerial and underground sections. The aerial facilities included primarily pre-cast, segmental bridge construction, as well as some cast-in-place construction. The tunnel facilities included retained cut, cut-and-cover, and New Austrian Tunnelling Method (NATM) construction. Three different soft-ground tunnelling methods were used to address the different ground conditions. The underground section included 1,300 ft of cast-in-place lined tunnel; 1,400 ft of twin bore tunnel excavated with an Earth Pressure Balance Machine and 1,260 ft of tunnel excavated using the New Austrian Tunnelling Method.

State Route 238/ Mission Boulevard, Spot Improvement Project, City of Fremont, California, 1995 – 1997
Project Engineer: Responsible for developing the metric PS&E package for the Fremont section. Scope of work included survey control, roadway and alignment design, plans and profiles, typical sections, construction details, grading and drainage design, and cost estimates. Also responsible for developing the truck realignment for the South Niles Underpass.

State Route 84/ Isabel Extension Project, City of Livermore, California, 1995 – 1997
Project Engineer: Responsible for developing roadway realignment alternatives, plans and profiles, interchange design, grading and drainage and cost estimates for several alternatives on the Livermore Isabel Extension project.

Atlas Road West Extension Project, City of Richmond, California, 1995 – 1996
Project Engineer: Responsible for developing preliminary roadway design for an industrial park expansion project. Scope of work included roadway and alignment design, plans and profiles, grading and drainage, utilities, street lighting, bridge overpass, and cost estimates.

Northeast Corridor Northend Electrification, New Haven, Connecticut to Boston, Massachusetts, Amtrak, 1994 – 1995
Project Engineer: Responsible for design of schematic layouts and structural erection diagrams for the OCS; utility relocation field coordination and OCS construction oversight. This design-build project involved electrification of 157 route-miles of existing rail corridor between New Haven and Boston to accommodate Amtrak's new high-speed Acela trains traveling at speeds up to 150 mph. The Northend Electrification Project required the design and installation of an overhead catenary system and power distribution system. In addition it required the upgrade of the existing alignment and track facilities.

Santa Fe Railway Commuter Project, Atchison, Topeka and Santa Fe Railway, San Bernardino, California, 1993 – 1994
Design Engineer: Responsible for the design of a 6-mile-long section for this double tracking project. Designed and created alignment plans and data sheets, project cross-sections, plan and profile, grading and drainage, and typical section drawings. The scope of work also included earthwork, retaining structures and hydraulic analysis for the rail line adjacent to existing channel. This project developed detailed design and construction documents for the track capacity

Project Experience:

expansions on the Atchison, Topeka & Santa Fe Railroad (AT&SF) mainline between San Bernardino and Los Angeles via Riverside and Fullerton. This 71-mile line was expanded to accommodate added commuter rail service to operate on existing AT&SF freight mainline. Sixteen individual packages were developed for the implementation of these expansion projects, which included double-tracking and triple-tracking of sections of existing line with the addition of track crossovers at strategic locations.

BART Dublin-Pleasanton Extension Project, Bay Area Rapid Transit District, Dublin, CA, 1991 – 1993
Design Engineer: Responsible for the design and development of final PS&E documents for a 7.8-mile-long at-grade section of this $35 million project. Designed and created alignment plans and data sheets, plan and profile, traffic handling, existing topography, demolition and miscellaneous detail drawings. The Dublin/ Pleasanton BART extension was a two station; 14-mile, $600 million extension running from the existing Fremont Line eastward town the cities of Dublin and Pleasanton. Washington was responsible for detailed design, specifications, cost estimates and contract bid documents for 7.8 miles of at-grade double mainline track in the I-580 highway median. In addition to the mainline track Washington's design responsibilities also included two high-speed interlockings with storage extensions, maintenance-of-way track and an associated maintenance facility, plus a traction power substation.

DERF BUTLER
President

Derf Butler, Co-Founder and President of Butler Enterprise Group, LLC, is an innovative and visionary leader with more than fifteen years experience successfully promoting business and community development. With a passionate commitment to opening the doors of opportunity for individuals and small businesses, Mr. Butler has established a strong track record of success through cultivation of key relationships, a can-do approach, and a focus on strategic solutions.

Through Mr. Butler's leadership, Butler Enterprise Group, LLC has been responsible for more than $1 billion in Contract Compliance and Affirmative Action projects in San Francisco. Derf was instrumental in developing the firm's Diversity Equity Participation Model, a proprietary software that can track all M/WBE opportunities and equal employment hiring programs on multiple projects, including outreach, implementation, monitoring, tracking and reporting components.

Derf first utilized the powerful tools provided by this software to implement diversity programs on behalf of Kaiser for construction of a new medical office building and for a $600 million seismic retrofit project, both of which exceeded their minority workforce participation goals. Since then, Mr. Butler has built the firm into a thriving business consulting operation providing a range of services including affirmative action implementation, small business development, community and government relations, small-business equity participation programs, and mentor/protegé program design. Current projects include the Four Seasons Hotel, Avalon Bay, and a development project at Mission Bay valued at more than $1 billion.

Prior to founding Butler Enterprise Group, LLC, Mr. Butler developed critical expertise and relationships in the employment, construction, and business development sectors. As an Employment Specialist/Job Developer for the Ella Hill Hutch Community Center, Derf worked closely with contractors to assure compliance with appropriate hiring practices, resulting in creation of more than 250+ construction jobs for the Center's clients. Previously, Derf worked seven years as a construction laborer on various vertical building and civil engineering projects, six years as Assistant to the Marketing Director of Booz Allen Hamilton, and one year interning with a minority woman-owned employment agency which provided staffing for Fortune 500 companies.

Derf is also a caring and compassionate leader, driven by a spiritual obligation to touch others through community service. He serves on the Board of Directors of Brothers Against Guns, where he has organized fund-raising activities and job skills training internships for at-risk youths/adults, and he also coaches Pop Warner football. Derf maintains strong connections to his neighborhood, and has worked actively for a number of community and civic objectives.

- NAACP Executive Committee
- Community Labor Movement Organization
- Black Chamber of Commerce Board
- Seismic Retrofit Employment Consortium Executive Committee
- NAACP Employment Committee
- First Source Hiring Committee
- Habitat for Humanity Board
- Allen Development Corporation Board

the Denver West Corridor Light Rail Transit, a 12.1 mile LRT system mostly at grade including 12 LRT stations, 18 bridge structures and two short tunnels for the city of Denver, CO. In addition he is a member of a review board for the new Kensico Tunnel In upstate New York. He also serves on CM team for the multi billion dollar THE project, constructing a new system of tunnels from New Jersey to New York, culminating in a new underground transit station near Penn Station New York.
In March 2009, Mr. Bhore served as a member of an International Tunnel Industry Panel of experts for the Alaskan Way Viaduct & Seawall Replacement Program, Single Bore Tunnel, and Construction Strategies Workshop.

Tutor-Saliba Corporation, Sylmar, CA
As Vice-President of business development for Tutor-Saliba Corporation and its subsidiaries in Southeast Asia, operated out of the Corporation's Sylmar office and the Manila offices of E. E. Black LTD. and was responsible for seeking opportunities, identifying potential partners and developing construction-related projects for the Corporation, especially in the Philippines and India.

O'Brien-Kreitzberg Regional Office, Dallas, TX
As Senior Vice-President, managed and developed business internationally and in the southwest region of the U.S. and was used as a national resource on heavy civil construction by O'Brien-Kreitzberg.

Logan 2000 Airport Modernization Program, Boston, MA ($1.1 billion)
As Program Manager for the reconstruction of Logan Airport's terminal area, augmented the Massachusetts Port Authority's management, technical and administrative support and coordinated management efforts in scheduling, cost control, contract negotiations, safety and labor relations for this airport modernization program. O'Brien-Kreitzberg was responsible for program management including design management.

Superconducting Super Collider, Waxahachie, TX
As Vice-President of Morrison Knudsen Corporation and Construction Manager for this joint venture, was responsible for management of all conventional construction, for a value of $1.2 billion. The project included a total of 70 miles of rock tunnel, infrastructure, buildings, cooling ponds, roads and embankments. Supervised a 60-person staff and reported directly to the Deputy Project Director. Chairman of the Design Review Board, coordinated the design and construction efforts for the project. Completed work included 19 miles of tunnel, 9 miles of road, a bridge, 10 shafts and five major laboratory buildings, along with attendant infrastructure, for a value of $300 million. The subcontractors achieved record tunneling progress in all categories.

Five Major Transit Projects, Los Angeles, CA

Vice-President and General Manager for Perini Corporation and Project Sponsor: supervised joint-venture construction of five major transit projects, including Union Station, Yards and Leads, and Wilshire Alvarado station, for the Los Angeles County Transportation Commission (now the Los Angeles County

Additional Background

Member of the Moles (25 years)
Member of the Beavers (past)
Life Member of the American Society of Civil Engineers
Member of the International Tunneling Association
Member/ Former Director of the American Underground Construction Association
Former Member of the National Committee of Tunnel Technology
Former Member of the American Concrete Institute
Former Member of the International Society of Explosive Engineers
Member Dispute Review Board Foundation, Inc.
Member of the Construction Institute of ASCE
Guest Instructor at the University of California at Berkeley, University of Maryland, University of Missouri, University of Wisconsin.
Author of 10 technical papers for the Rapid Excavation and Tunneling Conference and the American Society of Civil Engineers
Member, Value Engineering Team, Rickenbacker Interceptor Sewer tunnel, Columbus, Ohio
Director, Ellis County, Texas CASA (Court appointed special advocates)
DRB Practice Workshop, October, 1998
DRB Chairing Workshop, October, 2001
Honorable Discharge, U.S. Army SGT (E-6)

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Cell: 214 244 1214

November 1, 2011

Charles Chun-yee Chan (Charles C. Chan)

Title for Proposals
Community Outreach

Education
BA History & Economics, Hong Kong Baptist Univeristy, Hong Kong 1974

Internal Training & Certification
AECOM Code of Conduct -- 2008 (COC20081031)
Date: Feb. 18, 2009

Experience Summary
With over 30 years of business experience and community service in San Francisco, Mr. Charles C. Chan has built an extensive network in Chinatown. Presently, Mr. Chan is serves as Senior Consultant for the Chinese American Association of Commerce, Honorary Director for the Chinese Chamber of Commerce and Board of Directors for the Hoy Sun Ning Yung Benevolent Association.

Mr. Chan is also an Overseas Consultant for the Foreign Friendship Exchange Association, Guangdong Province, Peoples' Republic of China. Recently, he was also appointed as an Overseas Member of the China National Federation of Overseas Chinese, Peoples' Republic of China.

Mr. Chan was appointed by the Mayor of San Francisco to the Board of Directors for the San Francisco-Shanghai Sister City Committee from 1996-2003. He was also appointed to the Board of Directors for the Chinatown Economics Development Group from 1998-2003.

Government
From 2003-2008, Mr. Chan was employed as the Manager of Welfare Exemption Division at the Assessor-Recorder Office, City and County of San Francisco. Along with overseeing the division's daily operations, Mr. Chan was also responsible for conducting public meetings and seminars to education the general public on Property Tax(i.e. Prop. 13), Welfare Exemptions and Homeowners' Exemption etc.

Languages
English - Read & Write fluently.
Chinese (Mandarin, Cantonese & Taishanese) -Read & Write fluently.

Employment History
12/2008- Present AECOM, Community Outreach.

6/2003-10/2008 Assessor-Recorder Office, City & County of San Francisco, Manager- Exemption Division.

8/1980 - 5/2003 Silkway Travel & Trading Ltd., Chief Executive Officer.

1/1978-6/1980 Pan Asian Travel, Office Manager

central T subway

Connecting people. Connecting communities.

BETTY CHAU

Outreach Manager

Education

Bachelor of Science in Business Administration with concentration in Organizational Communication/Public Relations California State University Hayward. Hayward, California

Key Qualification:

- Ability to developed strong working relationships and communication skills in order to foster positive relationships and to build awareness
- Ability to interact with all levels of management and employees, as well as work effectively in a team setting
- Computer and systems literate in a series of software applications with experienced in different operating system environments
- Strong attention to detail and solid organizational skills
- Fluent in Cantonese

Experience:

Project Manager, June 2007-present

The Robert Group. San Francisco, California.

- City & County of San Francisco MUNI, Third Street Light Rail Phase 2 Central Subway Project Outreach

Program Coordinator, November 2005-June 2007

Self-Help for the Elderly. San Francisco, California.

- Responsible for management and daily operation for two resource centers.
- Managed recruitment and development of new-hires training of staff.
- Maintains and revises administrative and operating procedures and guidelines for program implementation and revises program forms as needed.
- Coordinates management information system protocols and data collection with numerous Resource Centers and the San Francisco Department of Aging and Adult Services.
- Implement program evaluation for consumer feedback on services.
- Managed agenda development for the two District Advisory Councils ensuring the development and accomplishment of goals set forth in resolving stakeholder issues.

Community Liaison to District 3. 1996-2002

Office of the Mayor, Willie L. Brown Jr., City and County of San Francisco. San Francisco, California.

- Managed a satellite office in Chinatown serving as liaison to the Chinese Community.
- Worked to improve the quality of city services in the northeastern quadrant of the City.
- Coordinated stakeholders on neighborhood issues such as traffic safety, homelessness, parks and recreation, public safety and cleanliness.
- Collaborated with City Departments and Non-Profit Organizations to resolve issues and conflicts.
- Y2K coordinator and troubleshoot technical issues within the Mayor's Office of Neighborhood Services.

H. Quon Chin, AIA

Senior Architect / Package Manager

Education
B.Arch. 1981, Pratt Institute
Rome Architecture & Urban Studies, Pratt Institute - Rome, Italy 1981

Professional Registrations
Registered Architect, NY
0136570, 1990
Registered Architect, PA
RA-014789-B, 1996
Registered Architect, MA
(inactive) #10014, 1998
Registered Architect, CT
(inactive) #9057, 1998
Registered Architect, NJ
(inactive) # AI 14544, 1999
Registered Architect, VA
0401 013778, 2006

American Institute of Architects, #30136570
NCARB, # 49103

Community Service Work
Pratt Institute Center for Community & Environmental (PICCED), Brooklyn, NY 1981

Publications
"Homework" Interior Design, February 1990
"Updating an Eminent Victorian", House Beautiful, 1988
"New Materials Make the Difference", House Beautiful, 1988
"Prototype: The Designer's Viewpoint" Restaurant & Hotel Design, 1985
"Peitzke Beach House" Global Architecture/GA, 1981
"American Young Architects", Space Design, August 1982
"Experiencing Space: The Wilson Formula", Interiors, April 1980
"Each to His Own Taste", Progressive Architecture, September 1979
"The Big Picture: Live with TV", NY Times Home Section, February 1979

Experience Summary

Mr. Chin is an Architect with 28-plus years of professional experience specializing in transportation, new construction, renovation and rehabilitation project types in the public and private sectors. The breadth of his public sector experience in addition to transit and transportation includes projects for U.S. Embassies and Consulates, military, correctional and international assignments.

Quon has specialized in the programming, renovation, rehabilitation and new construction of various types of design projects & project delivery methods with a particular emphasis in public transportation. This field of interest has included rail stations, bus and rail facilities, prototype station planning and aviation. His responsibilities have involved project management, leading architectural designs, mentoring of architectural staff, and quality assurance / quality control (QAQC) procedures.

Quon is currently the Package Manager for the DMJM Harris/Arup JV Team for 86th Street Station on the Second Avenue Subway Project - Phase 1 for MTA Capital Construction / New York City Transit. The Second Avenue Subway project is an earmark project for the City of New York.

Before joining AECOM, Mr. Chin was the Section Manager for the architecture practice at EAC, PC – an E/A design firm in Virginia focusing on Department of State for the Office of Overseas Buildings Operations. He was also a Senior Associate at di Domenico and Partners, LLP and a Senior Associate at Ammann & Whitney, PC. Previous to this, Mr. Chin served as Principal Architect at SYSTRA Consulting, a multi-disciplinary design firm specializing in architectural transit design and planning.

Transportation – Station and Depot/Yard Projects

MTA New York City Transit – Second Avenue Subway (SAS) Project
New York, NY

PACKAGE MANAGER for 86th Street Station – a deep station requiring its configuration to be the first mined cavern station in Phase 1. Mr. Chin is responsible for the three contract design packages: Advanced Utility Relocation & Excavation; Station Mining & Lining and Building Demolition; and Architectural & MEP Work. Previously responsibility as Architectural Team Task Leader led design development, interdisciplinary design coordination, and construction documents for the architecture of 86th Street Station.

The project includes the design of a main station box & cavern, back-of-house NYCT functions, accessibility, Arts-in-Transit Program, 2 ancillary buildings which serve as the air apparatus of the station, two station entrances – one on the sidewalk and one that is "in-building". (2006 - present).

Mr. Chin's specific responsibilities & expertise also include:

- Property Acquisition Requests /Metes & Bounds/ Permanent Easements;
- Tunnel Ventilation & Station Ventilation Coordination w/Architectural Design;
- Station Design incorporating Escalators & Elevators (VCE Design);
- Compliance and adherence to Codes & Regulations, such as NFPA 130, NFPA 101, Local City/State Codes, IBC, ADAAG, ASME/ANSI A117.1;
- Client-Agency Approval Processes: Station Working Group (consensus building), Technical Advisory Committee (TAC) Paper – Client Approval, NYC DOT, City Planning, & Arts Commission;
- Design of new station entrance locations: in-building and sidewalk;
- Design implementation of vertical circulation elements (VCE) into existing building structural systems;
- Combined Services design coordination of utilities/systems/routing with the station architectural design and structural infrastructure;
- Monthly Reporting, Staffing Projections, Development of Work Schedule and Plan with Architectural Team;
- Arts-for-Transit, Advertising, Signage;
- Acoustics & Architectural Lighting Coordination & Integration;
- Pedestrian Flow and Station Planning; and
- Cost Estimate Evaluation and Architectural Component Cost Estimates

LEAD ARCHITECT for 72nd Street – the second deep, mined cavern station. Mr. Chin is involved in three contracts (4A, 4B & 4C) for the architectural components of this station. 72nd Street embodies many similarities of the 86th Street station design. Notable distinctions are the two ancillary buildings are taller due to more above street support functions and the deployment of vertical ventilation fans. 72nd Street is also different in that it has three entrance locations: two are in-building (within an existing residential and other in a new ancillary building) with the third comprised of a 5-bank high-rise traction elevators.

MTA New York City Transit - Grand Avenue Bus Depot & Central Maintenance Facility, Maspeth, NY

PROJECT MANAGER-PROJECT ARCHITECT for the design/build of a new 255,000 sf Grand Avenue Bus Facility designed as a service center for the storage, maintenance and fueling of buses and as a new 24/7 facility for the staff of transit employees. The facility will meet NYC Transit's functional and aesthetic needs as well as life safety codes and NYS EO111 – a sustainability initiative. Responsible for 9-month fast-track design, preparation of contract documentation, detailing, drawing coordination for C/S/MEP/FP and technical specifications. Represented the design studio to NYCT, D/B Contractor and MEP sub-consultant team. (2004-2006)

NJ Transit Trenton Station Rehabilitation & Expansion, Trenton, NJ

TECHNICAL ADVISOR on the rehabilitation of the existing Trenton Station - an important landmark station improvement project - for NJ Transit on the NE Corridor. Advised on the design to improve upon the quality of public spaces for the traveling public, creating a civic space for the ticketing hall, reactivating retail opportunities and enhancing the transit travel experience. Work also involved reorganization of ticketing, police and railroad support program areas to current NJT standards and security criteria. (2004-2005)

US Trade Development Agency - Shenzhen Metro Rail Project Shenzhen, Republic of China

TECHNICAL ADVISOR for the Louis Berger Group in providing value-engineering services to the mass transit extensions for new underground and elevated station designs on the Shenzhen Metro Lines 1 and 4. Architectural services included

developing concepts for joint development opportunities applying TOD principles to lay the infrastructure, building designs as well as planning policies for property development. (2002 - 2003)

SEPTA MFSE Shops and Yards Modernization Project, Upper Darby, PA
PRINCIPAL ARCHITECT for the modernization of the Market Frankford Subway Elevated (MFSE) shops and yards—the main repair and maintenance facility for SEPTA's new fleet of M-4 cars on their MFSE line. The design introduces a "window wall" which allows the public a view of the shop's activities, a Yardmaster's Booth for SEPTA observation of the rail yard, and a radial head house conceived to visually anchor the building's large massing as well as lend scale for the visitor's approach to the facility. Project was built and successfully completed in 2003. (1997-1999)

Amtrak Old Saybrook Station, Old Saybrook, CT
PRINCIPAL ARCHITECT for the design of a new high level platform (HLP) station and pedestrian overpass on the Northeast Corridor Line for Amtrak's new (Acela) high-speed train service. Design includes full accessibility by means of ramps, stairs and elevators that link the new island and side platforms to the existing station building. Design includes historically compatible architectural elements as the rail station building is eligible for listing on the National Register of Historic Places. Conceptual design successfully received ConnSHPO acceptance. Project was successfully built and completed in 2004. (1996-1999)

NYCT Staten Island Railway Signals Modernization Project
Staten Island, NY
PRINCIPAL ARCHITECT for the architectural design of a new rail control center replete with modern control room located within a former 1930's brick, ConEdison substation building on St. George's Ferry Terminal property. Responsible for programming and the complete design for a modern control room and control center's expansion into the building's existing 2-story space. Design includes brick restoration, new windows, roof replacement, and ADAAG improvements for the new facility. Brick building addition employed Flemish bond patterns and a recessed sixth brick course to harmonize to existing. (1999)

NJ Transit Townley Railroad Station, Union Township, NJ
PRINCIPAL ARCHITECT for programming, transit planning and completion of preliminary design for NJ Transit's new 1,500 sf rail station on the Raritan Valley Line – its first new station in decades. Responsible for evaluation of station egress, accessibility, adherence to NJT's Station Standards & Guidelines. Architectural design includes use of CIP concrete construction for the canopy-covered island HLP, pedestrian underpass, "pedway" links, commuter parking and concessionaire space. (1997-1998)

Massachusetts Bay Transit Authority (MBTA) - Wilmington Commuter Rail Station, Wilmington, MA
PRINCIPAL ARCHITECT responsible for the design development and construction documents of a reconfigured and relocated low-level side platform station with two mini-high platforms (MHLP) for accessibility compliance. Design employs an eyebrow dormer to the inbound platform canopy to successfully create a signature station identity. The design project also included: urban planning, site planning, realignment of the existing station, ADA improvements, streetscape enhancements, expanding commuter parking, and designing a main gate entrance for pedestrian arrivals. (1997 – 1999)

SEPTA Cross County Metro MIS/DEIS Project, Philadelphia, PA

PRINCIPAL ARCHITECT for this Major Investment Study/Draft Environmental Impact Statement of a 48-mile corridor being studied as a circumferential link to the transportation network in the suburban Pennsylvania counties of Chester, Montgomery and Bucks. The study examines the feasibility of passenger rail services on Conrail's Morrisville Line along with light rail and bus modal options for the corridor. Responsible for prototype development of light rail island and platform stations for this new transit corridor, i.e. a prototypical "depressed" and "embankment" station typology. (1996-1997)

NJ TRANSIT – Morris & Essex Lines Station Rehabilitation and Accessibility Improvement, Morris & Essex Counties, NJ

PRINCIPAL ARCHITECT for this task-order ADA compliance and historic rehabilitation project. Responsible for architectural input regarding accessibility improvements including mini-high platforms (MHLP), study of high platform (HLP) installations, accessible hydraulic elevators, historic rehabilitation (including design for slate and terra cotta roofs), adaptive reuse and master planning for 19 stations. Of the 19 stations, 11 are listed on the National and State Registers of Historic Places. (1996-1999)

SEPTA Cresson Street Viaduct Rehabilitation and Manayunk Station Rehabilitation Philadelphia, PA

PRINCIPAL ARCHITECT for station architecture design and accessibility improvements for rehabilitation of an elevated historic train station and concrete/steel viaduct. This rail line was originally designed to carry the Reading Railroad local freight lines. Design provided rehabilitation of the platform, roofs, canopies, windscreens, historic stairs, and signage. Project conformed to SEPTA standards and ADAAG. The original headhouse was designed by Frank Furness. (1995-1996)

SEPTA Transformer Room Modernization Program Philadelphia, PA

PRINCIPAL ARCHITECT for the upgrade and expansion of several station transformer rooms for Subway Elevated, Regional Railroad and Suburban Transit Divisions. Construction of new transformer rooms required sensitive integration of existing tile work and replication of the station (sign identification) plaques for three near-historic stations (Walnut-Locust Concourse, South Street, and Fairmount). The design successfully gained approval from the Philadelphia Arts Commission. (1995-1997)

SEPTA R6 Line Improvement Study, Montgomery County, PA

PRINCIPAL ARCHITECT for capital improvements study to improve passenger rail service along the northern section of the R6 Line. Stations include: Wynnefield, Bala Cynwyd, Barmounth, Manayunk and Ivy Ridge. Responsible for identifying near term and long term improvements. (1997)

Vermont AOT Burlington LRT Feasibility Study Burlington, VT

PRINCIPAL ARCHITECT responsible for conceptual design and feasibility/systems study of light rail transit in the greater Burlington Area. Station prototype designs were developed for urban and suburban locations with sensitive consideration to their physical contexts. (1995)

Amtrak Westerly Station, Westerly, Rhode Island

TECHNICAL ADVISOR for architectural design compliance for the reconstruction of the LLP and new MHLP interface with Amtrak rail passenger cars including resolution of platform cross slopes at station building door sills. (1997)

NJ Transit Hoboken Terminal Core Passenger Facilities Hoboken, NJ

PROJECT ARCHITECT for the planning and conceptual design improvements to the historic Hoboken Terminal in collaboration with Polshek & Partners –consulting design architect. Responsible for assessment of passenger and facility needs, inter-coordination with structural and MEP designs, and performed an NFPA 130 - Emergency Egress Analysis. Assisted with study of alternative schemes and conceptual development to a NJT-selected scheme. The final recommendation successfully received SHPO acceptance and proposes new, modern ticketing facilities adjacent to the restored eastbound waiting room along the with new retail development opportunities. (1993-1994)

LIRR Joint Facility Offices - One Penn Plaza, Penn Station, NY
PROJECT DESIGN ARCHITECT responsible for the design and construction documents of a 16,000 square foot joint space for Long Island Rail Road's various operating departments (police, passenger services, transportation, finance and administration, customer service, and cleaning and maintenance). AIA's CONDOC System was implemented for the construction documents. Design and construction successfully met LIRR's accelerated project schedule. (1993)

LIRR Pennsylvania Station Improvement Project - New York, NY
PROJECT DESIGN ARCHITECT for the design of the new LIRR Ticket Sales Windows and Passenger Services offices as well as the programming and the space planning of 28,000sf of LIRR operating department offices within Penn Station. Designed a modern police facility, ticket sales windows, cash and credit revenue collection, and office support spaces emphasizing security design. Also designed for forced entry and ballistic resistant ticket sales windows, walls, room envelope and entrance doors - critical elements of the physical security. Security design was further supported by a CCTV system and a scrambling keypad system to control door access. (1992-1995)

NYCT Grand Central Subway Station Modernization, New York, NY
PRINCIPAL DESIGN ARCHITECT for modernization of the IRT Shuttle and Lexington Avenue stations and connecting passageways- the Capital Program predecessor to the station rehabilitation programs. The designed, un-built project included restoring historic station signs, IRT-influenced tiled columns, mosaic tile work, automatic fare collection (AFC) and a sympathetic design to the mezzanine contract (by others). (1986-1987)

NYC Department of Transportation Southeast Brooklyn Facility
Brooklyn, NY
PRINCIPAL ARCHITECT for the $25 million construction of a new outdoor 135-bus storage and 60,000 sf bus maintenance facility located in a populated urban area. The facility includes a canopy covered fueling area and maintenance of CNG powered buses. Responsible for construction administration and the resolution of field issues for architectural work. (1996)

NJ Transit Greenville Bus Maintenance Facility, Jersey City, NJ
PRINCIPAL ARCHITECT for the complete $15 million renovation of this existing 61 bus (83,300 square feet) maintenance facility located in an urban setting. The facility design included support offices, signage, indoor bus storage bays, and bus maintenance facilities. Mr. Chin was responsible for the architectural portion of construction phase assistance and field issues resolution services. (1995 - 1997)

NJ Transit Egg Harbor Bus Maintenance Facility Egg Harbor Township, NJ
PRINCIPAL ARCHITECT/DEPUTY PROJECT MANAGER for the $20 million construction of this 120-bus (175,000 sf) facility located within a corporate setting. He was the liaison contact with NJ Transit, as well as with the construction manager. Mr. Chin was responsible for the architectural aspect (submittal reviews, RFIs, field resolution and site visits) of construction phase services. (1995-1997)

NYC EDC New Whitehall Ferry Terminal, New York, NY
PROJECT ARCHITECT responsible for project administration assistance and conceptual design for the $82 million new ferry terminal over existing ferry slips and South Street Underpass Tunnel. Also responsible for contacting inter-disciplinary agency contacts, e.g. FDNY, programming and passenger flow/egress study. (1994-1995)

Transportation – Airport Projects

Metropolitan Washington Airport Authority (MWAA) Aircraft Deicing Facility for the Fourth Runway Package - Dulles International Airport Project
PROJECT ARCHITECT for design of a 15,000 sf airport facility for deicing operations of aircrafts taking off from the new fourth runway at Dulles. Responsible for design validation, code compliance, achieving program goals, compliance to MWAA Design Manual criteria and Final Design. Project design includes a deicing operations control tower, staff locker rooms & break rooms, support spaces, glycol storage and blending tank room and canopied glycol / diesel fuel dispensing island stations. (2006)

Port Authority of NY and NJ Administration, Operations and Emergency Response Facility, Newark Liberty International Airport Newark, NJ
PROJECT TEAM LEADER for architectural/engineering design review; assistance with final elements in architectural/mechanical design; redesign of program space for airport police departments; and construction phase services for a new combined, 120,000 sf administrative/aircraft rescue and fire fighting (ARFF) facility. The new facility houses aeronautical operations, airport police, police command center and two maintenance garage bays. (2003)

Second Bangkok International Airport (SBIA) ARFF Stations Bangkok, Thailand
ARCHITECTURAL DESIGN consultant to the local A/E team for design of two ARFF stations for NLA (new large aircraft) aand one main structural rescue and fire fighting (SRFF) with dormitories at this new, modern international airport in the Far East. Provided guidance on NFPA response time requirements and FF equipment for the ARFF facilities; and presented the preliminary design to the Airport Authority Board. (2003)

Design/Build Unmanned Aircraft Vehicle (UAV) Hangar Addition, Naval Air Warfare Center, St. Inigoes, MD USA
TECHNICAL ADVISOR to this fast-track design/build project for a new 1,650 sq. meter steel framed facility located between two existing structures. Project included a parking apron, taxiway connecting the apron to an existing runway, and a vehicle parking area. This project had an accelerated 285-day schedule from notice-to-proceed to completion of construction – including design reviews by the United States Navy. (2000)

H. Quon Chin

PANY&NJ American Airlines Redevelopment of UTB No. 1,
JFK International Airport, Jamaica, Queens, NY
PROJECT DESIGN ARCHITECT for the planning and conceptual design of American Airline's planned renovation of Unit Terminal Building No. 1. The planned terminal renovation would provide for twelve B-747 wide-body and two narrow-body gates with full international or domestic flight capability. (1990)

PANY&NJ JFK Redevelopment Project Office Location Study
Building 14 at JFK International Airport, Jamaica, Queens New York
PROJECT DESIGN ARCHITECT for the office location, space planning and evaluation of four alternatives based on Port Authority determined sites in Building 14 for the Redevelopment Project team. The project office is to serve as a joint facility for the JFK Redevelopment Program and its project team. Design goals included efficient space accommodations and image-building through use of architectural signage and graphics for the project office. (1989 – 1990)

Macao International Airport, Macao, Asia
Project Architect developing airport design standards for concession, duty-free shops, commercial-airport interface of the material and finish matrix while establishing a consistent architectural language to the airside experience for "sterile" passengers awaiting their departure. (1995)

PANY&NJ Central Terminal Building and Landside Expansion Project
LaGuardia Airport, Queens, NY
DESIGN ARCHITECT for coordination and preparation of exterior curtain wall, vestibule and ceiling details, and contract documents for the expansion and modernization of the Central Terminal Building's landside facility. Mr. Chin was also responsible for the design and coordination of baggage handling facilities to improve the airline's operational efficiency. (1988)

Eastern Air Lines Terminal Expansion - JFK International Airport
Jamaica, Queens, NY
PROJECT ARCHITECT for planning and design of an expanded south concourse – "Wings Scheme" - including an FIS facility to handle international flights. Work also included: a realigned north concourse including an automated baggage handling system, new terminal signage, and roadway improvements to increase curb length and facilitate circulation. For construction phasing, a pre-engineered building addition was designed as a boarding gate to accelerate the construction schedule. (1988)

Arturo Merino Benitez International Airport Master Plan, Santiago, Chile
DESIGN ARCHITECT for master plan of a new 12-gate international passenger terminal building and parking facility adjacent to a domestic airport terminal building. Responsible for planning of passenger hold room, retail / concessionaire ancillary spaces and concourses with the Chief Architect. (1987)

Brisbane International Airport Master Plan - Brisbane, Australia
DESIGN ARCHITECT working with the Chief Architect for the conceptual planning of a new 18-gate international passenger terminal building employing a linear scheme layout and dual boarding to aircrafts. (1987)

Eastern Air Lines Terminal Expansion - LaGuardia Airport, Queens, NY
Design Architect responsible for conceptual development for the expansion and renovation of the check-in / security check point areas at the head of Finger No. 4 as it meets the curvilinear corridor at LGA. Built presentation model of the expanded facility and exterior curtain wall elevation. (1981)

H. Quon Chin

Transportation – Pedestrian Bridge Projects

Hudson County Pedestrian Bridge at Saint Peter's College, Jersey City, NJ
PROJECT ARCHITECT for the architectural design and construction support services for a new steel and glass pedestrian bridge for Hudson County DOT near Saint Peter's College in Jersey City. The new ADA compliant bridge will span 76-feet across Kennedy Boulevard, a four lane, heavily traveled county artery. Design includes two elevators, two stairs, a translucent roof on the bridge and glass walled windscreens. Project was successfully built and completed. (1999-2004)

Saint Peter's College - Pedestrian Bridge Extension, Jersey City, NJ
PROJECT MANAGER/PROJECT ARCHITECT for the design of a 76'-0" pedestrian bridge span extension with connection to campus buildings. Design utilizes exposed steel Vierendeehl trusses & Kalwall roofing to span over the campus facility and allowing for future integration of the bridge into the College's new Entrance Pavilion building. (2000-2004)

Architecture – Security Projects

U.S. Department of State - U.S. Embassy GSO Compound, New GSO/USAID Warehouse Kathmandu, Nepal
PROJECT ARCHITECT for Final Design of a 1,766 sm (19,010 sf) mission warehouse on the GSO compound. Responsible for the architectural design and design compliance to OBO criteria and standards including security (FE/BR and blast), accessibility, day-lighting, cool roof, integration of indigenous architecture with new, shop functions and warehouse design. This project is performed under a challenging design/build project delivery method for an overseas location. (2006)

U.S. Department of State - U.S. Embassy Compound, Annex Building, Lilongwe, Malawi
PROJECT ARCHITECT for Final Design of the complete renovation of the office functions of the Annex and introduction of FE/BR to the building's fenestration. Project specifics include open office planning, building expansion, code analysis, security, MEP/FP and accessibility. (2006)

U.S. Department of State - U.S. Embassy, Vienna, Austria
TECHNICAL ADVISOR on "product-based" design of FE/BR upgrades to an historic U.S. Embassy on overseas soil. Advised on security requirements of FE/BR main entrance door with sensitive integration of new doors into the existing architectural fabric. Security design was balanced with equal consideration to accessibility. (2006)

U.S. Department of State - U.S. Embassy Chiller Replacement, Tokyo, Japan
TECHNICAL ADVISOR responsible for maintaining the integrity of the existing (coal tar) building roof that is directly below the chiller plant renovation project area. Developed dunnage beam post support flashing details, mechanical ductwork coordination, and compatibility of new mechanical and HVAC work to the existing roof system. (2006)

U.S. Department of State - U.S. Embassy Compound, NOX Design-Build Abuja, Nigeria
PROJECT ARCHITECT working with D/B contractor on its proposal for the design of a NOX building, Service CAC, compound perimeter expansion and site utility services to the new buildings. Traveled to Post for pre-proposal conference and site tour in preparing BFO bid to client. Firm successfully awarded commission last quarter of Y2006. (2006)

U.S. Department of State - U.S. Embassy Compound, NOX Design-Build RFP, Tbilisi, Georgia
PROJECT ARCHITECT WORKS with D/B contractor on its proposal for NOX building and compound parking expansion for staff personnel. Construction staging on an operational compound required the D/B team to introduce an innovative solution for ramps to the ACF on the existing perimeter. Assisted D/B Team in preparation of its BFO bid to client. (2006)

U.S. Department of State - U.S. Embassy Compound, New Pool House and Recreational Facilities, Yamoude, Cameroon (Africa)
PROJECT ARCHITECT assisting D/B contractor on its proposal for the final design of a new pool house, recreational facilities – including swimming pool and basketball court on the existing embassy compound, and other NEC rehabilitation work to an existing GSO/USAID Warehouse. Firm successfully won commission in the quarter Y2006. Firm successfully won the commission (2006)

New York City Department of Design & Construction - Edward M. Taylor Center (EMTC) Visit House, Rikers Island, NY
PROJECT ARCHITECT responsible for the design of the Edward M. Taylor Center (EMTC) Visit House correctional complex - a 20,000 sf inmate steel and glass visitation facility on Rikers Island. The new EMTC Visit House's size is based on programmatic requirements of the present and future inmate population as determined by NYC Department of Corrections. Its design parti of glass and steel is contextual to adjacent existing facilities while achieving compliance to DOC security criteria and standards. Though the project is not LEED-certified, the architectural solution includes high performance design and progressive elements of sustainable design. (2003 – 2004)

GSA Federal Building at 201 Varick Street, New York, NY
PROJECT ARCHITECT for security design of active and passive vehicular barriers around the building's city block footprint for anti-terrorism/force protection. Responsible for developing urban design solutions that incorporate active and non-active security and pedestrian amenities. (2004)

U.S. Department of State - Office of Overseas Building Operations, Security Upgrades Worldwide Program
PROJECT ARCHITECT for physical security improvements to Department of State (DOS) facilities worldwide under the Emergency Appropriation Act and the Office of Overseas Building Operation's (OBO) Implementation Contractor (IC) Program. These projects entailed three phases: Phase 1- (overseas) Scoping and Engineering Survey Surveys, 2- Design Phase, and Phase 3 B Construction Phase. Responsible for architectural design of physical security improvements to ten (10) United States embassies or consulates and provided QAQC or peer review to two (2) other posts. (1999-2003)

- Frankfurt, Germany; Stockholm, Sweden; Helsinki, Finland;
- Djibouti, Djibouti; Kigali, Rwanda; Asmara, Eritrea
- Port-of-Spain, Trinidad; Curacao, Antilles Netherlands

- Islamabad, Pakistan; Majuro, Marshall Islands

U.S. Army Corp of Engineers - Bartlett Hall Exterior Renovation
West Point Military Academy, West Point, NY
PROJECT ARCHITECT for exterior renovations to the historic 1911 gneiss and 1936 granite stone buildings at the Military Academy. Conditions survey, design, and construction documentation involved building conservation of the load bearing stonework, restoration of historic exterior wood doors, roof replacement; copper restoration of an observatory dome; rehabilitation of existing steel and aluminum casement windows with AT/FP replacement windows along the frontage street. Cram, Goodhue and Ferguson Architects designed the 1911 building. Paul Cret, Architects designed the 1936 Addition. (2003)

Goddard Chapel Restoration - Tufts University, Medford, MA
TECHNICAL ADVISOR on the evaluation of the c.1883 Goddard Chapel and its 100-foot tall stone bell tower, which is of great historical significance to the University. Assisted with hands-on field inspection of the stone construction for water infiltration. Design work included preparation of a final report of the inspection findings, including multi-year rehabilitation program consisting of immediate and near-term repair strategies for the historic structure. (2002)

NYC School Construction Authority - IS 122Q Façade Restoration
Astoria, NY
PR OJECT ARCHITECT for building envelope survey and façade restoration of this 5-story, 1930's era brick, U-shaped school building. Responsible for field survey, field test mock-up, recommendations report and preparation of construction documents. IS 122Q is SHPO-eligible and all exterior repairs to the historic terra cotta cornices, banding and coping will comply with restoration guidelines. (2004)

Buildings Survey & Rehabilitation Erie Canal Locks, Lockport, NY
DESIGN ARCHITECT for performing building surveys of the main building, valve house and maintenance storage buildings on the canal locks. Completed conditions assessment report and provided building repair recommendations for the rehabilitation program. (1988)

NYS Facility Development Corporation - South Beach Psychiatric Center
Staten Island, NY
PROJECT ARCHITECT responsible for code and programmatic improvement to the existing corridors and doors from Client spaces to bring the facility to current code compliance. (1992)

NYS Facility Development Corporation - Willowbrook Psychiatric Center,
Staten Island, NY
PROJECT ARCHITECT responsible for programmatic improvements to upgrade interior corridor flooring, replacement of new interior hallway doors, exterior exit doors, repairs to roof gutters and eaves, and double hung window replacement to sensitively match those on the existing near-historic building. (1992)

NYS Facility Development Corporation - Brooklyn Developmental Center
Brooklyn, NY
PROJECT ARCHITECT responsible for code and programmatic improvements to Building Nos. 3 and 4 which included an NFPA Life Safety Equivalency Evaluation. Design provided an interior upgrading of Client spaces such as their sleeping quarters and living rooms including interior finishes & closets. (1991)

H. Quon Chin

NYC DEP North River Water Pollution Control Plant, New York, NY
DESIGNER responsible for design and detailing of stairs and railings. Assisted project team on production drawings and detailing of elastomeric formed precast architectural concrete wall, building elevations and MEP/structural coordination. (1981)

Architecture – Commercial Projects

- Eclipse Gallery, West Broadway, SoHo, NY
- Cipriani Dolci Restaurant, Upper Times Square New York, NY
- Esprit de Corp – New York Showroom , New York, NY
- Esprit de Corp – Toronto Showroom, Canada
- Esprit de Corp- Bloomingdale's "In-Store" Boutique Program – USA
- Esprit de Corp – Eaton's Store "In-Store" Boutique Program – Canada
- A&W Restaurant, Short Hills Mall, NJ
- Scovill Studio, Garment District, New York, NY
- Formica Design Center, Cincinnati, Ohio
- Dreyfoos Law Office, Woolworth Building, New York, NY
- Alan Towers Office, New York, NY
- Pizza Piazza Restaurant, Broadway & E. 12th Street, New York, NY
- Esprit de Corp Showrooms, Boston, Charlotte, Dallas, Chicago - USA
- Eastside Clothing Company Showroom, New York, NY
- Claus Clothing Company Showroom, New York, NY

Architecture – Community Service Involvement

- Forest Hills Soccer Club, Fleet Street Fields Master Plan. (1996)
- Magnolia Tree Earth Center, Bedford-Stuyvesant, NY (1981)
- La Carla's Artist's Studio and Coop (1981)

Vivian M. Chow, P.E. PMP
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San Francisco, California 94127

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PROFILE M.S. degree in civil engineering, Professional Engineer, Certified Project Management Professional, with strength in:

- Practical knowledge and experience in SFPUC project management
- Excellence program controls and project controls experience
- Ability to administer multiple projects concurrently
- Excellence in oral and written communicative skills
- Ability to initiate action with very little direction
- Experience with CPM schedules by utilizing Primavera Tools
- Strong knowledge of FAMIS and cost controls
- Managing consultant contracts and task orders
- Knowledge of Construction Management Information System
- Strong computer skill for use of presentation and reporting

KEY QUALIFICATION

Project Management Professional (PMP), Project Management Institute
Civil Engineer, State of California

EDUCATION

University of Sheffield, U.K., M.S. Civil Engineering
Hong Kong Baptist College, Hong Kong, B.S. Civil Engineering

CONTINUOUS EDUCATION

SFPUC Supervisors and Managers Certification Program
SFPUC Project Management Certification Program
SFPUC Construction Management Certification Program
City College of San Francisco, Building Codes Applications & Code Review of Structural Plan Courses
Hong Kong Polytechnic, Certificate in Project Control with Critical Path Method in Building Construction

SF PUBLIC UTILITIES COMMISSION EMPLOYEE RECOGNITION

Quality of Work
Productivity

RELEVANT EXPERIENCE

- Project Manager, managing $67 Millions Water System Improvement Program (WSIP) projects; plans, organizes, directs and controls highly complex engineering capital improvement projects from concept through design and construction to closeout. Responsible for: preparing and monitoring the project budget, including obtaining funding; overseeing the completion of conceptual design; overseeing planning activities; coordinating work of a multi disciplinary technical staff across organization; working extensively with the public, private contractors, special interest groups, governmental funding and regulatory agencies, and other City departments; coordinating EIR processes and obtaining permits; controlling project cost and schedule; reviewing change orders.

- Project Controls Section Supervisor, supervising, designing, developing, operating, and maintaining Project Controls Services (PCS) system utilizing Primavera software to replace existing UEB project controls system. PCS section maintains project database for 400 SFPUC Capital Improvement Program (CIP) projects. System operation includes integrates the Master Project Database with Payroll and Finance Bureau databases and generates spending plan, manpower resource plan project reports for PUC management and project teams to provide both forecast and actual project information, as well as track and maintain project budget and project fund allocations. Providing technical training and tutorial support to staff, producing routing and specialized reports for the status of CIP projects.

- Field Engineer, working for BART Colma Station Extension Project construction phases, performed progress payment, assisted to process submittal, requested for information and change order. Performed quantities take off.

- Cost/Schedule Engineer, working for Caltrans project, Inter-State 880 Freeway Improvement Program, assisted to design the entire management cost and schedule control systems for freeway renovation contract design and construction undertakings. Performed all project control reports, cost reports, schedule, scope revision tracking, and cash flow track updating.

- Field Engineer, working for Caltrans project, Earthquake Repairs and Retrofit Highway 101 - Mission to Turk Street, San Francisco. Performed organization and management review of construction contractor work performance during an active construction project. Inspected ongoing work to ensure compliance with contract requirements.

- Construction Manager for the $250 million, 300-room hotel projects. Supervised all phases of construction, including foundation, structure frame, mechanical/electrical services, and finishes.

- Engineer for the building construction company. Duties involve estimating, design, scheduling, and inspection for the high-rise buildings.

COMPUTER SKILLS AND APPLICATIONS:

FAMIS, AutoCAD, Primavera P6, Primavera Contract Manager, Microsoft Access Databases, Advance Microsoft Power Point, Business Graphics, Organization Chart, Spreadsheets, Word Processing, and many others.

WORK HISTORY

2006-now	Infrastructure Division, SFPUC	Project Manager I
1998-2006	Infrastructure Division, SFPUC	Project Controls
1993-1998	Water Supply & Treatment Division, SFPUC	Civil Eng. Assoc. I
1990-1993	Krishnan Consulting Services, Inc.	Cost/Schedule Engineer
1990-1990	California Engineering Contractors, Inc.	Field Engineer
1987-1990	Kowin Development Corporation	Construction Manager
1984-1987	Gammon (Hong Kong) Limited	Engineer

Resume **Alex Clifford**

CONTACT DETAILS

1815 Broadway
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San Francisco
CA, 94109
415-754-5780
alex_clifford@hotmail.com

VISA STATUS

Current E3D visa and L2 work authorization permit for the USA.

PROFESSIONAL EXPERIENCE SUMMARY

Projects: Diverse experience including site based managing contractors on civil and building projects, and client side management in an operating environment.

Contracts: Experience in alliance contracting, fixed price, cost plus, Public Private Partnerships (PPP), design and construct, and construction only projects.

Design: Experience managing design to strict budgets using buildable, rational solutions.

Planning: Proven ability to schedule and coordinate multidisciplinary projects including design, construction, critical plant shutdowns and commissioning within live operating environments.

Procedures: Developing, implementing and monitoring site specific work permits, risk assessments and procedures to ensure conformity to organizational standards within safety critical environments.

OSH: Comprehensive understanding of safety and health regulations, and a resolute commitment to safe work practices.

Bids & Proposals: Experience with preparation of project delivery methodology, value engineering, and estimating.

Communication: Excellent written, verbal and graphical communication skills. Able to illustrate technical solutions in a clear manner to aid understanding by non-technical stakeholder groups.

Relationships: Ability to establish strong working relationships, and maintain client, consultant and colleague confidence through diligently executing agreed actions and keeping stakeholders informed.

EDUCATION AND TRAINING

Bachelor of Engineering (Architectural Engineering – Structures and Services Design), Victoria University 2005 (Melbourne, Victoria, Australia)

Additional Training

- Chartered Engineering Status (CPEng) – in progress
- Passport to safety ‘Zero Harm’
- Welding quality inspection

Computing Skills

- Suretrak Project Manager
- PCR Accounting Software
- CATS Estimating Software
- Microsoft office suite of programs
- CAD design

PROFESSIONAL EXPERIENCE

Abigroup Limited

Peninsula Link Freeway – Project Wide ($750m AUD)

Project Engineer - October 2010 – Current

This position has required great attention to detail to understand and rationalize a new and novel approach to noise wall design. Using small panels in a non-repeating form has required intricate understanding of the manufacture and delivery processes. Responsibilities include:

- Managing procurement of various work elements including complex precast concrete architectural noise walls, steel light spill walls and off structure barriers.
- Analysis of design solutions to achieve budget through rationalization.
- Managing design to completion, and resolution of site related issues with design team.
- Liaising with internal and external stakeholders to achieve buildable and economical solutions limiting scope creep.
- Investigation of alternate construction methods to meet strict performance criteria for critical assets whilst minimizing cost.

London Underground

Sub Surface Railway Upgrade, Stations Portfolio (Various sites £1m - £6m)

Construction Manager –January 2009 – September 2010

In this position I was required to liaise with a broad internal and external stakeholder group on both a technical and operational level to achieve agreement on proposed design solutions and work methodologies. Ongoing communication to manage expectations and conflicting interests of various parties was vital to enable works to be completed efficiently and safely. Responsibilities and achievements included:

- Management of design and construct, and build only contracts for structural extensions to multiple rail stations while ensuring safe and conforming execution of work within the operating rail environment.
- Coaching of internal and external stakeholders to achieve buildable, value for money solutions while meeting strict assurance and operational requirements of finished product.
- Significant time and cost savings achieved through rationalization and de-risking of design solutions for both temporary and permanent works.
- Planning and execution of asset relocation works to enable critical construction works to proceed uninhibited.
- Coordination of contractors to overcome resource shortages.

John Holland Pty Ltd

Melbourne Airport, Terminal 2 Expansion (T2E) $300mAUD, Stage 1 (South Core)

Project Engineer - Services, November 2007 – August 2008

In this position I managed the redesign of critical communications infrastructure during construction, and in-ground service relocations caused by latent conditions (including asbestos), and client requested design changes. This required diligent monitoring of site conditions and critical lead time coordination. Responsibilities included:

- Management of services trades (mechanical, electrical, data, security, communications, CCTV, fire suppression, fire detection and hydraulic), including design management, scheduling, quality control, client and consultant liaison.
- Strategic planning of subsequent building stages (Stage 2 – North Core). This included development of procurement and implementation methodology to maintain service to the operational building while demolishing mechanical service plant, and analysis of design documents and site conditions to identify areas of risk during construction staging.

Middleborough Road Alliance – Grade Separation Project $65m AUD

Engineer – Laburnum Station, Nov 2006 – April 2007

This $65M grade separation project was completed during five weekend occupations and a 4-week 24 hour a day main works period in January 2007. The fast-tracked, time critical project was delivered ahead of program by the alliance of JHG, Vic Roads, Connex and the Department of Infrastructure. My role and responsibilities included:

- Managing the simultaneous demolition and construction of Laburnum Station including: 2 x 200yd platforms, station buildings, elevated ramps, services.
- Time critical coordination with adjacent works including Laburnum Street Bridge.
- Planning and coordination of works including weekend rail occupations and main works shutdown.
- Managing procurement, subcontracts, claims, direct labor, temporary works, and safety.
- Design management and advising on constructability issues.
- Independent management of site foreman, direct labor force, and up to 10 building trades.

EastLink Freeway Operations Centre (ELOC) $20m AUD – Engineer July – Oct 2006

- Procurement and administration of landscaping and civil retaining walls subcontracts.
- Planning and coordination to complete works safely, and to required quality with limited time and site space.
- Project documentation closeout and handover to client.

John Holland Colin Joss Joint Venture $75m AUD Woolworths Distribution Centre

Contracts Administration, December 2004 – March 2005, June 2005

- Procurement of subcontract packages, assessment of tender submissions against budget and scope.
- Preparation of variation documents, and assessment of client directed scope changes.

John Holland Graduate Program

Graduate Engineer, January 2006 – November 2007

Business Development and Tendering– June - October 2007

- Investigation of potential clients and projects for pipeline evaluation.
- Expression of Interest (EOI) documentation including summary profiles on key projects.
- Preparation and submission of project delivery plans (e.g., site establishment, access, crane setup).
- Evaluation of subcontractor tender submissions and estimating.

Contract and Design Management – Pitt & Sherry Engineers, January – June 2006

- Detailed design of structural elements and assessment against relevant standards.
- Assessment of standards and site conditions and preparation of recommendations to client.
- Detailed assessment and recommendation of subcontract variation claims.

REFERENCES

- Available upon request

Charles F. Dombrowski, IV

Senior Estimator

Hill International

EDUCATION:
M.B.A., Management & Finance, Rutgers University, Camden, 2007
B.A., Economics, Rutgers University, New Brunswick, Main Campus, 2003

Charles F. Dombrowski, a Hill Senior Estimator and Field Engineer, has 8 years of experience in construction estimating for schools, office buildings, railroad yards, resorts and retail centers. Mr. Dombrowski has assembled quantities for design development and construction documents, performed quantity take offs, and evaluated 100% construction documents and 60% construction documents for changes in order to update the construction estimate. He has done quantity takeoffs and pricing for civil, structural, and architectural work.

In preparing cost estimates, Mr. Dombrowski prepared unit costs, both material and labor, and assembled the different disciplines into a complete estimate form. Mr. Dombrowski has prepared estimates ranging from small change orders to billion dollar projects. He has also evaluated construction documents to prepare an estimate for possible use in litigation.

COMMERCIAL

Holmdel Town Center, Holmdel, New Jersey. The project consists of a single story masonry wall construction totaling approximately 300,000 square feet. Hill performed construction estimates for two repair scenarios for masonry walls that allegedly failed structurally. Mr. Dombrowski reviewed the Town Center's structural repair construction documents and created an estimate to be used for possible litigation.

Berlin Circle Public Storage Building, New Jersey. Mr. Dombrowski, as an estimator for civil, architectural, and structural work, was responsible for helping provide the cost estimate for the A/E for completion of design for the NJDOT and Public Storage project.

Walden Galleria, Upstate New York. As an estimator, Mr. Dombrowski helped provide cost estimating services on this unique, 1.5 million s.f. project, which includes a feasibility study of cost, conceptual estimating, and overall budget and construction constraints for this multi-track retail, restaurants, hotel and entertainment complex.

EDUCATION

New Jersey Schools Construction and Renovation Program, New Jersey Schools Development Authority (NJSDA, formerly NJSCC), Trenton, New Jersey. Hill is providing program management for renovations and additions to Region 6 -- the largest PMF contract issued by the SDA - with overall responsibility from master planning through construction management. As an Assistant Estimator, Mr. Dombrowski was responsible for creating construction cost estimates for various school construction projects under this program. He performed quantity take offs on construction method, wall types, door types, and interior finishes. He also reviewed construction documents to update the construction estimate when needed. Some of the schools included in the project were Columbus School, PJ Hill School, Roebling School (which was a 49,520 s.f. addition and a 171,460 s.f. renovation), Parker School, Trenton Central High School, Kilmer High School, and Burlington City High School.

Woodbridge Township Schools Program, Woodbridge, New Jersey. As a civil and architectural estimator, Mr. Dombrowski helped manage the architectural, civil, and structural effort for the school district with schematic

design, design development 60%CD and 95% CD estimates for the $86.1 million school construction program. Work to renovate and expand 25 schools dating from the 1920s to the 1960s, includes roof and window replacement; upgrades to plumbing, mechanical, and electrical systems; and classroom additions at six schools.

Hopewell Crest School Addition, Hopewell Township Board of Education, Hopewell Township, New Jersey. As an architectural estimator, Mr. Dombrowski worked on the civil, architectural, and structural estimating for the school district with schematic design, design development 60% CD and 95% CD estimates for the school construction program. The Hopewell Crest School is a K-8 school built in three stages between 1954 and 1994. The Township approved a $2.5 million referendum to replace all of the roofing, add a computer lab and science lab, and make other health and safety improvements.

Philadelphia University Student Center and Parking Garage, Pennsylvania. Mr. Dombrowski served as an architectural estimator for the revitalization of the Campus Center and Garage, a 71,000 s.f. multi-story building. The work included a 19,000 s.f. addition to an existing facility in addition to an extensive landscape design.

Landis Intermediate School, Vineland, New Jersey. For renovations to the existing Intermediate School, Mr. Dombrowski, an architectural and structural estimator, provided the cost estimate for the A/E for the completion of design.

Edison Township Schools Program, Edison Township Board of Education, Edison, New Jersey. As a civil, architectural and structural estimator, Mr. Dombrowski helped Hill's estimating team to provide reasonable cost estimates and value engineering for a multi-school construction program.

Henry Hudson Regional School, Henry Hudson Regional School District, Highlands, New Jersey. Hill provided pre-construction and construction services for a $14 million addition and renovations program for their 40-year old school, which houses grades 7-12. Mr. Dombrowski calculated different material amounts for a standard construction estimate.

Dr. Martin Luther King, Jr./Jefferson Elementary School, Trenton, New Jersey. Mr. Dombrowski was responsible for helping provide the civil, architectural and structural portion of cost estimates for schematic design, design development and construction document for a new school. He also escalated the civil, structural, and architectural portions of the detailed estimate for a two-year period.

Trenton Early Childhood Center, New Jersey. Mr. Dombrowski was the lead estimator responsible for providing the civil, architectural and structural portion of the cost estimate for a new early childhood center. He also took the lead in the estimate reconciliation process with the architect's estimating group.

Early Childhood Center 1 (EEC1), Pemberton, New Jersey. Mr. Dombrowski was the lead estimator responsible for providing the civil, architectural and

structural portion of the cost estimate for a new early childhood center. He also took the lead in the estimate reconciliation process with the architect's estimating group.

Upper Moreland High School Renovation, Willow Grove, Pennsylvania. Mr. Dombrowski assisted with the civil, architectural, and structural portion of the cost estimate for an addition and renovation of the Upper Moreland High School. He also took the lead in the reconciliation process for the architectural portion of the estimate.

Tilden Elementary School, Hamburg School District, Hamburg, Pennsylvania. Mr. Dombrowski assisted with the civil, architectural, and structural portion of the cost estimate for a new elementary school. He assisted in the quantity takeoffs and pricing for estimates based on a schematic design, 60% design documents, and a 100% construction document.

Shawnee High School and Sequoia Transition School, Medford, New Jersey. Mr. Dombrowski assisted with the civil, architectural, and structural portion of the cost estimate for a new high school. He assisted in the quantity takeoffs and pricing for estimates based on a schematic design, 60% design documents, and a 100% construction document.

Methacton School District, Woodland Elementary and Arcola Intermediate Schools, Norristown, Pennsylvania. Mr. Dombrowski assisted with the civil, architectural, and structural portion of the cost estimate for an addition and renovation to an elementary school and an intermediate school. He assisted in the quantity takeoffs and pricing for estimates based on a schematic design, 60% design documents, and a 100% construction document.

Wilbur Watts Intermediate School, New Jersey. Mr. Dombrowski assisted with the civil, architectural, and structural change orders associated with the intermediate school. He also worked on the quantity takeoffs and pricing for an asbestos abatement estimate for the old Wilber Watts School.

Frederic Cook Elementary School, Plainfield, New Jersey. Mr. Dombrowski was the lead estimator responsible for the civil, architectural and structural portion of the estimate. He worked on quantity takeoffs and pricing for additions and renovations to the elementary school. He also assisted in the value engineering process and escalated the estimate to present day costs.

Rutgers Camden School of Law Building, Camden, New Jersey. Mr. Dombrowski was the lead contact for the Rutgers Law School construction manager. He was responsible for the civil, structural and architectural change orders, as well as attending meetings and taking the lead in reconciling change orders with the subcontractors.

Rutgers The State University of New Jersey Gym Renovation, Camden, New Jersey, Estimator. For completion of a new academic wing and interior renovations to the Rutgers University Law School at the Camden campus, Mr. Dombrowski evaluated change order requests and supported the University in change order negotiation.

Scott School, Coatesville Area Schools, Coatesville, Pennsylvania. Hill International was asked to analyze and identify the extent and cause of the major areas of delay and provide specific recommendations for the

subsequent phase. Mr. Dombrowski estimated all of the site work and the different materials used for the exterior elevations.

Matawan-Aberdeen Schools Program, Matawan-Aberdeen Regional Board of Education, Aberdeen, New Jersey. For the Matawan-Aberdeen Regional School District, Hill International provided construction management services from the pre-construction phase through the construction phase. For a renovation and expansion program which included roof and window replacement, HVAC system upgrades, classroom expansion at the high school, and additions of classrooms and gymnasium to the middle school. Mr. Dombrowski assisted in the creation of a 50% estimate for four elementary schools.

Millstone Township Schools Program, New Jersey. Mr. Dombrowski provided estimating services.

ENTERTAINMENT

Lion House Reconstruction at The Bronx Zoo, New York. Mr. Dombrowski served as an estimator for the reconstruction of the historic Lion House at the Bronx Zoo, an 18,000 s.f. building requiring both extensive roof and facade repair as well as many modern upgrades.

HEALTHCARE

Syracuse University Hospital Medical Center, Syracuse, New York. As an architectural estimator, Mr. Dombrowski managed the architectural estimating for design development and construction design documents.

HOTEL

Hyatt Hotel Prototype. Mr. Dombrowski was responsible for helping provide the civil, architectural, and structural portion of a cost estimate for a schematic design estimate used as a prototype for hotels to be built across the country and was priced based on a nationwide average of unit and labor costs. He also assisted on value engineering suggestions to lower the cost of the prototype building.

Fairmont Coco Beach Resort Hotel, Rio Grande, Puerto Rico. Mr. Dombrowski was responsible for helping provide the civil, architectural, and structural portion of the cost estimate for a $100 million hotel to be built in Puerto Rico. The estimate was based on design development drawings and consisted of a main building with three smaller buildings and a spa.

HOUSING

Rhodes Ranch Conceptual Design, Las Vegas, Nevada. Mr. Dombrowski assisted with the civil, architectural, and structural portion of a conceptual design estimate for a new housing development in Arizona including a golf course and man-made lake.

INDUSTRIAL

Brooklyn Navy Yard Food Processing Facility, New York. Mr. Dombrowski was the lead estimator for the architectural portion of the estimate. He worked

on quantity takeoffs and pricing for the architectural portion and wrote a basis of estimate for the architectural divisions.

INFRASTRUCTURE

Hunts Point Terminal Produce Market, Bronx Food Processing Center, Bronx, New York, Estimator. Hill provided the Hunts Point Cooperative Association with estimating services to evaluate the budget construction costs for the general scope of work for two alternative designs. The costs for the two alternatives were estimated to be in the range of $600 to $700 million. The proposed facility will have approximately 580,000 s.f. of space, housed in two large buildings which will include 86 stores for sales and distribution. The infrastructure for this center will include both trucking and rail facilities, and new site utilities. As Estimator, Mr. Dombrowski performed architectural, structural and civil estimates, RFIs, and scope write-ups.

Payload Processing Facility, Office of Space Launch. Hill International, Inc. provided detailed estimating services for a classified government facility. Mr. Dombrowski, as a lead estimator, worked on the civil, structural, and architectural portions of the estimating process. He did detailed review, material takeoffs and pricing, applied labor man-hour and costs to develop a construction cost for those selected portions and wrote basis of estimates for his estimate sections. Mr. Dombrowski also collaborated with the other Hill estimators to build final product books consisting of the scope of work, basis of estimate and detailed estimates for this facility.

OFFICE BUILDINGS

Comcast Center, Liberty Property Trust, Philadelphia, Pennsylvania. For this 57-story, 900 feet, high-rise office and retail center, Mr. Dombrowski served as the lead architectural estimator in creating a 50% DD and 75% CD cost estimate, and provided support for the client in the review and evaluation of the budget and the general contractor's cost, as well as maintaining cost control throughout the current three-year project.

Emanuel Celler U.S. Courthouse Modernization, New York, New York. Mr. Dombrowski was responsible for the architectural portion of the estimating team's creation of a "Level 5" construction document cost estimate for the client and GSA on this 7-story multi-phase renovation. The project encompassed all 16 CSI division of work and was all in the metric system as well.

World Trade Center (WTC) PATH Station Reconstruction, Port Authority of New York/New Jersey, New York, New York. As an Estimator, Mr. Dombrowski is involved with the estimating effort for the Port Authority's 3.5 million s.f. of reconstruction below street level with initial budget estimates, design estimates and final estimates. The site includes security, tenant and bus parking, core and tower podiums, new PATH terminal, central power and mechanical plants, memorials, and cultural and performing art centers.

Insurance and FEMA Claims - World Trade Center & PATH, Port of Authority of New York & New Jersey, New York, New York. Hill International provided cost estimating and related analyses services to support the FEMA/Insurance reimbursement process pertaining to the losses from the World Trade Center disaster. Work included development of independent estimates for

approximately 50 design work packages and over 200 design changes or bulletins associated with the temporary WTC station, rehabilitation of Tunnels E&F and the refurbishment of the Exchange Place PATH station. Mr. Dombrowski reviewed some of the bulletins and assisted in creating construction estimates for insurance claims purposes for this massive project.

World Trade Center, Tower 3 and 4, Port Authority of New York/New Jersey, New York, New York. Mr. Dombrowski was responsible for the civil, architectural and structural portion of the estimate. He also worked on the quantity takeoffs and pricing for the structural portion of the underground work related to the project.

Newtown Square Office Expansion, Pennsylvania. Mr. Dombrowski assisted with the civil, architectural and structural portion of the cost estimate. He also assisted in combining the different divisions of the estimate into one fluid format.

Plot 20 Moscow Tower, Moscow, Russia. Mr. Dombrowski assisted in the estimating of three different schematic designs for a new business skyscraper located in Moscow, Russia by providing quantities and pricing for the architectural and structural divisions.

TRANSPORTATION

No. 7 Subway Line Extension, Metropolitan Transit Authority, New York City Transit, Civil/Architectural/Structural Estimator. Mr. Dombrowski, as a Civil/Architectural/Structural Estimator, provided quantity take-offs and estimating services for the extension of the No. 7 Subway Line westward under West 41st Street and southward under 11th Avenue to the southerly terminus at West 25th Street. The extension provides two new stations; an intermediate station at West 41st Street and 10th Avenue (shell only) and a terminal station on 11th Avenue at West 34th Street. As part of the Hill/LiRo/Lemley/HDR Joint Venture, Hill International, Inc. is providing estimating services in addition to consultant construction management services.

New Haven Rail Maintenance Facility, State of Connecticut, Office of Policy & Management. Hill was retained by the Governor's office to review and analyze the scope, cost, and budget of a proposed major expansion of the New Haven Rail Maintenance Facility, estimated in excess of $1 billion. As an Estimator, Mr. Dombrowski participated in the analysis, the development of recommendations, and the preparation of reports presented to the Governor and the Legislature.

F. Ross Edwards

Consultant Team Manager/AECOM Senior Vice President

Firm

AECOM

Education

MS, 1976, Structural Engineering, City College of New York

BS, 1969, Structural Engineering, University of Connecticut at Storrs

Registrations

PE 1974/Civil Engineer/New York/ No. 050249

Mr. Edwards is a recognized industry leader in the program management of large-scale, urban transit design and construction programs. His 39-year career encompasses experience in the planning, design, program management and construction of transportation mega projects. These have included subway lines, new transit systems, underground transit stations, rock and soft ground tunneling and excavation using a variety of methods and vehicle maintenance facilities. Mr. Edwards understands the complexities associated with development of new transit facilities in congested urban centers. He brings a collaborative management approach to each assignment and communicates effectively. He has a keen awareness of constructibility, operability, and maintainability, and he understands the importance of effective integration of new facilities and systems within existing infrastructure and architectural contexts. He is strongly committed to this program and to delivering value to SFMTA and the people of San Francisco.

Highlights Relevant to Central Subway

- ✓ Program manager for large-scale, high-profile, urban transit development projects
- ✓ Experienced in designing, managing, and constructing subways and transit stations in congested urban environments
- ✓ Major tunneling and underground station projects
- ✓ Familiar with FTA requirements for federally-funded construction projects
- ✓ Manages effective community outreach programs
- ✓ Experience in sustainability and green design for urban transit programs

World Trade Center Transportation Hub (PATH), Port Authority of New York and New Jersey (PANYNJ), Lower Manhattan, New York: Mr. Edwards was project director for the AECOM-led Downtown Design Partnership, in association with renowned architect/engineer Santiago Calatrava, performing the design of the $2 billion new permanent Port Authority Trans-Hudson (PATH) terminal at the World Trade Center site in Lower Manhattan. The project includes a landmark terminal building at the World Trade Center site, subway lines, station platforms, emergency smoke exhaust, crew facilities, railroad operations areas, connections to central railroad control center and extensive public and operations areas. The design of the terminal included pedestrian connections, security systems, sustainable design, vertical transportation and conveyances, and public wayfinding. The complex incorporates a comprehensive fire/life safety program.

Grand Central Terminal Train Shed, Brick Arches Rehabilitation, and Passenger Circulation Improvements, Metro-North Commuter Railroad (MNCR), New York City: Mr. Edwards was project manager for repair of the train shed portion of Grand Central Station. The terminal roof, which carries Park Avenue, had experienced areas of heavy deterioration that required steel and concrete deck repair. His team developed repairs in coordination with railroad operations to preclude disruption of train service and to the densely traveled urban streets above. He also developed improved passenger circulation alternatives between upper and lower levels of the terminal for Metro-North, maintaining the landmark character of the interior of the terminal.

Subway Expansion, East 63rd Street Subway Line, New York City Transit Authority (NYCTA), New York City: Designer of the trackway tunnel, in-rock and open-cut sections, along city streets and through Central Park for this subway line in New York City. The design also included auxiliary facilities, traction power substations, ventilation shafts and emergency exits.

F. Ross Edwards (cont')

Program Management of the LaGuardia Modernization Program, PANYNJ, New York City: Mr. Edwards was program manager for an $800 million improvement program, including concourse and utility improvements, parking studies, traffic studies, and intelligent transportation systems. He led the on-site team serving as an extension of the Authority's staff. He established the program scope, schedule and financial requirements, prepared technical input, reviewed projects designed by the Authority's engineering department and consultants, and coordinated facility-wide project reviews.

People Mover System, Airport Access Program, JFK International Airport, PANYNJ, Jamaica, New York: Mr. Edwards was project manager for a $200-million, fully automated people mover system connecting a central terminal to eight unit terminals. Project included stations, passageways to existing terminals, connections and modifications to existing terminals, elevated guideways, vehicles, operating systems and maintenance areas.

Automated Guideway Transit (AGT) System Alignment Alternatives Analysis, JFK International Airport, PANYNJ, Jamaica, New York: Mr. Edwards was project manager for the comprehensive evaluation of potential automated guideway transit system alignment configurations for JFK Airport. His responsibilities included client liaison; supervision of technical analysis; development of alignment and operational investigation; preparation of quantitative evaluations; cost estimates and travel demand forecasts; and preparation of technical memoranda, reports and presentations to the Port Authority.

Subway Station Entrances, 6th Avenue and 48th Street, New York City Transit: Mr. Edwards designed new passageways to connect with the Rockefeller Center subway station on the Lexington Avenue line, including station entrances and other station modifications.

Main Line Improvements, Long Island Rail Road (LIRR), Suffolk County, New York: Mr. Edwards was a member of the project management team for the design of the electrification of 25 miles of new two-track railroad, including third rail and power supply system (16 electrical substations). A new signal and communications system, four passenger stations with high-level platforms, a welfare building, a railroad storage yard and a maintenance facility were included.

Park Avenue Viaduct, Metro-North Commuter Rail, New York, New York: Mr. Edwards was project manager for detailed condition inspection and preparation of repair contract for this four-track railroad viaduct in Manhattan. Construction and inspection were performed while maintaining four-track service during rush hours.

Manhasset Viaduct, Long Island Rail Road (LIRR), Manhasset, New York: Mr. Edwards was project manager for the detailed inspection and rating (AREA Rating Rules) of single-track railroad viaduct over Manhasset Bay. He served as project executive for the succeeding project, the design of extensive repairs for the viaduct.

Railroad Bridge over 138th Street, Metro-North Commuter Rail, Bronx, New York: Mr. Edwards was project manager during construction for this four-track railroad bridge and led the team supervising the construction and coordinating all force account work. Major constraints included the bridge's proximity to adjacent buildings and heavy street and rail traffic. The bridge was replaced with minimal disruption to street traffic and rail operations.

Bridge Inspection and Repair, Northeast Corridor Improvement Project, New London, Connecticut: Mr. Edwards was project manager for the inspection, rating and preparation of repair contracts for under-grade railroad bridges. The program included detailed inspections, evaluations and rehabilitation recommendations of undergrade structures along the Northeast Corridor in Washington, D.C. and five states. The inspections established the current load capacity of the structures and were used to determine repair or replacement needs and costs.

International Gateway Project, Boston - Logan International Airport, Massachusetts Port Authority (Massport), Boston, Massachusetts: As project director for Massport, Mr. Edwards led the program management for cost control, schedule, design, construction and implementation of the International Gateway, a major expansion of the international terminal, constructed without interruption to the functions of the existing international terminal. He was also director of the elevated walkways project, consisting of four enclosed, climate-controlled walkways, and he managed the conceptual design for an automated people mover connecting the regional transit system to the airline terminals.

GABRIEL FERNANDEZ
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OBJECTIVE: To gain additional experience in tunnel Construction Management

EXPERIENCE:

SFDPW Bureau of Construction Management (April 2007 to Present)
Lead surface construction inspector for Central Subway Project. Duties include field inspection, writing daily report, maintaining as-builts, ensuring contract compliance, coordinating with other public/private utility agencies, creating picture diary, reviewing force account, checking traffic control/safety protocols, and responding to public/business complaints and questions. Experience includes under pinning, micro piles, cast-in-place piles, and construction of secondary closure walls in (e) sub-sidewalk basements of Union Square. Current experience includes deep excavation for slurry wall panel construction with I-beam pile or reinforcing steel bars. Perform oversight and inspections per the contractor's army corps of engineer's quality control program. Work with RE and OE on change order/contract modification documentation.
Perform oversight and supervision of public and private inspectors. Working with experts to learn tunnel safety protocols and procedures.

Construction Inspector for Mission Bay Infrastructure Project. Duties include field inspection, writing daily reports, preparing punchlist, checking construction sites for safety, coordinate and conduct necessary tests; reviewing plans, specs, and as-builts; coordinate with City Agencies; reviewing contract change orders, RFI's and submittals. Projects consist of sanitary sewer, storm drain, stormwater and sanitary pump stations, low pressure and reclaim water, AWSS, joint trench utilities, Muni ductbanks and poles, roadway work, sidewalk work including curb ramps, streetlighting, landscape, and other miscellaneous infrastructure work.

SF Public Utilities Commission (June 2006 to April 2007)
Performed duties of construction inspector in the construction of new pump stations, reservoirs and pipelines as well as restoration and retrofitting of existing ones.

SFDPW Bureau of Street Use and Mapping (January 2006 to June 2006)
Performed duties of Street Inspector for Street Improvement Division. Duties included issuing permits, informing contractors of expectations for compliance with City Standards, following safety protocols, confirming possession of proper permits, inspection and approval of completed work per approved plans and appropriate City standards, issuing violations and revoking permits when applicable, and checking sites for safety.

SFDPW Materials Testing Laboratory (September 1998 to January 2006)
Performed duties of Materials Testing Technician. Duties include testing aggregates, reinforcing steel, anchor bolts, asphalt concrete, Portland Cement Concrete, mortar, grout, bricks, CMU blocks and subgrade materials and compaction.

EDUCATION: High School Diploma

CERTIFICATION: ACI Grade I Technician
Radiation Safety Officer Certification
AHERA Certification
US Army Corps of Engineers Const. Quality Control Certification

MATTHEW FOWLER, P.E.

Project Manager/Professional Associate
Senior Supervising Engineer

Years of Experience
22 (20 with PB; 2 with others)

Education
M.S., Civil Engineering (Geotechnical), University of California, Berkeley, 1984; B.S., Mining Engineering, University of Utah, 1981

Professional Affiliations
American Society of Civil Engineers (ASCE); American Institute of Mining, Metallurgical, and Petroleum Engineers

Professional Registrations
California, 1993 (C50861)

Key Qualifications
Matt Fowler is a professional associate of Parsons Brinckerhoff (PB), with two decades of engineering and field experience in the analysis and design of tunnels, shafts, and caverns for transit, water, mining, communications, and underground storage. Based in San Francisco, Matt has managed or held lead technical roles on projects involving geologic investigations, initial ground support systems, trenchless technology, rock mechanics, deep foundations, numerical modeling, instrumentation, and cost estimating and scheduling. Matt is a member of the PB Geotechnical & Tunneling Service Center and serves as the group's operations and finance manager for the western United States.

Highway and Transit Tunnels

- Muni Third Street Light Rail Phase 2, New Central Subway, San Francisco, California: tunnel and station design manager responsible for ongoing conceptual design efforts and alignment verification studies for a 1.7-mile-long (2.7-kilometer-long) twin-tunnel subway with four underground stations that will extend from the South of Market area of San Francisco to Chinatown. Four underground stations are planned in ground conditions that range from saturated fine-grained alluvium to fractured and weathered Franciscan bedrock. Emphasis of station and tunnel constructibility studies has been on reducing surface disturbance by maximizing the use of closed face tunnel boring machines and mined method in place of originally proposed cut-and-cover methods. PB is the lead partner in the joint venture awarded the conceptual and preliminary design role by the San Francisco Municipal Railway.
- Metro Red Line Subway, Los Angeles, California: project tunnel engineer responsible for preparation of plans, specifications, and a geotechnical design summary report for the excavation and lining of twin, 20-foot-diameter (6-meter-diameter) tunnels to extend the subway system 2.5 miles (4 kilometers) through the Santa Monica Mountains. Required elements of project included selection and design of typical temporary ground support systems for tunnel boring machine (TBM) tunnels; design of permanent rock dowel and shotcrete ground support systems for large-span caverns, intersections, and crossovers; and development of instrumentation programs to monitor ground convergence. Rock conditions for the project are diverse, ranging from strong, unweathered granitic rock to weak siltstone and from shale to crushed rock and gouge. The tunnels cross several major faults, including the Hollywood Fault, where a unique oversized tunnel cross-section employing a ductile and flexible lining of shotcrete, lattice girders, and dowels was designed to accommodate possible future fault movement. Matt was responsible for the design and specification of rock reinforcement and shotcrete support systems for the caverns, tunnels, and cross passages, as well as the preparation of specifications for the tunnel boring machines. Matt's ongoing

involvement providing technical support during construction covers a range of tasks, including the review of contractor ground support submittals, development of and review of data from additional instrumentation and monitoring programs, numerical modeling with FLAC to analyze contractor-proposed changes in excavation sequence, and resolution of differing site condition claims.

- Westside Corridor Project, Portland, Oregon: project tunnel engineer on the team responsible for the preparation of plans, specifications, and cost estimates for twin 19-foot-diameter (6-meter-diameter), 3-mile-long (5-kilometer-long) tunnels and a 260-foot-deep (79-meter-deep) underground station—the deepest underground transit station in North America—for the $692 million, 11.5-mile (18.5-kilometer) westward extension of the Banfield light rail transit line. Matt was responsible for selection and design of initial ground support for shafts, portals, tunnels, and caverns for a broad range of volcanic rock and soil conditions. The resulting specifications included TBM and drill and blast excavation methods. He has continued his involvement on the project during construction, providing as-needed technical assistance to the resident engineer by inspecting installed initial ground support, reviewing contractor ground support designs, and assessing value engineering proposals.
- San Francisco Airport Light Rail System, California: lead engineer responsible for directing the analysis and design of deep foundations to support elevated stations and guideway structures to be constructed between terminals at San Francisco International Airport. Matt's responsibilities included development of design criteria and analytical procedures and preparation of drawings and specifications. Special challenges addressed in the pile designs included soft and corrosive soil conditions, high seismic demands, tight workspace constraints, low headroom, and a low tolerance for vibration during construction.
- Eastern Distributor Tunnels, Sydney Australia: on special assignment, Matt prepared tender documents for a 1-mile-long (1.5-kilometer-long) underground roadway to be excavated in thickly bedded sandstone through the Woolloomoolloo and Darlinghurst neighborhoods of downtown Sydney. Notable features of the system of tunnels and ramps include the double-deck configuration of the twin lane roadways and the use of permanent rockbolts and fiber-reinforced shotcrete to support flat spans up to 24 meters (79 feet) in width. Special challenges and issues addressed in the design included the crossing of two historically significant, brick-lined tunnels, the estimation of subsidence effects, and the selection and detailing of rock reinforcement materials and methods to provide a minimum 50-year design life.
- Alemany Viaduct Seismic Retrofit, San Francisco, California: served as lead foundation engineer for the seismic retrofit of a 1.5-mile long (2.4-kilometer-long), double-deck interchange connecting U.S. 101 and I-280, which had been damaged during the Loma Prieto earthquake. Matt was responsible for developing a foundation retrofit strategy and a methodology for analyzing the lateral and axial behavior of combined driven pile and drilled shaft foundations. A total of 70 foundations were replaced or supplemented with 3-foot- (1-meter-), 4-foot- (1.2-meter-), or 9-foot-diameter (3-meter-diameter) drilled shafts.
- Provo Canyon Tunnels, Utah: staff geotechnical engineer on this Utah Department of Transportation (UDOT) project to reduce accidents on the section of U.S. 189 between Wildwood and Vivian Park by widening it from two to four lanes. Matt performed preliminary field reconnaissance of the mountainous area to site two highway tunnels adjacent to an aqueduct. He was responsible for coordinating PB's initial tunnel planning and design efforts with the U.S. Bureau of Reclamation, which owns the aqueduct paralleling the tunnel alignment. The firm's scope of services includes a feasibility study and conceptual, preliminary, and final design of the two 39-foot-diameter (12-meter-diameter), 450-foot-long (137-meter-long) tunnels passing through the environmentally sensitive Provo Canyon region of U.S. 189.

- Interstate H-3 Drilled Shaft Load Test, Hawaii: field engineer participating in load tests on foundation piles for the North Halawa Valley viaduct. The tests involved nine 33-inch-diameter (1-meter-diameter) drilled shafts in weathered volcanic soils and rock using loads of up to 2,200 kips. All data on shaft displacements and bending stresses was gathered by data-logger for immediate viewing and subsequent analysis.
- I-70 Glenwood Canyon Tunnels, Colorado: as a staff engineer, Matt inspected existing unlined water diversion tunnels to assess and document rock conditions prior to the start of blasting and excavation of main highway tunnels and caissons.

Water/Wastewater Facilities

- Willamette River Combined Sewer Overflow (CSO) Project, Portland, Oregon: lead tunnel engineer for the alignment selection and preliminary design of the 20,000-foot-long (6,096-meter-long), 14-foot-diameter (4-meter-diameter) West Side CSO tunnel and the 29,000-foot-long (8,840-meter-long), 16-foot-diameter (5-meter-diameter) East Side CSO tunnel. Planned for completion by 2011, the two soft-ground tunnels are key elements of the CSO project being undertaken by the Bureau of Environmental Services (BES) to manage dry-weather flow and control CSOs to the Willamette River from the built east and west areas of Portland. Closed-face soft-ground tunneling methods using either earth pressure balance or slurry shields will be required to excavate the saturated alluvium. Matt's responsibilities on the project included alignment screening and selection, evaluation of alternative methods for constructing the tunnels, drop shafts, and connection pipelines, and preparation of construction cost estimates and schedules.
- Landfill Freshwater Bypass Tunnel, Santa Cruz, California: deputy project manager and lead engineer responsible for preparing plans, specifications, and a geotechnical design summary report for a system of slurry walls, inlet and outlet structures, and two 36-inch-diameter (1-meter) directionally drilled pipelines (1,300 and 1,800 feet long (395 and 550 meters long)) to divert wet weather stream flows around an operating sanitary landfill. Construction methods evaluated during design included conventional tunneling, microtunneling, and horizontal directional drilling. Lab and field investigations undertaken for the design included rock coring, seismic refraction, and rock boreability analysis.
- Lake Merced Transport Tunnel: lead engineer responsible for technical services during the construction of an 18-foot-diameter (5-meter-diameter) 8,500-foot-long (2,590-meter-long) wastewater tunnel. Matt's role as lead engineer included weekly site visits to coordinate with the construction management team, assess geologic conditions, and review tunnel progress, ground settlement, and concrete mix designs Matt coordinated the review efforts of subconsultants and supervised PB's structural engineers in analyzing contractor submittals for alternative tunnel lining designs. Construction of the $24 million tunnel—part of the $1.5 billion San Francisco Clean Water Program—was completed in September 1993.
- Zoological Gardens Infrastructure Replacement Project, San Francisco, California: supervising engineer responsible for engineering services during construction for project using microtunneling methods to install 3,500 linear feet (1,067 meters) of 36-inch (1-meter) concrete pipe in drives ranging from 200 feet (60 meters) to over 1,000 feet (305 meters) in length in saturated dune and beach sands. Matt's tasks included the review of contractor submittals on microtunneling, shoring, instrumentation, and dewatering; site inspection; review and analysis of jacking loads, pipe friction, and subsidence; and technical assistance in cost negotiations with the microtunneling contractor.
- Pasakoy-Omerli Sewage Tunnel, Turkey: for Turkish contractor Yapi Merkezi, Matt supplied technical input to contractor for the preparation of tender documents for a 4-mile-long (6-kilometer-long), 10-foot-diameter (3-meter-diameter) wastewater tunnel east of Istanbul. Topics evaluated and addressed for the contractor in the method statement included shaft and ramp access options, construction sequencing, excavation staging, tunnel boring machine

requirements for handling expected poor ground conditions, probe hole drilling and pre-grouting, primary and secondary linings, water infiltration, methane potential, and the overall construction schedule.

Geomechanics/Special Projects

- Cigar Lake Mining Corporation, Saskatchewan, Canada: project manager and lead engineer on an ongoing project to monitor and refine ground support and lining systems for the Cigar Lake Mine in Northern Saskatchewan. As lead engineer, Matt has been responsible for the selection, procurement, design, installation, and monitoring of an underground network of rock and concrete stress and deformation instruments at the minesite. Objectives of the program are to measure rock displacements and lining loads caused by excavation and ground freezing for use in refining the concrete lining designs and for calibrating numerical models developed by PB to predict long term ground behavior and tunnel lining performance. Detailed planning before each site visit combined with a thorough understanding of the TBM excavation and lining process have resulted in prompt, efficient installations with a minimum of delays to the TBM.
- Small ICBM Development Study, Arizona: as field crew supervisor, Matt was responsible for engineering classification of soils, road roughness, and geomorphology on roads at military installations in Arizona and New Mexico to support studies for the U.S. Air Force for deployment of mobile missiles.
- Yucca Mountain Nuclear Waste Repository, Nevada: as a staff mining engineer, Matt served multiple technical roles on team working directly with client, Sandia National Laboratories, to develop conceptual designs and estimates for an underground high-level nuclear waste repository. Tasks included tunnel sizing studies, excavation cycle-time analyses, hoisting and conveyor belt sizing calculations, ventilation and cooling analyses, tunnel and ramp layout using CADD and computerized coordinate geometry programs, selection and design of ground support, evaluation of TBM and drill-and-blast alternatives, field testing of smooth-wall blasting methods, CPM scheduling and preparation of cost estimates. Spreadsheets used in conjunction with a relational database written specifically for the project were used to manage and prepare cost estimates in accordance with a rigorous code of accounts specified by the Department of Energy.

Previous Experience

Prior to joining PB, Matt worked as a field research engineer and underground industrial engineer for public and private sector mining efforts. His project experience includes:

- Uranium Mine, Colorado: drift miner performing all aspects of drilling, blasting, and muck removal in development drifts.
- Minerals Exploration, Various Locations: assistant geologist for a Nevada firm responsible for surface and underground geologic sampling, core logging, and claim staking at locations in Nevada, California, and Oregon.
- Rock Mechanics Study, Utah: research engineer for the University of Utah responsible for the installation and maintenance of underground rock instrumentation for a rock mechanics study conducted by the University of Utah, Anaconda Minerals Company, and the U.S. Bureau of Mines.
- Carr Fork Copper Mine, Tooele, Utah: industrial engineer for Anaconda Minerals Company responsible for performing time-motion studies on all aspects of mine drift excavation, shaft hoisting, and rail haulage operations.

Publications

- Coauthor with J. Habimana and R. Cook, “Numerical Modeling of Tunnel-Induced Ground Settlements and their Effects on Pile Supported Structures: The Case of Portland’s Westside CSO Tunnel,” Proceedings of the 2003 Rapid Excavation and Tunneling Conference, Society for Mining, Metallurgy and Exploration of AIME, June 2003.
- Coauthor with Lee Abramson and Glenn Boyce, “Santa Cruz Landfill Bypass Tunnels,” Proceedings of the International Conference on North American Tunneling ‘96, April 1996.
- Coauthor with Galen Nagle and Lee Abramson, “Freshwater Bypass Microtunnels for a Class III Sanitary Landfill,” Proceedings of the ASCE-CSCE Environmental Engineering Conference, ASCE, July 1995.
- Coauthor with Dave McAllister and Phil Rice, “Planning and Design for the Eastside Light Rail Project Tunnels and Deep Underground Station in Portland, Oregon,” Proceedings of the 1995 Rapid Excavation and Tunneling Conference, Society of Mining Engineers of AIME, June 1995.
- Coauthor with Galen Nagle and Robert Johnston, “Seismic Retrofit of Foundations for a Double-Deck Viaduct,” Proceedings of the International Conference on Design and Construction of Deep Foundations, Federal Highway Administration, December 1994.
- Coauthor, “Geomechanics of the Carr Fork Mines Test Stope,” Proceedings of the Symposium on Geomechanics Applications in Underground Hardrock Mining, Society of Mining Engineers of AIME, 1984.

JOHN O. FUNGHI P.E.
Program Manager

Education
BS, 1982, Civil Engineering, California Polytechnic State University
San Luis Obispo, Ca. “Honors Graduate”

Graduate courses towards, MBA-Project and Construction Management
Golden Gate University, 1984

Professional Registration
Registered Civil Engineer, State of California
Licensed General Engineering Contractor “A”
Licensed General Building Contractor “B”

Professional Affiliations
American Society of Civil Engineers

Key Qualifications
6/99 – Present Municipal Transportation Agency/Construction Department
Project Manager: Project Manager in charge of Major Muni Operation Facilities. Currently directing design and construction activities for the $1.4 billion Central Subway project.

1/94 – 6/99 A.F. Evans Company Oakland, Ca.
Project Manager: Project Manager of the 165 unit Bay Ridge Single Family Subdivision. Directed/supervised the underground utility, roadway and single-family home construction from bare ground to finished occupied product. Responsible in charge of selection/direction of engineering consultants, contractor selection/supervision, governmental processing, budgets and overall construction.

11/84 – 1/94 Yamas Construction Company, Inc. South San Francisco, Ca
Project Manager/Construction Superintendent: Real Estate Development, from bare ground to finished occupied product including conceptual planning, selection/direction of engineering consultants, contractor selection/supervision, governmental processing, budget preparation and project financing. Successfully directed/supervised the underground utility and roadway completion. Successfully directed/supervised through direct hire/subcontracts, the process of constructing 118 individual single-family homes.

Construction Manager: Assigned from 11/84 – 5/88 to the island of Oahu, Hawaii as construction engineer/manager of Federal construction contracts encompassing the renovation of 3200 military housing units. Responsibility included: project scheduling/cost controls; development of value engineering change proposals, claims evaluation, and quality control to assure contract compliance.

6/82 – 11/84 Morrison Knudsen / International Engineering Company San Francisco, Ca
Civil Engineer: Assigned to the Project Management Services Division, providing construction project management support. Duties included the preparation of project schedules/cost reports and assisting in the development of construction documents.

Field assignment from 9/82 – 11/83 to the $125 million Tyee Lake Hydroelectric Project, Alaska as Office Engineer. Responsibilities included engineering drawing coordination, technical construction progress report preparation, change order/claims negotiations, construction monthly/final pay quantity evaluations, and as-built drawings.

821 Howard Street 415.701.4280 Phone
San Francisco, CA 94103 415.701.5222 Fax

Wayne Gilles

PROJECT ROLE:
System Safety, Reliability, and Maintainability

RELEVANT EXPERTISE:

- System Safety
- Reliability
- Maintainability
- State and Federal Certification & Regulation Requirements
- Program Management

YEARS OF EXPERIENCE: 20

EDUCATION:

Master of Science, Industrial and Systems Engineering
University of Southern California,
1997–2003

Bachelor of Science, Industrial Engineering
University of Arizona,
1986–1989

SUMMARY:

Mr. Gilles has twenty one years of professional engineering experience focusing on safety analyses, certification, program management, safety culture assessments, operating and emergency procedures, reliability demonstration testing and studies, human factors, maintainability, and procurement specifications for transit systems and commercial aircraft.

EXPERIENCE:

Booz Allen Hamilton, Los Angeles, CA
April 1992–Present, Lead Associate

San Francisco Municipal Railway (Muni), On-Call System Safety Services – Mr. Gilles was the project manager for this contract with Muni. His responsibilities included helping Muni achieve compliance with Federal and state requirements for state safety oversight as well as providing industry knowledge, specialist expertise, and specific task support to assist Muni in its goal to improve safety and security. Tasks included working with the operations, maintenance, safety, security, and training departments to write, comment on, or update documents such as procedures, manuals, or training documents.

San Francisco Municipal Railway (Muni), Light Rail Vehicle (LRV) 2 Procurement – Mr. Gilles was involved in the procurement of LRVs. He was responsible for reviewing and approving the train manufacturer's safety, reliability, and maintainability submittals. He also developed a comprehensive safety certification program to verify that all elements of a safe transit system were present when the new LRV2 went into revenue service.

Phoenix Valley Metro Rail, **Internal Rail Safety and Security Audit Consultant** – Mr. Gilles is currently the Project Manager for the Internal Safety and Security Audit Consultant contract for Valley Metro Rail in Phoenix. He is responsible to implement and manage an Internal Rail Safety and Security Audit Program to comply with the FTA State Safety Oversight Regulation 49, CFR, Part 659 and the Arizona Department of Transportation (ADOT) Safety & Security Program Standard. Mr. Gilles conducts audits in accordance with the METRO Internal Safety and Security Audit Plan of all the required 21 elements of the METRO SSPP and all five elements of the METRO System Security Program Plan over a three-year cycle. He populates the Internal Safety and Security Audit Findings Log to track through to implementation all findings, recommendations, and corrective actions developed as a result of the internal safety and security audit process.

Phoenix Valley Metro Rail, **Safety & Security Certification Consultant** – Mr. Gilles was the Project Manager for the Safety & Security Certification Consultant contract for Valley Metro Rail. He was responsible for safety & security certification for the design and construction of a 20-mile light rail system which successfully opened to revenue service in December 2008. For the project, Mr. Gilles was responsible for the separate certification of eighteen design and construction contracts. He facilitated the Safety and Security Certification Review Committee, participated in the FLSC, developed certification

checklists, and tracked verification of each item via a custom database. He also conducted safety and security certification audits to ensure the construction managers are complying with the state safety oversight certification requirements.

Sacramento Regional Transit District (SacRTD), General Engineering Services (GEC) – Mr. Gilles recently conducted Preliminary Hazard Analysis (PHA) and Threat and Vulnerability Analysis (TVA) workshops for SacRTD in support of the South LRT Line Extension Project. He analyzed the safety hazards and threats associated with the extension elements, such as traction power, communications, right-of-way, storage facility, grade crossings, and stations. The final products were a PHA and TVA required to obtain Full-Funding Grant Agreement (FFGA) from the FTA.

Pasadena Construction Authority, Program Management Safety Certification Consultant – Mr. Gilles assisted the Pasadena Metro Blue Line Construction Authority with the construction of a 13.6-mile, thirteen station, dual track light rail system from downtown Los Angeles to Pasadena. Booz Allen is providing program management services to the Authority for overseeing the design-build contractor. Mr. Gilles was responsible for all aspects of safety, reliability, and maintainability during planning, design, construction, and testing of the light rail system. He developed system assurance and safety design criteria, performance requirements for the design-bid documents, and the FTA required SSMP. He was also responsible for management and oversight of the safety & security certification for the project. He reviewed safety critical design submittals from the contractor, including station design, security plans, integrated testing plans, maintenance facility layouts, and system safety and certification plans.

North County Transit District, Oceanside to Escondido Rail Project - Mr. Gilles was responsible for all aspects of oversight for fire life safety, safety certification, construction safety, and system safety. He reviewed safety critical design submittals from the contractor, including station design, security plans, integrated testing plans, maintenance facility layouts, and system safety and certification plans.

Northstar Corridor Development Authority, Safety & Security Certification Consultant - Mr. Gilles was the system safety and security project engineer responsible for safety & security certification for the design and construction of a 28 mile commuter rail and one mile light rail extension. For the project, Mr. Gilles is conducting safety and security analyses during PE, developing and leading certification plans.

Los Angeles County Metropolitan Transportation Authority (LACMTA*)* – Mr. Gilles was the project manager for the Program Management Assistance contract with the LACMTA. Mr. Gilles was responsible for safety, maintainability, and reliability analysis efforts to support the development and operation of several Metro Rail Projects. Among his responsibilities was to help the LACMTA integrate and implement a systematic safety process designed to identify, analyze, and mitigate hazards on the various rail systems. This systematic safety process is derived from the standards used in the commercial aviation industry and recognized as the leading edge of safety process technology. In addition, he was responsible for reviewing contractor design submittals to ensure that reliability and maintainability considerations are properly integrated into Metro Rail systems and facilities.

Mr. Gilles was heavily involved with the safety certification of several new Metro Rail Projects. The heavy rail Red Line consists of different segments (Segment 1, Segment 2a, and Segment 2b) that opened for revenue service in different years and required separate certification efforts to satisfy the CPUC, and, most recently, the State Safety Oversight Rule requirements for new systems. He assisted in all aspects of the certification process, including the development of the program plan, drill and training verification, specification conformance checklists, and preparation of final reports. He provided similar safety certification support for the opening of the Green Line light rail system.

McDonnell Douglas Corporation, Long Beach, CA
1989–April 1992, Engineer/Scientist

Mr. Gilles was employed with Douglas Aircraft Company of McDonnell Douglas Corporation in the Design Engineering Division and performed safety analysis on new airplane system designs and established appropriate safety design criteria to satisfy the requirements of Federal Aviation Regulation 25.1309.

James Thomas Greeley

Tunnel Inspector

Summary:
Mr. Greely has over 21 years of experience in tunnels and heavy civil construction projects. He has experience with several types of tunneling equipment and methods such as SEM (Sequential Excavation Methods), Conventional (Drill and Blast) Tunneling Shields, Hard and Soft rock TBMs (Tunnel Boring Machines), and EPBM (Earth Pressure Balance Machines. He has excellent technical, analytical and communication skills and has expertise in reading and understanding plans and specs.

Years of Experience: 21

Education & Training:
Edmond Community College, Lynnwood, WA 2002
Construction Management, Associate of Arts

Affiliations:
- International Society of Professional Engineers

Project Experience:

San Joaquin Pipeline Improvement Projects
San Joaquin County, CA
QA Inspector: Mr. Greeley worked as a QA inspector for the San Joaquin Pipeline Improvement Project. The project involved the construction of a cross over structure that went over Emery road and Pelican road, construction of 2 microtunnels under the 580 freeway, and approximately 18 miles of pipelines. His responsibility included daily inspection, photo documentation, inspection of slurry, backfilling and grouting, made arrangements for special inspection for compaction testing, acted as lead QA during the time the Lead QA was on vacation, issued non-compliance to contractor and worked closely with the QC inspector to ensure that work being performed are to the specifications of the client.

SFPUC Sunnydale Tunnel
San Francisco, CA
Tunnel Inspector: The project consisted of construction of a 5,800 feet long, 6.8-12 foot diameter sewer tunnel that went under the 101 Freeway. The tunnel was mined with 3 different methods; jacked shield tunnel drives, EPBM drive with single pass precast concrete segmental lining and several microtunnels. Mr. Greeley provided tunnel inspection during the use of the EPBM. He provided daily inspection of the tunnel, photo documentation, daily reports, observation of computer readings of the machine, supervised the TBM operators, monitored the grouting of the tunnel and kept track of the muck removal from the tunnel.

Brightwater Conveyance Project East Tunnel
King County, WA
Lead Tunnel Inspector: Mr. Greeley was the lead tunnel inspector for the East tunnel for the Brightwater Conveyance Project. The project involved the construction of a 14,050 feet of concrete segmentally lined tunnel with inside diameter of 16 feet 8 inches, mined using an EPBM. He was responsible for daily inspection of the tunnel, grouting, insulation of segments, tracking muck removal, photo documentation, daily reports, and reading of the TBM computer.

King County Mercer Street CSO Tunnel
King County, WA
Lead Tunnel Inspector: Mr. Greeley provided daily inspection, photo documentation, daily reports, and grouting inspection for the Mercer Street CSO tunnel which was mined using a LOVAT boring machine.

Beacon Hill Tunnel and Station
Seattle, WA
Tunnel Inspector: Mr. Greeley provided tunnel inspection for the Beacon Hill Tunnel and Station which consisted of constructing two shafts built using slurry wall construction and two chambers built using Sequential Excavation method. The twin tunnels were built using a Mitsubishi EPBM with a continuous conveyor belt and lined with a one pass precast segmental linings measuring 18 ft. x 10 inch internal diameter. He provided daily inspection, photo documentation, daily reports, ground conditioning and oversee the TBM operators. To prevent over excavating and settlement, he monitored the amount of muck removed by reading the three scales at the TBM control booth. He also monitored the rate of advance

jacking pressure and ground pressure muck take and grout enabling me to see in real time the position of the tunnel machine as it mines though the underground geology.

Sound Transit Central Link
Seattle, WA
Tunnel Inspector: Served as tunnel inspector for Sound Transit Central Link and also provided inspection on the elevated structure at the Tukwila station. He was responsible for the daily inspection, photo documentation, grouting inspection, ground conditioning and ensuring that the contractor was following the specifications of the client.

14525 Westwick RD. **24220 Juniper Springs Rd.**
Snohomish, WA, 98290 **Homeland Ca, 92548**
Cel (951) 805-2075

LARRY (BUD) GREEN

OBJECTIVE

To apply my specialized knowledge of ground modification techniques, underground and civil construction in a challenging and team-oriented environment.

PROFESSIONAL EXPERIENCE

JACOBS ENGINEERING, Pasadena CA. Construction Management Consultant to Seattle WA. King County for the Brightwater Conveyance System, ($700 Mil.)
Civil Inspector, West Tunnel Contract which consisted of installation of a structurally frozen zone around the Central Contract TBM also the West Tunnel Contract Consisted of 4.5 Miles of tunnel.

October 2010-Present

- Inspected drilling, installation of 38 ground freezing vessels and ground freezing techniques for a site in a residential area directly above the worn-out west bound TBM. The ground will be structurally frozen at the 260-320' level to allow removal of a worn-out TBM in soft ground at that depth and to receive the east bound TBM that is finishing the tunnel drive from the other direction. Disassembled the worn-out west bound TBM. Mined the east bound TBM into the west bound TBM's open shield. Disassembled the east bound TBM and connected the tunnel together. Removed the freeze equipment, compaction grouted the subsurface area above the freeze zone and restored the residential pavement, yards and driveways. Installed 2400' of 10' diameter steel pipe in the tunnel.
- I maintained excellent relations with the community and was presented the Jacobs Beyond Zero award for my coordination with the contractor, surrounding neighbors and motorists at the freeze zone area.
- Inspected the installation of 45'x 126"diameter steel pipe.
- Inspected welding and testing of the 126" pipe joints.

June 2010 to October 2010

- **Inspector/Office Technician Brightwater Conveyance System.**
- Search data base and gather information and related photos from CM construction documentation to be used to defend the county against construction claims.

March 2010 to June 2010

- **Inspector, North Tunnel Contract which Consisted of 2.5 Miles of tunnel.**
- 77,000 yard Cellular grout placement in lifts encasing a 27", 48", 66" and 84" pipe in the tunnel.
- Inspected Contact Grouting performed from inside the 66".
- Inspected holiday testing and repair of the Lifelast Polymer liner applied inside the pipe.
- Inspected backfilling of the Treatment Plant Shaft Portal.
- Inspected installation of the Cathodic Protection for the pipe and a Fiber Optic line.
- **Inspector, Central Contract which consists of a 52x90' shaft, a 20,100' West Tunnel, a 11,600' East Tunnel, a 30'x210' Shaft and half mile of Micro tunnels.**

September 2008 to March 2010

- Assist and advise inspectors working underground.
- Monitor separation plant operations, slurry consistency and on going modifications to the separation process and separation plant equipment.
- Ensure compliance of the NPDES permit which is issued to King Co. This includes keeping storm water and processed water separated and turbidity and pH issues. This site has multiple storm water and processed water retention ponds along with two creeks, one transverses the site and one borders the site.
- Ensure erosion and sedimentation controls are in place and affective.
- Ensure compliance of sanitary sewer discharge permits issued by King Co which are generally settleable solids and pH issues.
- Recurring inspection of the Ballenger Way receiving shaft. This shaft totaled ~200' deep by 30' wide and utilized ground freezing techniques and cast in place concrete lining.
- **Civil Inspector, North Creek Portal Site consisting of excavation of three caissons ~100" deep, Micro tunnels and three ~100' shafts.**

March 2007 to September 2008

- Inspected Tunnel Boring Machines assembly. Two Herrenknecht Slurry TBMs capable of operating with 8 bar of potential hydrostatic pressures.
- Inspect tunnel boring machine excavation of 18 ft diameter tunnel.
- Inspected installation of specially designed bolted/gasketed concrete primary lining.
- Inspect accuracy and use of VTM laser guidance system.
- Inspect excavation and lining of 3 caissons up to 100' in depth including jacking frame and slurry processing plant installations for each leg of the North Creek Interceptor and the Swamp Creek Connector.

- Periodic inspection of micro tunnel excavation and support totaling ~1 mile in length for the North Creek Interceptor.
- Recurring Micro tunnel inspection role on the Swamp Creek Connector totaling~1600' in length.
- Inspected ~2 miles of cut and cover 48" and 36" Flowtite pipe installation and testing of pipe joints.

EPC CONSULTANTS, INC., San Francisco, CA.–Management Consultant to Metropolitan Water District (MWD) Inland Feeder Project, Arrowhead West Tunnel, 19.1 by 4 miles. ($242 Mil.)

- **Mining Inspector**

October 2005-February 2007

- Inspected tunnel boring machine excavation of 19.1 ft by 4900 ft tunnel using state-of-the-art Herrenknecht. hybrid slurry TBM and VTM laser guidance system.
- Inspected installation of specially designed bolted/gasketed concrete primary lining capable of withstanding 1100 ft potential hydrostatic pressures.
- Inspected and directed probe and grout hole drilling using 5 state-of-the-art Arrow percussion.
- Inspected and directed probe and consolidation grouting using , Portland and Microfine cements.
- Inspected and directed three stages of annulas/contact grouting using a sand/cement slurry, Portland and Microfine cements.
- Inspected and directed contractors activities performed for soil grouting w/ sodium silicate.
- Inspected and directed contractors installation and implementation of bag rings to shunt water outside liner.

EPC CONSULTANTS, INC., San Francisco, CA.–Management Consultant to East Bay Municipal Utility District (EBMUD) Seismic Retrofit for the Claremont Tunnel, 16x16x2200 ft. Bypass tunnel and a 30x20x130 ft. Vault. Structural repair and contact grouting of 9000-ft. of original tunnel. ($32 Mil.)

- **Lead Grouting Inspector and Shift Mining Inspector**

October 2004-September 2005

- Encountered serpentinite varies heavy metals and natural occurring petroleum while mining. Quantity of contamination in the material determined how material was handled on site and transported and location of dump sites. Ensured clean material was kept separate from contaminated material and that the contaminated material was stored and prepared for transportation properly.
- Inspected Safety in Gassy tunnel and at the Active Hayward Fault Insured PPE for Serpenttenite.
- Inspected Conventional Drill and Blast, NATM, SEM and Roadheader tunnel excavation.
- Inspected Steel sets, Rock bolts, Spilling, Shotcrete and Side Drift Concrete support methods.
- Lead five Inspectors inspecting contractors contact grouting of 9000 ft.of original 85-year-old tunnel.

E.W. MOON, INC., Los Angeles, CA.–Management Consultant to Metropolitan Water District (MWD) Inland Feeder Project, Arrowhead East Tunnel, 19.1 ft. diameter & 4.5 miles in length and Arrowhead West Tunnel, 19.1 by 4 miles. ($242 Mil.)

- **Tunnel Excavation Inspector**

February 2003-August 2004

- Inspected Tunnel Boring Machines assembly.
- Inspected roadheader excavation of, steel installation and concrete placement for two 30 ft. by 200 ft. long starter tunnels.
- Inspected tunnel boring machine excavation of 19.1 ft by 5200 ft tunnel using state-of-the-art Herrenknecht. Partial EPB-TBM and VTM lazer guidance system.
- Inspected installation of specially designed bolted/gasketed concrete primary lining capable of withstanding 1100 ft potential hydrostatic pressures.
- Inspected and directed probe and grout hole drilling using 5 state-of-the-art Arrow percussion.
- Inspected and directed probe and consolidation grouting using, Portland and Microfine cements.
- Inspected and directed three stages of annulas/contact grouting using a sand/cement slurry, Portland and Microfine cements.
- Inspected and directed contractors activities performed for soil grouting w/ sodium silicate.

Inland Feeder Project, Riverside Badlands Tunnel, 16.8 ft. diameter & 8 miles in length. ($119 Mil.)

- **Tunnel Excavation Inspector**

November 1999- February 2003

- Inspected access shafts excavation /installation and dewatering installation along tunnel alignment.
- Inspect TBM excavation, installation of pre-cast concrete segmental liner and of loci rail.
- Inspect installation of tunnel support ring steel
- Inspect urethane, sodium silicate and cementatious grouting activities
- Inspect the installation of the 12 ft. diameter steel liner
- Inspect placement of the cellular concrete annulus backfill and contact grouting
- Inspect the application of the mortar liner

Inland Feeder Project, Arrowhead East Tunnel, 17.8 ft. diameter & 6 miles in length. ($188 Mil.)

- **Lead Grouting Inspector**

May 1999-November 1999

- Responsible for up to 7 inspectors and technicians.
- Inspected activities performed for contact grouting of the initial pre-cast concrete segmental liner.
- Inspected contractors activities performed for formation grouting outside the liner for 3800 ft. of tunnel.
- Urethane and cementatious grouts were used to reduce groundwater inflows from 1350 gpm to 275 gpm.

PARSONS PROJECT SERVICES, INC., Pasadena, CA – Management Consultant to MWD
Eastside Reservoir Project, East Dam, West Dam and Saddle Dam. ($2.4 Bil.)

- **Promoted to Lead Technician – Grout Monitoring Center**
  October 1997-May 1999

- Responsibilities include all administrative functions of office for up to 25 employees.
- Generation of monthly and final Grouting Program Reports, including compilation of statistical data, all pertinent drawings and maps and pictorial documentation of grout spread.
- Utilization of technical knowledge for final review of all computer-generated grouting reports to insure accuracy of treatment process of each hole complete.
- Personnel, equipment and supply maintenance, preparation of work schedules, annual employee evaluations, specification training, and training of all new employees in foundation grouting techniques.

- **Shift Leader – Grout Monitoring Center**
  February 1996-October 1997

- Participated in establishing and staffing the ESRP Grout Monitoring Center including setup and implementation of HP UNIX computerized grout monitoring system and installation, calibration and maintenance of all telemetry and data acquisition systems.
- Supervised 8-employee shift of grout personnel monitoring (via telemetry) grouting operations.

- **Construction Inspector**
  August 1995-February 1996

- Inspected contractor activities including three test areas at the East Dam and one at the West Dam to determine the most feasible types of drills, cement and cement additives and the amount quantities to spec.
- Trained other inspectors in foundation grouting techniques, writing grouting reports and tracking grouting related quantities.

U.S. BUREAU OF RECLAMATION (USBR), Phoenix, AZ
Department of Interior, (DOI) Arizona Projects Office (APO)

- **Lead Inspector**
  June 1994-August 1995

- Inspected construction of a single line grout curtain from galleries in the dam into the foundation of the dam.
- Tracked quantities used and represented the USBR at weekly reconciliation meetings with Contractor.
- Inspected grouting of the contraction joints between the mass pour concrete blocks that overlaid old masonry dam.

- **Construction Inspector**
  January 1993-June 1994

- Inspected cut and cover utility line installation
- Inspected cutoff/slurry wall excavation and installation
- Tested fill material to ensure specified moisture content and compaction compliance
- Used ASTM and USBR field soil classification systems
- Sampled and logged changes of material
- Performed laboratory tests on soil and rock samples obtained
- Performed insitu water percolation test

- **Civil Engineering Technician**
  October 1992-January 1993

- Monitored construction of a two-line grout curtain and toe-to-toe consolidation grouting for earthen dam foundation.
- Operated HP UNIX computer system, monitoring in real-time and recording the flow rate, grout density, and pressure applied to the grout hole via telemetry.
- Tracked Quantities used and progress of project by plotting maps and updating drawings.
- Compiled data and retrieved information for daily, weekly, monthly and final reports and for claims defense.
- Produced dam foundation as-built drawings.

- **Construction Inspector**
  January 1991-October 1992

- Inspected construction of a two-line grout curtain and toe-to-toe consolidation grouting for earthen dam foundation.
- Inspected backfill, ring and crown grouting in steel and concrete lined tunnels.
- Inspected placement of roller compacted concrete for Camp Dyer Diversion Dam

➢ **Drill and Equipment Operator**
October 1988-January 1991

- Operated diamond core, mud rotary and auger drills, bulldozers, backhoes, skid steer loaders, front-end loaders, boom trucks and small cranes.
- Used diamond core drills to extract continuos core samples of rock in holes up to 1000 feet deep. Holes were typically drilled for subsurface investigation for engineering purposes for construction of dams and related facilities, investigation of existing dam foundations and installation of instrumentation in existing dams.
- Mud rotary and auger drills were used to extract samples of subsurface soil, rock and water up to 900 feet deep. Holes were typically drilled for investigation of ground water and soil contamination and for engineering purposes for cleanup strategies. Generally, installation of monitoring wells or instrumentation for monitoring purposes followed the drilling of the holes.
- Bulldozers, front-end loaders and backhoes were used to construct access to remote sites, to dig test pits for subsurface investigation, to determine permeability of insitu subsurface strata and to determine ripability of rock borrow sites. Remainder of equipment used to support drilling operations.

U. S. ARMY CORPS OF ENGINEERS, SACRAMENTO, CA- Geotechnical Branch-Materials Section

Civil Engineering Technician-Branch Heavy Equipment Specialist
April 1987-October 1988

- Performed surface reconnaissance
- Determined most feasible types of equipment to specify
- Wrote Government estimates and scopes of work
- Solicited quotations from contractors for subsurface explorations for engineering purposes or subsurface investigations of contaminated soil or water
- Obtained site clearances from private landowners and military base personnel
- Inspected and directed the activities of contractor employees engaged in subsurface explorations
- Inspected Roller Compacted Concrete placements for Taxiways and Revetment loading pads
- Maintained logs and records and administered contracts and layout of locations of explorations

Education and Certifications

High School Graduate 1974
24-hr. Micro Tunneling 101.
40-hr. Red Card Certified Wildland Fire Fighter. 8-hr Refresher through 2007.
80 hr. Drivers Training for Trucks & Heavy Equipment-Cal. CDL 8-hr. Refresher through 2002
80 hr. Soils Classification and Identification and Basic Rock Identification
40 hr. Report Writing and Handling of Contaminated Soils
40 hr. Computer Training on Word and Lotus Soft Ware
80 hr. Boating and Water Safety
80 hr. Blasters Training and Safety
80 hr. Mining and Heavy Equipment Safety, refreshed in 2001 thru 2009
96 hr. Drilling and Sampling for Engineering Purposes
40 hr. Safety at Hazardous Material Sites
24 hr. AutoCAD
40 hr. Health and Safety Training for Hazardous Waste Workers, w/ 8 hr. refreshers through 1995
40 hr. Slinging and Rigging Helicopter Loads
40 hr. Helicopter and Airplane Safety
Respiratory Protection Training
32 hr. Construction Safety Standards
32 hr. Drilling Mud School
80 hr. Mobile Cranes and Rigging

Awards and Achievements

Two-week Volunteer for Hurricane Rita/Katrina in Lake Charles & New Orleans, Louisiana. Assisted in erecting two 1500-person camps.
Small Business Owner-Wildland Fire Fighting Support Equipment
Promoted from Drill Helper to Driller
Heavy Equipment Operators Rodeo-Expert Proficiency Class – Rated 3rd place out of 500 Entries
$500 Performance Award
$250 Special Act Service Award

$1000 Special Achievement Award for Superior Performance
Promoted from Shift Leader to Lead Inspector
$950 Incentive Award

Heavy Equipment Operated Proficiently

920 thru 988 Cat Front-End Loaders	D4 thru D9 Cat Bulldozers
580 to 780 4x4 & 2x4 Case Backhoes	545 Allis Chalmers Front-End Loaders
270 International Backhoes	450 John Deere Bulldozers
75 thru 275B Michigan Front-End Loaders	TD6 thru TD20 International Bulldozers
Massey Fergeson Backhoes	355 & 455 Komatsu Bulldozers
International Dart Front-End Loader	Cat Bee-Gee Haul Road Maintainer
Cat Water Pulls (Wagons)	Aggregate crushing, screening and washing plant
30 Ton Electric Gantry Crane	2x4, 4x6 and 6x6 Wheel Drive trucks
Skid-Steer Front-End Loaders	John Deere 710 Extend-a-hoe.

Drilling Equipment Operated Proficiently

Longyear Core Drills	Failing Mud-Rotary Drills
Sprague and Henwood Core Drills	Dam Co. Mud-Rotary Drills
Diamond Drill Core Drills	Jensen Horizontal Drills
Joy Core Drills	Aardvark Horizontal Drills
CP65 Core Drills	Christensen/Boyles Auger drills
Central Mining Equipment Auger drills	Gardner Denver Air/Mud Rotary with a top head drive

SUMMARY OF COMPLETED PROJECTS

Construction Inspection:

Inspection of Seismic Retrofit Claremont Tunnel
Inspection of Arrowhead West Tunnel
Inspection of Riverside Badlands Tunnel
Inspection of Arrowhead East Tunnel
Inspection of Eastside Reservoir
Inspection of New Waddell Dam
Inspection of Roosevelt Dam
Inspection of Little Dell Dam
Inspection of Demilitarization Facility DPG
Inspection of C17A Drop Facility EAFB
Inspection of Camp Dyer Dam
Inspection of the Central Arizona Project

Safety of Dams & Exploration:

Exploration program for New Waddell Dam
Exploration program for Horseshoe Dam
Exploration program for Bartlett Dam
Exploration program for Head Gate Rock Dam
Exploration program Camp Dyer Dam
Exploration program New River Siphon
Exploration program Salt River Siphon
Exploration program for Little Dell Dam
Instrumentation for Davis Dam
Columbia River Stabilization Project
Exploration program for Top of Dam Access Tunnel, Roosevelt Dam
Exploration for Additional Runway, Taxi Way and Control Tower, Nellis Air Force Base (AFB)
Exploration program for Advance Tactical Fighter Facility, Edwards AFB
Exploration for Road and Radar Facility on Bolvine Mountain, Hill AFB

REFERENCES

Available upon request.

ERIN S. HALASZ

210A Flood Avenue | San Francisco, California 94112
erin.halasz@gmail.com | 770.377.5555

EXPERIENCE

Public Outreach Specialist 2011
San Francisco Public Utilities Commission - Water System Improvement Program, San Francisco, CA
Subcontractor with Davis & Associates Communications

- Act as communications liaison between program staff, construction teams and local impacted communities on large-scale pipeline installation and replacement projects
- Develop and implement outreach efforts, including public noticing, online and social media outreach, public meetings and canvassing
- Write, edit and design outreach materials, including letters, factsheets, blogs, websites, maps and meeting materials
- Respond to inquiries and complaints from community members, providing information and developing resolutions for construction-related impacts
- Cultivate relationships with agency, local stakeholders, construction staff and community members to ensure timely, helpful, effective communication with the public

Pennsylvania House Democratic Campaign Committee 2010
Communications Director, Harrisburg, PA

- Developed and executed communication strategies for approximately 40 competitive state House of Representatives races for statewide political committee with $7 million budget
- Led HDCC web team, managing committee's website and social media content
- Composed targeted, on-message press releases, talking points, letters to the editor, op-eds, blog posts, blast emails and speeches for candidates and committee
- Acted as official spokesperson for committee
- Led training sessions on press relations, debate techniques and social media strategy

Capitolwire.com 2009
Reporter, Harrisburg, PA

- Covered state budget, federal stimulus spending, education, health, public safety and public utility policy for state government news website
- Generated and pursued story ideas daily, covering complex topics accurately and interestingly

EDUCATION

Northwestern University - Medill School of Journalism, Chicago, IL 2008

- Master of Science in Journalism

Northwestern University, Evanston, IL 2001-2005

- Bachelor of Arts in History, cum laude

SKILLS

Computers: Proficient on Adobe Creative Suite; WordPress, Blogger and other CMS formats; Constant Contact; HTML and some CSS; Google Analytics and Google AdWords; Salsa **Photography:** Photographs published at RunnersWorld.com, Medill News Service, several blogs; professional experience photographing political candidates, weddings

surrounding neighborhoods. A direct connection with the Market Street MUNI/BART station is considered.

Project 2: Moscone West Convention Center
San Francisco, CA
Principal-in-Charge, 1996-2003

Denis served as the Principal-in-Charge.

The Moscone West Convention Center is a 700,000 SF facility with three stories of flexible spaces for exhibition, meeting and ballroom functions. It also includes a full basement for service and loading. Located on the corner of 4th and Howard, this facility provides a visible link to Moscone North and South, while creating a strong connection for convention attendees approaching from the hotels north of Market Street. Designed to function as a stand-alone facility, the building form is strong and transparent, which serves to enliven the facility at the street level.

This $200M project was designed by a Joint Venture of Gensler, Kwan Henmi and Michael Willis Architects. Kwan Henmi was responsible for all of the interiors.

Project 3: Transcontinental Printing (NADEV)
Fremont, CA
Principal-in-Charge, 2008-2009

Denis served as the Principal-in-Charge for this project.

For their flagship US location, Transcontinental Printing Facility has hired McCarthy Building Companies and Kwan Henmi Architecture Planning to build a 350,000 sf state of the art printing facility in Fremont, CA via design/build delivery. This facility features 3 state-of-the-art double-width Man Roland Cold and Heat printing presses. The facility is mostly automated using Laser Guided vehicles and robotic cranes to move product from storage to the press equipment. The printed product is conveyed through the facility where product specific print material can be automatically inserted, bundled and crated for distribution. The facility will only require 150 employees to operate. The project will be LEED certified featuring cool roofing, Cradle to Cradle recycled exterior siding system, and preferred parking for car/vanpool and alternative energy vehicles. Employees also have the option of commuting to the facility by public transportation.

Project 4: San Francisco International Airport – Employee Parking
San Francisco, CA
Principal-in-Charge, 1997-1999

Denis served as the Principal-in-Charge.

Design of a new 1,700 vehicle parking structure with concrete ductile moment frames that increase visibility and openness.

Project 5: San Francisco International Airport – AirTrans Station (Domestic Terminal)
San Francisco, CA
Principal-in-Charge, 1996-2003

Denis served as the Principal-in-Charge.

Kwan Henmi Architecture/Planning Inc. was the prime architect responsible for the design of the $25M Domestic Terminal Light Rail Stations and bridges, which are part of the overall airport AirTrain System at San Francisco International Airport.

The design of the three domestic stations includes an upper station platform level, a lower concourse level, and pedestrian bridges, which connect the station concourse to the existing domestic terminals.

The stations platforms are located on an elevated guideway which circles the existing short term parking garage. From the stations, passengers board driverless, fully-automated train vehicles. One level below the station platform is the station concourse. This level allows passenger access to the short term parking garage and domestic terminals via enclosed pedestrian bridges designed to span over the existing circulation roadways.

William E. Hawk, Jr.
Senior Inspector

SUMMARY

Mr. Hawk is a senior inspector with over 24 years of experience working in both the public sector and for privately held companies. He has worked on infrastructure projects that include tunnels, major highways, large-diameter waterlines, and bridges. In addition to his experience as an inspector, Mr. Hawk has performed materials testing for concrete, soils, asphalt, and caissons.

RELATED EXPERIENCE

Bi-County Water Tunnel. WSSC-Rockville, MD (2008-Present).
This $170 million project consists of construction of a 5.5-mile-long, 10-foot-diameter, 100- to 300-foot-deep water tunnel for the Washington Suburban Sanitary Commission (WSSC). This deep hard rock tunnel is being excavated by tunnel boring machine (TBM). Support consists of rock bolts on a 4 x 4 pattern. Tunnel lining is 84-inch-diameter, concrete-lined welded steel pipe. The project also includes three shafts: a 175-deep, 30-foot-diameter working shaft; and two TBM retrieval shafts—one 160-feet-deep and 25-feet in diameter, the other 150 feet deep and 16 feet in diameter. Shafts were constructed with hard rock drill-and-blast methods. Support consists of rock bolts and soft ground steel liner plate. Relocation of WSSC sewer mains was required prior to construction of the three shafts. As a shaft and tunnel inspector for Jacobs Associates, Mr. Hawk is responsible for inspecting/monitoring all shaft and tunnel activities, including ground support, quality assurance, daily progress reporting, documenting quality of work, and acting as liaison between contractor and owner.

Heartland Corridor Project, Bluefield, West Virginia (2008-Present)
This project will enable Norfolk Southern's 531-mile-long Heartland Corridor to accommodate double-stack freight trains, improving transit time and efficiency between international ports on the East Coast and in the Midwest. The work calls for increasing tunnel clearances and modifying other overhead obstructions on a total of 24 tunnels that are over 100 years old. Jacobs Associates is providing tunnel design review and construction inspection services as a subconsultant to the STV/Ralph Whitehead Associates' construction management team. As a shaft and tunnel inspector for Jacobs Associates, Mr. Hawk is responsible for the inspection of liner removal, rock bolting, steel set installation, shotcreting, grouting, installation of spiling, daily reports, quantity tracking, and channel lagging installation.

Oregon Bridge Delivery Partners (Fluor), Eugene, Oregon (2006–2008)
As a senior bridge inspector, Mr. Hawk worked on various projects in the Pacific Northwest. He was responsible for inspections on five bridges, MSE walls, drilled cassions, rebar, concrete, asphalt paving, electrical works, seeding, traffic control, production of concrete bridge girders, and drainage. His specific responsibilities included daily progress reports and inspection checklists, as well as communication with the project manager and contractor on a daily basis to discuss progress and any problems.

KPFF Consulting Engineers, Phoenix, Arizona (2005–2006)
As a special inspector, Mr. Hawk was responsible for special inspections on commercial buildings, including masonry, structural rebar, welding, and concrete. He ensured that contractors met the project requirements, and communicated with the contractors on projects and reported daily inspections.

CH2M Hill, Denver, Colorado (2004–2005)
Mr. Hawk held a seasonal position as a senior project inspector responsible for inspections at Centennial Airport on taxiways and runways. Inspections included asphalt paving, runway lighting, earthwork, underdrain systems, RCP, tracking quantities, pay estimates, reviewing submittals, stripping, and daily reports.

Southeast Corridor Constructor (Kewitt), Denver, Colorado (2001–2004)
As a senior inspector, Mr. Hawk was responsible for six technicians on the T-Rex project in Denver, Colorado, along the Interstate 25 corridor. He was also responsible for all inspections in segments 2.1, 2.2, 2.3, 3.1, 3.2, and 3.3; and for all documentation for these inspections. These inspections included grading, drainage, MSE walls, PCCP paving, asphalt paving, and light rail transportation (LRT).

Civil Technology, Denver, Colorado (2000–2001)
Mr. Hawk was a senior inspector responsible for inspections on numerous jobs at Denver International Airport (DIA), including review of submittals for job specification certification. Projects for which he was responsible included repair of concrete paving on Pena Boulevard; repair of numerous sleeper slabs on bride approaches; and inspection of the entire Airport Aircraft Rescue and Firefighting (AARF) project at DIA. Mr. Hawk also arranged for testing of concrete, soils, and asphalt; reviewed material submittals to make sure they met project specifications; and performed inspections on the expansion of the existing Pikes Peak parking lot (including drainage, seeding, water line, and asphalt).

TranSystems Corp., Denver, Colorado (1997–2000)
As a senior inspector/project manager Mr. Hawk was responsible for pay estimates, quantity tracking, and quality assurance inspections. Projects on which he acted in this capacity include:

- **Alliance, Nebraska:** Realignment and construction of three new bridges over Potash Street; construction of four new railroad tracks, including box culverts, retaining walls, and 50,000 yards of fill.

- **Guernsey, Wyoming:** Removal of an 1,800-foot-long railroad tunnel in Guernsey State Park; construction of a bridge; removing 800,000 yards of fill on top of the tunnel and construction of rock bolts and shotcrete every 10 feet of fill removed; realignment of a road for a bridge over the removed tunnel; drilling three new water wells; and constructing two new railroad tracts.

Aguirre Engineers, Inc., Englewood, Colorado (1994–1997)
Mr. Hawk served as field technician and construction inspector for field and laboratory tests. Duties consisted of:

- Concrete testing, which included air content, slump, and unit weight testing of freshly mixed concrete. Mr. Hawk conducted lab tests, which included compressive strength, flexural strength, and unit weight and performed design mixes.

- Soil testing, which included standard and modified proctor tests, Atterberg limits analyses, gradation (sieve) analyses; and water soluble sulfate, electrical resistivity, R-value, California Bearing Ratio, group index, relative density, and hydraulic conductivity tests. Mr. Hawk also performed field density and moisture content tests.

- Asphalt testing, which included asphalt extraction, gradation, and Marshall density; Lottman test; compaction with Texas Gyratory; Hveem stability testing; Rice method; bulk-specific gravity test; and testing of design mixes. Mr. Hawk conducted surface preparation inspection for proposed asphalt concrete overlays and testing and inspections of asphalt concrete overlays.

- Caisson inspection, which included drilling piers or caissons to verify diameters; drilled length; penetration into supporting stratum; wall and bottom conditions; and proper reinforcement placement. Mr. Hawk provided inspection on projects where groundwater was present and drilling procedures had to be performed properly in order to obtain an acceptable pier foundation.

Aguirre Engineers projects on which Mr. Hawk served as field technician and construction inspector include:

- **Gerald Phipps, 20th & Downing, Denver, Colorado**
  Mr. Hawk was responsible for inspection and testing of 84-inch-diameter storm sewer, curb, and gutter asphalt replacement during the reconstruction of Downing Road.

- **Rocky Flats Sanitary Landfill, Denver, Colorado**
  This project included construction of a clay-lined sanitary landfill. Mr. Hawk was responsible for inspection and testing of the placement of 80,000 cubic yards of fill and 30,000 cubic yards of clay along with the construction of the operations building.

- **Fort Lupton Water Treatment Plant, Fort Lupton, Colorado**
  Mr. Hawk was responsible for the inspection and testing of the construction of a water treatment plant and water main, including two 1-million-gallon water tanks.

- **FHWA, Highway 70, Wyoming**
  Mr. Hawk performed inspection and testing of 24 miles of highway reconstruction, including asphalt paving and concrete curb. His duties included pay factors for asphalt and aggregated base course.

CMTS, Denver, Colorado (1991–1994)
As a senior inspector, Mr. Hawk was responsible for providing pay estimates; tracking quality; quality assurance and quality control inspection; and testing asphalt, soils, drainage, and concrete for roads and highways. Projects he provided these services for include:

- **MAC Light Rail, Denver, Colorado:** Mr. Hawk inspected 5 miles of light rail, curb gutter, concrete and asphalt paving, irrigation systems, and structures. He was responsible for ensuring that work conformed to City and County of Denver specifications and wastewater maintenance specifications.

- **RTD Heavy Utility Relocation, Denver, Colorado:** Mr. Hawk was the senior inspector during the relocation of a water and sewer trunkline in downtown Denver during construction of the Regional Transportation District.

- **Pena Boulevard, Denver International Airport, Denver, Colorado:** Mr. Hawk inspected four lanes of concrete paving and 1 million cubic yards of fill material for runways and taxiways.

- **Highway 40, Colorado Department of Transportation, District 3, Colorado:** Mr. Hawk provided inspection services for the reconstruction of drainage and 16 miles of highway paving between Hayden and Craig, Colorado.

City of Scottsdale, Arizona (1988–1991)
Mr. Hawk was a public works inspector responsible for quality assurance and quality control inspections on water, sewer, curb and gutter, paving, and box culverts. He also worked in the survey department on numerous projects. He received the Performance Plus Award in 1991. His experience includes the following Scottsdale projects:

- **Dynamite Boulevard:** This was a four-lane, major roadway with an option for two additional lanes. The outside lane had a Maricopa edge, five box culverts, a 436-foot double barrel, and drainage channels with headwalls.

- **Dynamite Boulevard Water Transmission:** Mr. Hawk provided the inspection of a 48-inch water transmission from (and including) the pump station to the reservoir.

- **Shea Boulevard:** This six-lane major roadway is 9 inches in depth with asphalt and a bridge over the Arizona Canal. The boulevard is a part of the highway with ADOT specifications.

- **Scottsdale Road:** This project entailed the widening of a six-lane major roadway approximately 4 miles long, with 8 inches of depth and drainage, curb, and gutter.

- **Hayden Road:** This project was a 4-mile, six-lane roadway with a center median. The widening project included the extension of existing drainage, curb and gutter.

- **Pima Vistas Subdivision:** This project consisted of $1.5 million worth of utility improvements, including water, sewer, gas, telephone, and cable.

- **Various Subdivision Projects:** These involved roadways, sewer, box culverts, cast-in-place pipe, bridges, and drainage channels.

CERTIFICATIONS

- Labcat
- Waqtc
- Concrete Paving
- NICET ll. : Asphalt, Concrete, and Soils
- Troxler Nuclear Gauge Certified
- ACI Concrete Field Tech
- Certified Bridge Inspector
- Certified General Construction Inspector
- Certified Drilled Shaft Inspector
- OSHA 10 hour

Name: Denis Henmi, LEED AP, AIA, NCARB

Education:

- B.A. in Architecture University of California at Berkeley, 1974

Additional Credentials:

NCARB, 1980
Architect, State of California C 11009, 1980

Employment History:

-When hired with your firm: 1983
-When entered the profession: 1974

Summary of Qualifications:

Denis has over 30 years of experience practicing in the San Francisco Bay Area. He has experience in all areas of architectural design and planning with expertise in sectors such as civic, transportation and transit-oriented development. His technical understanding of building components and materials, together with a highly analytical and creative approach, has resulted in his specialization in building analysis.

In addition to being experienced with very large and complex projects, Denis has worked on projects requiring coordination with many government agencies, including SFMTA, the State Historic Preservation Office, the City and County of San Francisco, and HUD Section 811. He serves as a consultant to the City in the development of new building code guidelines. He is very knowledgeable with the complex issues concerning affordable and multi-family housing projects, and high-rise buildings in an urban environment. Denis has met the challenges of tight budgets and deadlines while maintaining design integrity.

Relevant Experience:

Project 1: Central Subway, MUNI Third Street Light Rail Extension
San Francisco, CA
Principal-in-Charge, 2003-2008

Denis served as the Principal-in-Charge.

Teamed with Parsons Brinckerhoff, Kwan Henmi is designing the new Central Subway Stations as an extension of the MUNI Metro light rail system. The project consists of approximately 1.75 miles of surface/subsurface extension of the MUNI light rail system, continuing from the Third Street Light Rail Initial Operating Segment just north of Fourth Street and King Street.

The project includes three new underground passenger stations - Moscone, Union Square/ Market Street, and Chinatown. Alternate alignments, station locations and construction methods are currently being studied to provide the most efficient system with a minimum of construction impact upon the

Matthew Hembd
Senior Staff Engineer

SUMMARY

Mr. Hembd has more than seven years of civil and construction experience working for contractors as a field/project engineer on tunnels and other heavy civil construction projects. His responsibilities have included cost estimating, constructability reviews, subcontractor administration and oversight, preparation of RFIs and submittals, construction layout and survey, verification of quantities for pay estimates, production of field drawings and schedules, material purchasing, processing correspondence and preparing and reviewing claims. His duties at Jacobs Associates include cost estimating, constructability reviews and claims review/assessment.

RELEVANT EXPERIENCE

Jimmie Creek Hydroelectric Project, Vancouver, BC, Canada (2012)
As cost estimator, Mr. Hembd prepared and reviewed cost estimates for 1.9km of water and access tunnels as well as a mined powerhouse, utility and related intake shafts.

Silver Lake Bypass Tunnel, Los Angeles, CA (2012*)*
For quality assurance/quality control purposes, Mr. Hembd reviewed estimates for accuracy and completeness for a 4,400 LF water tunnel with related shafts and piping.

Bay Tunnel, Newark, CA (2012
As cost estimator, Mr. Hembd prepared a cost estimate for a ground freezing option for the Newark shaft excavation.

Stanford LCLS II Project, Stanford, CA (2012)
As assistant to the cost estimator, Mr. Hembd helped prepare the cost estimate for a proposed 3,000 LF experimentation tunnel with related shafts and caverns.

DC WASA - Anacostia River Projects, District of Columbia (2011- Present)
As cost estimator, Mr. Hembd prepared and reviewed cost estimates and alternatives for a 24,000 LF CSO tunnel, two micro tunnel connecting tunnels and multiple diversion structures.

Northgate Station and Elevated Guideway, Seattle, WA (2011-Present)
As cost estimator, Mr. Hembd prepared and reviewed cost estimates for 2,500 LF of aerial guideway and station.

OLRT Downtown Ottawa Light Rail Tunnel, Ottawa, ON (2010-2011)
As cost estimator, Mr. Hembd prepared and reviewed cost estimates and alternatives at various stages of the design process for 2.7km of light rail transit tunnel and three stations. Alternative comparisons included cut and cover and mined stations as well as bored and mined tunnel.

Lawrence Berkeley National Laboratory Next Generation Light Source Tunnel, Berkeley, CA (2011)
As cost estimator, Mr. Hembd prepared feasibility cost estimates for several alternative designs and locations for a proposed 2,500 LF experimentation tunnel with related shafts and caverns. Alternatives included sloped and shored open cut excavation.

SFMTA Central Subway, San Francisco, CA (2010-2011)
As the cost estimator, Mr. Hembd prepared and reviewed cost estimates at various stages of the design process for the 8,000 LF twin tube light rail transit tunnel and mined stations.

Crosstown Tunnel Rehabilitation Project, District of Columbia, (2010-2011*)*
As cost estimator, Mr. Hembd prepared cost estimates at various stages of the design process for the rehabilitation of an 800 LF water tunnel and construction of associated shafts and piping.

Kaneohe-Kailua Wastewater Conveyance Project, Oahu, HI, (2010)
As cost estimator, Mr. Hembd prepared feasibility cost estimates and alternatives for the 16,000 LF sewer tunnel. Alternatives included cast-in-place and reinforced concrete pipe final lining.

Port Mann Water Supply Tunnel, Vancouver, BC, Canada (2010)
As cost estimator, Mr. Hembd prepared cost estimates at various stages of the design process for the 3,250 LF water supply tunnel.

RELEVANT EXPERIENCE PRIOR TO JACOBS ASSOCIATES

MITCHELL ENGINEERING, SAN FRANCISCO, CA (2004-2010)
Placerville/Hwy 50 Operational Improvement Project, Placerville, CA
As project engineer, Mr. Hembd's responsibilities included subcontractor administration and oversight, preparation of RFIs and submittals, construction layout and survey, verification of quantities for pay estimates, production of field drawings and schedules, purchasing materials, processing correspondence and preparing claims. This Caltrans project consisted of widening bridges and highway, bridge replacement, construction of a pedestrian overhead bridge, installation of concrete barriers and traffic signs, providing lighting and signals and the relocation of public utilities in the City of Placerville.

Bridgehead Expansion Project, Antioch, CA
As project engineer, Mr. Hembd's responsibilities included coordination of subcontractors, vendors and crew to make modifications and convert an existing submersible pump station into a diversion pump station. This included constructing a wet/dry pit wastewater pump station and standby diesel generator facility, circular concrete emergency storage basin tank and approximately 600 feet of 8-inch potable water pipeline to serve the site. Mitchell Engineering also constructed below grade flow control and isolation valve vaults with appurtenances, mechanical, HVAC, electrical and instrumentation controls support systems.

Emergency Water System Intertie Project, Skywest Pump Station, Hayward, CA
As project engineer, Mr. Hembd participated in the project closeout process, completion of punch list work and final testing for the new Skywest Pump Station Building. This project included replacement of four 33" isolation valves and two 42" isolation valves on the Hesperian Aqueduct and installation of intertie pipeline inside and outside the new pump

station. Other upgrades included four horizontal split case pumps, a standby generator with fuel storage tank, new transformer, switchgear, valves and 7,205 feet of 36" transmission pipeline.

Narrows 2 Flow Bypass System, Yuba County, CA
As project engineer, Mr. Hembd's responsibilities included management and survey/layout for the construction of a 13' diameter drill-and-shoot bypass tunnel, bypass structure and discharge channel, installation of a 114" steel tunnel liner, 90-degree tee-connection to an existing penstock and minor powerhouse structural modifications. Installation of a 78" fixed cone bypass valve, 78" knife gate guard valve, 168" turbine shutoff butterfly valve and operating equipment were also necessary to complete this project for the Yuba County Water Agency.

Fourth Street Bridge Retrofit, San Francisco, CA
As field engineer, Mr. Hembd's responsibilities included surveying and layout, producing daily reports, taking photographic records, and assisting the project staff for the retrofitting and rehabilitation of the historic Fourth Street Bridge as a segment of the Third Street Light Rail construction project. Work included replacing the reinforced concrete structures supported on new 36" CISS driven steel piles and constructing light rail track work.

***MODERN CONTINENTAL, WALNUT CREEK, CALIFORNIA (2003*-2004)**
Water Transmission Improvement Pipeline, Walnut Creek, CA
As field engineer, Mr. Hembd's responsibilities included operating various survey equipment and navigational systems for a tunnel boring machine and several jack and bore operations, tunnel monitoring duties, producing Auto-Cad drawings, providing layout for a four hundred foot open cut trench and assisting in the alignment of over 4,000 feet of 6' diameter pipe.

EDUCATION

B.S. in Construction Management, Cal State University, Chico (2003)

Albert Hoe, P.E.

Project Engineer

Education

Bachelor of Science in Civil Engineering, University of California, Berkeley

Professional Registration

Civil Engineer, State of California (No. C56614)

Affiliation

Member of IEEE Overhead Contact Standards Committee

Experience

July '94-Present Municipal Transportation Agency (Formerly Municipal Railway), San Francisco, California

Project Engineer Third Street Transit Project, Phase II: Central Subway (Jul '05 to Present)

- Manage the technical aspect of MTA/Muni design for Preliminary Engineering
- Coordinate with MTA/Muni representatives to ensure that the project meets all requirements.
- Monitor the progress of consultant design.
- Assist Project Manager with technical issues relating to public outreach and Supplemental EIS/EIR.
- Prepare conceptual reports, drawings, and cost estimate for New Start Submittal.

Overhead Design Unit Manager (Apr '99 to Dec '05)

- Supervise, direct, and manage a group of project engineers and civil designers in the Overhead Engineering Unit in the performance and preparation of studies, reports, designs, contract drawings, specifications, and cost estimates for various transit projects.
- Recruit, train, mentor, and develop engineers to be competent overhead designers and future project engineers.
- Develop and maintain professional relations with clients (Transportation & Maintenance), City agencies, CalTrans, CalTrain, and utility companies with respect to transit projects.
- Develop and maintain professional relations with external transit professionals to share knowledge and experiences about the transit industry.

  Projects include:
  - Third Street Transit Project, Central Subway
  - Third Street Transit Project, IOS
  - No. 33 Stanyan Reconstruction Overhead Contact System
  - Presidio Yard Overhead Reconstruction
  - Metro Subway Overhead Reconstruction
  - No. 6 Parnassus / No. 7 Height Trolley Overhead Reconstruction
  - No. 1 California / No.4 Sutter Trolley Overhead Reconstruction
  - Mission / Steuart Overhead Reconstruction and Bus Relocation
  - Bay Bridge Western Approach Overhead Bypas

Project Engineer - No. 1 California / No. 4 Sutter Trolley Overhead Reconstruction (Oct '96 to Dec '01)

- Performed the duties of the Project Engineer and the Overhead Lead Designer for this transit projects.
- Prepared conceptual reports, design drawings, and specifications.
- Coordinated design activities with clients and other design disciplines.

821 Howard Street 415.701.4280 Phone
San Francisco, CA 94103 415.701.5222 Fax

- Monitored the progress of the project. Supervised, reviewed and checked work from various disciplines to ensure technical accuracy.
- Provided construction engineering services.

Construction Engineer - Muni Metro Turnback (Jul ‘95 to Sept ‘96)

- Performed duties of a civil construction engineer including inspecting earthwork, concrete installation, rebar installation, water membrane installation, street lighting, traffic signal, AWSS installation, sewer lateral installation, and overhead contact wires installation.
- Measured field installed unit quantities for monthly progress payments.
- Reviewed submittals and RFIs for various works.
- Monitored nightly power supply shut downs.
- Monitored contractor’s QC application.

Lead Designer - No. 71 Noriega Electrification & No. 14 Mission Trolley Overhead Reconstruction, Phase B (Jul ‘94 to Jun ‘95)

- Performed duties of a lead designer, including site investigation, cost estimating, creation of AUTOCAD basemap and drawings, calculations and utility coordination.
- Documented progress meetings.
- Developed design alternatives and options.
- Coordinated with various disciplines to complete the design drawings.

Jan, ‘94-Jun ’94 Public Utilities Commission, San Francisco, California
Designer - No. 14 Mission Trolley Overhead Reconstruction, Phase B

- Performed duties of a designer, including site investigation, cost estimating, calculations, and utility coordination.

ANDREW J. HOWARD, IV, P.E.

Education
Bachelor of Science in Civil Engineering, San Francisco State University
Bachelor of Arts Sociology/International and Comparative Studies, Dartmouth College

Professional Affiliations
American Society of Civil Engineers

Professional Registration
Civil Engineer, State of California (C52379)

Key Qualifications
San Francisco Municipal Railway, San Francisco, California 1991-Present

Manager Project Management 2006-Present
- Directs Transportation Development Project management section
- 6 direct reports managing $1B total projects

Project Manager 2002-2006
- Deputy Program Manager 3rd St Light Rail
- Directs the Community Outreach Program of the 3rd St Light Rail Project
- Manager of $32.8m Platforms and Special Systems contract for 3rd St. Light Rail
- Manager of the $13.4m Owner Controlled Insurance Program

Civil Unit Engineer 1999-2002
- Directs Civil Unit comprising of 9 professional engineers. Prepares evaluations, supervises staff development.
- Responsible for supervising the non-habitable civil design.

Overhead Unit Engineer 1997-1999
- Directs Overhead Unit comprising of 14 professional and technical engineers.
- Represents Capital Programs division on Muni's Overhead Line Committee setting policy for catenary design.
- Responsible for supervising the catenary engineering of all Muni trolley coach and light rail capital projects.

Project Engineer on 3rd Street Light Rail Project 1996-Present
- Responsible for the preliminary engineering of the 5.4 mile new light rail line.
- Directs the technical team in the preparation of drawings of the alignment.

Languages - Fluent in French

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San Francisco, CA 94103 415.701.5222 Fax

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2710 Montego Bay St.
Pittsburg, CA 94565

Home: (925) 228-1772
Cell: (925) 286-4569
namorocin@hotmail.com

Education & License:

Professional Civil Engineer, License No. 68107
Project Management Professional, Credential No. 1244115
Bachelor of Science in Civil Engineering
University of California, Davis (December 1999) with Honors

Experience:

Project Manager I/Associate Engineer (working out of class as Project Manager I, 6/2008-present) City and County of San Francisco, Department of Public Works, Bureau of Construction Management, **4/2002-present**
As project manager, I provide oversight of the Hazardous Materials Abatement Program; manage the furniture fixtures and equipment procurement contract (FF&E); manage and coordinate all work related to the preparation of plans, specifications, and construction estimates for the remodel of the existing hospital; coordinate construction activities with hospital staff to minimize disruption to Hospital operations. This includes coordinating and overseeing the CM-at-Risk, professional consultants, and city personnel.
As Resident Engineer (RE), and assistant RE, I was responsible for overall construction management oversight and completion of assigned capital projects. Projects included the following: three (3) bridge construction and retrofit projects; street reconstruction work; high-pressure water pipelines; parks facilities; street lighting facilities. Responsibilities included construction team coordination, Change Order negotiations, claims analysis and response, daily progress reporting, submittal tracking (and review, if necessary), RFI tracking, directing and recording meetings, enforcement of codes and regulations, monitoring of construction quality, budget (progress payments) and schedule (Critical Path Method), and construction close-out. As the RE, I reported all financial issues to Project Manager.

Transportation Engineer CALTRANS, Office of Traffic Management, Oakland, CA **8/01-4/02**
Review Transportation Management Plans (TMP) summarizing the review to include comments and recommendations. TMP's are composed for any transportation projects affecting Caltran's right-of-way. The Office of Design typically writes TMP's, but consultants or municipalities also develop them as well.

Design Engineer Buehler & Buehler Associates, Structural Engineers, Sacramento, CA **6/00-8/01**
Designed lateral and vertical force resisting systems for wood and steel commercial buildings as well as several school modernization projects per the California Building Code. Designed concrete and CMU walls and retaining walls. Designed anchorage details for Hospitals and State Facilities under OSHPD jurisdiction.

Projects:

Laguna Honda Hospital Replacement Program – Contracts 8550A, 8521A, 8355A, and 8700A
Illinois St Bridge, South Approach, Contract No. 2709
Seismic Retrofit of Fourth Street Bridge, Contract No. 1990N
Cesar Chavez Improvements, Phase II, Contract No. 1655N
Pemberton Place Stairway Reconstruction, Contract No. 7357E
Seismic Retrofit of Third St. Bridge North East Wharf, Phase II, Contract No. 6618EE
Fourth Street Sidewalk Widening Project, Phase II, Contract No. 1667N

Computer Skills:

All relevant Microsoft Software, Microsoft Project, AutoCAD 2007 (R17.0)

Affiliates:

Member, Tau Beta Pi ($\tau\beta\pi$)
Project Management Institute
SFBAC-PMI

Jessie Chun Jiang
763 43rd Avenue, San Francisco, CA 94121
(415) 513-9985 jessiej2009@gmail.com

Profile:

Meticulous, dedicated, versatile, and team spirited BS candidate with strong accounting and administrative background and knowledge in business process; Fast leaner and self-motivated and persistent attitudes drive to exceed expectations; Extensive experience in financial reporting, A/R, A/P and cost analysis; Excellent academic achievement and enthusiasm for social contribution

Skills:

- Diverse experience and background in accounting and administration, highly proficient in financial reporting, A/R, A/P
- Extensive skills and experience in QuickBooks, PeopleSoft, and Oracle
- Cutting edge computer and analytical skills (Advanced level of Excel, Word, PowerPoint, Access, Adobe Acrobat)
- Outstanding communication skills – both verbal and written
- Bilingual in English and Chinese (Cantonese and Mandarin)

Education and Volunteer Experience:

San Francisco State University
(08/2007 – 05/2009)
B.S., Accounting (GPA: 3.93 and Business Honor)
Awards: Hong Kong Association Scholarship
Volunteer: VITA– help low-income families file tax returns
Lifetime member of Beta Gamma Sigma (Bus. Honor Soc.)

City College of San Francisco
(09/2004-07/2007)
A.A., Accounting (GPA: 3.96)
Awards: Vincent and Martha Costantino Scholarship.
Debs Family Community College Scholarship
Volunteer: Project Shine – coach ESL students at CCSF

Experience:

02/08 – present: **The University Corporation, SFSU**, San Francisco, CA *Accounting Clerk (part-time)*
Accomplishments: Verified payment requests from different school departments for hundreds of project reimbursements; completed special projects including researching account discrepancies, assisting with the annual audit, revising data in the PeopleSoft computer system, and coordinating office relocation.

08/06 – 06/07: **City College of San Francisco**, CA *Health Science Department Administrative Assistant (part-time)*
Accomplishments: Prepared purchase orders; arranged class materials and coordinated shipment to various campuses in a timely basis; Prepared mass mailings of class certificates and flyers to students.

05/06 – 08/06: **Marines' Memorial Club and Hotel**, San Francisco, CA *Accounting Clerk (temporary, full-time)*
Accomplishments: Audited and prepared daily income and expense reports; verified payment requests; filed accounting documents.

10/05 – 05/06: **Kai Ming Inc.**, San Francisco, CA *Accounting Assistant (temporary, part-time)*
Accomplishment: Resolved two-year accumulation of bookkeeping tasks and petty cash discrepancies; accurately allocated accounting data and administrative records of seven divisions for quarterly and annual reports; devised and implemented efficient organizational system for accounting and HR documents.

02/05 – 07/05: **National Apparel Inc**., San Francisco, CA *Accountant (part-time)*
Accomplishments: Created new system for invoicing, generating statements and processing payroll; set up and rearranged all accounting & HR files to be organized and easily accessed.

09/02 – 04/04: **Reuters Group** (British International Corp.), Guangzhou, China *Accountant*
Accomplishments: Oversaw implementation of a new Oracle software system for the Finance Department in support of a centralized plan for Singaporean operations

10/99 – 09/02: **Henkel Adhesives Company Limited** (German International Corp.), Guangzhou, China *Accountant*
Accomplishments: Cleared three-years account discrepancies in AR; Involved resetting finance and sales procedures; and created more an effective credit control system.

08/96 - 09/99: **ABB (CHINA) Engineering Co. Ltd.** (Swiss International Corp.), Guangzhou, China *Senior Accountant*
Accomplishments: Set up new double-system financial software fitting different standers of parent and subsidiary companies; successfully transferred manual accounting system to computer system.

Brian Kelleher
338 18th Avenue
San Francisco, CA 94121
415 | 336 | 2351

QUALIFICATIONS

- More than 15 years of increasing responsibility and experience in public contracting including contract management, material & equipment procurement, and vendor relations
- Extensive knowledge of public contracting principals, Federal Acquisition Regulations, Federal Transportation Administration procurement regulations (FTA Circular 4220.1F), and California Public Contract Code
- More than 7 years of supervisory experience including hiring, managing staff and performance appraisals
- Solid contract administration skills in both design and construction, including preparation of contract change orders, monitoring contactor performance and initiating corrective action as needed
- Administer Project Change Control
- Experience with FAR Part 31 Cost Accounting principals
- Superior analytical, organizational, administrative, planning and procedural skills

ACHIEVEMENTS

- Supervised and managed a team of professional contract management staff in support of capital program in excess of $60 million annually
- Successfully managed revision effort to update Special Provision (Division 1) contract language for civil works projects, including development of contract templates and contract preparation guidelines
- Led effort to develop and implement new Construction Management contracting approach
- Managed the development and implementation of procurement website
- Evaluation team member on new Rail Operation and Maintenance contract, representing Engineering & Construction division

WORK HISTORY

Program Manager	San Mateo County Transit District	San Carlos, CA	2005 to present
Sr. Contract Officer	San Mateo County Transit District	San Carlos, CA	2001 – 2005
Contract Administrator	Bay Area Rapid Transit District	Oakland, CA	2000 – 2001
Contract Officer	San Mateo County Transit District	San Carlos, CA	1997 – 2000
Contract Administrator	Bay Area Transit Consultants	Oakland, CA	1995 - 1997

EDUCATION

B.A., Political Science, University of Massachusetts at Boston, June 1995
National Transit Institute at Rutgers, State University of New Jersey – completed Procurement Series including Cost & Price Analysis and Risk Assessment, RFP's and competitive contract negotiation, and Contract Administration modules.

Jeff Kraus

SR Principal Technical Specialist

Summary:
Mr. Kraus has successfully demonstrated ability in controlling costs by minimizing risks for 33 years. His expertise includes diverse knowledge of federal, state and industry regulations, proactive, hands on style, extensive team leadership and interpersonal skills. He also has superior communication, negotiation and client retention skills.

Years of Experience: 33

Education & Training:
California State University, Northridge, CA
B.S. Major in Health Science: Environmental Health, Minor in Occupational Health

Project Experience:
PB America, Inc., Devil's Slide Segmental Bridges
Sr. Principal Technical Specialist: Serves as Caltrans Safety Corridor Coordinator for the Devil's Slide Tunnels and Devil's Slide OMC building that consists of approximately $400 million. He provides oversight functions of the contractors on all of the above projects, conducts weekly safety walkthroughs of the jobsite with the contractors and keeps all safety documentation up to date in the Caltrans files. He is responsible for the quarterly updating of all Caltrans self rescuers, conducts safety training for all visitors entering the tunnel and the bridges, coordinates the safety activities of all other safety consultants on these three projects. He also serves as backup at all Caltrans bi-weekly, safety meetings ,provides safety training when presenter does not show and coordinates all Caltrans IH sampling.

JLA Partners, BART $1.2 billion Earthquake Seismic Retrofit Project, Alameda, CA
OCIP Loss Control Consultant: The project consisted of aerial BART lines, 13 stations, construction of the new West Dublin Station, parking garage and tunnel portion of the Fremont to Warm Springs Extension. His duties included developing BART Construction Safety Manual, safety incentive program and for coordinating the construction manager's entire safety representative on the project.

RGA Environmental, Inc., Emeryville, CA April 2005 – November 2007
Director of EH & S Consulting: He was responsible for building an entire safety department that included new business development, department profitability, client development, retention, customer satisfaction; developed areas of cross selling services and products, and developed the largest single account and Devil's Slide Tunnel Project

Pacific Mechanical Corporation, Concord, CA, October 2003 – April 2005
Corporate Safety Director: Responsible for regulatory compliance, training development and presentations, and field inspections. Interfaced with regulatory agencies, HMBP, maintained all safety records, tracked and trend losses, interfaced with insurance brokers and carriers, provided resources to field personnel, created and distributed weekly reports to management, and oversaw subcontractors on PMC jobs. Maintained OSHA reportable rate of only 4.0 (well below the national average).

Kraus Safety Consulting, Absolute Safety, Concord, CA, April 1994 – October 2003
Founder and Vice President: Worked as the executive safety consultant to the owner, responsible for tracking losses, handling daily site inspections, ensuring regulatory compliance, and performing monthly safety audits on the project subcontractors. He was a executive safety consultant providing safety oversight on the construction of South San Francisco, San Bruno and Millbrae BART stations. Duties included tracking losses, ensuring documentation is completed in a timely manner, daily site inspections and monthly safety audits on contractors, Assisted with the field logs, distributed weekly and monthly reports. Ensured regulatory compliance with Federal, State, BART requirements and assisted claims handlers with workers' compensation claims. Responsible for new business

Affiliations, Organization and Certifications:

- *Certified Safety Professional, #6480*
- *Registered Environmental Health Specialist, #4103 (CA Only)*
- *Licensed Safety Representative (Cal-OSHA M&T), #S757-07*
- *Licensed Gas Tester (Cal-OSHA M&T), #G1126-07*
- *Professional Member – American Society of Safety Engineers*
- *Member – National Fire Protection Association*
- *Member – Public Agency Safety Management Association*
- *Member – Risk Insurance Managers Society*
- *Member – Public Agency Risk Managers Association*
- *Past member – California Environmental Health Association*
- *Past member – National Safety Management Society*
- *Past member – American Industrial Hygiene Association*
- *Past member – Motion Picture Safety Committee*
- *Past member – Association of General Contractors Safety Committee*

development, financial profitability and customer satisfaction, provided services to construction, hi-tech, retail, healthcare, food service, hospitality, manufacturing, wholesale, and public entity industries.

Crawford & Company, Lafayette, CA, November 1990 – April 1994
Branch Manager: Managed a staff of 12 consultants, responsible for handling new business development, branch profitability, quality of services provided, customer satisfaction, created new safety products and conducted safety training in the following industries, such as banking, hospitality, manufacturing, public entities, construction, hi-tech, healthcare, food service, wholesale, and entertainment.

United Pacific Reliance Insurance Co., Redding, CA, February 1987 – November 1990
Senior Loss Control Consultant: Helped open an office in Redding, California, handled customer relations, conducted safety audits and surveys on policyholders. He created and provided training as requested in industries such as agricultural, construction, hospitality, logging, manufacturing, and retail.

Bayly, Martin & Faye Insurance Brokers, Los Angeles, CA, December 1979 – February 1987
Director of Safety Services: Responsible for coordinating safety services between client and insurance carriers, creating and conducting safety training to clients as requested, assisting in new business development and creating service requirements for self-insured clientele (captives). He provided services for industries such as entertainment, healthcare, retail, food service, manufacturing, petroleum, agricultural, public entities, hospitality, wholesale, construction, savings, Loan Group, and maritime.

Mark Latch

Quality Assurance Manager

Experience Highlights Relevant to Central Subway

- ✓ Proven ability in Quality Assurance/Quality Assurance management for large transit projects
- ✓ Developed and implemented Quality Management Systems meeting FTA requirements
- ✓ Experience includes large subway projects with design and construction in congested urban environments

As a native Californian growing up in the smog choked skies of the San Fernando Valley, and subsequently working 20 years for a South San Francisco based contractor and living in the Bay Area with its parking-lot freeways, I understand the need for viable mass public transportation. It will be a privilege for me to use my background in quality management to participate in the improvement of San Francisco's transit system. My experience and success on many projects has demonstrated the value of an owner committed and proactive approach of implementing the quality management system that will result in a successful project designed and built right the first time. I look forward to being part of the team that implements the Central Subway.

M D Latch

Mr. Latch has 34 years of experience in quality assurance, quality control, and project management in the construction of major projects including new large underground transit developments and other large, complex civil engineering and construction projects. He has provided quality oversight for program management as well as design and construction teams and is an expert in comprehensive quality management of underground rail transit projects. He has enjoyed close working relationships with owners, clients, and regulatory agencies.

Experience on Similar Recent Projects

Second Avenue Subway, Metropolitan Transportation Authority Capital Construction (MTACC), NY, NY/$17 billion

Title/Dates: Quality Manager/2002-present
Firm/Supervisor: DMJM Harris/Christopher Bennett, 212-607-4167
Role/Description/Responsibilities: As quality manager for phase one of the Second Avenue Subway, Mr. Latch was responsible for the development, implementation, and revision of the project's quality management system manual, implementation procedures and project management plan, and close liaison with MTACC's quality and program management regarding design, construction management, and contractor activities. He has developed the FTA approved MTACC project quality manual for the project. His duties also include performance of internal and external audits and surveillance, QMS training, revisions to the MTACC quality

Mark Latch (cont')

Firm

DMJM Harris

Education

BA/1972/Industrial Technology, School of Engineering/California State Polytechnic University

specifications, oversight and development of the Electronic Document Management System, participation in the risk and configuration control management processes, and mentoring of MTACC, CM, and contractor's staff regarding the implementation of their quality programs.

Tren Urbano Rail System, Puerto Rico Department of Transportation and Public Works (PRDOT/DPW)/Puerto Rico Highway and Transportation Authority (PRHTA), San Juan, PR/$2.25 billion

Title/Dates: Quality Assurance/Quality Control Manager/1998-2002
Firm/Supervisor: DMJM Harris/Greg Sauter, Corporate Quality Manager, 732-596-5083
Role/Description/Responsibilities: Owner's representative for the quality assurance and quality control of design, construction (10-mile alignment with 16 stations, including almost 1 mile of tunnel and two underground stations), start-up, and commissioning testing for Puerto Rico's first heavy rail transit system.

Los Angeles Metro Red Line, Segments 2 and 3, Los Angeles County Metropolitan Transportation Authority, Los Angeles, CA/$3.1 billion

Title/Dates: Quality Control Manager/1994-1998
Firm/Supervisor: Ralph M. Parsons/Dillingham Construction, PD George Morschauser, 917-940-1480
Role/Description/Responsibilities: As the construction manager's quality control manager, Mr. Latch was responsible for the implementation and administration of the quality control program that included first-level inspection of facilities (tunnels and stations) and systems contractors, subcontractors, vendors, and suppliers; geotechnical (including real-time measurement and analysis of tunneling and its effects on surrounding structures and for the continuation of tunneling) and survey activities; and all start-up and commissioning testing for approximately 20 miles of bored twin-tube subway tunnels, 23 feet in diameter. The tunnels were bored using both open and closed-face tunnel-boring machines. In addition, nine open-cut subway stations were constructed at depths ranging from 80 to 170 feet that required maintenance and protection of overhead traffic.

WYMAN W. LEE

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WORK EXPERIENCE

SAN FRANCISCO PUBLIC UTILITIES COMMISSION
CONSTRUCTION MANAGEMENT BUREAU

5207 Associate Engineer — *Feb. 2006 – Present*
Project Construction Manager (Resident Engineer)

- Manage and administer one or more construction projects
- Ensure project on time delivery, within budget, and with acceptable quality
- Enforce contracts
- Organize and chair meetings
- Review submittals and requests for information
- Process progress payments and changes
- Resolve construction problems
- Analyze and resolve change order requests, disputes, and claims
- Review schedules and schedule impacts
- Enforce general construction safety, storm water pollution, air quality, hazardous material, and environmental requirements
- Evaluate construction means and methods and perform quality assurance
- Perform field construction inspection and observe testing
- Interface and correspond with the contractor, designers, operations, project managers, other City agencies, Caltrans, California Division of Safety of Dams, and the public
- Maintain proper construction documentation
- Supervise engineering, inspection, environmental, communications, and administrative staff
- Oversee the performance of consultant construction management personnel

6318 Construction Inspector — *Sep. 2003 - Feb. 2006*
Project Construction Manager (Resident Engineer)

- Same duties noted above under 5207 Associate Engineer

SAN FRANCISCO MUNICIPAL TRANSPORTATION AUTHORITY
~~MUNI CONSTRUCTION – PROJECT CONTROLS~~

5203 Assistant Engineer — *Oct. 2000 – Aug. 2003*

- Manage and maintain reports produced by the Project Management Information System (PMIS)
- Attend field construction progress meetings
- Conduct detail tracking of project progress

LEA & SUNG ENGINEERING — Hayward, CA
Assistant Civil Engineer — *May 1999 – Sep. 2000*

- Design, field inspect, and manage projects for residential custom homes
- Design & inspect structural framing, seismic retrofit, foundations, retaining walls, site grading & drainage, and erosion control
- Prepare structural framing plans, foundation plans, grading & drainage plans, and project specifications

PROFESSIONAL LICENSE

STATE OF CALIFORNIA
Professional Engineer - Civil (C63417) — *July 2002*

EDUCATION

SAN JOSE STATE UNIVERSITY
B.S. Civil Engineering — *May 1999*

CONSTRUCTION PROJECTS

CRYSTAL SPRINGS / SAN ANDREAS TRANSMISSION UPGRADE SYSTEM **$98.7 M**

Assistant Project Construction Manager

- Retrofit inlet and outlet structures
- Construct pipelines and pumping facilities that move water from Crystal Springs Reservoirs north to San Andreas Reservoir and the Harry Tracy Water Treatment Plant, and then into the water distribution pipelines

SCADA SYSTEM PHASE II **$3.8 M**

Project Construction Manager

- Install pressure regulating valves, flowmeter monitoring, control panels, and electrical connections
- Coordinate work with SF Water Operations, PG&E, Silicon Valley Power, AT&T, and the public

STANFORD HEIGHTS RESERVOIR SEISMIC RETROFIT AND IMPROVEMENTS **$17.9 M**

Resident Engineer

- Install 20" ductile iron pipe water main along Portola Drive
- Construct moment frames, concrete shear walls, and concrete footings
- Roof crack repairs, sealing of reservoir roof, replacement of expansion joints

McLAREN TANK REHAB & SEISMIC UPGRADE **$6.6 M**

Resident Engineer

- Rehabilitation and seismic upgrade of welded steel tanks
- Seismic bracing, interior lining replacement, cathodic protection
- New interior/exterior coating, lead paint abatement
- New inlet/drain/overflow piping and valves

CENTRAL PUMP STATION UPGRADE **$8.6 M**

Resident Engineer

- Selective pump station demolition
- Construct concrete shear walls and columns for seismic upgrade
- Construct new mechanical and electrical pump station components
- Construct new water line piping and perform connections to existing pipeline

LINCOLN WAY PIPELINE **$8.6 M**

Resident Engineer

- Install 2.4 Miles of new 48" steel cement mortared lined piping along 29th Ave. and Lincoln Way
- Perform pipe jack & bore operation at 19th Ave./Lincoln Way and at 29th Ave./Judah
- Perform connections to existing pipelines

SUMMIT RESERVOIR REHABILITATION **$8.7 M**

Resident Engineer

- Construct concrete shear walls and new concrete liner
- Construct concrete reinforced soldier piles and pier caps
- Roof crack repairs, sealing of reservoir roof with carbon/glass fiber, replacement of expansion joints

SUTRO RESERVOIR NEW INLET, ROOF REPAIRS, & MISC. IMPROVEMNTS **$5.3 M**

Resident Engineer

- Concrete spall repair for roof soffit and beams
- Install 1000 LF of new 30" cement mortar coated inlet piping
- Roof crack repairs, sealing of reservoir roof, replacement of expansion joints

SKILLS

- Proficient in MS Word, Excel, PowerPoint, and Outlook
- Proficient in AutoCAD and Primavera Contract Management
- Exposure to MS Project and Primavera P6

REFERENCES

- Ben Leung: bleung@sfwater.org, (415) 554-1887
- Judy Chin: jchin@sfwater.org, (415) 934-3954

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Kristie Leong	**Office Engineer**	8	5

15. FIRM NAME AND LOCATION (City and State)

Townsend Management, Inc. *(San Francisco, CA)*

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BA- Education	California Notary Public

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Construction Accounting workshops attended annually; National Notary Association

19. RELEVANT PROJECTS

Kristie has over eight years of construction administration and office engineering experience working for two general contractors and a construction management firm. She has taken an active role on various vertical construction projects, including an elementary school fire damage repair project and several private housing remodels. Kristie also has taken the lead role in administering multiple infrastructure projects, including two parks projects, a sanitary sewer pump station project, a sanitary sewer force main project, a Community Development Block Grant (CDBG) funded project, and most recently an infrastructure project which will service a future renowned hospital.

Kristie is a detail oriented person, and her strengths include excellent written, verbal, and communication skills, solid multi-tasking skills, and impressive intrapersonal communication and relationship skills. She is also a very driven and goal oriented person who's passionate about seeing a task or project through from onset to completion, and therefore relies on her skills to track, log, and follow up with appropriate personnel.

a.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Mission Bay Development Blocks 36-39, Phase I and Phase II Infrastructure, San Francisco, CA		ongoing
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☑ Check if project performed with current firm	

Project Background: An infrastructure project, designed to provide necessary access and infrastructure, including sewer, storm drain, water, electrical, and communication utilities, to the new UCSF hospital. The main focus of Phase I and Phase II was to extend an existing separated storm drain under active Muni tracks, via a Jack and Bore operation, to connect the SD to down stream improvements; install new joint trench conduit and vaults to allow the relocation of existing AT&T, PG&E, street lighting, and traffic signal services as well as provide electrical services to the UCSF hospital being constructed adjacent to the project. The project was contracted as a multiple prime project, requiring the coordination of numerous contractors, city agencies and private entities.

Responsibilities: Kristie is serving as the office engineer on this project. She is responsible for creating, executing and managing all construction agreements between the owner of the project and the various general contractors involved. She effectively manages all construction agreements by advising on and implementing the payment procedures, insurance requirements, and retention conditions. In addition, Kristie was involved in tracking receipt of legal documents required for the contract (bonds, insurance, etc.), reviewing certificates of insurance and verifying compliance, processing monthly progress payment applications, document control, reviewing and tracking of certified payroll reports, tracking and managing required lien releases, reviewing and tracking contractor and CM daily reports, reviewing and tracking contractor safety meeting minutes, tracking extra work bills, and managing the creation and execution of contract change orders. The use of the Community Development Block Grant funds also required quarterly progress reports which Kristie was responsible for completing.

Accomplishments: In addition to implementing the web based construction management system, EADOC, Kristie also employed Textura, a web based construction payment system that significantly improved the entire payment process. Kristie effectively managed and implemented the use of the Elation Systems, an online Certified Payroll reporting and

tracking system put into use by the City and County of San Francisco on all City projects.

b.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
Mission Bay Blocks 2-13 Infrastructure Development, and Mission Bay Block 13E Infrastructure Development (CDBG), San Francisco, CA	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
		2011
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☑ Check if project performed with current firm	

Project Background: The Mission Bay Project is a $200-Million, 300-acre redevelopment site adjacent to AT&T Park and the San Francisco Bay. The Blocks 2-13 Improvements Project involved the extension of a major thoroughfare, 4th St., approximately 1600 linear feet from the recently installed 4th St. bridge to the UCSF campus. Also included in this phase of construction was the construction of four adjoining side streets of approximately 400 LF each which tied into the existing 3rd St. The Streetscape portion of this of this project included various surface improvements which consisted of fine grading, a concrete road base, sidewalks, ADA ramps, precast concrete pavers, street furniture, irrigation, landscaping and the installation of an asphalt concrete wearing surface These projects required the coordination of various entities, including, Department of Parking and Traffic (DPT), San Francisco Redevelopment Agency (SFRA), Bureau of Street Use and Mapping (BSM), San Francisco Municipal Railway (Muni), Department of Public Works (DPW), Bureau of Construction Management (BCM), Mission Bay Task Force (MBTF), San Francisco Public Utilities Commission (SFPUC), University of California San Francisco (UCSF), Bay Area Air Quality Management District (BAAQMD), Regional Water Quality Control Board (RWQCB), and the San Francisco Giants. In June 2010, the San Francisco Redevelopment Agency (SFRA), acting by and through the Mayor's Office of Housing (MOH) was awarded the Community Development Block Grant (CBDG) through the American Recovery and Reinvestment Act (ARRA) of 2009. This grant, in the amount of $2,300,000, was awarded in order to construct the infrastructure necessary to support the future low to medium income housing facility on Block 13E within the Mission Bay Redevelopment Area.

Responsibilities: Kristie served as the office engineer on this project. She was responsible for creating, executing and managing all construction agreements between the owner of the project and the various contractors involved. She effectively managed all construction agreements by advising on and implementing the payment procedures, insurance requirements, and retention conditions. In addition, Kristie was involved in tracking receipt of legal documents required for the contract (bonds, insurance, etc.), reviewing certificates of insurance and verifying compliance, processing monthly progress payment applications, document control, reviewing and tracking of certified payroll reports, tracking and managing required lien releases, reviewing and tracking contractor and CM daily reports, reviewing and tracking contractor safety meeting minutes, tracking extra work bills, and managing the creation and execution of contract change orders. The use of the Community Development Block Grant funds also required quarterly progress reports which Kristie was responsible for completing.

Accomplishments: In addition to implementing the web based construction management system, EADOC, Kristie also employed Textura, a web based construction payment system that significantly improved the entire payment process. Kristie effectively managed and implemented the use of the Elation Systems, an online Certified Payroll reporting and tracking system put into use by the City and County of San Francisco on all City projects.

c.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
Mission Bay 66" Sanitary Sewer Force Main Relocation Project, San Francisco, CA	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
		2010
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☑ Check if project performed with current firm	

Project Background: A $5.5 million public improvements project that involves the relocation of an existing and replacement sanitary sewer force main.

Responsibilities: Kristie served as the office engineer on this project. She effectively executed the construction agreement between the owner of the project and general contractor by advising on the payment procedures, insurance requirements, and retention conditions. In addition, Kristie also was responsible for tracking receipt and responses of all project submittals and RFI's, tracking and reviewing contractor and CM daily reports, tracking and reviewing safety meeting minutes, tracking and reviewing extra work bills, and managing the creation and execution of contract change orders.

Accomplishments: Kristie led the implementation of a web based construction management system, EADOC, which has significantly improved the request from the contractor and response time from the engineer of record, City and County of San Francisco agencies (CCSF-BCM, MBTF, SF-PUC, etc.) for submittals, RFI's, instructional bulletins, and daily and safety reports. Kristie also implemented the use of a web based construction payment system, Textura, which significantly improved the entire payment process.

d.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
Mission Bay Sanitary Sewer Pump Station @ P15 Project, San Francisco, CA	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
		2009
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☑ Check if project performed with current firm	

Project Background: An accessible, multi-level underground sanitary sewer pump station (3M), with a stairway/bathroom building designed to match the architectural concepts of the city park in which it will reside. The project requires the coordination of multiple entities including San Francisco Fire Department (SFFD), San Francisco Water Department (SFWD), Bureau of Street Use and Mapping (BSM), Utility Engineering Bureau (UEB), Department of Technology (DT), San Francisco Redevelopment Agency (SFRA), Department of Public Works (DPW), Bureau of Construction Management (BCM), Department of Building Inspection (DBI), Mission Bay Task Force (MBTF), Mayor's Office of Economic Development (MOED), SFPUC, San Francisco Redevelopment Agency (SFRA), University of California San Francisco (UCSF), PG&E, and AT&T.

Responsibilities: Kristie assisted in the creation and execution, as well as management of the construction agreement between the owner of the project and the contractor. She effectively managed this agreement by advising on and implementing the payment procedures, insurance requirements, and retention conditions. In addition, Kristie is involved in tracking receipt of legal documents required for the contract (bonds, insurance, etc.), reviewing certificates of insurance and verifying compliance, processing monthly progress payment applications, document control, reviewing and tracking of certified payroll reports, tracking and managing required lien releases, reviewing and tracking contractor and CM daily reports, reviewing and tracking contractor safety meeting minutes, tracking extra work bills, and managing the creation and execution of contract change orders.

Accomplishments: Kristie led the implementation of a web based construction management system, EADOC, which has significantly improved the request from the contractor and response time from the engineer of record, City and County of San Francisco agencies (CCSF-BCM, MBTF, SF-PUC, etc.) for submittals, RFI's, instructional bulletins, and daily and safety reports. Kristie also implemented the use of a web based construction payment system, Textura, which significantly improved the entire payment process.

Mun Wei Leong
Assistant Resident Engineer/Project Engineer

SUMMARY

Mun Wei Leong has 13 years of experience as a field engineer, contract administrator, cost estimator, scheduler, and lead inspector for public water, wastewater, and transportation projects with an emphasis on tunnel and bridge projects. His recent experience includes significant coordination of engineering, operations, construction management, and contractor staff during construction. His expertise in quality assurance inspection work and construction management, coupled with his skill in project controls and claims analysis, makes him a project asset to any construction management team. He has acted both as a contractor and as an owner's consultant. He has also served as the assistant project manager for $30 million in bridge projects. He is highly proficient in Critical Path Method (CPM) scheduling, the Linear Scheduling Method (LSM), and the Primavera Contract Management Information System (CMIS).

SELECTED EXPERIENCE

Crystal Springs Pipeline No. 2, San Francisco and San Mateo Counties, California (2011–Present)
Mr. Leong currently serves as the lead quality assurance inspector for the Crystal Springs Pipeline No. 2 replacement project on behalf of the San Francisco Public Utilities Commission (SFPUC). He helped establish the QA procedures, and directs the construction management team's six civil, welding, and environmental field inspectors in performing quality assurance for the owner. Mr. Leong also coordinates the work of the SFPUC's Water Supply and Treatment Division, representatives from numerous municipalities, and the contractor. Mr. Leong and his team are responsible for monitoring the installation of 16,645 feet of 48-inch-diameter welded steel pipe along El Camino Real (Highway 82) using slip lining, a process by which 40-foot sections of the 48-inch pipe are inserted into a 54-inch diameter pipe and the joints welded from the inside. Mr. Leong and his team are also monitoring the replacement of existing 60-inch-diameter welded steel pipe at 12 project sites in San Mateo County, the Town of Hillsborough, South San Francisco, Daly City, the City of Brisbane and the City of San Francisco. In addition, Mr. Leong regularly negotiates punchlist and change orders and reviews submittals and requests for information (RFIs) for constructability and conformance with the contract specifications.

New Crystal Springs Bypass Tunnel, San Mateo, California (2010–2011)
Mr. Leong was the lead quality assurance inspector for the New Crystal Springs Bypass Tunnel project on behalf of the SFPUC. Mr. Leong and his team were responsible for monitoring the progress of the tunnel boring machine (TBM) and the installation of the 96-inch-diameter welded steel pipe, as well as backfill of the 4,200-foot-long tunnel. He also inspected the construction of the concrete vaults and structures and the installation of electrical and mechanical components. In addition, Mr. Leong was responsible for monitoring the progress of a critical pipeline shutdown to tie both the new tunnel and new pipeline into the SFPUC water supply system. This shutdown, originally estimated to take 48 days, was accomplished in approximately 12 days. Mr. Leong proactively took over

coordination of the startup and testing of the electrical and instrumentation system in the field between the SCADA system and the project, making sure every item that required follow-through was completed in accordance with design requirements and field conditions. Mr. Leong also provided performed submittal, cost, and schedule reviews. Lastly, Mr. Leong coordinated the punchlist and closeout of the project. This project received a Liberty Mutual Safety Award in 2010 and the ASCE San Francisco Section Large Project of the Year Award in 2011.

Exposition Light-Rail Project, Los Angeles, California (2008–2009)
Mr. Leong assisted the design-build contractor, Fluor/Flatiron-Parsons (FFP), in time impact analysis of delays for late permits, utility relocation delays, and design changes using the P3 Primavera scheduling program and Linear Scheduling Method. This multimillion dollar light rail project extends from downtown Los Angeles to Culver City. The design-build contractor claimed that numerous design changes, utility relocation delays, and permit delays caused significant delays to project completion. Jacobs Associates assisted FFP in evaluating the impact the delays caused and helped FFP to formulate a cumulative impact claim for these changes.

Marina Pointe II, Marina del Rey, California (2008)
Mr. Leong led the effort in defending the client, Thermalair, Inc., against a $4.5 million claim by the owner, Marina Pointe II. The project was an 18-story luxury condominium tower in Marina del Rey, California. The owner claimed Thermalair failed to deliver a functioning smoke control system, which resulted in delays to the project. Jacobs Associates successfully defended Thermalair in this case, proving that Thermalair was not the cause of the delays, and the matter was resolved in mediation in October 2008.

The 400 Condominiums, Bremerton, Washington (2008–2009)
Mr. Leong led the defense for the client, LSF, Inc., against a $1.4 million claim for delays and for default on the contract. The project is a four-story, two-level parking garage condominium project in Bremerton, Washington. LSF was the structural framing subcontractor on the project. The contractor was Halvorson, Inc. Halvorson claimed that LSF defaulted on the project and caused four months of delay. Halvorson sought damages for the delays and takeover work from LSF, and Jacobs Associates assisted LSF with the arbitration in August 2009.

Hueneme Drain Pump Station Claim, Ventura, California (2007–2008)
This was a $1.53 million claim against the County of Ventura for delays and additional work incurred by Southwest Engineering, Inc. The project was an improvement to the existing Hueneme Drain Pump Station, and consisted of replacing the four main discharge pipes, installing new discharge pumps, and completing concrete work and new pump facilities. Mr. Leong successfully led the claim effort for this project, representing Southwest Engineering. The claim settled in mediation in July 2008 for approximately $400,000.

Oregon Bridge Delivery Partners Bridge Program, Oregon (2006–2007)
Mr. Leong was the assistant project manager for the Bridge Program. The scope of the project was to evaluate the condition of Oregon's bridges and rehabilitate or replace bridges that required work. Mr. Leong was in charge of a contract of over $30 million, which consisted of eight bridges. As the owner's representative on the project, he coordinated with the local contractors, the designers, and the owner for the work on all of the eight bridges. This included oversight of a team of inspectors for installation of drilled piers and driven piles.

Eastside CSO Tunnel, Portland, Oregon (2005–2006)
Mr. Leong served as cost estimator on the $381 million East Side CSO Tunnel project. He was responsible for estimating structural concrete and precast plant operations as part of the Kiewit-Bilfinger Berger Joint Venture. This project included six deep slurry wall shafts. The tunnel was the first in the United States to be excavated by slurry TBM. A real-time online database of instrumentation monitoring—which included settlement markers, tiltmeters, and inclinometers—was used to monitor the ground response to project excavations. Mr. Leong also served as project scheduler and contract administrator. As such, he was responsible for creating the baseline schedule (using both P3 programming and the linear scheduling method) and working with project personnel to plan, manage, and submit the overall project schedule. He worked with the owner to agree on monthly updates, logic changes, and incorporation of changes and impacts to the project. He also participated in the selection of the slurry wall subcontractor. As part of his duties as cost estimator, he was responsible for administering over $1.2 million in change orders on the project.

Benicia-Martinez Segmental Bridge Project, Martinez, California (2001–2005)
Mr. Leong served as field engineer and contract administrator on this $780 million new bridge project. He was responsible for all aspects of field engineering and project controls, including submittals, RFIs, scheduling, cost reporting, cost projections, and layout. He installed 8.5-foot-diameter cased drilled piles approximately 160 feet deep, and used 5.5-foot diameter rock sockets to penetrate an additional 160 feet. Mr. Leong also prepared and negotiated significant change orders.

Bay Bridge, Oakland, California (2001–2002)
As cost estimator for the $1.1 billion Bay Bridge project, Mr. Leong performed quantity takeoffs, constructability reviews, and pricing during bid preparations. Mr. Leong also advised on the development of the construction schedule.

Skagit River Bridge Project, Oakland, California (2001–2005)
As project engineer for the $20 million new Skagit River Bridge project, Mr. Leong was responsible for all office and field engineering—including submittals, RFIs, scheduling, cost reporting, cost projections, layout—and oversight of several subcontractors.

Contract Administration and Claims Avoidance Engineering, Nebraska (1999–2001)
Mr. Leong served as engineer in the claims avoidance group in the Kiewit legal department, working under direct supervision of in-house counsel on the preparation,

negotiation, and settlement of contract disputes valued at more than $10 million. He regularly utilized Primavera as an expert scheduler, and assisted with schedule updates and recovery schedules. He was responsible for preparing baseline schedules and project plans for significant design-build endeavors, and provided training in scheduling, contract administration, and project controls to in-house staff.

EDUCATION

MS, Civil Engineering (Emphasis: Construction Engineering and Construction Management), Virginia Polytechnic Institute and State University, 1999
BS, Civil Engineering, University of Southwestern Louisiana, 1996

SHORT COURSES/SEMINARS

Soft Ground Tunneling with New Austrian Tunneling Method
Drilled Shaft Foundation Inspection with State of Oregon
Bridge Construction Inspector with State of Oregon
Post Tensioning Institute Certificate

PUBLICATION

Leong, Mun Wei, and Daniel E. Kass. 2010. Linear schedules for tunnel projects. In *2010 Proceedings of the North American Tunneling Conference.*

SUSAN MACKENZIE

Document Control Administration

Education

Masters Degree in Psychology, Immaculate Heart College, Los Angeles County
Completed 31 units towards Civil Engineering Associate Degree, Santa Ana College, Orange County

Key Qualifications

Sixteen years of technical experience in construction projects peiforming duties as Docurnent Control Adrninistrator (seven-and-a-half years), Office Engineer (six-and-a-half years), and Contracts Coordinator (two years). One year experience in Construction Managernent (concurrent with Office Engineer assignments). Strong background in transportation and public institutions.

PCH Wong (SFMTA Central Subway designer in Joint Venture with PB)
Document Control Manager, Dec 2006 - Present
Developed, irnplernented, and rnaintain docurnent control systern using ProjectSolve. Developed Docurnent Control database in ProjectSolve. Prepared docurnent control procedures rnanual. Designed ternplates for Central Subway project docurnentation. Maintain rnaster files and control access to thern. Coordinate docurnent control procedures and their irnplernentation with Quality Control requirernents.

Carter Burgess (SamTrans consultant, San Mateo County)
Document Control Manager, Oct 2004 — Sep 2006
Sarne duties as with Robert Half International.

Robert Half International (SamTrans consultant, San Mateo County)
Document Control Manager, February 2002 — Sep 2004
Developed, irnplernented, and rnaintained docurnent control systern using Expedition software. Prepared docurnent control procedures rnanual. Maintained rnaster files and controlled access to thern. Interfaced with users on docurnent control requests. Coordinated activities with field docurnent control staff and audited the field docurnent control office periodically. Supervised docurnent control technicians at central office.

Del Terra Construction Group, Program Manager for Measure C School Bond Program, Orange County ($217 rnillion contract for school upgrading and new school construction)
Program Document Control Specialist, Novernber 2000 — Decernber 2001
Prepared prograrn policies and procedures rnanual. Developed, irnplernented, and rnaintained docurnent control systern using Expedition sofiware. Logged, tracked, and reported prograrn and project docurnentation.

E.W. Moon Infrastructure Group, CM Consultant for BB School Bond Repair Prograrn, Los Angeles County ($34 rnillion contract for the upgrading of 29 schools)
Construction Manager/Field Engineer, May 1999 — Septernber 2000
Sirnultaneously perforrned duties as Field Engineer of large projects and Construction Manager of srnall projects.
- Perforrned the following Construction Managernent duties: Conducted pre-bid rneeting, preconstruction rneeting, and weekly construction rneetings; verified work in progress; facilitated communication between Designer, Inspector, School, and Contractor; negotiated contract changes; prepared rnonthly project progress reports.
- Perforrned the following Field Engineer duties: Supported Construction Managers in the administration of Safety and Technology projects (cornputer network, fire alarrn, security, and public address systerns) by visiting the sites to rnonitor construction progress; preparing weekly construction rnanagernent reports; preparing contract changes; recording rneetings with contractors and preparing rninutes; rnonitoring

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subrnittals to ensure contract cornpliance; processing, tracking, and reporting on status of Requests for Inforrnation (RFI5) and subrnittals; rnaintaining status of approved schedule; writing correspondence.

Raytheon Engineers & Constructors, CM for Eastern Transportation Corridor, Orange County ($800 million design/build contract for 24 miles of toll road construction) Office Engineer, Mar 1997 – April 1999
Maintained complete and accurate project records and reports, verified contractor's materials test results (embankment, structure backfill, concrete, basement soil, etc.), and conducted periodic audits of contractor's office records and materials records. Responsible for the coordination of office services and document control.

Parsons—DilUngham, J.V., Construction Manager for Metro Red Line, Los Angeles County ($6.5 billion contract for 26 miles of heavy rail subway construction) Associate Office Engineer, Feb 1994 - April 1996
Provided support to Resident Engineer (R.E.) in the administration of *5* procurement contracts by supervising secretary; preparing contract changes; coordinating and inventorying contractor deliveries; processing progress payments; maintaining auditable contract files and configuration control of as-built drawings; recording meetings with contractors and preparing minutes; tracking and reporting on status of project documentation to ensure timely action from R.E., Designer, and Contractor.

Los Angeles County Metropolitan Transportation Authority (LACMTA)
Contracts Administrative Assistant, April 1993 - January 1994
Processed bids including: Invitation For Bid advertisement; assistance in pre-bid and bid opening conferences; preparation of pre-bid conference summaries; documentation of bid results; assistance in the preparation of board reports, notice of award, and notice to proceed. Provided general administrative services in support of Contracts Department.

Parsons—Dilhnghom, J.V., Construction Manager for Metro Red Line, Los Angeles County Contracts Coordinator, September 1991 - March 1993
Coordinated preparation of change orders (CO5) by field offices for presentation to the LACMTA's Change Control Board (CCB); recorded CCB meetings and prepared minutes; analyzed contract changes for quality; monitored COs to maintain timely flow of changes; drafted and generated contract closeout documentation; generated change status reports.
Senior Secretary, November 1990 - August 1991
Typed correspondence and contract changes; maintained files, CO log, and correspondence log; assembled CO binders; answered phones; and assisted field staff

Special Skills

Primavera Expedition, ProjectSolve, Microsoft Excel, Microsoft Word, PowerPoint

Awards and Accomplishments

SamTrans (2-02 – 09/04): Developed a solid foundation for the new SamTrans Document Control unit and increased utilization of document control system by Capital Projects team from **5%** to 80%.
Measure C School Bond Program, Orange County (11/00 – 12/01): Prepared a Program Policies and Procedures Manual that included chapters like Management Organization, Project Controls, Contracts Management, Document Control, Quality Assurance Management, Claims and Closeout.
BB School Bond Repair Program, Los Angeles County (5/99 – 9/00): Successfully managed a $26,000 flooring/abatement contract and a $1,600,000 safety/technology contract.
Metro Red Line, Los Angeles County (11/90 – 4/96): Golden Spike Award, April 1992, for outstanding performance and real team spirit.

KERSTIN FRASER MAGARY
Senior Manager

Education
Stanford Graduate School of Business. MBA, 1978 Marketing, Finance.
Mills College, Oakland - BA, 1969 Crown Zellerbach Award and scholarships, Dean's List.
UC Extension, Anthony Schools. Continuing education, real estate brokerage courses.
Federal Transit Administration (FTA). "Cost and Price Analysis & Contract Negotiation," 1998

Key Qualifications
July 1998-present:
SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY (SFMTA), San Francisco

- Senior Manager – SFMTA Real Estate Section, Finance and Information Technology Division
  - ✓ SFMTA's Real Estate Group manages joint development sites, land exchanges, leases, re-entitlements, design and construction of tenant improvements at 1 South Van Ness Avenue, and other SFMTA real estate. Joint development projects include Hotel Vitale which opened March 9, 2005 on ½-acre Embarcadero bay-view site at Mission & Steuart Streets with 65-year lease for estimated $811 million total for SFMTA and City revenues for hotel development served by historic streetcars and other transit. Actively participate on SFMTA and City teams to close on and construct more than a dozen major real estate transactions, including the Lease & Option of 1 South Van Ness Avenue, Lease & Option of 1570-1580 Burke Avenue, a dozen real estate transactions for the Third Street Project Right of Way (ROW), and the Central Subway Project ROW. Working on other potential SFMTA transit oriented development (TOD) sites. Licensed California Real Estate Broker.
  - ✓ Transit Advertising Contract with CBS Outdoor on and in SFMTA's transit vehicles and electronic signs in Metro stations.
  - ✓ Transit Shelter Advertising Agreement with Clear Channel Outdoor for up to 1,500 transit shelters, 150 kiosks, 3,000 I-Stop signs, maintenance and advertising.
- Senior Project Manager
  - ✓ Electric Trolley Bus Procurement and Warranty Project and Contract #888 for $231 million for the procurement and warranty of 273 new 40' and 60' zero emission electric trolley buses, including managing scope, SFMTA, Electric Transit Inc. (Contractor), and Booz Allen Hamilton (Consultant), for SFMTA's Maintenance Division. All 273 ETI trolley buses were delivered, conditionally accepted, and in revenue service for 250,000 of 720,000 daily riders. Managed project issues with international subcontractors and vendors, including ETI, Škoda in Czech Republic, Raba Axle in Hungary, Vossloh Kiepe in Germany, Comp Air in England, and others in the USA.
  - ✓ 7 Historic Streetcar Projects for approximately $43 million to restore and expand SFMTA's historic streetcar from 26 in-service PCCs and Milan streetcars to approximately 52 restored PCCs, Milans and other Historic streetcars for F-Line service with 20,100 daily riders on Market St. and The Embarcadero and future E-Line service from Fisherman's Wharf to Mission Bay.
  - ✓ SFMTA's Real Estate Group, SFMTA's Real Estate Group – see above
  - ✓ SFMTA Capital Program Facilities - supervised other Project Managers and Planners on Woods, Islais Creek, Geneva, Presidio, Mission & Steuart, and other yard and real estate projects.
  - ✓ Recipient of 2005 Public Managerial Excellence Award, sponsored by the Municipal Fiscal Advisory Committee to the Mayor, SPUR, and the San Francisco Chamber of Commerce.

October 1995-1998:
MAGARY AND ASSOCIATES, San Francisco
Consultant in real estate, land use, and transportation project management and consulting. Licensed California Real Estate Broker, associated with McGuire Real Estate, San Francisco. Clients included Catellus Development Corporation, Catellus Residential Group, Safeway, San Francisco Redevelopment Agency, Emcon, Electric Transit, Inc., and others.

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July 1997-July 1998:
ELECTRIC TRANSIT, INC. (ETI), San Francisco
Manager-Customer Liaison, Deputy Program Manager-Admin. on ETI's Contract #888 with SF Municipal Railway to manufacture 273 electric trolley buses with international team in Czech Republic, Hunt Valley, MD, and San Francisco.

July 1985-October 1995:
CATELLUS DEVELOPMENT CORPORATION, San Francisco
Project Director, Project Manager of Mission Bay, Manager of Special Projects

- Planned and received approvals for 313-acre Mission Bay Project, including 4.8 million sq. Ft. of office, 900,000 sq.ft. of commercial/light industrial, 750,000 sq.ft. of retail, 8,520 residential units, 68 acres of open space, and 95 acres of streets and infrastructure. This plan was reconfigured due to changes in political and economic conditions. Mission Bay is under construction.
- Supervised lawyers, architects, planners, engineers, and other consultants, and a multimillion-dollar annual budget, and worked closely with community groups.
- Responsible for Mission Bay Plan, Master Tentative Map, and re-zoning, 1985-1995.
- Implemented six major land exchanges with City, Port, and State that required approvals by the Governor, State Lands Commission, Caltrans, Attorney General, City, Port, Bay Conservation and Development Commission, and Metropolitan Transportation Commission.
- Supervised demolition of the I-280 freeway between Third-Fourth/King-Berry Streets.
- Supervised an investigation, remediation and implementation plan for $40 million in City and State transportation projects along King Street; a landscaped boulevard, Muni Metro N-line and new I-280 on- and off-ramps are now in operation, including service to the new SBC Park for S.F. Giants.
- Also planned a variety of real estate and transportation strategies for the Bay Area, Los Angeles, and San Diego that were implemented by Catellus, Santa Fe Railway (now part of Burlington Northern Santa Fe), and Southern Pacific Transportation Company (now part of Union Pacific).

May 1978-June 1985:
SOUTHERN PACIFIC TRANSPORTATION COMPANY, San Francisco and Bay Area.
Senior Service Manager, Manager of Locomotive Project, Manager of Western Division Project, Assistant Trainmaster, Assistant Market Manager

- Responsible for freight-service quality, consistency, and reliability. Achieved corporate service goals despite major budget reductions. Traveled extensively. Supervised 3 managers.
- Designed new computerized system of measuring productivity of 2,000-unit locomotive fleet and introduced system to all railroad operating divisions.
- Supervised team whose recommendations led to Mission Bay Project.
- Supervised Bay Area railroad yard and train crews in customer service, productivity, and safety.
- Directed 2 marketing projects in Texas and California. Turned around East Texas woodchip business.

1969-1977:
SRI INTERNATIONAL, Menlo Park - Marketing analyst for Financial Group. Segmented California consumer financial market for a large S&L. Summer 1977.
GENSLER & ASSOCIATES, ARCHITECTS, San Francisco. Publications editor and administrative assistant when firm doubled in size. 1976.
WILTON COOMBS & COLNETT, ADVERTISING, San Francisco. Advertising account coordinator for various Bay Area clients. 1974-75.
BANK OF AMERICA INTERNATIONAL, San Francisco. Researcher, writer of economic and political reports distributed to branches worldwide. 1969-71.
WORLD AIRWAYS, Oakland. International flight attendant. Summer-Fall 1969.

Other interests

- Former member, Board of Directors, SPUR (San Francisco Planning and Urban Research Association), 1994-2002. Chair, SPUR membership committee, 1994.
- Former member, Board of Directors, Financial Benefits Credit Union, 1995-1997.
- Former Chair, San Francisco Chamber of Commerce Transportation Task Force, 1988-94.

- Former member, 5 City/Port/Redevelopment Agency Citizens' Advisory Committees: Rincon Point-South Beach, Transbay Terminal, Pier 52, Piers 30-32, and first Half-Cent Sales Tax for Transportation.
- Past President, Stanford Graduate School of Business Alumni Association, San Francisco Chapter, 1985.
- Co-author (with husband) of 3 travel guides, including *East Africa* (Harper & Row, 1975), *Across the Golden Gate* (Harper & Row, 1980), and *South of San Francisco* (Harper & Row, 1983).
- Enjoys hiking, biking, swimming, working out at YMCA-Embarcadero, and travel with family and friends.

Bonnie C. Murdock, PE
Project Manager

Education

MS, Civil Engineering/Construction Management and Engineering, Stanford University, 1979
BS, Civil Engineering, Rutgers University, 1978

Professional Licenses

Professional Engineer (Civil), California, #C33367, 1981

Experience Summary

Ms. Murdock has 31 years of experience in design and construction for a variety of projects including transportation, industrial, and high-tech facilities. Currently she is the design coordination and QC manager on the SVRT BART extension to San Jose design for 6 new BART stations. During her career, Ms. Murdock has also performed design project management, construction management, program management, design and design coordination, project controls, and quality control for a variety of facilities. Currently she is the Design Coordination/Quality Control Manager on the Stations design for the SVBX – Berryessa Extension Project.

Project Experience

Transportation

Santa Clara Valley Transportation Authority, Stations New Starts Preliminary and Final Design Phases, San Jose, California. Design coordination and quality control manager for the preparation of the Stations portion of the design-build package RFP for two of the six new BART stations for the SVBX - Berryessa Extension. The SVBX Project is a 10-mile extension of BART from the Warm Springs Station in Fremont to the Berryessa Station in San Jose, with one station in retained-cut (Milpitas Station) and one above-grade station (Berryessa Station). The Stations design includes 5 design firms preparing stations studies and design-build package criteria, drawings and specifications for the Line, Track, Stations and Systems RFP. Responsible for coordination of submittals, internal design team coordination, quality control reviews, and client reviews. [2009-present, $8 Million]

Santa Clara Valley Transportation Authority, Stations Engineering Readiness and 65% Engineering Phases, San Jose, California. Design coordination and quality control manager for the stations segment contract for design of six new BART stations (three underground and three aboveground stations) and campus areas valued at $750 million. Stations segment portion of the project includes 17 design firms preparing design studies, 65% design packages for the six stations, 35% design packages for the six station campus areas. Responsible for coordination of submittals, internal design team coordination, quality control reviews, and client reviews. Responsible for compliance with CAD requirements and preparation of specifications. [2007-09, $25 million]

Santa Clara Valley Transportation Authority, BART Extension to San Jose – Stations Preliminary Engineering Phase, Santa Clara, California. Internal design integration manager for the stations segment contract for design of six new BART stations (three underground and three aboveground stations) and campus areas valued at $750 million. Stations segment portion of the project includes 17 design firms preparing 25 design studies and six 35% design packages for the six stations with campus areas. Responsible for coordination of submittals, internal design team coordination, quality control reviews, and client reviews. Prepared and implemented the

stations segment design procedures/quality control procedures for preliminary engineering work. [2004-2007, $17 million]

Santa Clara Valley Transportation Authority, BART Extension to San Jose – 10% Conceptual Engineering, San Jose, California. Responsible for coordination of report and study submittals, and preparation of a building survey report for the downtown San Jose area. [2003-2004]

Bay Area Rapid Transit District, On-Call Construction Management Services, Oakland, California. Resident engineer responsible for the $3 million Hayward Component Repair Shop expansion, which includes expansion and remodeling of an operating repair shop for train components. Responsible for oversight of the construction contract, including contract administration, coordination of shop drawing/submittal reviews, responding to RFIs, conducting weekly construction meetings, monitoring physical progress, reviewing and approving contractor invoices for payment, preparing and negotiating change orders, and field inspection. Coordinated interfaces between BART shop and yard maintenance personnel with contractor's work, including scheduling of access to operational repair shop areas and shutdowns and transfer of electrical power at the yard and component repair shop. Supervised an office engineer and field inspector. [2001-2003, $3 million]

Port of Oakland, Airport Roadway Improvements, Oakland, California. Deputy project manager for the design support services during construction of the roadway and interchange improvement from I-880 to Oakland International Airport. Provided overall management and coordination of the design team in reviewing shop drawings, responding to RFIs, and preparation of design drawings and specifications for various changes and new design work. [1999 - 2001, $70 million]

San Diego County, Spring Valley Transit Center, San Diego, California. Project manager for the conceptual design for a bus transit center with a bus circulation area with 6 bus pads, passenger shelters, and miscellaneous other features.

City of Chicago, Central Area Circulator Light Rail, Chicago, Illinois. Lead construction engineer on a program management contract for facilities and systems on the 15-mile project for downtown Chicago. Conducted constructibility reviews of design packages prepared by final designers; prepared General Provisions and Special Conditions for contract documents, Construction Management Plan and Construction Impacts Mitigation Plan; participated in development of work scope for the construction manager and construction planning for execution of the project; and performed evaluation for selection of the construction management firm. [1994 - 1995, $775 million]

Los Angeles County Transportation Commission, Pasadena Blue Line Light Rail, Los Angeles, California. Overhead contact system project engineer on the 14-mile line from Union Station in Los Angeles to Pasadena. Responsible for preparation of final design drawings and technical specifications, quality control and contract administration/project control functions for the overhead contact system (OCS). Final design included preparation of an OCS contract package and design interface with 9 station contract packages (13 passenger stations) and 8 civil segment contract packages. [1993 - 1994, $750 million]

Bay Area Rapid Transit District, Colma Station Extension, Colma, California. Lead civil engineer responsible for final design of civil and site electrical for the Station and Yard, and systems underground electrical for the Yard. Supervised staff of 15 civil, electrical and CADD personnel for three packages: foundations and underground utilities; a 5-story parking structure (for 1,400 cars) over an existing train storage and maintenance yard, with 3 vehicle bridges and 1 475' long pedestrian bridge; and the train/passenger station, with bus and vehicular circulation and access roads, bus canopies, two vehicle bridges, trackway, modifications to an existing SAMTRANS parking lot, miscellaneous site buildings and an underground cast-in-place retention structure to contain and regulate outflow of stormwater. Responsible for site demolition, grading, drainage, water and fire protection and sanitary utilities, paving, fencing, traffic maintenance, signing, pavement marking, erosion control, layouts for bridges and approach slabs, retaining

walls and soundwalls, site lighting, modification of existing intersections, traffic signalization at the Station and Yard; and underground systems electrical in the mainline and storage yard (ductbanks, pull-boxes and manholes for traction power, train control and communication systems). [1991-1992]

Sacramento Regional Transit, South Sacramento Corridor Light Rail, California. Project engineer for the 18-mile Alternatives Analysis and Draft EIS. The Project consisted of two main corridors, both with multiple alternatives. Responsible for preparation of conceptual plan and profile alignment alternatives for one of the corridors, including track alignment; utility identification and relocation; right-of-way acquisition requirements; station layouts; park and ride layouts; and railroad relocation requirements. [1993]

Bay Area Rapid Transit District, Turnback and Yard, Daly City, California. Project engineer for systems final design. Responsible for design coordination for change orders, contract administration and project controls for the final design of 8 contract packages, which included train control, communications, and traction power in the turnback and yard. [1984-1987]

Bay Area Rapid Transit District, General Services Contract, California. Managed a $2.1 million on-call services contract, which included 75 work orders ranging from $3,000 to $465,000. Supervised preparation of specifications, studies, preliminary engineering, final design, construction inspection, and cost estimates for train control, traction power, trackwork, communications, fare collection, and vehicles. [1984-1987]

California Department of Transportation, I-880 Freeway Improvements, California. Lead engineer for a 4-mile freeway widening. Prepared final design documents including, plan and profile drawings, cross sections, grading and pavement design, retaining walls and soundwalls for two contract packages. Coordinated with Caltrans soundwall contracts, and provided oversight of the signing and striping, and drainage and utilities subconsultants. [1990-1991]

Los Angeles County Metropolitan Transportation Authority, El Segundo Rail Transit, California. Checked clearances throughout the light rail alignment.

Chicago Department of Aviation, O'Hare Airport Automated Guideway Transit, Illinois. Assisted in the cost control activities for the systems design portion of the peoplemover system. [1986]

Los Angeles County Metropolitan Transportation Authority, Long Beach-Los Angeles Rail Transit, California. Assisted in preparation of the system description; defined the design and construction package scopes; and prepared a study of train speed for the system alignment. [1985]

Design Services During Construction

Contra Costa Water District, Los Vaqueros Dam Construction, Livermore, Concord, California. Project engineer for design services during construction. Provided oversight and coordination of shop drawing reviews, RFIs and design clarifications, preparation of change orders, site engineering and budget for the dam facilities. Developed a comprehensive Operations and Maintenance manual for the project. [1996 - 1998]

Design and Construction

Pacific Gas & Electric, Emission Reductions, Hinkley Compressor Station, Barstow, California. Deputy project manager for design, procurement, construction and start-up for the retrofitting of several existing compressors to reduce NOx and CO and non-methane hydrocarbons in compliance with air emission regulations. [1996-1997]

Oakland Scavenger Company, Altamont Vehicle Maintenance and Refueling Facility Design, Livermore, California. Project manager for preliminary engineering, final design, and construction of the facility, which included utilities coordination; establishing project design and

construction criteria; identifying environmental permitting requirements; preparing environmental reports for permit acquisitions; coordination with county building and zoning agencies, fire department, Division of Environmental Health, EPA, Bay Area Air Quality Management District, the Regional Water Quality Board; and administration of geotechnical subcontract. Produced preliminary engineering report and final design documents, and coordinated preparation of construction cost estimates. [1987-1989]

Oakland Scavenger Company, Altamont Vehicle Maintenance and Refueling Facility Construction, Livermore, California. As construction manager and project manager performed constructibility reviews, prepared bid packages for construction, prequalified bidders, conducted bidding process, obtained building and occupancy permits. Responsible for administration of construction contracts, contractor scheduling/coordination and problem resolution and engineering design interpretation. Monitored contractors' physical progress, reviewed and approved contractors' invoices for payment, prepared change orders and cost estimates, negotiated change orders, reviewed and processed contractor submittals. Responsible for quality control including inspections; monitoring contractors' progress in correcting deficiencies; and administering soils, concrete and welding inspection subcontracts. Prepared contract documents, including monthly progress reports, weekly quality control reports, notices of completion, letters of acceptance, releases and waivers of liens, and final progress payments. Coordinated design changes and submittal review by design engineers. [1987-1989]

Oakland Scavenger Company Services Agreement, Oakland, California. Project manager for preliminary and final designs of various projects as part of a services agreement with Oakland Scavenger Company, including site electrical power supply and distribution, and grading, drainage, roadway and waste drop-off facilities for the public. [1987-1988]

Construction Management

Frito-Lay, Food Processing Plant, Casa Grande, Arizona. Contract supervisor for fast-track construction. Area coordinator for warehouse and office portion of the plant. Responsible for scheduling and coordination, design and construction, problem resolution, design interpretation, and quality control of twelve contractors' activities including building shell, site utilities, site electrical, plumbing and underslab piping, fire protection, building finish, roofing, special floors, HVAC, building electrical, building piping, and alarm systems and intercom. Provided contract administration of building finish, building electrical, and built-up roofing contracts for the project. Reviewed contractors' invoices for payment, prepared and negotiated change orders, processed submittals, and monitored physical progress. Prepared building finish, building electrical and special floors contract bid packages, defined scope of work and interfaces with other work. Performed constructibility reviews and conducted the bidding process. Responsible for administration of the quality control/assurance program for the entire project, including inspections, preparation of weekly quality control reports, and monitoring contractors' progress in correcting deficiencies. Supervised soils, concrete, welding, and roofing inspection subcontracts for the project. [1982-1983]

Arco Computer Building and Communications Satellite Station, Plano, Texas. Processed change orders and contract closeout for construction contract. [1982]

Chevron, Synfuels, Richmond, California. Prepared the project schedule and monitored piping progress for direct hire work. [1982]

US Department of Energy, Nova High-Energy Laser Facility, Livermore, California. Field contract supervisor on the fast-track construction of the facility at Lawrence Livermore Laboratory. Provided contract administration and coordination of structural concrete, structural steel, building finish, electrical and mechanical contracts for the office building and roofing contract for the laser facility. Conducted weekly contractor coordination meetings and prepared project schedules. Monitored contractors' physical progress; reviewed and approved contractors' invoices for payment; prepared and negotiated change orders; processed submittals; prepared contract documents, including notices of completion, letters of acceptance, releases and waivers of liens, and final progress payments; provided engineering design interpretation, prepared progress

reports, and administered safety program. Worked closely with the owner, architect, inspectors, and contractors. Prepared the structural steel, structural concrete, building finish and built-up roofing bid packages, and defined scope of work and interfaces with other work. Performed constructibility reviews and assisted in the bidding process. [1979-1982]

Permitting

New Jersey Department of Environmental Protection, Wastewater. Reviewed construction proposals and change orders for sanitary sewer permits; checked plans and specifications; and evaluated designs to ensure compliance with state environmental standards.

Client References

Mr. Hassan Basma
Transportation Engineering Manager
Santa Clara Valley Transportation Authority
(408) 942-6166
SVRT Program/SVBX

Mr. Ric Rattray
Project Manager
Bay Area Rapid Transit District
Oakland, CA
(510)
BART CM On-Call Services

Mr. Carl Nagata
Project Manager
Port of Oakland
(510) 627-1595
Airport Roadway Project

Mr. Randy Bruno
Waste Management of North America, Inc.
10840 Altamont Pass Rd.
Livermore, CA 94550
(415) 449-6349
Title: Capital Projects Manager
Project: Vehicle Maintenance Facility Design and Construction

Mr. Robert Kunze
Chicago Dept. of Transportation
30 N. La Salle, 4th Floor
Chicago, IL 60602
(313) 744-3600
Title: Deputy Executive Director
Project: Chicago Area Circulator

Mr. Phil Clark
Chicago Dept. of Transportation
30 N. LaSalle, 4th Floor
Chicago, IL 60602
(313) 744-3600
Title: Administrative Director

Project: Chicago Area Circulator

Mr. Takis Salpeas
Bay Area Rapid Transit
1000 Broadway Street
Oakland, CA 94610
(650) 689-8400
Title: Executive Director
Project: BART Colma Station Extension

Employment History

08/1979 - present, Kaiser Engineers/Earth Tech/AECOM, Project Manager
1977 - 1978, New Jersey Department of Environmental Protection, Division of Water Resources, Assistant Engineer

CHARLES C. MORGANSON, PE, MBA
Project Manager / Senior Civil Engineer

Mr. Morganson has 16 years of civil engineering design and project management experience in the United States and Latin America. He has managed design teams for major transportation and water resources projects for rapid transit, railroad, historic preservation, ADA retrofit, roadway/highway underpass and tunnel, flood protection and wetlands restoration.

Representative Project Experience

Mission/ Warren/ Truck Rail Program, Fremont, CA – **Project Manager responsible for directing interdisciplinary team to deliver PS&E for the Valley Transportation Authority (VTA), the City of Fremont, the Alameda County Transportation Authority and Caltrans. Manages project schedule and $10 million design effort for HNTB and subcontractors to design transit improvements with direct construction costs of $121 million. Construction contract scope includes the relocation of active Union Pacific Railroad freight tracks, relocation of major telecommunication and petroleum pipeline utilities, structural design of two new Union Pacific Railroad bridges and two new BART bridges, relocation of flood control channels, roadway widening of State Route 84/Mission Blvd, completion of Interstate 880/SR 84 interchange and new roadway grade separation of Warren Avenue from railroad & BART tracks. Utility relocations began Summer 2008, Civil construction contract advertisement: Fall 2009, expected completion in 2013..**

Palo Alto Station and Platform ADA Retrofit, Palo Alto, CA – **Civil Design Task Manager and PS&E Design Coordinator responsible for overseeing the final design documents including plans, specifications and estimate. The project includes 800 feet of station platforms and ramps leading to an existing pedestrian underpass, additional lighting and ticket vending machines to bring the Palo Alto Caltrain commuter railroad station into compliance with the Americans with Disabilities Act. The project area and station buildings are within the Palo Alto Station historical district requiring project review and approval of the State Historic Preservation Program Office (SHPPO). Managed $1.5 million design budget for an estimated $8 million in construction costs. Construction began in Spring 2007, expected completion in Summer 2009.**

Devil's Slide Tunnels, Pacifica, Half Moon Bay, CA – **Independent Checker of the North Portal shoring and grading plans, quantity takeoffs and cost estimate for the final design of a $230 million, 4200-foot-long double bore tunnel to alleviate frequent landslide conditions along Route 1, Pacific Coast Highway. Construction completion: 2012.**

BART Earthquake Safety Program, San Francisco Bay Area, CA - **Senior Project Engineer working to determine construction impacts and develop utility relocation, site, and traffic handling plans for the Bay Area Rapid Transit District's (BART) $1.3 billion Earthquake Safety Program to seismically retrofit aerial viaduct and bridge structures of the original BART system. Utility relocations expected to begin in Fall 2008.**

Silicon Valley Rapid Transit Project, Fremont, Milpitas & San Jose, CA – **Senior Project Engineer responsible for Grading and Drainage plans and calculations for a proposed 10-mile line segment extension from a new Warm Springs station in Fremont, to a new Berryessa Station in San Jose, California. Evaluated right of way and utility relocation needs and was responsible for grading and drainage design of the associated Union Pacific Railroad relocation with new lead, industry and yard tracks to facilitate the proposed BART extension.**

CHARLES MORGANSON, PE, MBA

Firm
HNTB Corporation

Education
BS/1994/Civil Engineering
Villanova University
MBA/2006/Business Administration
University of San Francisco

Professional Registrations
2001/Professional Engineer/ California #CA62065

Professional Affiliations
American Society of Civil Engineers (ASCE)
Peninsula Area contractors and Engineers Association

Hire Date with HNTB
2005

Years of Experience with other Firms
12

San Bruno/South Linden Avenue Grade Separation, San Bruno, CA - Independent checker of grading and drainage plans for $112 million Caltrain commuter railroad, roadway and pedestrian grade separation and station reconstruction project. Checked and coordinated utility, demolition, stage construction, traffic handling, and grading and drainage plans.

Fremont Grade Separation Project, Fremont, CA — Senior Project Engineer responsible for managing the hydrology team to complete drainage analysis and design. The $70 million project included the Paseo Padre Parkway underpass and the Washington Boulevard overpass railroad grade separations and the realignment of 1.5 miles of Union Pacific Railroad track. Project under construction, expected completion: 2010. Project involvement was prior to joining HNTB.

BART Warm Springs Extension, Warm Springs, CA — Senior Project Engineer for the 5.4-mile, $600 million, BART extension from existing Fremont station to a new station in Warm Springs, CA. Directed drainage design, authored technical reports for detention basins, flood control channels and a temporary cofferdam for BART cut-and-cover subway under Lake Elizabeth in Fremont Central Park. Expected start of subway construction: 2009. Project involvement was prior to joining HNTB.

Bay Meadows Mixed Use Development, San Mateo, CA — Community Impacts Coordinator and Civil engineering designer responsible for communicating construction schedule and phasing to San Mateo residents through rough grading, soundwall, new utility installation, and roadway construction phases. Construction completed in 2006. Project involvement was prior to joining HNTB.

UC Davis Campus Chilled Water System, Davis, CA – Civil Engineer responsible for the development of a WaterCAD computer model of the campus chilled water distribution system to air condition 60 buildings from a central plant and 76,000 feet of pipeline. Ran calibration tests and forecast future expansion needs based on planned campus growth for 5-year and 20-year scenarios. Coordinated civil construction documents with campus requirements. Project involvement was prior to joining HNTB.

UC Santa Cruz In-Fill Apartments, Santa Cruz, CA – Civil Engineer responsible for the analysis and design of storm water detention facilities to minimize the impact of development on the campus eco-system. Project involvement was prior to joining HNTB.

Acueducto El Rubio-Pananao, Dominican Republic – Civil Engineer responsible for overseeing survey, design and construction of four gravity-flow water systems to provide potable water to 1000 houses in five rural communities in the mountainous region of the Dominican Republic. Trained local workers in survey techniques to measure 42 miles of proposed pipeline alignment. Directed construction through local water committees and work brigades. Facilitated detailed agreements between neighboring towns regarding the physical limits of the projects, future growth and watershed protection. Construction completed in 1998. Project involvement was prior to joining HNTB.

Cañasas Water Project, Darien Province, Panama – Civil Engineer responsible for overseeing a gravity retrofit of the largest rural water system in Panama providing 100,000 gallons per day to 3,000 people in 12 villages. Directed design and installation of a 12-mile gravity feed from a mountain water source to the existing distribution system with daily work crews of 200 men. Worked with the Panamanian Ministry of Health to mark and protect watershed area from deforestation and human habitation. Construction completed in 1996. Project involvement was prior to joining HNTB.

New York State Route 104 Reconstruction, Rochester, NY – Construction Inspector for NYSDOT for reconstruction of state highway including drainage improvements,

bridges and paving, construction completed 1994. Project involvement was prior to joining HNTB.

Roadway reconstruction, Philadelphia, PA – Construction Inspector for PennDOT for reconstruction of state roads including drainage improvements and minor structures, construction completed 1993. Project involvement was prior to joining HNTB.

ROGER Q. NGUYEN, P.E.

MTA Quality Assurance

Education

Registered Civil Engineer C 56805

Key Qualifications

SFMTA, Quality Assurance Office - *Manager* (4/06 – Present)

As the Quality Assurance Manager, my responsibilities include:

- Developing and implementing the Division Quality Assurance program, including Quality Assurance PMP, Plan, Procedures and Inspection Guidelines
- Evaluating effectiveness of Division's quality program and project compliance with FTA guidelines and established procedures through quality audits and surveillances of contractor, consultant and internal staff activities;
- Managing activities of engineers and consultants, and providing Quality training to staff;
- Performing planning and budgeting activities;
- Making public presentations and interfacing with other Sections and agencies, including FTA and SFCTA.

SFMTA, Project Management Section - *Project Manager* (2/01 – 4/06)

As the Project Manager for projects such as the Geneva Historic Streetcar Enclosure, Bus Lift Modifications, Security & Anti-Graffiti, and Paratransit Debit Card, my duties included:

- Planning, coordinating, directing and controlling projects from concept through design and construction to turnover of completed facility to client;
- Supervising and providing guidance to project team, and preparing work scope, manpower plans, schedules, budgets, reports;
- Responsible for completing projects on time, within budget and of high quality;
- Working and interfacing with commissions, County Supervisors, the public, private businesses, government agencies, Operations and Maintenance to address concerns.

SFMTA, Engineering Section - *Project Engineer* (1/98 – 2/01)

Project Engineer for the Ocean Avenue Improvement Project and the Mid-Embarcadero/F-Line Start-Up Project. Work scope of projects included replacement and reconstruction of light rail tracks, roadway, sewers, sidewalks, street lights, my duties included:

- Supervising engineers, and providing leadership and focus for project team, coordinating with clients, City Departments, utility companies and other entities to ensure the effective implementation of the project requirements and to minimize impact to the community and City;
- Meeting with the community, clients and Operations to identify and address concerns;
- Developing contract plans and specifications.

California Public Utilities Commission, *Associate Transportation Engineer* (1/97 – 1/98)

As the Engineer in charge of State Safety Oversight for the Bay Area Rapid Transit District (BART), my duties included enforcing CPUC General Orders, performing Triennial Safety Audit and Substance Abuse Program Audit, and reviewing and participating in accident investigations.

California Department of Water Resources, Construction Division - *Resident Engineer* (2/94 – 1/97)

As a Construction Resident Engineer for various projects including Calif Aqueduct Emergency Repair, Rock Barriers, Coastal Aqueduct Plant Inspection, Building Modifications, and Encroachment Permits, my duties included:

- Enforcing contractor's compliance with project plans and specifications, and various codes such as NEC and AWS D1.1 by performing construction inspection, survey and field tests;

821 Howard Street 415.701.4280 Phone
San Francisco, CA 94103 415.701.5222 Fax

- Performing contract administration, including reviewing schedule of values, issuing field memos and RFI answers, resolving contract disputes, processing change orders and justifications, issuing scheduled pay estimates and inspection reports, and conducting progress meetings.

City of Palo Alto Public Works, *Project Inspector* (7/93 – 2/94)
Enforced contractor's compliance with project plans and specifications.

Dennis Oates

951 Idylberry Rd.
San Rafael, CA 94903
(415) 361-1232
(415) 499-8871
dennis.oates@sfdpw.org

Objective

Position as Associate Civil Engineer responsible for quality control, schedule and budget for public works projects in San Francisco.

Qualifications

- Licensed Professional Civil Engineer
- Experienced Resident Engineer/Construction Inspector with Bureau of Construction Management.
- Over 20 years experience in quality control and management of construction projects.
- Experienced in the economic analysis of development projects, from single-family foreclosures through $8.5 million mixed use projects.
- Masters degree in Applied Economics with emphasis in quantitative analysis, econometric modeling and forecasting.

Work Experience

Resident Engineer
11/07 to Current San Francisco Department of Public Works
San Francisco, CA

Onsite management of various Public Works projects within the City of San Francisco. Responsible for plan review for code compliance, constructability, coordination with client, inspection, field engineering, coordination of design professionals, change order negotiation and construction schedule. Projects: Eureka Valley Library, Hall of Justice Fire Alarm, Hall of Justice Ventilation, Ortega Branch Library, West Sunset Playground, Sunset Recreation Center.

Construction Inspector
7/03 to 11/07 San Francisco Department of Public Works
San Francisco, CA

Public works construction inspection and field engineering of $46 million Juvenile Hall Replacement project. Inspection of all aspects of construction including demolition, earthwork, underground utility installation, concrete and masonry construction, MEP and finishes. Also responsible for field engineering of roadway utility installation and repair of existing roadway. Training and supervision of interns in the inspection of the above. Constant interaction and coordination with owners, architects, engineers, other City departments and the general public. Organize and lead weekly progress meetings with contractor, owner, A/E team and City construction management staff. Participate in design meetings, review change order requests, manage all force accounts and write daily reports.

Dennis Oates
951 Idylberry Rd.
San Rafael, CA 94903
(415) 305-7107
(415) 499-8871
dennis.oates@sfdpw.org

Subject: Application for Associate Engineer for San Francisco MTA

Tuesday, January 22, 2013

Attention: Tani Harjanto
Municipal Transportation Agency
Human Resources Office
One South Van Ness Avenue, 6th Floor
San Francisco, CA 94103

Attn.: 5207 BOTH – Oates, Dennis

Dear Mr. Harjanto::

I have recently been notified that the San Francisco MTA is seeking an Associate Engineer to perform various civil engineering activities for the Central Subway Program. I am very interested in this position MTA, and I believe that my education and employment experience are a perfect match for this position.

Five years as resident engineer and 5 years as construction inspector with the City of San Francisco as well as 9 years as facilities/construction manager at the San Francisco Zoo have given me the experience necessary to manage any size or type of public works project. This experience has provided me with a unique combination of practical engineering, contractor management and hands on construction skills. In addition to my construction management experience I possess a Master's degree in applied economics which provides me with the necessary skills to perform in depth analysis of budgets, feasibility and cost estimates.

Attached is a copy of my resume, which more fully details my qualifications for the position.

I look forward to talking with you regarding engineering opportunities with the San Francisco MTA. Within the next week I will contact you to confirm that you received my e-mail and resume and to answer any questions you may have.

Thank you very kindly for your consideration.

Sincerely,

Digitally signed by Oates, Dennis
DN: dc=us, dc=ca, dc=sf, dc=ci, dc=dpw, ou=DPW, ou=Users, ou=BCM, cn=Oates, Dennis, email=Dennis.Oates@sfdpw.org
Date: 2013.01.22 16:04:18 -08'00'

Dennis Oates
951 Idylberry Rd
San Rafael, CA 94903
(415) 305-7107

Resident Engineer
9/02 to 7/03 Ghirardelli Associates
San Jose, California

Resident Engineer for various projects including restoration of a 7 acre lake in Golden Gate Park. This work included draining of lake, off-hauling of approximately 35,000 cubic yards of excavated wet material from lake, importation of 20,000 yards of clay liner material; placement, grading and compaction of this material; extensive landscaping and irrigation work; water supply and waste water piping; and decorative rock work. Responsible for all document control, interactions with A/E team, contractor, owner and general public. Conducted progress and design meetings. Managed project budget and wrote all City communications with contractor. Performed construction inspection and R/E duties on the construction of two well water pump stations in Golden Gate Park. This included construction of two CMU buildings, installation of pumps, underground utility work and installation of computerized controls. Conducted meetings, negotiated change orders, managed budgets and participated in design changes.

Construction Inspector
11/01 to 9/02 San Francisco Zoo/DPW
San Francisco, CA

On-site inspector for public works projects at the San Francisco Zoo. Responsible for quality control and code compliance on $12 million Zoo Street project and $1.5 million Warehouse. Projects included construction of 8 new structures, new "Lemur Forest" exhibit, underground utility construction, site electrical, earthwork and paving of new 600,000 sf parking lot,

Facilities/Construction Manager
9/93 to 11/01 San Francisco Zoo

Responsible for supervising all building maintenance, repair activities, renovations and exhibit construction at the San Francisco Zoo. Primary duties include hiring, managing, training and directing the activities of maintenance and construction staff in the repair, construction and alteration of all Zoo structures. Responsibilities include: Planning – exhibit design and construction-maintenance and repair schedules; Budgeting – annual and project budgets for personnel, equipment and supplies; Purchasing – supplies, equipment and building materials; Contractor selection – specification writing, bidding, selection and management of all building trades contractors; Interpretation and execution of – architectural plans and specifications, building codes, safety regulations (OSHA) and hazardous materials abatement procedures; Coordination and scheduling of projects with other departmental personnel. Developed a core group of skilled craftsmen for the construction and renovation of animal exhibits. Projects include:

- Lorikeet exhibit
- Anteater, tapir, condor exhibit
- Flamingo Lake
- Cassowary exhibit
- Warthog exhibit
- White alligator exhibit
- Children's Zoo entrance
- Primate Discovery Center
- Lion cub exhibit
- Steam train ("Little Puffer")

Member of the Zoo's leadership council involved in team planning of Zoo operations and development. Made presentations to the Joint Zoo Committee and senior management group. Responsible for developing and maintaining a database of departmental operations detailing beginning, ongoing and completed projects.

Construction Manager
7/90 to 4/92 HARCON CONSTRUCTION–RIFKIN REALTY
San Francisco, CA

Responsible for estimating, bidding, sub-contractor selection and management of construction development projects. Supervised employees in all construction trades. Solely responsible for design and conversion of 6,000 square feet of warehouse space into six-artist live/work studios including:

- Design
- Drafting
- Permit acquisition
- Estimating
- Scheduling
- Employee supervision
- Purchasing
- Inspections

Appeared before planning commissions to obtain "major variances" and to gain approval for condo conversion of 42-unit live/work project. Estimated $7 million mixed use, live/work project. Provided economic analysis of potential development projects: conceptual estimates, pro-forma and sources and uses of income statements.

Also responsible for maintenance and construction management of 8 commercial buildings including warehouses, office buildings and mixed-use live/work buildings. Supervised and inspected tenant improvement projects within these buildings. Obtained permits for and instructed tenants in conversion of their units to live/work.

Construction Superintendent
3/88 to 4/89 PULTE HOME CORPORATION
Pleasanton, CA

On-site management of $18 million residential construction project. Responsible for the activities of 12 to 15 different subcontractors from lot surveying through buyer acceptance. Performed field negotiations with engineers, building inspectors and subcontractors regarding budgets, scheduling, plan changes and quality control. Also created computer programs, which improved efficiency in scheduling, bidding and budgeting. Instructed construction department staff in use of these programs.

Education

2005 to present San Francisco State University San Francisco, CA
30 Units in Civil Engineering completed with Emphasis in Structural Design

1985 to 1987 San Francisco State University San Francisco, CA
M.A. Applied Economics, Concentration: Quantitative Analysis GPA: 3.85

1978 to 1980 University of Michigan Flint, MIB.A. Business EconomicsConcentration: Economics and Finance GPA: 3.34

PAUL ORSBURN

1275 16th Avenue, San Francisco, CA 94122 ▪ (415) 412-8126 ▪ porsburn@sfwater.org

EXPERIENCE

San Francisco Public Utilities Commission, Construction Management Bureau
5207 Associate Engineer, August 2006 – Present
Resident Engineer, Project Construction Manager and Field Contracts Administrator for Water System Improvement Program (WSIP) projects ranging in size from $3M to $34M. Supervised multiple inspection staff and personnel, including interns and consultants. Involved with preparing, reviewing and approving contract drawings and specifications. Administered the construction contract, including reviewing, negotiating and approving change orders. Reported to WSIP Regional Construction Managers and Project Managers. Project construction manager for Job Order Contracts ranging in size from $10K to $180K. Reviewed certified payroll reports and HRC documentation. Coordinated and attended public outreach meetings. Conducted and documented meetings. Worked weekends and nights, as needed.

Niuyo & Moore Geotechnical & Environmental Sciences Consultants, Oakland, CA
Project Engineer, June 2003 – July 2006
Project Engineer and Manager for design and construction contracts with a targeted client base of the public sector. Managed a materials testing and special inspection contract with the City & County of San Francisco DPW/BCM valued at $500K. Supervised field staff and lead construction engineers for nearly all projects. Coordinated the hiring of a large inspection staff to provide quality control on Caltrans projects in District 2. Performed technical calculations, wrote reports, created marketing material and attended interviews for various projects and teams.

Geocon, Inc., San Diego, CA
Senior Staff Engineer, May 2000 – May 2003
Performed geotechnical investigations, including observation of large and small diameter investigative holes. Performed field testing services, including compaction testing and concrete placement sampling. Wrote technical reports and performed technical calculations, including liquefaction and slope stability analyses.

EDUCATION

University of Kentucky, Lexington, KY
Bachelor of Science in Civil Engineering, December 1998
GPA: 3.4
Master of Science in Civil Engineering, May 2000
GPA: 3.8
Emphasis: Studied a combination of Geotechnical and Railroad Engineering. Studied railroad facilities design and analysis and railway operations management. Wrote thesis paper on soil subgrade behavior under various railroad trackbeds across the country. Research was funded by the Asphalt Institute and CSX Transportation

ROBERT J. PIERCE

920 Leavenworth # 407, San Francisco, CA 94109, (415) 596-5257, *axisworks@gmail.com*

OBJECTIVE

The position of Administrative / Social Media / Graphics Assistant for EPC Consultants.

QUALIFICATIONS

- Highly skilled at office support, communications and client/contractor relations.
- Experienced in MS Office, Outlook, Photoshop, Illustrator, Windows, and Mac OS.
- Well-versed in the Central Subway Project, and mass-transit infrastructure.
- Experienced in a variety of social media, including Twitter, Facebook, and Youtube.
- Experienced in digital photography and digital photo editing.
- Experienced in directing short films, Final Cut Pro, cinematography, and lighting.
- Designed and maintained a variety of personal, business, and college websites.
- Highly skilled in data management and database maintenance.
- Maintained and managed a dual computer lab satellite campus for a public college.
- Developed team procedures and measured 50 banks to create as-built blueprints.
- Managed and implemented employee training.
- Managed an after-school tutorial lab for a public high school learning program.

EDUCATION

- City College of San Francisco, Film directing/Cinematography major, 2007-present
- Academy of Art University, Film directing/Cinematography major, 2009.
- AA in Architecture and Design, City College of San Francisco, 2004-2007.
- Santa Rosa Jr. College, computer science major, 2000-2002.
- Lane Community College, Eugene, OR, computer science major 1998-2000

WORK EXPERIENCE

- **Operator – Proctor Engineering Group**, August 2008-Present.
  Customer service, data management, video production, and office communications.
  Responsibilities included: Troubleshooting, telephone operation, data entry, database management, customer and contractor relations, video directing and editing, project planning, and a variety of office communications and support roles.
- **Film Director and Photography Consultant**, 2004-Present.
  Film & video directing, photography, cinematography, lighting, and editing.
  Responsibilities included: Project management, team building, client relations, digital still and video camera operation, cinematography, lighting and setup, editing, storyboarding, logging footage, and working and rehearsing with actors/actresses.
- **Home and Furniture Renovation**, February 2006-March 2008.
  Redesigning and rebuilding residential interiors.
  Responsibilities included: Client collaboration, design, project management, shop maintenance, general carpentry, and custom woodworking.
- **Administrative Assistant and Webmaster - CCSF Architecture Department**, September 2005-March 2007.
  Office management, website design and maintenance, and photo lab management.
  Responsibilities included: Web design, telephone operation, mail and copy room, filing, academic counseling, and maintaining a student photo lab.
- **As-Built Plan Surveyor - Tsao Design Group**, June 2005-August 2005.
  Organized survey teams and measured bank branches to create as-built plans.
  Responsibilities included: Training team members, developing and standardizing field procedures, scheduling, and drawing up rough architectural plans.

Sanford C. Pong

3837 Woodcreek Lane, San Jose, CA 95117 (408) 551-0114 e-mail: Sanford.Pong@sfmta.com

OBJECTIVE Continued growth in the field of electrical engineering.

EDUCATION

California Polytechnic State University, San Luis Obispo, California
Bachelor of Science: March 1995
Major: **Electrical Engineering** Concentration: **Power**
Electrical P.E. License: E16756

EXPERIENCE

San Francisco Municipal Transportation Agency (SFMTA) 11/2000 - Present
Transportation Planning & Development
Electrical Engineer (4/2012 – Present)
Associate Electrical Engineer (1/2004 – 3/2012)
Assistant Electrical Engineer (11/2000 – 1/2004)

- Central Subway Project: Systems Oversight Manager; Systems Displine Lead for a design team developing multiple subsystems for the project; Acting Project Engineer (Oct. 2008 – Jan. 2009).
- Performed field surveys of existing conditions and sites
- Preparing engineering designs, drawings and specifications; preparing bid documents
- Coordinated projects with various departments, consultants, contractors, and utility companies
- Performing voltage drop and short circuit analysis calculations
- Preparing correspondence, meeting minutes, and engineering reports
- Preparing cost and quantity estimates
- Preparing capital improvement project (CIP) estimates
- Preparing conceptual engineering reports (CER)
- Conducting meetings and making presentations
- Projects: Central Subway, Cable Car Propulsion Upgrade, Security & Anti-Graffiti Improvement, Feeder Upgrade, Traffic Signal Priority, Traction Power Study, Automatic Vehicle Location

Mazzetti &Associates, San Francisco, CA 2/1996 – 11/2000
Electrical Project Engineer

- Managed project budget and composed proposals for variouss projects
- Designed healthcare, commercial, laboratory, & educational type projects
- Calculated load, lighting, energy conformance, and short circuit and load analysis
- Solved problems and issues during project construction
- Performed field surveys of existing conditions
- Coordinated projects with architects, consultants, contractors, and utility companies
- Assisted in installing and troubleshooting of computer operating system and application software

Lockheed Martin Missiles and Space, Sunnyvale, CA 7/1995 - 2/1996
Associate Engineer

- Analyzed flight test data for Fleet Ballistic Missile program
- Investigated any occurring anomalies
- Wrote analysis reports for clients

San Francisco Municipal Railways, San Francisco, CA 4/1995 - 6/1995
Electrical Design Consultant

- Designed and drafted electrical circuiting for installation of new dust collectors, air pumps, and air breathing compressors
- Composed electrical specifications for projects

Walt Disney Imagineering, Glendale, CA 6/1994 - 12/1994
Cooperative Education Assignment

- Determined short circuit and voltage drops using EasyPower software
- Calculated energy conformance using the 1994 Florida Energy Code software
- Performed lighting calculation using GENESYS lighting software
- Back checked electrical drawings
- Created an electrical schematic package

S. AILEEN READ, P.E., S.E.

Senior Project Manager
Supervising Structural Engineer

Years of Experience

23 (16 with PB; 7 with others)

Education

B.S., Civil Engineering, Swarthmore College, 1985

Professional Affiliations

Structural Engineers Association of Northern California; Women's Transportation Seminar

Professional Registrations

Professional Engineer: California, 1992 (49614); New York, 1990
Structural Engineer: California, 1995 (4034)

Key Qualifications

Aileen Read is a senior project manager and supervising structural engineer with Parsons Brinckerhoff (PB) with expertise in projects involving light and heavy rail transit facilities; highway structures and intelligent transportation system installations; power and telecommunications facilities; and commercial office buildings. She has successfully managed projects of varied size and scope, throughout all phases of project development – conceptual, preliminary, PS&E and engineering support during construction.

In addition to her project-related experience, Aileen has been instrumental in the monitoring and implementation of PB's quality system, which is certified to ISO 9000:2000 standard. She served as area quality manager for PB's San Francisco office from 2000 to 2002 and served as west district quality manager, overseeing the quality system implementation in ten PB offices from 2002 to 2004.

Transit Facilities

- Honolulu High-Capacity Transit Corridor Project, Honolulu, Hawaii: QA/QC manager responsible for preparation of the program-wide Quality Assurance and Quality Control Plan for the design and construction of a fixed guideway transit system from Kapolei to the University of Hawaii at Manoa and to Waikiki. In addition, Aileen is responsible for implementation and monitoring of the quality assurance and quality control practices preliminary engineering/environmental impact statement (PE/EIS) phase of the project.
- BART Extension to Silicon Valley, Santa Clara County, California: QA/QC manager responsible for the preparation of the Design Quality Plan, and implementation and monitoring of the quality assurance and quality control practices, for the systems portion of the BART extension to San Jose. PB, in joint venture, is providing system design and design support services during construction for the project, which is also known as the Silicon Valley Rapid Transit Corridor Project. The project will complete the regional rail transportation network and connect three major Bay Area cities: San Jose, San Francisco and Oakland. The extension will also provide the needed additional capacity to address an anticipated 92 percent increase in work trips along the corridor projected over the next 25 years. The project area for BART to Silicon Valley falls within portions of Alameda and Santa Clara counties and stretches over 16 miles from the planned Warm Springs BART Station in Fremont to the cities of Milpitas, San Jose and Santa Clara. The project will extend BART into the heart of Silicon Valley, serving residents and businesses throughout Santa Clara County.

- Muni Metro Third Street Light Rail Central Subway Project, San Francisco, California: JV project engineer providing engineering and support services for a 1.7-mile (2.7-kilometer) tunnel alignment through downtown San Francisco. The first phase of the project involves conceptual and preliminary engineering, cost estimating, and environmental studies leading to a Record of Decision and Full Funding Grant Agreement. Construction is scheduled for completion in 2012.
- As-Needed Professional Engineering Services for the City and County of San Francisco Public Transportation Commission, Municipal Railway Division (MUNI CS-124), California: project manager that oversees the activities related to the performance of various task orders, including: engineering support during construction of the Presidio/Potrero Trolley Coach Facilities modifications; survey of the MUNI Metro subway structure, trackway, station and Overhead Contact System elements, from West Portal to the Embarcadero; technical support in the development and implementation of a Paratransit Debit Card System, including assistance in the preparation of the Request for Proposal, contractor selection, bid evaluation, and contract negotiation; material testing, geotechnical investigation, and structural members survey engineering services, including evaluation and report preparation, related to the seismic rehabilitation and expansion of the Overhead Line Department Facility at 1401 Bryant Street; and technical support in the preparation of Design/Build procurement documents for the Port of San Francisco's Illinois Street Bridge project.
- AirTrain Guideway Project, San Francisco International Airport, California: project manager and structural design manager for the joint venture that supervised the design and preparation of approximately 400 structural drawings for a 5-mile long bridge structure which supports the AirTrain System -- a transportation system to move people and luggage between buildings, terminals and major employment locations and parking areas within the San Francisco International Airport. During construction of the guideway, Aileen assisted the Airport as the Engineer of Record, reviewing the Contractor's requests for information, requests for substitution, requests for change, shop drawings, and technical claims; attending weekly construction coordination meetings; making site visits to observe construction; and preparing change notice documents. Significant elements of the guideway design are; (1) the "East Loop" section which was constructed in and around an existing 9,000 parking space garage; and (2) a double deck section which services 3 BART tracks and 2 AirTrain tracks, bringing the BART system into the airport. The guideway includes nine stations interfaces with existing structures, a new International Terminal, a new parking garage, and the AirTrain/BART station.
- Eastmont Mall Transit Center, Oakland, California: lead structural engineer for the design and construction of a transit center at the existing Eastmont Mall in Oakland. The transit center provides passenger loading areas with canopies for up to nine buses; a one-story retail building; a three-story clock tower and a new traffic signal at Foothill Boulevard.
- Los Angeles Metro Red Line, California: design engineer for a two-story reinforced concrete ventilation building housing three 200-hp blast relief fans. The fans provide emergency ventilation to a 2-mile-long segment of tunnel on this multibillion-dollar heavy rail transit project for the Los Angeles Metropolitan County Transportation Authority (MTA). In addition, Aileen reviewed shop drawings for the miscellaneous metal work for the Vermont Street Station.

Highways

- I-238 Widening Project, Alameda County, California: deputy project manager for the preparation of plans, specifications and estimate to add one mixed flow lane in both directions of I-238 and approaches on I-880. Project features include: traffic maintenance, twelve structure widenings and/or replacements, sound walls, retaining walls, traffic operations systems, and drainage. The work is being prepared to the requirements and

standards of the California Department of Transportation and investigates a wide range of pavement types and life-cycle cost analysis. Additionally, the I-238 corridor is a lifeline route that warrants special design considerations in a post-emergency scenario. Close coordination is required for rail and transit impacts with Union Pacific Railroad and the Bay Area Rapid Transit District. The project also has funding requirements from three funding sources, which requires continuous monitoring of project development and capital costs.

- Route 85/101 North Interchange Final Design, San Jose, California: managed the geotechnical and structural design and preparation of construction documents for two highway bridge structures, as part of the reconfiguration/reconstruction of four separate interchanges between Moffett Boulevard and Old Middlefield Way along Highway 101.
- Los Angeles Traffic Operations Systems (LATOS), Los Angeles, California: design engineer responsible for the design and preparation of drawings for the foundations and structures to support changeable message signs (CMS), closed-circuit television (CCTV) cameras, very small aperture terminals (VSATs) highway advisory radio (HAR) antennas, and microwave antennas along Routes 210, 134, 2, 10, and 30.
- Seismic Retrofit Program, California: design engineer for the seismic retrofit of several structures, part of a multibillion-dollar statewide effort to bring prioritized bridge structures up to current California Department of Transportation (Caltrans) standards of earthquake resistance. Parsons Brinckerhoff (PB) has been retained to provide structural engineering services on a task-order basis for Caltrans. The structures Aileen designed retrofit strategies for include:
  - 11th Street Overcrossing and 17th Street Overcrossing, Alameda, California: performed seismic analysis and developed retrofit strategy for a pair of two-span reinforced concrete bridges.
  - Compton Creek Off-ramp, Los Angeles: conducted an independent design check of retrofit strategy for a five-span reinforced concrete bridge.
  - Denman Overcrossing, Petaluma: performed seismic analysis and designed seismic retrofit for a two-span concrete bridge.
- Route 280/101 Interchange, San Francisco, California: design engineer responsible for conducting an independent check of temporary shoring, reviewing demolition/construction procedures, and coordinating design documents during the $40 million reconstruction of the Alemany viaduct/double deck directional interchange linking Routes 101 and 280. The interchange was damaged during the 1989 Loma Prieta earthquake.
- Interstate H-3 Operations and Maintenance Buildings, Haiku, Hawaii: design engineer responsible for the design of structural steel framing and reinforced concrete foundations for additions to two O & M buildings. These structures form part of a multimillion-dollar highway project that passes through the Haiku Valley of Oahu Island with 1 mile of twin-bore tunnels driven beneath the Koolau mountain range. Aileen's responsibilities also included supervising and coordinating preparation of structural contract documents.
- Richmond Parkway, Contra Costa County, California: design engineer for this project to widen 2 miles of Castro Street from a two-lane local road to a four-lane, high speed, limited access truck route, Aileen developed a computer model for dynamic seismic loading and assisted in the design of prestressed girders for the Castro Street overhead.

Tunnels

- Port of Oakland Inner Harbor Turning Basin Project, Oakland, California: part of a project team to design the non-navigational components of the Inner Harbor Turning Basin -50 Foot Deepening Project, Aileen managed PB's efforts and worked with Moffatt & Nichol Engineers, the Bay Area Rapid Transit District and the Port of Oakland to prepare PS&E documents for

the proposed modifications to the BART cathodic protection system to accommodate dredging of the Oakland Outer Harbor as it diagonally crosses the eastern end of the BART TransBay Tube.

- Posey and Webster Street Tubes, California: after an extensive review of as-built drawings and field investigations to document and assess the conditions of the structures, Aileen performed seismic analyses and developed retrofit strategies for the Webster Street Portal Buildings.
- Bay Area Rapid Transit (BART) TransBay Tube Inspection Project, San Francisco, California: senior design engineer for an engineering inspection and seismic assessment of the BART TransBay Tube (TBT). Aileen was involved in assessing the current condition of the TBT and preparing recommendations for ongoing inspection and maintenance throughout the life of the tube. As part of this project, Aileen spent extensive time reviewing maintenance records with BART personnel; completed a walk-through inspection of both bores of the PB designed and constructed 3.6 mile-long, double-track, immersed-tube rapid transit tunnel; was involved in the development and implementation of a field testing program to assess the condition of the reinforced concrete tunnel lining and the cathodic protection system; and prepared several sections of the final report, Bay Area Rapid Transit District TransBay Tube Inspection Study.

Power and Telecommunications

- SBC Pacific Bell Cable Infrastructure through BARTD Systems, Oakland, California: managing the civil and structural design and construction support services related to the installation of fiber optic cable infrastructure through BARTD systems from 7th and Wood Streets to 12th Street Station in Oakland, and through the TransBay Tube. The work involves coordination with the Bay Area Rapid Transit District and SBC Pacific Bell Corporation.
- Carson Ice Generation Project, California: responsible for designing foundations and supports of mechanical/electrical equipment and piping for a 95-MW combined cycle cogeneration plant.

Port Facilities

- As-Needed Professional Engineering Services for the Port of San Francisco, California: project manager overseeing the activities related to the performance of various task orders, including: design oversight reviews and construction administration for the Illinois Street Intermodal Bridge Design/Build Project; Security Enhancements for the Pier 35 Passenger Vessel Terminal; dredge planning for Pier 35 and Fisherman's Wharf; and feasibility studies for the development of Pier 90-94 Backlands.

Emergency Services

- FEMA Disaster Response Services Technical Assistance Contract, San Francisco, California: senior design engineer responsible for providing technical assistance for structural and building code issues. Responsibilities included reviewing engineering designs submitted by other consultants for cost effectiveness and code compliance, reviewing cost estimates by other consultants, developing project cost estimates for federal funding, determining federal participation in overall project costs, researching code requirements for repair and replacement of buildings and other projects, and performing benefit/cost analyses on structural retrofit projects to assist the Client in determining funding.
- Post-Earthquake Inspection of Buildings, Los Angeles, California: following the 1994 Northridge Earthquake, served as a volunteer for the California Office of Emergency Services for the inspection and tagging of residential structures. This work was performed in support of the local building inspection departments. Aileen is a registered volunteer disaster service

worker in California for the purpose of inspecting and assessing the condition of public and private facilities following a major seismic event.

Previous Experience

Prior to joining PB, Aileen was a senior structural designer for a consulting engineering firm based in New York City. Her project experience for that firm includes:

New Commercial Buildings

- 93-95 Franklin Street, New York City: project manager, responsible for full-phase structural rehabilitation of an existing four-story building to accommodate sound recording studios. Aileen designed new structural steel framing and a reinforced concrete foundation, and reviewed existing party walls and footings for their abilities to sustain the new loads imposed upon them. She prepared structural contract specifications, advised the architect on construction details and methods, and worked to coordinate structural and architectural requirements. In addition, she actively participated in biweekly project meetings with the design team and construction manager, to discuss job scope and design alternatives, and to plan and chart the progress of the job.
- 1675 Broadway, New York City: owner/builder resident engineer and engineer of record to ensure that the structural aspects of the project proceeded in accordance with contract standards. Continuously monitored, on site, the erection of the structural steel, metal decking, and curtain wall; reviewed various as-built conditions for design adequacy; developed alternative solutions to miscellaneous structural problems; and actively participated in meetings with the owner/builder and contractors to discuss job progress and resolve matters in dispute.
- 9th Avenue Tower, New York City: junior designer of 16 major cantilevered transfer trusses for wind and gravity loads and approximately 20 percent of the composite steel floor framing for gravity loads. Aileen was also responsible for reviewing the structural steel contractor's proposed major truss connections.
- 1675 Broadway, New York City: junior designer for approximately 80 percent of the steel floor framing for a new 35-story office building, including approximately 20 built-up transfer girders with concentrated loads of as much as 1,800 kilo pounds (kips). In addition, Aileen reviewed the structural adequacy of approximately 90 percent of the structural steel contractor's connection details and fabrication drawings.

Commercial Building Renovations

- 660 Madison Avenue, New York City: senior designer responsible for foundation design and field investigation for the renovation/rehabilitation of an existing 25-story office building. Her responsibilities included producing a foundation design that could accommodate a new truck turntable and loading dock, and the lowering of eight existing elevator pits, including temporary support of six existing columns.
- 320 Park Avenue, New York City: senior designer for structural steel design, wind analysis, and field investigation for the renovation/remassing of an existing 35-story office building.

Richard Redmond, P.E.
Vice President - Sr Tunnel Construction Manager

AECOM

Tunnel & Construction Experience – 31 Years
(15 Years Heavy Construction Contractor)
(16 Years Construction Consultant)

Education
BS, Civil Engineering, 1980, Manhattan College, NY

Teaching Experience
Manhattan College, Riverdale, NY - Adjunct Professor – Construction Safety

Professional Affiliations
Chairman Tunnel Committee – DRBF Dispute Resolution Board Foundation
Member – The Moles, Past Trustee
Former Board of Directors – Underground Construction Association of SME

Professional Registrations
Professional Engineer: New York, 1992 (069632); New Jersey, 1998 (24GE04140700)

Key Qualifications
Mr. Redmond has over 30 years of experience in the heavy construction industry field. The majority of the projects Mr. Redmond has worked on have been in the $ 15 million - $ 8.0 Billion-dollar range. Typical duties have included Project Management, Project Engineering, Cost Estimating, Scheduling, Engineering Design and Project Planning of all types of involved engineering tasks.

Projects he has worked on have included the New York 2nd Ave Subway, New York East Side Access Project, New York 7 Subway Extension, New York City Water Tunnel Project, NYCT Atlantic Avenue Station Reconstruction, Atlantic City/Brigantine Connector Design/Build Highway, New York's Coney Island Sewage treatment Facility, NYC Transit Authority Lexington Avenue Subway Rehabilitation, as well as the Chicago T.A.R.P. Tunnel program. In addition to this, his involvement has been with tunneling and underground structures, slurry walls, shafts, foundation supports, urban transit rehabilitation and sewage treatment plants.

DETAILED PROJECT EXPERIENCE

AECOM (Aug 2011 to Present)
LA Regional Connector Project

Cost Estimating / Constructability Review / Scheduling for EPBM Tunnel w/ 3 Open Cut Stations

Redmond Construction Engineering PLLC – President (09/2007 – 08/2011)

Construction Manager – MTACC – 2nd Ave Subway – 72nd St Station Cavern (3/10-8/11)

Manage construction of $ 450 Million Station Drill & Blast Excavation/Concrete for 72nd St Station

Construction Manager – MTACC – 7 Subway Extension (2/08 – 3/10)

Manage construction of $ 1.1 Billion Station Excavation / Concrete / 12,000 LF of Segmental lined TBM bore tunnel.

DRB Dispute Resolution Board

Chairman - Lee Road Relief Sewer – Cleveland, Ohio (**July 2010 – July 2012**)
Triad Engineering + Construction - Contractor / NEORSD - Owner
Project Value $ 21,000,000 - Open cut Sewer of 2,100 LF and Soft Ground Tunnel 4,100 LF of 72" sewer, 2 shafts

Construction Advisory Services for MTACC / NY City Transit (09/07 – 02/08)

Work Includes "Contractor Type Cost Estimates" provide a "Contractor Perspective" to the Design Effort, Construction Advisory Services, Constructability Reviews, Means & Methods, Claims Analysis, Value Engineering and Risk Analysis, Field Construction Management.

Current Projects – NY City MTA Capital Construction, (2nd Ave Subway , East Side Access Fulton St Transit Center, 7 Subway, South Ferry Station)

Construction Advisory Services for con Edison of New York (12/07 – 01/10)

Work Include Contractor Type Cost Estimates, Constructability Reviews Claims Analysis, Value Engineering.

Current Projects – Harlem River Tunnel Project, $ 85,000,000 Drill & Blast Tunnel

Parsons Brinckerhoff - Vice-President / Manager – Tunnel Construction Engineering

PBGT (Tunnel Construction Engineering Group) is made up of former Tunnel Contractors, working on major projects throughout the US. Work Includes "Contractor type estimates" provide a "Contractor Perspective" to the Design Effort, Construction Advisory & Construction Field Services, Constructability Reviews, Means & Methods, Claims Analysis, Value Engineering and Risk Analysis. (**4/05 – 10/07**)

NY City MTA Capital Construction, (East Side Access, 7 Subway, South Ferry, Fulton St Transit Center), NJ Transit ARC Project, San Francisco MUni Project, Alaska Way Seattle, Tel Aviv Red Line, Honolulu Transit, Mill Creek Tunnel Claims – Cleveland, Indianapolis Airport Tunnel.

DMJM+Harris - Vice-President / Cost Estimating

2nd Avenue Subway Project - New York City MTA Capital Construction Company **(12/02 – 3/05)** CM 1188 – Conceptual and Preliminary Design ($ 8,000,000,000)
8.5 Miles twin bore subway tunnels, 16 stations, TBM rock tunnels, EPBM soft ground tunnels Mined Cavern Stations, Open Cut Construction, Slurry walls, Utility Relocations

East Side Access Project - New York City MTA Capital Construction Company **(12/04 – 3/05)** Owner Estimate Verification of CM009 – Twin TBM Project ($ 365,000,000) and CQ028 Open Cut Section under Northern Blvd ($ 95,000,000)

South Ferry Station Project - New York City MTA Capital Construction Company **(1/05 – 3/05)** Owner Estimate Verification of ($ 261,000,000) New Station Construction , Open Cut Construction, Underpinning of Existing Subway Lines

Peter Kiewit Construction Co- Montvale, N.J. - Senior Estimator/Project Engineer

NYC Water Tunnel #3, Stage 2, Queens Tunnel – NYC Environmental Protection **(9/94 to 12/96)**
Contract C-542, Maspeth, Queens, NY ($172 Million)
5.5 miles of TBM Mined (20ft. Diam), Hard Rock Tunnel, horizontal conveyed mucking system

Perini Corporation - Hawthorne, N.Y. - Project Engineer

Chicago T.A.R.P. Deep Tunnel Program- City of Chicago **(3/93 to 9/94)**
Contract 73-060-2H Chicago, Illinois ($165 Million)
46,000 LF of TBM mined hard rock tunnel, 32' 4" diameter, 20 drop shafts, 60 connecting structures, pipe jacking sewers of 30" to 108", 10,000 LF of 10'-0" diameter TBM mined tunnel

Coney Island Water Pollution Control Project – NYC Environmental Protection **(3/91 to 3/93)**
Contract 9G, Brooklyn, N.Y. ($55 Million)
Construction of Chlorine Contact Tanks, Hypochlorite Building, Administration Bldg. Reconstruction of Existing Aeration Tanks, Work includes 15,000 cy of concrete, 900 LF of 42" Prestressed Concrete Sewer Pipe, Process Piping, Sluice Gates, Well Points, Soil Compaction, Auger Cast Concrete Piles, Aeration Tank, Diffusion Piping, Aluminum Airtight Tank Covers, Coordination of HVAC, Electric, Plumbing trades under NYC Wicks Law.

Morton Street Slurry wall Vent/Exit Shafts – Port Authority NY & NJ **(3/89 to 3/91)**
P.A.T. 530.031A New York City, NY ($15 Million)
PATH Railroad Emergency Exit Shafts and Ventilation Shafts, Work included 55,000 SF of slurry walls, (2) 65FT deep vent shafts (1) 35 FT deep electrical substation, underpinning of existing, PATH railroad tunnels, 10,000 cy excavation (2) passageway hole-thru and tie-in to active railroad tubes.

Lexington Avenue Subway Rehabilitation – New York City Transit **(9/87 to 3/89)**
Contract C31234 New York City, NY ($200 Million)
Project consisted of replacing 3 miles of concrete bed and stone ballast railroad system, 5 miles of 3rd rail replacement, 12 track crossovers, structural steel and concrete repairs, slurry wall fan chambers, signal and communication systems.

Morrison Knudsen Co. - Boise, Idaho - Construction Engineer

Oak Point Link Railroad Trestle **(9/86 to 9/87)**
Harlem River, Bronx, NY ($60 Million)
This project consisted of 3 miles of elevated roadway trestle over the Harlem River. Work included drilled in caissons of 36" and 72" diameter steel H-piles, precast concrete piles, bridge deck replacement and a latex deck concrete overlay.

MacLean Grove and Co. Inc. Greenwich, Conn. - Field Engineer/Superintendent

New York Water Tunnel #3, State 1, Shaft 7B - NYC Environmental Protection **(6/83 to 9/86)**
Contract 521B, Highbridge, N.Y. ($120 Million)
Construction of 17,000 LF of cast-in-place concrete lined, 24'-0" diameter tunnel, 8,200 LF of drill and blast 26"-0" diameter tunnel, 3 EA - 600 FT raise bored shafts, operated on site Eric-Strayer concrete batch plant.

CONSULTING EXPERIENCE

DMJM+Harris - Vice-President / Construction Manager

2nd Avenue Subway Project - New York City MTA Capital Construction Company **(02/02 – 10/05)** CM 1188 – Conceptual and Preliminary Design ($ 8,000,000,000)
8.5 Miles twin bore subway tunnels, 16 stations, TBM rock tunnels, EPBM soft ground tunnels
Mined Cavern Stations, Open Cut Construction, Slurry walls, Utility Relocations

Reno ReTRAC Rail Project – City of Reno Nevada **(12/01 – 12/02)**
Design Build Transit Corridor ($ 160 Million)
2.5 miles Depressed Transit Structure, slurry walls, jet grouting, relocate Historic Structures.

Newark Elizabeth Rail Link (NERL), Minimal Operating System, New Jersey Transit
Contract 99CJ060, Newark, New Jersey ($ 160 Million)
0.98 Mile At-Grade Light Rail Transit, 850ft Cut & Cover Tunnel.

Atlantic City/Brigantine Connector Highway – New Jersey DOT, South Jersey TA **(10/02 – 10/03)**
Design/Build Highway, Atlantic City, New Jersey ($190 Million)
3.5 miles of embankment and elevated roadway, MSE walls, bridges, 2000 ft cut / cover tunnel

Reconstruction 72nd Street/Broadway Station- New York City Transit (**7/98 – 7/99**)
Contract A-35763 New York City, New York ($50 Million)
Rehabilitation of Existing subway station, New Control House Structure, New Underground EDR and Communications Room, New ADA Elevator Compliance

Atlantic Avenue Station Complex Rehabilitation – New York City Transit
Contract A-35695 , New York City, New York ($125 Million)
Rehabilitation of Existing 3 subway stations, New Underground passageway, Mini-piles, chemical grouting, EDR and Communications Room, New ADA Elevator Compliance

Hofstra University East Pedestrian Bridge - Hofstra University **(10/2000 – 02/02)**
Hempstead, Long Island, NY ($ 3 Million) Construction Management At-Risk
Design/Build - 200 ft Pedestrian Truss Bridge over Hempstead Tpke.

ConEdison 1st Avenue Steam Tunnel – Consolidated Edison of New York, Inc. **(11/01 – 08/02)**
Hardrock Tunnel, New York, New York ($ 40 Million)
4,100 ft of 12'-0" Hardrock TBM tunnel, concrete lining, 2 vertical shafts – 110 feet deep

ConEdison East River RePowering Micro Tunnel Project – Consolidated Edison of New York, Inc. **(04/03 – 11/04) Micro Tunnel** New York, New York ($ 8 Million)
2,100 ft of 60" Soft Ground Slurry Machine Micro tunnel, precast pipe lining, 6 shafts – 30 feet deep

CONTRACTOR – CONSTRUCTOR EXPERIENCE

Schiavone Construction Co. - Secaucus, NJ - Project Engineer/Superintendent
NYC Water Tunnel #3, Stage 2, Brooklyn Tunnel – NYC Dept Environmental Protection **(12/96 to 6/98)** Contract C-541B, Brooklyn, NY ($145 Million)
5.5 miles of TBM mined (23 ft. Diam), Hard Rock Tunnel, cast in place tunnel lining

Parson Brinckerhoff Construction Services Inc. - Office Engineer (5/80 to 6/83)
Estimating of such projects as Westway, Fort McHenry Tunnel, Pittsburg Light Rail Transit, Hampton Roads Tunnel

AUDIE RAY REYNOLDS
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(858) 842-7377
Lanachy@gmail.com

EDUCATION
Mesa Community College
Major: Business and Engineering

PROFESSIONAL REGISTRATIONS
Certified Licensed Gas Tester
Certified Licensed Underground Safety Representative
Completion of Hazmat Whopper Training
OSHA 500
Train OSHA 10 Hour and 30 hour
Construction Safety

SUMMARY

Mr. Reynolds has over 21 years of experience in the construction industry. He has a wide variety of experience in heavy construction sectors including heavy rail construction, light rail construction, tunnel mining foundations, and water treatment facilities. His scope has included work in hazmat environments, as well as mine rescue squad leader. His duties have involved all aspects of a jobsite including planning, scheduling, and completing all phases of required work. Relevant project experience includes:

EXPERIENCE
Lead Quality Assurance Inspector, SFPUC Bay Division Pipeline Reliability Upgrade, Peninsula Reaches; Redwood City, CA, Jacobs Engineering (03/2010 – present)
Inspection of 9-miles of 60” diameter welded steel pipe (WSP) from the Pulgas Tunnel Portal, through the communities of Redwood City, Menlo Park, East Palo Alto and unincorporated areas of San Mateo County to the Bay Tunnel Contract interface. The project includes 5 tunneled (jack & bore) crossings, 1 micro-tunnel under a sensitive archeological site. 1600 L.F. of tunnel combined.

Senior Tunnel Inspector, Mission Trails Pipeline, Nolte (06/2009 to 03/2010)
Inspection of 12' horseshoe tunnel excavated by means of drill and shoot, 12' horseshoe built using NATM construction, 12' Horseshoe mined with transverse cutting Road Header and steel ribs, assist in OCIP rep safety audits, job walks, and safety meetings

Senior Tunnel Inspector, San Vicente Pipeline, URS Corp (08/2007 to 06/2009)
Inspection of 4 mile segment tunnel excavated with CTS shielded digger, also 650’ excavated by means of drill and shoot. Oversee road header and NATM(SEM) tunnel construction on starter tunnel. As well as setting of 102" pipe liner

Supervisor, East Los Angeles Gold Line Extension, Traylor Bros (04/2006 to 07/2007)
Directed bull gang crews for maintenance and construction of specific tasks to support EBTBM (earth balance tunnel boring machine) mining, help with construction of 6 NATM (SEM) cross passages as well as coordinating with engineering and construction management staff of the contractor. Initially this entailed controlling the graveyard shift work and maintaining the integrity of the schedule. Ran shift safety, orientate employs on tunnel safety, and emergency procedures.

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General Foreman, East Los Angeles Gold Line Extension, Washington Group, Obayashi (02/2004 to 04/2006)
Supervised, planned, and performed various aspects including soldier pile installation, decking, support system, excavation of underground stations, compensation grouting, tunnel boring machine assembly and mining of twin tunnels 1.8 miles long. Orientate employs on tunnel safety, and emergency.

Foreman, Los Angeles NEIS Project, Traylor Bros (04/2001 to 12/2003)
Supervised and performed mining using the Lovat mining machine, setting 6 piece concrete segments, installed 96" liner pipe, sinking multiple ventilation shafts, dissembling TBM machine and contract grouting in a 10.5 foot diameter, 2.1 mile hazardous gas tunnel.

General Foreman, BART Extension to SFO, Tudor Saliba/Slattery (10/1998 to 04/2001)
Supervised, planned and coordinated city, state, and federal roadway closures for the entire jobsite. Maintained approximately 20 miles of security fencing and expedited appropriate solutions to any hour site emergencies such as water main breaks, power interruptions or traffic hazards. Assisted in backfill operations of subway box structure. Certified employees to work in the environmentally protected and hazardous areas. Implemented site SWPPP plan.

Lead Man, San Mateo Bridge Retrofit Project, MK Contractors (4/1998 to 10/1998)
Performed duties as Operator Driller. Installed footings, spandrels, and tied rebar.

General Foreman, Washington, D.C. Park Road Tunnel Project, Kajima/Kisha (10/1994 to 12/1997)
Supervised form setting, tying rebar, and pumping concrete of twin path tunnels and ventilation structures. Supervised, planned, and performed various aspects for excavation, in hazmat conditions; installed piling and lagging for forms. Assisted subcontractor Nicholson Rodeo with chemical grouting for tunnel path along major thruway and coordinated projects with multiple subcontractors.

Miner, Metro Red Line Lankershim to Universal City Link Project, Obayashi (01/1993 to 07/1994)
Performed various duties in the mining of subway tunnel. Installed soldier piles, lagging and support system for excavation. Planned and executed mobilization of job site yards. Set-up segment operation.

Miner, San Antonio River Walk Flood Control Project, Obayashi (06/1992 to 11/1992)
Performed various duties in the mining of 20-ft diameter storm water flood tunnel. Planned and executed backfill grouting, segment placement. Concreted 8 pumps station structures.

Cea'mon Rhodes
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ceamonrhodes@gmail.com

Objective

To obtain a position as an Administrative Assistant, with a growth-oriented company that offers challenging responsibilities and the potential for advancement.

Employment History

SF Works, San Francisco, CA
Administrative Assistant, 03/2011 - 05/2011-Temporary
Scanned documents, answered multiple telephone lines. Provided excellent over the phone customer service. Faxed, filed and copied documents. Sent emails using Outlook. Entered client data into computer using Sales Force software. Prepared and mailed client packets.

Stanford University Medical Center, East Palo Alto, CA
Receptionist. 01/2009 - 12/2010
Filed and copied documents. Answered multiple phone lines. Scanned and emailed documents using MS Office. Organized and distributed incoming and outgoing mail. Created memo's and event flyer's using MS Word, also presentations using MS PowerPoint.

Mervyn's Department Store, San Francisco, CA
Inventory Stocker, Cashier, Customer Service Provider. 03/2007 - 09/2008
Stocked incoming inventory daily. Provided impeccable customer service to guest. Handled customer transactions using POS system.

A Child's Delight Toy Store, San Francisco, CA
Key Holder, Cashier, Stocks, 11/2004 - 04/2006
Responsible for all aspects of customer service, making bank deposits, and securing store at open/close. Provided complementary gift wrapping. Processed customer custom orders. Also, worked as a cashier using POS system.

Skills

Strong ability to handle multiple priorities, simultaneously.
Willingness to take on added responsibility.
Ability to work efficiently under pressure.
Natural flair and ability to work on own initiative or as part of team.
Excellent listening skills with a strong attention to detail.
Impeccable customer service skills.
Strong interpersonal verbal and communication skills.
Strong sense of ethics.
Excellent time management and organization skills.
Familiar with MS Word, MS Excel and Outlook.
Knowledge of Sales Force software.

Education

Balboa High School, CA
H.S. Diploma, 2006

References Available Upon Request

Wuthea Seng, P.E.

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EDUCATION

UNIVERSITY OF THE PACIFIC, Stockton, CA
Bachelor of Science, Electrical Engineering, May 1996

MODESTO JUNIOR COLLEGE, Modesto, CA
Associate of Science, 1993

LICENSE

Registered Professional Electrical Engineer, E-19107

EXPERIENCE
June 1996 – Present

San Francisco Municipal Transportation Agency – SFMTA
Transportation Planning & Development
Associate Engineer (01/2011 – Present)
Assistant Engineer (11/1998 – 01/2011)
Junior Engineer (11/1997 - 11/1998)
Student Trainee (06/1996-11/1997)

Essential Duties: Performed field surveys of existing conditions and sites; prepared engineering designs, AutoCAD drawings, and specifications; prepared bid documents; coordinated projects with various departments, consultants, contractors, and utility companies; performed voltage drop, conduit filling, and short circuit analysis calculations; prepared correspondence, meeting minutes, and engineering reports; prepared cost and quantity estimates; prepared capital improvement project (CIP) estimates; prepared conceptual engineering reports (CER); conducted meetings and created presentations; and provided construction support.

700 Pennsylvania Rehabilitation: Designed closed circuit television system, fire alarm and detection system, power distribution system, lighting system, and telephone system; provide construction support.

Muni Metro Electrical Improvements: Responsible for retrofit of existing lighting fixtures inside tunnels and Muni Metro stations, and provided construction support.

Third Street Light Rail, Phase 1: Designed street lighting and provide construction support.

Third Street Light Rail, Phase 2: Central Subway: Assisted lead system engineer to draft Design Criteria and drawings.

Third Street Light Rail, Phase 2: Central Subway, Chinatown Station, Union Square/Market Street Station, Moscone Station: Designed street lighting, traction power, telephone communication systems, closed circuit television systems, traffic signals, and AutoCAD drafting.

ERIC STASSEVITCH, P.E., CCM

Years Experience
33

Education
B.S., Civil Engineering, University of Missouri – Rolla (Missouri School of Mines), 1980
Graduate Studies, University of California

Societies
American Society of Civil Engineers (ASCE); Construction Management Association of America (CMAA); California Water Environment Association (CWEA); United States Society Dams (USSD); Water Environment Federation (WEF)

Registration
Professional Engineer - Civil, California, C38801
Certified Construction Manager (CCM), 1997
Global Logistic Specialist (GLS), 1999

Qualifications Summary
Professional Civil Engineer and Certified Construction Manager with 33 years experience in responsible positions managing the design and construction activities for major capital improvement programs. Responsible for delivering superior quality mega projects on schedule and within budget. Management and oversight expertise and knowledge in rail transit systems, railroads, grade separations, bridges, tunnels, highways, dams, water and wastewater systems; with responsibilities for design and construction, project controls, staffing, execution, employee development, safety, quality and client satisfaction. Background working for engineering firms, major utilities, railroads and CM consultants.

Current Responsibilities: Senior Project Manager/Civil Engineer responsible for providing project management oversight (PMO) services for Federal Transit Administration (FTA) capital projects.

- PMO Services, Santa Clara Valley Transportation Authority (SCVTA) and Bay Area Rapid Transit (BART) District, Alameda and Santa Clara Counties, CA, FTA. Task Order Manager on the PMO team assigned to the $6.1 billion SCVTA Silicon Valley rapid transit project, the $313 million SCVTA Vasona project, the $552 million BART Oakland Airport Connector project, the $890 million BART Warm Springs Extension project, and the $115 million BART Advanced Automatic Train Controls project.

- PMO Services, Vancouver, Washington, and Portland, OR, Federal Transit Administration, Region 10. Deputy Task Order Manager on the PMO team assigned to the $4.1 billion Columbia River Crossing project in Vancouver, Washington. The PMO team is monitoring the project on behalf of the FTA by undertaking an independent assessment of project development and implementation, including conducting risk assessment workshops, review of project management plans, quality assurance plans, fleet management plans, owner-furnished material procurements, design progress, cost estimates, construction scheduling, and construction management.

Experience
Senior Manager, Project Manager, Construction Manager. Held various senior management positions on significant capital improvement programs for various public transit/rail agencies.

- Deputy Director Capital Construction – CALTRAIN: Responsible for contract packages planning, organizing directing and reviewing the activities and operations of the Construction department including schedule, cost and claim resolution. Prepares long and short range staffing plans and budgets in support of capital improvement program. Provide input and responses for FTA funding. Coordinates all construction activities with other departments and local, state and federal agencies. Responsible for staff of 40 to 60 persons including design professionals, resident engineers, estimators, inspectors, safety, material testing and administrative staff. Ensures effective integration of

consultant and agency staff to accomplish $70M annually of difficult projects while operating 96 trains/day without impacts to revenue service.

- Construction Manager for $550M Cross County Metrolink Extension in St. Louis, Mo. Constructing 8 additional miles of double track to the existing rail system; a major reconstruction of the existing station and complex junction under operating conditions and the addition of nine new stations (two with Park-Ride lots) The work included five facilities contracts throughout the alignment, one transit systems contract and six other contracts. Responsible for staff of 60 persons including design professionals, resident engineers, estimator, inspectors, safety, material testing and administrative staff. Was brought in to help evaluate the performance of the consultant teams and ensure effective integration of consultant and agency staff. Facilities work includes significant tunnel construction in densely populated urban area, including year long closure of main arterial route, retaining walls, bridges, significant utility relocation, grading, drainage, trackbed, roadways (including paving, drainage, sidewalks, signage, striping, traffic signals, etc), right-of-way landscaping and seeding.

- Project Manager/Construction Manager on the $100M Henry Ford Avenue Grade Separation Project in Wilmington, CA. This important connector on the south end of the $2.4B Alameda Rail Corridor connects directly with the Ports of Long Beach and Los Angeles. Working as the owner's representative to manage schedule, cost, design and construction, completed the project 4 1/2 months early leading to on time completion of the entire program. Provided updates and input for state and federal funding requirements. Responsible for a team of 40 persons including design professionals, resident engineers, estimators, inspectors, safety, materials testing, and administrative staff.

- Construction Manager on the $1.2B Tren Urbano Project in Puerto Rico. The 17.2 kilometer urban transit system is Puerto Rico's largest ever construction project and North America's first comprehensive turnkey project. Provided reporting and updates to FTA for design build demonstration project. This rail line, with 16 stations, serves the most densely populated corridor of the island. Stassevitch managed 12 senior professionals responsible for systems to facilities interface coordination and field quality control oversight of the six facility design build contractors. Areas of oversight included schedule, cost, claim resolution, transit architecture, civil, systems and construction interface engineering as well as the related field oversight of the at-grade, tunnel and aerial facilities. Tunnel work included: twin 7.5 m diameter: 380-m New Austrian Tunnel Method(NATM) tunnel; 850-m of earth pressure balance (EPB) segmental tunnel, 150-m of multiple stacked drift mined tunnels, 115-m of retained cut, 300 m of cut and cover tunnel and two stations in soft ground.

- Construction Manager $2.7 Billion BART Extensions Program – Developed and directed application of construction policies and programs for 33 miles of new double track, 7 new stations and three major highway widenings. Responsible for developing, establishing and managing the project organization for construction management of the extensions. Overall responsibility for budgeting, estimating, and cost monitoring and control. Monthly reporting requirements for the CM organization as well as individual construction contracts. Trend analysis and reporting for input into annual incremental work plans and FTA reporting requirements. Tunnel work included 2300 ft cut and cover, twin 18 ft. tubes, in Bay mud, under major arterial highway; 1000 ft cut and cover 5 lane Interstate highway.

- Railroad Construction Supervisor/Project Engineer: Stassevitch planned, designed and supervised construction for a number of major railroad projects , including: rehabilitation of steel bridges, repair and replacement of timber bridges, precast concrete girder bridges, Locomotive Wash Rack facility, several concurrent track and yard expansions, expansion of an intermodal transfer facility, and inspection and surveillance of tunnels.

Project Manager, Construction Manager and District Engineer. Managed significant utility infrastructure installations, relocations and improvements for wastewater projects and programs including of treatment plants and related collection facility projects. including:

- Project Manager/Construction Manager for $44M Northern and Southern Sacramento River Crossing Project in Sacramento, CA. The first large diameter tunnels ever constructed under the Sacramento River as part of Sacramento Regional County Sanitation District's $650M Lower Northwest Interceptor program. Two 15 foot diameter tunnels constructed using earth pressure balance tunnel boring machine and precast segmental lining. 2,470 feet of twin 60 inches and 2,257 feet of twin 66 inches force mains installed in tunnels and open cut to connect to adjacent projects.

- Assistant Construction Manager for $50 million Main Wastewater Treatment Plant Expansion Project. Responsible for managing the consultant CM team administering the construction contract, conducting change order negotiations, managing all interfaces required to construct the project while maintaining an operating plant which increased capacity from 325 mgd to 450 mgd. Successfully developed working relationship between public agencies, operations and maintenance personnel, construction and management

- .District Engineer for wastewater collection agency with 190 miles of gravity sewer lines, 7 miles of force mains, and 20 pumping stations. Responsible for implementation of $68M ten year capital improvement program. Plans, organizes, directs, and reviews the activities and operations of the Engineering function, including long- and short-range project planning, environmental planning, design, construction and permitting programs, and servicing and mechanical repair of the District's wastewater collection system infrastructure, stationary pump and lift stations; coordinates all engineering activities with other departments and outside agencies; provides highly responsible and complex technical support to the General Manager; and performs related work as required.

- Responsible for staff of 19 and the day to day operations and management of the sanitary district . Business activities that include administering insurance and safety; providing customer service; addressing personnel, human resource, or grievance issues; general office, accounting, payroll and audit services, during recruitment process for new General Manager.

Project Manager, Construction Supervisor and Civil Engineer. Managed a number of hydro electric and water collection facility projects. including:

- $150M Kerckhoff 2 hydroelectric development. Project elements included: hard rock tunneling performed with 24 ft. diameter TBM for 22,000 feet; drill and blast operations for 20 ft. horseshoe tunnels for approximately 15,000 feet; experience in tunnel support installation, steel liner installation, and rockbolting, proper handling of groundwater and concrete tunnel lining.

- The Calaveras Water Project for Calaveras County Water District, including tunnel boring machine (TBM) operations for 18 ft., 14 ft., and 12 ft. diameter hard rock tunnels. Monitored tunneling operations, tunnel support installation, concrete lining, and groundwater control and treatment.

- The Pacheco Pass Tunnel for Santa Clara Valley Water District. Performed periodic inspection of the 12 ft. diameter horseshoe soft ground tunneling in coastal range and is experienced with gas encountered in tunneling, mucking operation in small diameter tunnels, installation of closely spaced tunnel support systems and concrete tunnel lining operations.

- Dredging of PCB-contaminated sediments. Developed, designed, and supervised construction of a hazardous waste containment structure for 15,000 cubic yards of PCB-contaminated soil and dredge spoils. He also conducted state and federal agency negotiations to insure compliance.

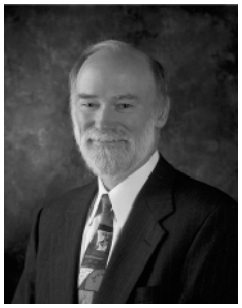
- Drum Afterbay Bear River, Auburn, CA, a $7M dredging project involving 400,000 cubic yards of sediment. Developed the sediment removal and transportation plan, performed agency negotiations, coordinated environmental studies and engineering design for a 130 ft high embankment dam constructed from spoil material.

- Pittman Spillway Repair, Bear River, Auburn, CA. Managed the reconstruction and design of channel modifications for an emergency spill channel capable of handling 1500 cfs. This $2M project involved the removal of 500,000 cubic yards of landslide material from the 8000 foot long channel located in a moderate to steep ravine (10 to 30 degrees). Repair was required on the 6 ft x 6 ft steel side spill gate and concrete structure.

- Bullards Bar Low Level Outlet Repair, North Fork Feather River for Yuba County Water Agency and PG&E. Supervised investigation, redesign, repair, and testing of low-level outlet for 700 ft high concrete arch dam under full reservoir condition on this $1M project.

Employment History

Gannett Fleming Inc. (Present – 2009)
Ross Valley Sanitary District (2009 – 2007)
Parsons Brinckerhoff (2007 – 1990)
East Bay Municipal Utility District (1990 -1989)
Pacific Gas & Electric (1989 – 1980)
Missouri Pacific Railroad (1980 - 1977)



Jeffrey O. Tusing, AIA *Project Manager*

Jeff Tusing has been a project manager with Michael Willis Architects for 17 of the firm's 21 years. As a senior project manager with over 35 years of professional experience, he oversees MWA firmwide quality control and production standards. Past roles include project manager for the $110 Million MUNI Metro East Maintenance Facility, project manager for the BART Systemwide Renovation which included rehabilitation of stations at Union City, Lafayette, El Cerrito del Norte and Powell Street (San Francisco), and the firm's internal project manager for the 298,000 square-foot expansion of Moscone Convention Center. Currently, Jeff is the project manager for the Treme/Lafitte and Tulane/Gravier Home Building project, New Orleans, Louisiana. More than 500 living units will complete construction by December 2010 replacing existing multifamily buildings that were vacated after Hurricane Katrina.

Jeff served as a Design Review Commissioner for the City of Benicia, California from 1986 to 2004. His tenure of 17 ½ years is the longest of any DRC Commissioner in Benicia history. During that time, he served three times as Chairman of the Commission.

Education
Bachelor of Architecture, Kent State University, 1974
Associate Degree in Architectural Technology, Southern Illinois University, 1968

Registration
Registered Architect: California (C-11460), 1980
Registered Architect: Ohio (5943), 1977

Awards
2003 Best Public/Cultural Deal Winner, SF Business Times, Real Estate Deals of the Year Awards, Moscone West Convention Center

Best of 2003 Award Recipient, California Construction Link Moscone Convention Center

1999 Award for Best Practices, U.S. Department of Housing and Urban Development, Town Center and Courtyards at Acorn

RELEVANT EXPERIENCE:

MUNI METRO EAST MAINTENANCE FACILITY - SAN FRANCISCO, CA

Jeff was the Project manager for this 180,000 square foot, new light rail maintenance and operations facility. MWA provided full architectural services for the $ 110 M building in association with San Francisco's Bureau of Architecture. The design team was involved in site planning, building design, public meetings and coordination with artists.

MOSCONE CONVENTION CENTER III EXPANSION - SAN FRANCISCO, CA

Project Manager for a 298,000 square foot exhibition and conferencing facility done in association with Gensler and Kwan Henmi Architecture. As a joint venture architect responsible for the building's shell and core, MWA was involved in the early stages of design of both facade and interior planning. Working with Gensler as the lead designer, MWA took a lead in the technical coordination of architectural and building engineering issues.

BART SYSTEMWIDE RENOVATION PROJECT - VARIOUS BAY AREA LOCATIONS, CA

Jeff was the Project Manager for this on call contract in which MWA rehabilitated four older BART stations - Union City, Lafayette, El Cerrito del Norte and Powell Street (downtown San Francisco). Built in the 1970s, these stations had not been renovated since their opening. In addition, to refurbishing the stations and their grounds, MWA designed ADA improvements, renovated break rooms and oversaw changes to station agent booths.

PORT OF OAKLAND FIELD SUPPORT SERVICES CENTER - OAKLAND, CA

As Project Manager, Jeff provided oversight of the design for this new 65,000 square foot facility that consolidates the Port of Oakland's maintenance facilities, which were formerly scattered in multiple locations. The facility includes an administration building, shops, warehouse, fueling island, and vehicle maintenance building.

EAST PALO ALTO SANITARY DISTRICT OFFICES AND VEHICLE STORAGE BUILDING - PALO ALTO, CA

Project Manager for an adaptive reuse in a mixed industrial/residential neighborhood. Rather than concentrating all of the District's programmatic requirements in one large structure, as might be appropriate in an industrial zone, select program areas were housed in separate smaller structures around the site to create a lower overall building mass. The resulting ensemble of buildings screen the corporation yard and its functions from public view.

WALNUT CREEK AQUEDUCT MAINTENANCE FACILITY - WALNUT CREEK, CA

In his role as Project Manager, Jeff served as the planner and programmer for this steel fabrication shop and storage building housing piping, tools and equipment used to repair the Walnut Creek Aqueduct.

Blanca E. Villasenor

Administrator

Professional History

- Present
Earth Tech (AECOM)
Project Administrative Assistant and Project Administrator
-
Cornerstone Concilium Inc.
Project Administrative Assistant, Document Control Specialist
-
K&D Temporary Services
Administrative Assistant for Earth Tech
-
Cygna Energy Services
Project Secretary and Document Control Custodian
-

Years of Experience

With AECOM:	24
With Other Firms:	2

Ms. Villaseñor has more than 24 years of professional experience as a project administrative assistant for engineering-architectural firms, as well as document control specialist for several projects. Primary duties in this capacity include maintaining project files, generating correspondence, preparing deliverables, performing quality control/checking of documents for submittals to client, and performing all required administrative duties in support of the project manager and entire project team.

Ms. Villaseñor's key duties have included the establishment of project files for new jobs; logging and filing of project correspondence; preparation and transmission of engineering documents to clients; initiation of required accounting documentation for the issuance of new job numbers, and close-out of completed project files for shipment to off-site storage facilities. The Document Control Center was recognized by several clients and the corporate director of quality assurance during an audit as being maintained in an exceptionally noteworthy condition. Other duties include performing data entry; processing of employee time sheets and expense reports; invoice checking; progress report cost reporting, spreadsheets, tables and charts, typing, assembling and copying technical bids and proposals, and performing minor accounting functions in support of both in-house and field personnel.

Experience

Santa Clara Valley Transportation Authority, BART Silicon Valley Rapid Transit – Fremont to San Jose, California: Subconsultant for HNTB Corporation for the Line Segment portion of the project. Supporting various contracts (C101, C115, C222, C610, C700 and A230) for the FRR and SVRT projects as Document Control and Project deliverable specialist for the DSDC phase. Reviewing all submittals to client, taking the extra steps to ensure that HNTB products meet the VTA standards. Creates transmittals, provides quality control/checking for technical memoranda, studies, reports, cost estimates. Assembles and checks drawings and specifications for issued for bid packages, conformed submittals, addenda, change notices and change orders deliverables per project requirements. [9/2011 - 5/2012]

Santa Clara Valley Transportation Authority, BART Silicon Valley Rapid Transit Stations Design - 65% Engineering Phase through New Starts Final Design Phase, Fremont to San Jose, California: Project was initially and Design-Bid-Build then was changed after the 65% phase to Design-build. Document Control and Project deliverable specialist for the stations design portion of the project, which involves the design of six new stations (for 65% Phase, two Stations for NSFD). Edits studies, assembles and checks review comments and responses, creates transmittals, checks drawing title blocks and drawing indexes, provides quality control/checking and finalizes deliverables per project requirements. [2007 - 2012]

Cornerstone Concilium Inc., Document Control Center and Library, San Francisco, California: Project administrative assistant and document control specialist. Entered data into computer using ProjectSolve2, created business documents using MS Word. Created presentations using PowerPoint. Kept track of the project budget using Excel. Maintained project schedules using Project Manager. Posted documents on ProjectSolve2 website in Adobe Acrobat. Communicated with client, subconsultants and personnel in house using Microsoft Outlook. [07/2003 - 10/2005]

Muni, Third Street Light Rail - Central Subway, San Francisco, California: Document control specialist for approximately 2.9 km of surface and subsurface extension of the Muni light rail system, continuing from the initial operating segment just north of King Street on Third and Fourth streets. [2003 - 2005]

Santa Clara Valley Transportation Authority, Silicon Valley Rapid Transit Corridor MIS/EIR, Fremont to San Jose, California: Project administrative assistant for the NEPA/CEQA environmental clearance for a 22-mile, $3.8 billion extension of the BART heavy rail transit system. [2001 - 2003]

Santa Clara Valley Transportation Authority, VTA Silicon Valley Rapid Transit Corridor 10% Conceptual Engineering, Fremont to San Jose, California: Project administrative assistant for the conceptual engineering for a 22-mile, $3.8 billion extension of the BART heavy rail transit system. 2002 - 2003]

Pacific Gas & Electric, Carquinez Bridge Gas Pipeline Replacement, Benicia, California: Project administrative assistant for the installation of a pipeline across the bridge. [2000 - 2001]

Sacramento Municipal Utility District, Consumnes Power Plant Gas Pipeline Extension, Sacramento, California: Project administrative assistant for the design of an underground 26-mile-long, 24-inch-diameter natural gas pipeline. [2001 - 2002]

Chabot Observatory and Science Center, Oakland, California: Project administrative assistant for development of a new state-of-the-art facility in the Oakland Hills. [1998 - 2001]

Peninsula Corridor Joint Powers Board, Caltrain Vehicle Procurement Management, Northern California: Project administrative assistant for a project that involved preproduction design review, first article inspection, production line inspection, and post-production acceptance testing and inspections of 20 new rail passenger cars and 3 new diesel-electric locomotives to be used for expanded service on Caltrain's commuter rail line from San Francisco through San Jose to Gilroy. [1998 - 2000]

California Department of Corrections, Corcoran II Prison Design, Corcoran, California: Project administrative assistant for design of 294,000 square feet of medium- and high-security support facilities, housing, and non-secure administrative and ancillary buildings. Project experience includes a position as the document control specialist for a 40-person design project. Primary duties in this capacity include maintaining project files, generating correspondence, preparing deliverables for client submittal, and performing all required administrative duties in support of the project manager and entire project team. [1994 - 1997]

Benjamin T.Volberding

1566 Grove Street #1, San Francisco, CA 94117
bvolberding@gmail.com (415) 710-3077

EXPERIENCE

Office Engineer, San Francisco Municipal Transportation Agency, San Francisco, CA 11/2010-Present

- Draft Contract Modifications and organize execution of modifications with project management staff, SFMTA Contract Compliance Office, and Contractors
- Review and track extra work via Force Accounts
- Assist the Construction Management team on the Central Subway utilities relocation Contract
- Prepare miscellaneous project task related estimates

Field Engineer, Kiewit Louisiana Co., New Orleans, LA 10/2009-11/2010

- Supervise approximately 15 craft workers on a $33M pump station retrofit
- Create work plans to familiarize crew with nature of work to be preformed and provide sequential construction approach
- Monitor quality of production through survey and layout to assure field work is within construction tolerances
- Prepare field operation reports to document field work to facilitate review by Project Executives
- Coordinate with other crews and subcontractors to maximize productivity while emphasizing safety and quality
- Maintain communication with involved parties (Contractors/Subcontractors/Owners/Public) to ensure job progression is unhindered and good relations are preserved

Business Development, Peter Kiewit Sons', Ft. Worth, TX 4/2009-10/2009

- Review Capital Improvement Plans and upcoming water infrastructure improvement projects
- Maintain database of market potential to inform higher management of opportunities for company involvement
- Represent Kiewit Corporation in meetings with government representatives, city and private engineers, and potential contractor joint venture partners

Estimating Engineer, Kiewit Infrastructure West Co., Concord, CA 9/2008-4/2009

- Prepare quantity takeoffs and cost estimate bids for potential projects
- Review Contract plans and specifications

SKILLS

- **Software:** Autodesk AutoCAD and Inventor, Visual Basic, Pro/ENGINEER, MATLAB, C++

PROFESSIONAL ORGANIZATIONS/ACCREDATIONS

- CA Board for Professional Engineers, Land Surveyors, and Geologists Engineer-in-Training (EIT 143060)
- OSHA 30 Hour Construction Certified
- American Society of Mechanical Engineers (ASME)
- American Institute of Aeronautics and Astronautics (AIAA)

EDUCATION

Bachelor of Science in Mechanical Engineering, September 2008
University of California, San Diego
Jacobs School of Engineering, Sixth College

- Provost's Honors

INTERESTS

- **Athletics**: Road cycling, running
- **Personal**: Woodworking, home automation and entertainment systems
- **Service**: Habitat for Humanity, Challenged Athletes Foundation, led UCSD's team of over 50 riders in the 2007 Ride 4 AIDS

Jenny L. Vodvarka
Accounting Manager - Operations

Education
MBA, Business Administration, San Jose State University, 2008
BS, Family Studies, University of Arizona, Tucson, 2000
BA, French, University of Arizona, Tucson, 2000

Years of Experience
With AECOM: 10
With Other Firms: 1

Professional Associations
San Francisco Chamber of Commerce

Ms. Vodvarka has over nine years of professional experience in the project management/finance and administration field. She has experience creating and reviewing contracts, scopes of work, project work plans and works with clients, project managers, and team members within all departments. Ms. Vodvarka's experience also includes monthly, quarterly and yearly close processes for financial reporting; she has worked with chief and senior management on monthly and quarterly revenue projections. Her construction management experience includes bid procurement through project closeout.

Project Experience
San Francisco Municipal Transportation Agency, Program and Construction Management, San Francisco, California. Manage the audits of subconsultants and design contracts in conjunction with the city controller's office. Create annual staffing plan and budget. Manage contract compliance with the client. Advisor to subordinates to meet schedules and/or resolve technical problems. Responsible for project's profitability and client satisfaction, as well as managing administrative functions. Work in conjunction with district or regional leads to ensure financial success. Coordinate with supervisors in execution of programs, policies, and procedures. Responsible for status of ongoing work and projected completion dates. Work with regional and business line marketing assisting in developing new clients and increasing market share with existing clients. Establish operational objectives and work plans, delegate assignments to subordinate employees. Review objectives to determine success of operation. Manage the coordination of activities of different groups with responsibility for results.

Novartis (formerly Chiron), Replace Labs, San Francisco and Emeryville, California. Project Engineer - Receive, log (including log set-ups), and expedite subcontractor submittals, RFIs, write and negotiate change orders with the client and subcontractors, review statements of work from subcontractors, run meetings with architects, subcontractors, inspectors, and client's Replace Labs' project.

National Aeronautics and Space Administration, Ames Research Center, Moffett Field, California. Legionella Project – Project Manager - Manage and lead many trades as the general contractor on various projects from tenant improvements to piping demolition jobs from $10,000 to $5 million. Manage, maintain, and control budgets on projects. Successfully and effectively send projects out for bid to get the best price and negotiate for optimal pricing for client. Responsible for entire construction project from bidding to closeout including writing statements of work, proposals, hiring subcontractors, negotiating contracts, requests for information (RFIs), reviewing submittals, producing a schedule, writing proposals and negotiating change orders, meeting with the client and users, reviewing safety plans, billing, ensuring that the project is safe, coordinating with all of the trades and all those who may be directly or indirectly involved with the process. Work closely with the internal and external stakeholders, including clients to ensure a productive and cost efficient job.

National Aeronautics and Space Administration, Ames Research Center, Moffett Field, California. Construction Administrator – Tenant Improvements and Handicap Accessible Jobs. Manage small projects and assist project managers in the field and the office with bid packages, statements (scopes) of work, contracts, submittals and the RFI process, attend meetings, write meeting minutes, create and enforce the punch lists, permit closeout, invoices, and approval of safety plans.

National Aeronautics and Space Administration, Ames Research Center, Moffett Field, California. Assist project managers with proposals (editing and revisions), job walks, bid processes, contracts, change orders, troubleshooting, etc. Monitor the safety program.

Jane M. Wang, P.E.

Objective

Practice civil engineering in a responsible manner and effectively manage delivery of engineering projects

Experience

City and County of San Francisco (1995 to Present)

- *Station Design Oversight Manager (August 2010 to Present)*

Oversee and coordinate consultant and in-house staff's design of Union Square Market Street Station, a $175M underground station in the heart of premier shopping and theatre district.

- *Acting Section Engineer (March 2008 to August 2010)*

Under general administrative direction, manage and direct the activities of professional and technical engineering personnel performing technical and administrative functions in connection with the design of MTA transit facilities and infrastructure projects. Section comprised of Civil, Track, Overhead Contact System, Electrical, and Mechanical Engineering Units. Ultimately responsible for the quality of all designs and documents produced by the Section, client satisfaction, schedule, and budget.

- *Unit Engineer(January 2002 to March 2008)*

Supervise the Civil Design Group in the preparation of designs, drawings, specifications and cost estimates for a variety of general civil and overhead engineering services ensuring that codes, standards, and project requirements are met. Responsible for quality and effectiveness of design work, schedule, budget, performance evaluations, training, and professional growth of staff.

- *Project Engineer, Third Street Light Rail (April 1999 to January 2002)*

Oversee and coordinate consultant's design of complex projects. Prepare, review, and approve engineering studies, reports, drawings, calculations, work plans, estimates, schedules, and contract specifications. Monitor critical milestones to ensure schedule is met, and track expenditures. Conduct meetings with clients, committees, staff, and the general public. Consult with operating and maintenance departments for functional requirements and with regulatory officials concerning project related issues and permits.

Central Subway: Subway tunnel with four underground stations in heavily congested business districts of downtown, Chinatown, and SOMA.

Central Waterfront: Surface guideway crossing bascule bridge and active railroad line; three surface stations; underground infrastructure improvements.

Fourth Street Bridge: Seismic retrofit and rehabilitation of bascule bridge, involved with rail and system designs.

Underwater Ductbanks: Multiple ductbanks crossing Mission and Islais Creeks utilizing trenchless technologies.

• *Project Manager, Environmental Consulting Services*

Reviewed and monitored consultant's deliverables; negotiated budgets; coordinated with tenants, regulatory agencies, construction managers, and other Airport departments; reviewed tenant improvement plans; conducted field investigations; responded to fuel/wastewater emergencies; maintained GIS environmental database; compiled data for reports to be submitted to EPA and RWQCB. Prepared requests for proposals and participated in the selection of consultants for professional services.

• *Project Manager, Airport Contracts No. 1962, 3287, 3583*

Managed the execution of $50 million Master Plan improvement projects: plan, coordinate, schedule, develop budget, resolve contractual issues, monitor progress and quality of work, and secure all necessary permits.

• *Project Coordinator, Cost Recovery Program*

Established "soft cost" and "hard cost" documentation and tracking procedures for recovering costs associated with site contamination; consult with legal counsel to ensure documentation is legally defensible; track costs by site, type of work and contract; allocate probability of achieving cost recovery from responsible parties.

Hilti, Inc., Tulsa, Oklahoma (1994 to 1995)

• *Field Engineer*

Plan, prioritize, and execute work to successfully provide engineering assistance to 50 sales representatives located across 4 states.

Bechtel Corporation, San Francisco (1992 to 1994)

• *Engineer*

Performed general civil engineering assignments: design structural calculations, prepare construction documents; calculate earthwork volumes; collect and evaluate sewage data, project sewage and industrial wastewater demands on the basis of past records and expected passenger volume; develop signage schedule.

Education

Bachelor of Science in Civil Engineering, University of California, Davis
Project Management Certification, University of Berkeley Extension

Professional Registration

Civil Engineer, State of California (No. C57005)

Beverly Ward

Document Control

Summary:

Ms. Ward has 13 years of experience in office administration specializing in the construction industry. She has the ability to accurately establish priorities and adapt quickly to changes. Ms Ward established a sense of dependability and efficiency. She has proven organizational and administrative skill, and has excellent interpersonal skills. She has had increasingly responsible positions, with particular expertise in handling all administrative support services for large projects from inception to conclusion while maintaining accuracy and meeting all required deadlines.

Training:

Private Industrial Center Computerized Office Training, San Mateo, CA

Computer Learning Center, San Francisco, CA

Project Experience:

Cal Park Hill Tunnel Rehabilitation and Appurtenances, San Rafael CA; Document Control/CM Administrator: As Document Control/CM Administrator, is responsible for the implementation of the Caltrans LAPM Construction Documentation procedures and providing office management and administrative assistance to the CM team. Responsibilities include maintaining the Microsoft SharePoint document management software, (for use and access by the contractor, CM, designer and County), as well as the hardcopy files. Ms. Ward's duties also include correspondence distribution and implementation of procedures, logging and scanning all incoming and outgoing correspondence for proper archiving, tracking and reporting on status of project documentation, inclusive of submittals, RFIs, and change orders to ensure that project response timelines are met and organizing and scanning files for proper archiving.

Alameda County Congestion Management Agency, Oakland CA, Project Administrator: As Project Administrator for Alameda Program Managers, responsibilities include reporting for document and cost control, assisting with program management plans and procedures, public information program, and the quality assurance program. In addition, she tracked consultant agreements and invoices, assisted with report development and provided overall administrative support.

Lower Northwest Interceptor – Natomas Force Main, Sacramento, CA; Project Administrator: As Project Administrator, was also responsible for the eRoom document control management system for portions of the Sacramento Regional County Sanitation District's Lower Northwest Interceptor (LNWI) program. Ms. Ward was also responsible for the construction management file management system utilizing LNWI's Web-based program, Documentum (eRoom), an electronic project control system. Additional duties include assisting Construction Manager with monthly construction management invoicing which detailed: task and subtask, authorize budget and scheduled progress percent complete; authorize budget remaining and estimated progress complete. In addition, she utilized spreadsheets for tracking of the project schedule for individual staff/cost and was responsible for interfacing and coordination with program office database analyst and solution developer to maintain and troubleshoot project control systems for both the Contractor and Construction Management Team. She also provided support assistance to the Resident Engineer and Field Inspection team with their daily tasks.

Moscone Center Expansion, Project/Convention Facility – Moscone West, San Francisco, CA; Office Administrator: Responsible for implementing office procedures, assisting the Construction Manager and Resident Engineer in editing/finalizing correspondence to general contractor, consultants and city staff using an integrated document management system; maintaining electronic document imaging system as well as the projects chronological files for archival. In addition, she transcribed and logged RFI answers from architect to general contractor, processed certified payroll/work force tracking report and assisted office engineer in compiling proposed change order documentation for change orders. She was also responsible for transcribing/editing weekly project meeting minutes, reviewing construction

manager's subconsultant and vendor invoices for payment, interfacing with CM's Controller and City's Chief Financial Planner to resolve issues, scanning/indexing project correspondence into the Speedscan system, ordering and maintaining all office supplies for trailer and interfacing with general contractor, architect, subconsultants, and client.

San Francisco International Airport - Boarding Area G; Office Administrator: As the Office Administrator for Boarding Area G, Ms. Ward was responsible for internal clerical office management. Her responsibilities included logging and distributing incoming documents for SFIA's document control, assisting in the preparation of proposed change order documents; preparing monthly labor hour reports; preparing/editing construction and coordination meeting minutes for distribution and preparing weekly and monthly project reports. Other duties included inputting critical project action reports for apron work, maintaining daily progress report logs for the air handling units, maintaining monthly OCIP reports, reviewing and processing incoming invoices for payment and maintaining and replenishing office supplies.

The Allen Group, San Francisco, CA
Administrative Assistant: Provided administrative support to the marketing and executive management staff. Her responsibilities included
proposal coordination, graphic support, presentation development, and editing. Additionally Ms. Ward prepared outing correspondence, maintained office database,
and spreadsheet. Additional duties included, interfacing with clients, business associates, and Senior Project Manager, coordinating all clients meeting, firm luncheons and month and annual events on and off premises, organizing meeting
calendars, maintaining Employee Heath Insurance records and personnel computer
files. January 1997 - May 1999

Marlon Washington

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Skills

* MS Word
* Excel
* Adobe
* Outlook
* PowerPoint
* PeopleSoft
* Filemaker Pro
* Livelink (EDMS)
* Calendar Maintenance
* 10-key Capable

Strengths

High paced multi-tasking and organizational skills, Internet savvy, Strong attention to detail, Excellent business writing and editing ability, Workflow management

Experience

8/2007- 3/2009 Genentech, Inc. South San Francisco, CA

Document Control/Information Specialist

- Primary contact person and policy enforcer for a highly regulated environment serving engineers, technicians, mechanics
- Ensured library complied with Service Level Agreements and stayed FDA inspection ready in compliance with SOPs, record retention schedules and Genentech processes
- Performed all electronic document management workflow in Livelink for the automation engineering department
- Maintained and Archived engineering software and documentation
- Active participant in bi- monthly staff meetings and brain storming sessions

9/2006-1/2007 Golden Brands San Francisco, CA

Accounting Clerk/Customer Service Agent

- Tracked and verified the balance of incoming cash and checks daily
- Performed invoice reconciliation for Accounts Payable group
- Prepared daily bank deposit ranging between $60,000 - $250,000
- Provided consistently reliable customer service, answered/routed call phones
- Received and processed orders over the phone and in person
- Confirmed beverage discounts, inventory and drivers' bonuses

8/2004-8/2006 USCF School of Pharmacy San Francisco, CA

Administrative Assistant, Level III

- Processed Purchase Orders using PeopleSoft
- Ordered Medical Materials for Stockroom and managed all transactions using Excel
- Prepared expense reports and provided customer service support to Doctors and Lab Technicians
- Generated fiscal report and monthly recharges using Excel and Filemaker Pro
- Answered Phones, Alpha/Numeric Data Entry, Faxed, Copied, Maintained Files for Purchase Order Forms and Performed Light Bookkeeping

6/2000–4/2003 Main Library of San Francisco San Francisco, CA

Librarian Assistant

- Data Entry and filing for the Children's Center
- Catalogued books and organized shelves according to the Dewey decimal system
- Answered phones, provided directory assistance and customer service to patrons
- Performed miscellaneous administrative assignments

Education

2002-2006 San Francisco State University San Francisco, CA

- Major in Business Administration, Concentration in Management
- Completed 102 units, G.P.A 3.07

1997-2000 City College of San Francisco San Francisco, CA

- Earned A.A. emphasis on Business Administration with a G.P.A 3.14

Tanya Washington-Baines Group Inc.

(510) 238-4668

Project Engineering/Document Control

Ms. Washington has the experience in leading all aspects of project administration and construction management utilizing the skill necessary for the respective fields. Her experience in light rail project and presently doing Project Engineering and Office Administrator assignment utilizing up-to-date skills needed for varies projects. She has a working knowledge in all areas of Construction Management, with special emphasis in light rail systems. Her background includes several light rail projects with San Francisco Metro Transit Authority including direct involvement with the Muni Third Street Light Rail Extension Project, which shaped the third street corridor into a model programs in the Bayview Hunter Point business district. She worked in and out in the field with contactors, providing data needed to insure compliance; collecting, entering & monitoring all documents & material requests from various departments by vendor into the master vendor database. *She is well versed in computers and varies programs need for projects like the San Francisco Metro Transit Authority.*

Key Highlights
✓16 years construction management
✓14 years computer proficiency
✓Extensive experience in all aspects of project administration for large civil infrastructure projects, including Master Plan Program at SFIA
✓Strong computer background systems and programs, including MS Office Word, Excel, Access, PowerPoint, Outlook, American Contractor, QuickBooks, Vision, Docusphere, and Accounting Software
✓Exceptional teamwork, organizational, and communications skills
✓Proven ability to work cooperatively with contractors, sub contractors, inspectors, and the public

BIOGRAPHY:
Tanya Washington

EXPERIENCE:
16 years

EDUCATION:
Cert, Construction Management, California Department of Transportation, San Francisco, 2009
Cert, Construction Management, Community College, San Jose, 2001
AA, General Education, City College, San Francisco , 1999

LICENSE:
California Class C

CERTIFICATION/TRAINING:
Blue Print Reading, 2001
Bonding I&II, 2001

PROJECT EXPERIENCE:

EMAC II #005 & 006 Hunters Point Ship Yard-Demo Project,
San Francisco 2010-January 06, 2012-Contract Work
Project Business Administrator/ Office Engineer
The Shaw Group (Shaw Environmental E & I) is one of the lead Environmental Agencies on the Hunters Point Demolition Project which the U.S. Navy is the overseer. PBA/OE responsibilities includes managing administrative tasks for projects and staff, updating change orders for all projects based on information received from PM\'s; scanning & filing all incoming and outgoing correspondence; maintain project technical libraries; archive and retrieve documents; managing receipt, register of specifications & drawings documents using various software: produce status reports, logging & scanning & distributing all meeting agendas pertaining to the different site on the project; maintaining timecard & employee & equipment list; filing daily reports by site areas; inputting and logging soil samples data. Awareness of, and comply with all project and corporate procedures.

BART –SFO Extension, Oakland
2009-2010-Contract Work
Office Administrator
The Allen Group which was one of the subcontractors on the Bart Extension which oversee the Construction Management segment of the Project. As the role of Office administrator for this project which involved

inputting, coping, scanning and filing all documents on disk and boxing hard copies which included incoming & outgoing correspondence; site drawings, change orders, Account Payable & Account Receivable documents includes contacting venders; Assist payroll department with input & filing of weekly payroll & union reports; receive/track all Mail, FedEx and UPS shipments ,answering phones/screening calls.

Muni Third Street Light Rail Extension Project, San Francisco,
2006-2009 Project Coordinator/Office Administrator

The San Francisco Municipal Transportation Agency (SFMTA) sponsored the T-Third light rail extension project, which involved construction of a new 5.1-mile line and 18 stations for the Muni light rail system. As a member of the construction management team, managed document control and other contract administration-related activities during construction. Responsibilities involved preparing and recording meeting minutes and correspondence; reviewing and maintaining RFIs, contractor submittals, non-conformance reports, change orders, and cost request bulletins; processing field report data and union reports; processing certified payroll, payment applications, and other invoices associated with the project; ordering all plans and specifications for work out-to-bid, tracking addenda , and maintaining bid lists; managing plans, specifications and contracts; Scanning & labeling drawings and documents on a daily bases; Responsible for filing of all master and history documents within Document Control area; preparing and distributing field instructions, proposals, and change orders using Construction Project Management System (CPM); inputting inspectors' fieldwork into CPM; distributing inspector's and project manager's weekly and monthly construction progress reports; Copying and binding of large and small litigation documents; and helping to coordinate community involvement and communications.

Muni Metro East (MME) Light Rail Vehicle Maintenance and Operations Facility Project, San Francisco, 2006-2008
Project Administration/Labor Compliance Coordinator/Field Inspector

The MME Light Rail Vehicle (LRV) facility will be the main maintenance and storage facility for the Muni light rail system. The MME is located in Southeast San Francisco and is designed to serve approximately 80 LRVs within a 13-acre site. The facility includes an 180,000-square-foot (sf) maintenance building; 30,000 sf of office space; several miles of underground utilities; an Overhead Catenary System and Traction Power System, including three DC substations, shop equipment; and a vehicle washer facility. Provided construction management support in the field and at SFMTA's offices to oversee and administer all activities related to labor compliance, coordinating the efforts of the prime and multiple subcontractors. Responsibilities involved daily interface with the prime contractor to monitor work progress and subcontractor compliance; ongoing interface with subcontractors to understand issues and concerns, and answer questions; job inspections and monitoring of training and classification; documentation of field data and generation of compliance reports and site visit reports; monitoring activities with the field inspector; processing the filling and retrieval of all documents onto site data base; documenting and monitoring violations; Distribute and store documents; preparation of Workforce Summary for monthly distribution; attending Field Activity and Monthly Labor meetings and reporting to management.

Marinship Construction Services, Inc., San Francisco, 1997-2005
Payroll Administrator/Office Manager

Helped to administer a number of projects in the Bay Area for which Marinship Construction Services held responsibilities, including projects that were part of the San Francisco International Airport Master Plan Program as well as projects that were part of the San Francisco Public Utilities Commission (SFPUC) capital improvement program, such as the Geneva Avenue Underground Pipeline and Hetch Hetchy projects. In this role, was responsible for assisting contractors with complaints, questions or concerns regarding

jobsites; payroll and vendor functions (using American Contractor software); processing and compiling employee timecards, data entry, payroll reports, account reconciliation; handling financial matters, including certified payroll and union transmittals; receiving and maintaining insurance certification and bonds for a wide variety of construction projects; organizing information and preparing monthly reports; database management; administering and tracking contracts for contractors and subcontractors; managing job progress billing files; and handling all bookkeeping functions.

E&J Environmental Services, Inc., San Francisco, 1996-1997
Administrative Assistant

Supported all office management duties, including processing timesheets and expense reports, document control, processing and paying invoices, compiling reports, preparing correspondence, scheduling and coordinating meetings, and customer service interface.

Sarah Holtz Wilson, PE
Associate

SUMMARY

For over 12 years, Sarah Wilson has applied her combined experience in design and construction management to solving problems on underground projects, often with difficult ground conditions. As a project manager, she has delivered design packages on a variety of projects, including those procured with alternative delivery. As a resident engineer, she has served as the owner interface to the construction team, fulfilling extensive reporting requirements. Her experience includes tunnels, caverns, shafts, portals, and slopes in hard rock, soft rock, and soft ground for water supply, wastewater, rail transit, and highway projects. Her background in geotechnical engineering, united with a structural engineering understanding, yields a practical approach to innovative design, based on real-world constructability. She is a past president of the American Rock Mechanics Association, and her technical specialties include rock bolt design, steel set design, shotcrete design, shaft support design, settlement prediction, rock block analysis and slope stability analysis, and review of designs for steel pipe and concrete tunnel lining. Ms. Wilson has provided construction services on a number of projects, both large and small, including evaluation of ground type for ground support installation, field quality control, geotechnical instrumentation review and interpretation, review of construction submittals, responses to RFIs, and active participation in the dispute resolution process. She often serves as an extension of staff, augmenting the owner's team and providing a high level of coordination during complex construction projects.

AREAS OF EXPERTISE

- Water conveyance tunnels
- Transit tunnels and stations
- Initial support design for tunnels and shafts
- Rock mechanics
- Ground characterization
- Geotechnical instrumentation
- Specifications
- Construction means and methods

EXPERIENCE

New Crystal Springs Bypass (Polhemus) Tunnel, San Mateo, CA (2008–Present)
This $57 million seismic reliability project is the first of a suite of projects in the owner's $4.6 billion Water System Improvement Program. Construction included a 32-foot-diameter launch shaft excavated primarily by drill-and-blast methods, a 4,200-foot-long tunnel excavated by open beam tunnel boring machine (TBM), and an 18-foot-diameter receiving shaft. The initial support for the launch shaft was soldier piles and lagging as well as ring beams in the overburden, transitioning to rock dowels and shotcrete in rock. Tunnel initial support was 4-piece rings of precast concrete segments. Steel pipe (96 inches in diameter) was installed in the tunnel and shafts, as well as at the surface, to connect the project to existing pipelines. Existing pipelines

were partially replaced during time-critical shutdowns of portions of the water system during the winters of 2009–2010 and 2010–2011. The main construction site was surrounded by single family homes, and stringent dust control, storm water pollution prevention control, and continuous noise and vibration monitoring are required. The site could also serve as habitat for federally listed species, necessitating the implementation of exclusion fencing, worker environmental training, and significant environmental monitoring effort. As the construction manager for this project, Ms. Wilson had primary responsibility for administration of the construction contract. She also managed the project management/contract management (CM) staff, including 11 subconsultants and two City of San Francisco staff. Additionally, she audited quality plans to assure all construction work was completed in conformance to the contract documents and quality management plans; monitored environmental activities to insure compliance with requirements and procedures; managed all monthly progress reporting and invoicing activities; reviewed schedules, costs, and change orders; assisted with public outreach efforts; and audited all construction documentation and records for contract and program compliance. She provided training as required to the project CM staff regarding all phases of tunnel construction, heavy civil construction, and construction management processes and practices. She also received multiple trainings in CMIS, supervised the CM team's use of CMIS, feedback to the program manager on CMIS development, and transition to CMIS v13 in 2011. This project achieved final completion on time and came in under budget.

Pipeline No. 6 South Reach Tunnel Feasibility Study, Riverside and San Diego Counties, CA (2007–2008)
Ms. Wilson was the project engineer for this feasibility study, which was conducted to assess tunnel alignment alternatives for the south reach of Metropolitan Water District of Southern California's San Diego Pipeline No. 6. The alternative tunnel alignments vary from 4.5 to 6.5 miles in length. Each alternative is anticipated to encounter strong granitic rocks consisting of granodiorite, gabbro, and tonalite. Ms. Wilson's duties included project and subconsultant management, management of the geotechnical investigation, risk assessment, and conceptual engineering for pressure tunnels.

Systems Conveyance and Operations Program (SCOP) Reach 3 Tunnel, Clark County, NV (2008)
Ms. Wilson evaluated shaft excavation and initial support means and methods for two shafts approximately 125 feet deep and 25 to 45 feet in diameter in sedimentary rock; she then finalized a technical memorandum documenting these studies. She also reviewed technical memoranda on tunnel initial support and staging area and access requirements. The Clean Water Coalition's SCOP Project i includes overland pipeline and tunnels, a 77 million gallon per day (mgd) pump station, a power generating station, and diffuser pipelines to convey treated effluent from member agency wastewater plants to Lake Mead. Jacobs Associates provided tunnel design services for the Reach 3 Tunnel Project, which includes about 5,600 feet of 120-inch ID lined pressure tunnel, two shafts, and about 40 feet of pipeline constructed in open cut.

Perris Valley Pipeline, North and South Reaches, Riverside County, CA (2007–2008)
As part of an on-call tunnel design services contract with the Metropolitan Water District of Southern California, Ms. Wilson served as the project manager for multiple task orders involving specification review, submittal review, and geotechnical baseline report (GBR) preparation, for

which she had primary responsibility. These projects include multiple jack-and-bore undercrossings in alluvial soils.

Robert B. Diemer Filtration Plant, Yorba Linda, CA (2007–2008)
As part of an on-call tunnel design services contract with the Metropolitan Water District of Southern California, Ms. Wilson served as the project manager for two task orders for the Diemer Plant. For the first task order, Ms. Wilson and the project team performed an independent evaluation of rock mass strength in the Fernando Formation for use in numerical modeling. For the second task order, Jacobs Associates provided a construction cost estimate and schedule for a 1,150-foot-long rejection conduit with a 700-foot-long tunnel segment at the plant.

Caldecott Improvement Project, Oakland, CA (2006–2008)
This fourth bore of the Caldecott Tunnel, which runs through the Oakland Hills, will relieve traffic congestion along State Route 24. The 49-foot-wide tunnel will accommodate two lanes, two shoulders, and an emergency walkway. It is approximately 3,400 feet long, traversing through highly fractured sedimentary rock (mudstone, shales, sandstones, and chert), which has undergone extensive folding and faulting. Ms. Wilson consulted for the project team regarding regional geology, Cal/OSHA tunnel classification, environmental and noise issues, and constructability issues. She also was responsible for review of the tunnel muck disposal specification.

Lenihan Dam Outlet Modification Project, Los Gatos, CA (2005–2007)
Ms. Wilson was the deputy project manager for a new reservoir outlet facility for this Santa Clara Valley Water District project. She was responsible for coordination and technical content of the contract drawings and specifications, risk assessment, constructability review, and review of and input to Division 1 Specifications. She also reviewed contractor tunnel excavation and support submittals. Jacobs Associates was the lead consultant for design and construction support for this project, which consists of a new 2,000-foot-long outlet tunnel under the right abutment of the existing dam through variable Franciscan Formation rock. The 12-foot-diameter horseshoe tunnel was excavated by roadheader and drill-and-blast methods. The final lining is cast-in-place concrete with a steel conveyance pipe. A multiport sloping intake provides variable inlet control based on reservoir operations and future sedimentation projections. Some preexcavation grouting was required to control seepage, and construction was sequenced so that the inlet and tunnel connection construction in the active reservoir occurred during a limited drawdown period during the summer and fall of 2008. This project has won several awards, including the Best of 2010 Civil/Public Works Award from *California Construction Magazine*, and the Marvin M. Black Excellence in Partnering Award (Special Recognition Winner from the Associated General Contractors of America, 2010).

Claremont Tunnel, Alameda and Contra Costa Counties, CA (2004–2007)
Ms. Wilson was the assistant resident tunnel engineer for this East Bay Municipal Utility District project. Serving as the primary interface for the owner, contractor, and team members in the field, she also coordinated all construction submittals and RFIs, and managed a team of inspectors during a shutdown of the existing treated water tunnel. Two shutdowns of the existing tunnel facilitated concrete repair and contact grouting. This project also included design and construction of a bypass tunnel to accommodate up to 8.5 feet of seismic displacement through

the Hayward Fault Zone. The tunnel was excavated by a combination of roadheader and drill-and-blast methods through variable ground, including Franciscan mélange and serpentinite. During the design phase of this project, Ms. Wilson coordinated sequential excavation drawings for the fault zone, interpreted geologic maps of the area, and designed the geotechnical instrumentation program. She also coordinated design review comments from the owner. This project won the Award of Special Innovation in 2006 from the San Francisco Section of the American Society of Civil Engineers and the national 2009 Charles Pankow Award for Innovation.

Ames Mine Lime Creek Access, Ames, IA (2006)
Ms. Wilson provided design review for permanent tunnel support design for two declines, each 425 feet in length, with an excavated span of 25 feet. The declines were driven through shale and limestone for Martin Marietta Aggregates' limestone mine, and tunnel support consisted of rock dowels or steel sets with shotcrete.

Muni Metro New Central Subway Preliminary Engineering, San Francisco, CA (2003–2005)
Ms. Wilson reviewed the design criteria and developed a preliminary geological profile for the purpose of setting the preliminary vertical alignment of this project. The project involves design of a subway with 1.7 miles of new track, four new underground stations, and one new surface station. The project requires tunneling in both soil and rock through the heart of downtown San Francisco. The subsurface conditions span a diverse spectrum ranging from saturated alluvial soils to cemented sand and weathered to fresh bedrock. Major design and construction issues include the need to minimize community disruption and manage tunneling risks. Tunneling in soil is anticipated to be completed using earth pressure balance machines (EPBMs). Track crossovers, turnouts, and at least one station will be constructed by the New Austrian Tunneling Method (NATM) using shotcrete and various presupport and ground improvement techniques. Weak rock reaches of the project in Chinatown, including a mined station, are expected to be excavated by roadheaders.

Upper Chattahoochee/Richland Creek Interceptor Extension, Buford, GA (2003–2004)
The Phase 2 Tunnel for this project is a deep rock tunnel approximately 5,700 feet long and 8 feet in diameter, and was constructed by drill-and-blast methods to transport wastewater downstream to the existing Level Creek Pump Station. Ms. Wilson performed alternative rock bolt designs for excavations of different geometries for the contractor during construction, including calculations, drawings, and a specification.

Walnut Creek—San Ramon Valley Transmission Improvements Project, CA (2001–2004)
Ms. Wilson was the project engineer for both the design and construction support phases of this project. She oversaw all submittal review, provided technical support, and performed construction inspections. She was responsible for interpreting geotechnical data and reports, preparing the geotechnical baseline report, designing the geotechnical instrumentation program, predicting surface settlement due to tunneling, and setting the tunnel's vertical alignment in response to geotechnical site conditions. Ms. Wilson also coordinated preparation of all contract drawings and specifications. This project included approximately 5 miles of 69-inch-diameter water conveyance pipeline to supplement existing transmission pipelines. The pipeline was

placed using three types of excavations: TBM excavation of a 4,400-foot-long, 10-foot-diameter tunnel; microtunnel crossings; and open-cut excavations.

Middle Fork Surge Shaft, Placer County, CA (2003)
This project is for the rehabilitation of a 600-foot-deep surge shaft to prevent leakage and degradation of the lining. The existing concrete lining is heavily compromised, resulting in its structural failure and leakage to the surrounding environment. Ms. Wilson developed a number of reinforced concrete design specifications and an access roadway specification for access through two U.S. National Forests for this project.

Northeast Interceptor Sewer (NEIS), Los Angeles, CA (2003)
Ms. Wilson implemented revisions to the final design during construction, including final lining and instrumentation, and assisted with project management. She also produced specifications and reviewed owner-produced design drawings for the Lower North Outfall Sewer portion of this project. This project consists of approximately 6 miles of 13-foot excavated diameter tunnel excavated by a combination of earth pressure balance (EPB) tunnel boring machines and a full-face weak rock tunnel boring machine. The machines were all driven from deep shafts supported by slurry walls. Acting as the lead for a team of 16 subconsultants, Jacobs Associates provided both preliminary and final designs for the NEIS project.

Wilson Tunnel Improvements, Honolulu, HI (2002–2004)
Ms. Wilson assisted the project manager in developing design criteria and reviewing construction submittals for remedial tunnel work. Built in the 1950s as one of the major highway crossings of the Koolau Mountains between Honolulu and the windward coast of Oahu, the Wilson Tunnel consists of twin bores. Each bore carries two-lane traffic with a roadway width of 24 feet. The tunnels are about 0.5 mile in length and have a semitransverse ventilation system. Groundwater leakage has been persistent for many years. This project consisted of remediation of remediation of tunnel lining cracks and leakage and improvement of wall finishes.

San Vicente to Second Aqueduct Pipeline and Surge Facility Project, San Diego, CA (2002–2003)
This water supply project is a pressure tunnel in hard rock in suburban and mountainous terrain. Ms. Wilson assisted the quality assurance (QA) manager with conducting QA audits of the project's technical submittals, including ensuring that quality control (QC) checkers had relevant qualifications and experience, and verifying that the procedures in the QA/QC PLAN were being implemented for progress design submittals.

Blue Ridge Dam Low Level Outlet, Blue Ridge, GA (2002–2003)
Ms. Wilson was the lead geotechnical engineer on the Blue Ridge project. She provided support to the project manager in all aspects of design, including construction blasting, tie-backs for slope stability for a 50-foot-high rock cut at the outlet, and initial ground support for the tunnel and inlet. Her responsibilities also included visiting the site, interpreting the geotechnical data report and raw data, and preparing the geotechnical baseline report. This project consisted of a new steel-lined, 9-foot-diameter (12-foot excavated diameter), 1,000-foot-long water discharge tunnel running under the left abutment of an existing Tennessee Valley Authority dam. The tunnel was constructed primarily through moderately weathered metamorphic rock using drill-

and-blast methods. The inlet was constructed "in the wet" by employing a 35 by 46 foot steel cofferdam with a design height in excess of 70 feet. The connection from the tunnel to the bell-mouth inlet was made using a raise-driven pilot method, and the outlet consists of a cast-in-place concrete building that provides housing for a bifurcation, two sets of flow control valves, energy dissipation chambers, and all associated electrical and mechanical controls.

Perrell Wine Cave, Los Altos Hills, CA (2002–2003)
As project engineer, Ms. Wilson provided design, design oversight, production of drawings, and construction inspection for this 1,000 square foot wine cave and portal slope constructed by roadheader in blocky, weathered rock. Relatively low cover over the excavation, especially at the portal, was a major consideration in the design of the cave. Another factor, the tie-in of the project to a new building, called for coordination with both the owner and its architect.

Vulcan Materials CalMat Conveyance Tunnel, Pleasanton, CA (2001–2003)
This project is a 12-foot-diameter, 1,000-foot-long water tunnel connecting two quarries underneath a mainline railroad. Jacobs Associates performed a review of the contractor-submitted design for Zone 7 Water Agency. Ms. Wilson was the project engineer, providing review of the geotechnical report for tunnel design and construction aspects, review of the steel set tunnel lining structural design, surface settlement analysis due to tunnel construction, review of the geotechnical instrumentation and monitoring program, and assessment of long-term durability and maintenance requirements for the tunnel lining.

Palmaz Winery Fermentation Dome, Napa, CA (2000–2003)
Jacobs Associates performed the design and construction sequencing of this 52-foot-high by 75-foot-wide wine cave with an 8-foot-wide walkway that circles along the inner edge of the dome and is elevated 20 feet from the invert. The cave was constructed by roadheader and drill-and-blast methods as a dome in approximately 45-foot-deep lahar, a soft rock consisting of mudflow of volcanic ash and dust. Ms. Wilson was involved in planning the geotechnical investigations, determining the dome's geometry and New Austrian Tunneling Method (NATM) sequential excavation and support sequence, and designing a tunnel support system consisting of rock dowels and reinforced shotcrete lining. She was also the engineer of record for tunnel portals with slope support, as well as soil nail walls and a retaining wall to support excavations on the project site, and interpreted all geotechnical instrumentation data. She performed regular construction inspections, ensuring that construction adhered to design drawings and design modifications during construction.

PR-53 Highway Extension, Maunabo, Puerto Rico (2002)
Ms. Wilson assisted the project manager in a highway tunnel feasibility study and construction cost estimate. PR-53 is the last segment of a highway that, upon its completion, will circle the entire island of Puerto Rico and join the communities of Patillas and Maunabo. This last segment of highway presents the challenge of being built through an environmentally sensitive area that provides a habitat to several endemic, endangered species. One of the options for this highway was to construct a tunnel through this sensitive area, thereby avoiding the habitat disruption that would be caused by an overland route. The proposed 2.4-kilometer-long twin bore tunnels with two highway lanes in each bore would be constructed by drill-and-blast excavation through hard rock formations under a mountain ridge.

Eastside Light Rail Transit Project, Los Angeles, CA (2000–2002)
The project consists of 2 miles of tunnels in soft ground excavated by earth pressure balance machine with a one-pass segmental final lining. Ms. Wilson performed review of predicted settlement analysis for the cut-and-cover tunnel construction, and assisted with the development of building protection measures and requirements in the contract documents.

Dulles Pedestrian Walkback Tunnel, Dulles, VA (2000–2001)
Ms. Wilson assisted with on-call engineering consulting services for the contractor after the collapse of a tunnel being constructed by the New Austrian Tunneling Method (NATM). This work included review of owner-supplied NATM design, loading on the excavation, and construction recovery methods.

Upper Diamond Fork Project, Provo, UT (2000–2001)
Ms. Wilson performed hard rock numerical modeling and rock bolt design for a drill-and-blast underground chamber for this design-build water conveyance project for the Central Utah Water Conservancy District. The project included 22,700 linear feet of 126-inch finished diameter tunnel. Other elements of the project were: a 700-foot-deep drop shaft, a 700-foot deep maintenance shaft, an underground chamber, a reinforced concrete flow control structure with two 48-inch-diameter submerged sleeve valves, a reinforced concrete outlet structure, 6,400 linear feet of 96-inch ID steel pipeline connecting the flow control structure to an existing pipeline, and 1,200 linear feet of 72-inch ID pipeline for emergency bypass flow.

Guadalupe Quarry Rock Slope Stability Evaluation, Brisbane, CA (2000)
Ms. Wilson assisted the project engineer in evaluating rock slope stability hazards associated with the conversion of a massive aggregate quarry into a residential subdivision. The conversion plan required extreme care in order to protect property and residents from rock falls and other failures that could develop along constructed slopes reaching heights of 600 feet. She assisted in geologic mapping of the quarry and conducting rock mechanical analysis to establish preliminary mitigation measures for rock slope instability. The final product of the analysis was a set of detailed design-level recommendations.

Alvarado Trunk Sewer Replacement, San Diego, CA (2000)
For legal counsel, Ms. Wilson assisted the project manager with a standard of care evaluation for the geotechnical investigation, as well as an assessment of prebid and as-built boreability conditions for mechanized tunneling by TBM.

Westline Drive Utility Relocation, Daly City, CA (2000)
This project involved the installation of new utilities to replace old ones decommissioned as the result of a 500,000 m^3 coastal landslide complex within the San Andreas Fault Zone. Ms. Wilson was responsible for the feasibility study, investigating both horizontal directional drilling and microtunneling. The project constraints involved proximity (less than 10 feet) to single family homes and low ground cover.

MetroWest Water Tunnel, Boston, MA (1999–2002)
Ms. Wilson supervised and performed the review of contractor submittals for this project. During the design phase, she also determined the rock deformation modulus for use in reinforced concrete design for approximately 3,000 feet of tunnel through hard, metamorphic rock. Using in situ testing results and geologic maps, she determined the design moduli, which were then verified by an expert specialty subconsultant. This project included a 14-foot-diameter, pressurized, concrete lined, deep, hard rock tunnel. This 17-mile-long tunnel provides domestic water supply for the Massachusetts Water Resources Authority in the Boston area.

Tren Urbano–Río Piedras Contract, San Juan, Puerto Rico (1999–2001)
Ms. Wilson provided design and coordination support to Jacobs Associates' resident design engineer for the Río Piedras Contract, which consists of a 1,500-meter-long underground rapid transit guideway with two underground stations in soft ground. Ms. Wilson was responsible for supervising and providing review of all contractor submittals. In this capacity, she responded to field requests and field design memoranda to ensure that the contractor's proposed changes met the design intent. Ms. Wilson was also responsible for coordinating with systems design, producing contract drawings, reviewing geotechnical instrumentation, collecting data, reviewing and verifying structural and geotechnical design for three tunnel sections, and calculating train clearances in the tunnels. Her field responsibilities included verification of station excavation sequencing and geotechnical instrumentation placement as well as quality control activities such as coordinating visual inspection for selection of concrete cores for QC testing. Jacobs Associates provided all tunnel design as part of the design-build team. These tunnel sections required three distinct construction methods, one of which resulted in a 17-meter-wide by 19-meter-high underground station that is one of the largest tunnels ever constructed in soft ground. This project also included four NATM and twin circular tunnels excavated by an earth pressure balance machine and lined with a one-pass concrete segmental lining.

Inland Feeder—Arrowhead Tunnels, San Bernardino, CA (1999)
Ms. Wilson assisted with primary lining (precast concrete segments) and final lining (welded steel) design, and groundwater inflow control measures and grouting design for this project.

PRIOR EXPERIENCE

University of California at Berkeley, Berkeley, CA (1998–1999)
As a graduate student researcher, Ms. Wilson interpreted seismic data for use in system identification research, field-checked seismic arrays and topographic conditions, and filtered and modeled data.

City of San Jose, Department of Public Works, San Jose, CA (1997)
As an engineering intern in the Development Division, Ms. Wilson reviewed public improvement, grading plans, and field site conditions for projects ranging from parking lots to large housing tracts including utility location plans. In addition, she assisted senior geologists in the inspection of geologic fault setback zones and advised the public regarding procedure. Ms. Wilson received a commendation for maintenance district maps created for use in City Council meetings.

Pennoni Associates, Inc., Consulting Engineers, Philadelphia, PA (1996–1998)
As an environmental engineering technician, Ms. Wilson gained experience working on soil and groundwater remediation projects, asbestos abatement, and Phase I Environmental Site Assessments. She wrote and edited correspondence, reports, and specifications, and performed groundwater contaminant fate and transport modeling and calculations. In addition, Ms. Wilson carried out field investigations and acted as a company liaison for clients, laboratories, and agencies.

Delaware Valley Regional Planning Commission, Philadelphia, PA (1995)
As an engineering assistant in Transportation Planning, Ms. Wilson issued reports and prepared meetings with consulting firms and transportation agencies. In addition, she analyzed traffic data, prepared graphics, and worked with geographic information systems and smart highway networks to interpret intermodal facility evaluations and public transportation opinion surveys.

EDUCATION

MS, Geotechnical Engineering, University of California at Berkeley, California, 1999
BS, Civil Engineering, Drexel University, Philadelphia, Pennsylvania, 1998

PROFESSIONAL REGISTRATION

Registered Professional Civil Engineer: California, 2001 (#62324)

SHORT COURSES/SEMINARS

WSIP CM Orientation Training, SFPUC
Tunnel and Underground, 8-hour Safety Training, EBMUD
Tunnel and Underground, 8-hour Safety Training, City of Los Angeles DPW
ACI Seminar on Reinforced Concrete Design
ASCE Short Course on Construction Blasting and Risk Management
Short Course on Structural Design, University of Wisconsin–Madison
PanTechnica Short Course on Key Block Analysis
Primavera Short Course on SureTrak Project Manager
CMAA Short Course on Project Labor Agreements

PROFESSIONAL ASSOCIATIONS

American Rock Mechanics Association:
- Past President, Board of Directors
- Technical Program Cochair, 2006 Symposium
- Conference Chair, 2008 Symposium
- Session Chair, 2001, 2006, 2008, and 2009 Symposia

American Society of Civil Engineers Rock Mechanics Committee
Underground Construction Association of the Society for Mining, Metallurgy & Exploration
- Session Chair, RETC 2009

Association of Environmental and Engineering Geologists

International Society for Rock Mechanics
Order of the Engineer
U.C. Berkeley Geotechnical Society

TEACHING

University of California at Berkeley, Berkeley, California (2000–Present)
Ms. Wilson is a regularly invited industry lecturer in the geotechnical engineering program.

University of California at Berkeley, Berkeley, California (1998–1999)
As a graduate student instructor, Ms. Wilson assisted in the instruction of geological engineering. Her primary responsibilities included reviewing written assignments, interacting with students during office hours, and conducting review sessions.

AWARDS

Certificate of Appreciation, Claremont Tunnel Seismic Upgrade Project successful completion, presented by East Bay Municipal Utility District, June 2007
Certificate of Appreciation, Claremont Tunnel Seismic Upgrade First Winter, presented by East Bay Municipal Utility District, May 19, 2005
University of California at Berkeley Full Fellowship for Graduate Study, 1998–1999
Anthony J. Drexel Tuition Scholarship, 1993–1998
Drexel University Alumni Outstanding Senior Award, 1998
Drexel University Senior Vice President Leadership Award, 1997

PUBLICATIONS

Berry, T., and S.H. Wilson. 2011. Variable ground conditions, design issues, and construction challenges on the New Crystal Springs Bypass Tunnel. In *2011 Rapid Excavation and Tunneling Conference Proceedings.* Englewood, CO: Society for Mining, Metallurgy, and Exploration, Inc.

Wilson, S.H., T. Brown, and V. Romero. 2011. Ground-borne vibration measurements of drill-and-blast excavation, sheet pile installation, and TBM excavation in sandstone and shale mélange. In *2011 Rapid Excavation and Tunneling Conference Proceedings*. Englewood, CO: Society for Mining, Metallurgy, and Exploration, Inc.

Wilson, S.H., D.F. Tsztoo, C.R. Handford, and K. Rossi. 2008. Safeguarding a lifeline. *Civil Engineering Magazine* 78(5).

Wilson, S.H., D.F. Tsztoo, C.R. Handford, and K. Rossi. 2007. Excavation and support of a water tunnel through the Hayward Fault Zone, *2007 Rapid Excavation and Tunneling Conference Proceedings, Toronto, Ontario, Canada*.

Wilson, S.H., R.J. Caulfield, and D.F. Tsztoo. 2006. Engineering geology of a tunnel through the Hayward Fault Zone. *Geological Society of America Abstracts with Programs* 38(7).

Holtz, S.C., and V.S. Romero. 2001. Design and construction of a large-diameter wine cave in weak rock. In *D.C. Rocks, the 38th U.S. Rock Mechanics Symposium Proceedings*. Rotterdam: A.A. Balkema Publishers.

Sancio, R.T., R.B. Sancio, and S.C. Holtz. 2000. Slope stability analysis in soft rocks. In *8th International Symposium on Landslides Proceedings*. Rotterdam: A.A. Balkema Publishers.

Michael Wolski, P.E., G.E.
Senior Project Engineer

SUMMARY

Mr. Wolski has more than 20 years of experience in geotechnical engineering and 10 years specialized in the evaluation, design, and construction monitoring of tunnels. Tunnel projects include water supply, wastewater, pressure tunnels, pedestrian tunnels and wine storage caves, and micro-tunnels. As project engineer, he managed geotechnical investigations, wrote tunnel design reports, feasibility reports, performed analysis and design, and prepared engineering plans and specifications. Engineering services performed during construction include geotechnical observations, interpretation of geotechnical and structural instrumentation, and contract compliance. His engineering skills include the ability to investigate, analyze and design tunnels, portal structures, shotcrete, soil nails, tie-backs, and foundations. His extensive geotechnical experience includes expertise in liquefaction analysis, site specific ground motion response, slope stability, rock-slope stability, rock-fall protection, retaining walls, mechanically stabilized earth, soil nail and shotcrete walls, tie-back walls, expansive soils, consolidation, deep foundations, post-tensioned slabs, and mat foundations.

AREAS OF EXPERTISE

- Geotechnical Instrumentation
- Construction Monitoring
- Geotechnical Evaluation
- Ground Characterization
- Sequential Excavation Method (SEM) for Tunnel Support
- Slope Stability Analysis and Support Design
- Soil Nail/Rock Bolt and Shotcrete Design
- Tunnel Evaluation and Design

EXPERIENCE

New Irvington Tunnel, Alameda County, California
As part of the San Francisco Public Utilities Commission's (SFPUC) Water System Improvement Program's (WISP) system-wide level-of- service goals, a new 10-foot diameter, 3.5-mile-long tunnel is being constructed parallel to and south of the existing Irvington Tunnel. The tunnel connects the Alameda Siphons in the Sunol Valley to the Bay Division Pipelines in Fremont. The tunnel is located between two active faults – the Hayward and the Calaveras Faults, and will cross four other fault zones. The new Irvington Tunnel will provide system redundancy in the event of a failure of the existing Irvington Tunnel due to a seismic event. The existing tunnel carries about 85 percent of the SFPUC water supply to the Bay Area. Temporary support of both tunnel portals consists of soil nails and shotcrete. The Alameda portal wall has a maximum height of about 50 feet and the Irvington portal wall is about 35 feet. Movement of the north wall at the Alameda Portal was observed during construction as evidenced by inclinometer readings and optical surveys. Similar issues were encountered at the Irvington Portal wall as well as over-steepened slopes above the portal. Mr. Wolski provided geotechnical expertise to analyse the instrumentation readings, evaluate the wall stability, design remedial measures and recommend modifications to the contractor's means and methods to accomplish a stable excavation. Changes to the drilling method and

strict adherence to the specified construction sequence resulted in successful completion of the excavations.

New Crystal Springs Bypass (Polhemus) Tunnel Project, San Mateo, California
This $ 56 million project is the first in a series of seismic reliability projects in the Water System Improvement Program. The original pipeline is a 96-inch prestressed concrete cylinder pipe (PCCP) that was installed in 1969 below the hillside along Polhemus Road, and is threatened by a landslide and seismic shaking. This pipeline is a critical link in the transmission system, carrying water from the East Bay to San Francisco Peninsula cities. The new bypass pipeline consists of an 8-foot-diameter steel pipe installed in a 4,200-foot-long, 12-foot excavated diameter tunnel. Constructed between two shafts up to 150 feet deep, the tunnel was driven by a TBM and supported with precast segments through highly variable Franciscan Complex rock. As part of the CM team, Mr. Wolski provided quality assurance during the installation of the new surface pipeline and structures at the south shaft. The temporary shoring for the 250-foot long, 20-foot deep trench consisted of sheetpiles with tiebacks and/or walers and struts. Strict vibration limits and specialized installation methods were necessary to drive sheetpile within two feet of the sensitive PCCP. Mr. Wolski monitored vibration during driving, observed installation and testing of tiebacks, measured convergence between shoring walls, and observed subgrade conditions beneath thrust blocks and structure foundations.

District of Columbia Water and Sewer Authority (DCWASA) Combined Sewer Overflow (CSO) Long Term Control Plan (LTCP) Project
The Blue Plains Tunnel is the first tunnel segment to be designed and constructed in the $2.4 billion LTCP. The 23-foot diameter, 23,600-foot long tunnel will capture, convey, and store combined sewer flows. The Blue Plains Tunnel will be constructed in soft ground, 100 feet below grade with nearly half of the tunnel alignment directly below the Potomac and Anacostia rivers. Five deep and large- diameter shafts will convey the CSO to tunnel level. Mr. Wolski wrote Technical Memoranda for Seismic Design and Potential for Encountering Hazardous gas; wrote the Geology, Hydrogeology, and Shaft Design and Construction Considerations sections of the draft Geotechnical Baseline Report; consulted with the geotechnical staff regarding ground characterization and preparation of the Geotechnical Data Report; reviewed and provided direction for consultants Hydrology Report.

DCWASA Cross-Town Tunnel Rehabilitation Project, Washington, D.C.
The Cross-Town Tunnel, completed in 1984, is a 13,100 foot long, 7 foot inside-diameter, treated-water transmission tunnel. After 24 years of service, leakage was detected on the pavement and adjacent slopes of Rock Creek Parkway. The concrete-lined tunnel has low ground cover where it passes below Rock Creek. The tunnel rehabilitation will include the installation of a 6-foot diameter steel lining along an 800-foot long section of the tunnel and the demolition and reconstruction of the 26-foot diameter 25th Street Shaft. Mr. Wolski wrote the project specifications and reviewed the design report and preliminary design drawings.

Oakdale Irrigation District (OID), canals, tunnels and shafts, Knights Ferry, CA
Mr. Wolski was a member of a team of engineers and geologists working to identify and evaluate the hazards and provide feasible improvement alternatives for this aging water supply in the steep Stanislaus River Canyon. This section of the canal system is nearly 8 miles long with 12 tunnels. Due to high rockfall hazard, a 5,850 foot long bypass tunnel (Two-mile Bar Tunnel) was recommended. Mr. Wolski prepared preliminary design plans for

the Two-Mile Bar Tunnel and rehabilitation plans for the 7,128 foot long Cape Horn Tunnel. As project engineer for portions of this multi-phase project, Mr. Wolski performed tunnel and canal inspections, oversaw geotechnical subsurface investigations, prepared reports, technical specifications, and improvement plans for the canals, tunnels, portals, and shafts.

South San Joaquin Irrigation District (SSJID) canals and tunnels, Knights Ferry CA.
As project engineer, Mr. Wolski prepared the Hazards Identification Report and subsequent improvement plans. This water supply system is on the north side of the Stanislaus River, opposite the OID system described above. The Joint Main Canal section is 3.6 miles long with 4 tunnels. He prepared rehabilitation plans for the Long Tunnel (3,467 feet), Copper Tunnel, and Gable Tunnel and Ram Tunnel.

Stanford University Stadium tunnels, Stanford, CA
Three tunnels were planned through the existing embankment fill as part of the fast-paced tear down and rebuild of the stadium. Mr. Wolski conducted a tunnel exploration program and wrote a Tunnel Design Report including engineered plans and specifications, analysis and calculations for the tunnels and portals. He provided weekly engineer visits during construction.

Stanford University Practice Gym, temporary tunnel shoring, Stanford, CA
As an underground connection between the new Practice Gym and the existing Maples Pavilion, this 92-foot long tunnel passes under existing foundations and continues directly below the concrete floor slab of the entry level. As project engineer, Mr. Wolski designed the temporary shoring plans, and specifications. He utilized micropiles to underpin the foundations and soil nails and shotcrete to support the tunnel walls. He provided field engineering during weekly tunnel visits.

East Bay Regional Park District, Black Diamond Mines Regional Preserve, B South Ground Control Systems, Antioch, CA
Mr. Wolski was on the inspection team evaluating the ground stability in the mine. The district plans to lengthen an interpretive tour route in the Hazel-Atlas Mine. As project engineer, he prepared a conceptual design and preliminary cost estimate report. He designed final plans and specifications for the ground support and observed construction on weekly site visits.

Fountain Grove Underground Structure, Santa Rosa, CA
The historic round barn was to be extensively renovated with an elevator shaft planned below the barn, connecting to a wine cave with two portals. Mr. Wolski prepared a design report which included supplemental subsurface testing and sampling, design and analysis of the tunnel, shaft and portals, and engineered plans and specifications.

Tunnel Design Reports for Wine Storage Caves
These design reports prepared by Mr. Wolski generally include a geotechnical investigation, tunnel analysis and design, and tunnel plans and technical specifications:

Gainey Wine Cave, Buellton, CA	Halter Ranch Vineyards, Paso Robles, CA
Drum Canyon Vineyards, Buellton, CA	Quady North Winery, Jacksonville, Oregon

Geotechnical Engineering and Tunnel- Related Winery Projects

Castello di Amorosa Winery, Calistoga, CA

This newly constructed landmark structure sits on a 30-foot deep canyon fill. The site was reconstructed using on-site soil mixed with cement and placed as a cement-treated fill. This pad supports a heavy, reinforced concrete winery building with a stone facing, resembling a Tuscan Castle, complete with wine caves and dungeons. Foundation piers were drilled into hard volcanic rock to support a tower addition. Mr. Wolski provided on-going geotechnical services including geotechnical exploration, construction observation, development of design alternatives, and foundation recommendations.

Bravante Vineyards, Angwin, CA
Mr. Wolski performed the geotechnical investigation for the winery building and portal walls, prepared plans and specifications for soil nail and shotcrete walls, and provided design criteria for micro-pile foundation.

Pillar Rock Winery, Yountville, CA
The proposed winery site is located below an area determined to have a moderate to high risk of debris flow. Mr. Wolski prepared the geotechnical report and provided recommendations to mitigate the debris flow hazard.

Vineyard 29/ McMinn Estate, St. Helena, CA
As project engineer, Mr. Wolski designed a debris flow catchment fence using Geobrugg systems.

Napa Valley Reserve (NVR), St. Helena, CA
Mr. Wolski has provided on-going geotechnical and tunneling consultation during this project. He designed portal walls and temporary support for deep trenches along the tunnel centerline.

Brassfield Winery, Clearlake Oaks, CA
Mr. Wolski designed the soil nail/shotcrete portal walls, interpreted tunnel liner instrumentation, and designed tunnel stabilization measures.

Ferrari-Carano Tre Monte Winery, Geyserville, CA
Mr. Wolski prepared the geotechnical report, designed the cave portal and site walls, and provided geotechnical consultation regarding the highly expansive site soils.

Stone Estate Art Cave, St. Helena, CA
As project engineer, Mr. Wolski designed the portal walls and consulted regarding difficult ground conditions and seepage.

Additional Winery Buildings, Wine Storage Caves, Soil Nail/Shotcrete Portal and Site Walls
Annapurna Winery ♦ Arkenstone Winery ♦ Arroyo Creek Vineyards ♦ Azalea Springs Winery ♦ Barnett Vineyards ♦ Bravante Vineyards ♦ Blankiet Vineyards ♦ Boeschen Vineyards ♦ Brassfield Winery ♦ Brown Estate Vineyards ♦ Bruno Cellars ♦ Bryant Family Vineyards ♦ Carlston Family ♦ Castello Amorosa Winery ♦ Chehalem Winery ♦ Christensen Estate ♦ Cimarossa Winery ♦ Cliff Lede Vineyards ♦ Dancing Hares Winery ♦ Darioush Winery ♦ Del Dotto Vineyards ♦ Dierberg Winery ♦ Drum Canyon Vineyards ♦ Ehlers Estate ♦ El Retiro Winery ♦ Ferrari-Carano Tre Monte Winery ♦ Fleming Winery ♦ Flora Springs Winery♦ Frazier Winery ♦ Freeman Winery ♦ Gainey Vineyard ♦ Gargiulo Winery ♦ Hans Fahden Winery ♦ Heitz Wine Cellars ♦ Halter Ranch Winery ♦ Hanzell Vineyards ♦ Hundred

Acre ♦ Indian Rock Vineyards ♦ Jordan Failla Winery ♦ Kathryn Hall Winery ♦ Keever Vineyards ♦ Kenzo Winery ♦ Ladera Winery ♦ La Jota Winery ♦ Lake Ridge Winery ♦ LSS Winery ♦ Lynmar Winery ♦ Maldonado Winery ♦ McMinn Estate ♦ Murphy Winery ♦ Napa Valley Reserve ♦ Neyers Vineyards ♦ Nemerever Winery ♦ Niebaum-Coppola Estate Winery ♦ Oakford Vineyards ♦ Olney Winery ♦ O'Shaughnessy Estate Winery ♦ Phelan Vineyards ♦ Joseph Phelps Vineyards ♦ Phillips (Screaming Eagle) Winery ♦ Pillar Rock Winery ♦ Plumpjack Howell Mountain Winery ♦ Quady North Winery ♦ Renteria Estate ♦ Robert Young Winery ♦ Rudd Estate Winery Schramsberg Vineyard and Cellars ♦ Six Sigma Vineyard ♦Skipstone Ranch♦ Sloan Winery ♦Smith Winery ♦ Somerston ♦ Stag's Leap Wine Cellars ♦ Staglin Family Vineyards ♦ Stone Estate Art Cave ♦ Terra Valentine Winery ♦ Tom Eddy Winery ♦ Twin Valley Ranch ♦ Twisted Oak Winery ♦ Vine Cliff Winery ♦ Vineyard 7 and 8 ♦ Vineyard 29

Geotechnical Investigation Reports

- Ground Motion Study For Oak Valley Hospital, 350 South Oak Avenue, Oakdale, CA
- Geohazards and Geotechnical Engineering Study For Oak Valley Hospital District, Replacement Hospital, 350 South Oak Avenue, Oakdale, CA
- Geotechnical Engineering Study, Proposed Calaveras County Court Facility, San Andreas, CA.
- Geotechnical Engineering Study, Proposed Calaveras High School Performing Arts Building, San Andreas,
- Geotechnical Engineering Study, Sierra Ridge Academy Football and Play Fields, Calaveras County, CA
- Geotechnical Engineering Study For Snyder Avenue Elementary School, 2343 Snyder Avenue, Modesto, CA
- Geotechnical Engineering Study For Peach Elementary School, 21164 South Airport Way, Modesto, CA
- Geotechnical Engineering Study For Neighborhood E School, Mountain House, CA
- Geotechnical Engineering Study For Neighborhood E, Mountain House, CA
- Geotechnical Engineering Study For Neighborhood G School, Mountain House, CA
- Geotechnical Engineering Study For Neighborhood G, Mountain House, CA
- Site Surveillance Report, Wawona Covered Bridge, Yosemite National Park ,CA
- Assessment and Recommendations for the Rehabilitation of the Wawona Covered Bridge, Yosemite National Park, CA
- Site Surveillance Report, Crane Creek Bridge, Yosemite National Park ,CA
- Site Surveillance Report, Yosemite Creek Bridge, Yosemite National Park ,CA
- Geotechnical Engineering Study, Dissolved Air Flotation System, Waste Water Treatment Plant, Calaveras County, CA
- Geotechnical Engineering Study, Elevated Steel Water Tank, Jenny Lind Water System, Calaveras County, CA
- Geotechnical Engineering Study, Steel Water Tanks, Copper Cove Water System, Calaveras County, CA
- Embankment Dam Examination, Westlake Restoration Project, Phoenix Lake Country Club Estate, Sonora, CA

Slope Stability Evaluation and Remediation

- **McKays Point Reservoir Rim Landslide, Tuolumne Co., CA.** Monitoring review and slope stability analysis.
- **U.S. Borax –gangue waste/refuse pile, Boron, CA.** Slope stability evaluation.

- **Priest Reservoir Bypass Pipeline, Tuolumne Co., CA.** Design of the shoring plan and tunnel connection details.
- **Pardee Dam Access Road, Amador County, CA.** Site visit report and recommendations for rock bolting unstable rock blocks.
- **Vineyard 29 Winery, St. Helena, CA.** Debris Flow Design Catchment using GeoBrugg nets.
- **Mine tailings pond, Rico, CO.** Slope stability investigation.
- **Strawberry Point Development, Marin Co., CA.** Seismic slope stability of deep bay mud site.
- **Danville Ball Park Slide, Danville, CA.** Slide investigation and remediation.

EDUCATION

M.S., Geotechnical Engineering, University of California, Berkeley – 1991
B.S., Geological Engineering, Colorado School of Mines – 1982

PROFESSIONAL REGISTRATIONS

Registered Professional Engineer, Geotechnical, California (#2167)
Registered Professional Engineer, Civil, California (#41254), Hawaii (#6778), Oregon (#80344), Washington (#44140).

PROFESSIONAL ASSOCIATIONS

American Society of Civil Engineers

ARTHUR GEE WONG, P.E.

Senior Construction Manager

Education

Professional Engineer – Civil Engineering, State of California

College of Notre Dame — December 1991
Master of Public Administration – Public Affairs

Oregon Technical Institute — June 1971
Bachelor of Technology – Surveying

City College of San Francisco — September 1969
Associate of Arts – Surveying and Mapping

San Jose State University, University of California Extension, Institute of Traffic Engineering, and National Transit Institute – additional course work in various municipal, traffic, transportation, and construction engineering areas.

Professional Affiliations

American Public Transit Association – Member
American Public Transit Association Capital Projects committee – Member
American Public Works Association – Member
California Land Surveyor's Association - Member

Key Qualifications

1997 – present — San Francisco Municipal Railway — San Francisco, CA
Senior Civil Engineer

Manage and direct the Construction Management Section with a staff of 22.

- Supervise Resident Engineers in the administration of construction contracts
- Monitor the progress of construction contracts with Resident Engineers
- Assign staffing to existing and new construction contracts
- Review and update existing construction procedures
- Define staff training needs of the section
- Sixty plus contracts with contract values form $100,000 to $110,000,000 for rail extensions, maintenance facilities, rail replacement, overhead contact system replacement, traction power cable and substation, roadway, and underground facilities

10/95 – 8/97 — City of So. San Francisco — So. San Francisco, CA
City Engineer

Managed and directed the Engineering Division with engineering staff of 9. Annual division budget of $550,000 and annual Capital Improvement Program of 12 million dollars.

- Directed the development and implementation of Capital Improvement projects
- Prepared and directed preparation of staff reports for the City Council
- Reviewed development plans for the Planning Commission
- Directed preparation of plans and specifications for 5 million dollars City Corporation Yard facility
- Directed preparation of plans and specifications for 10 infrastructure projects with a total value of 4.5 million dollars in a 3 month time period
- Managed and directed the capital improvement and the land development construction activities in the City

10/91 – 10/95 — County of San Mateo — Redwood City, CA
Senior Engineer

Managed and directed the Special District Branch with engineering staff of 3.

- Directed the establishment and implementation of Assessment Districts and District Improvements

821 Howard Street
San Francisco, CA 94103
415.701.4280 Phone
415.701.5222 Fax

- Conducted community meetings relating to Assessment District Improvements
- Conducted community opinion surveys on road improvement standards and neighborhood traffic concerns
- Directed the operations of 12 County-wide Lighting Districts
- Directed the plan checking of County recorded maps
- Developed Department Improvement Standards
- Developed Operations and Procedures Manual for the Division
- Formalized existing assessment district policies
- Assisted directing traffic engineering studies
- Defined staff training needs for the Division

10/89 – 10/91 City of So. San Francisco So. San Francisco, CA
Acting City Engineer
Managed and directed the Engineering Division with engineering staff of 8, annual division budget of $450,000 and annual Capital Improvement Program of 2.5 million dollars.
- Directed the development and implementation of Capital Improvement projects
- Established improvement assessment district, and landscape and lighting maintenance district
- Directed preparation of EIR for 40 million dollars interchange/grade separation project
- Managed and directed the capital and the land development construction activities in the City

10/88 – 10/89 City of So. San Francisco So. San Francisco, CA
Acting Deputy City Manager/City Engineer
Managed and directed the Department of Technical and Maintenance Services (Department of Public Works) with 130 employees in 7 divisions – Street/Sewer/Electrical, Park, Building Maintenance, Garage, Common Greens, Water Quality Control Plant, and Engineering. Supervised 4 division heads; prepared and implemented annual operating budget 12 million dollars; prepared and presented staff reports at City Council meetings; developed and implemented fleet replacement program.

6/85 – 10/91 City of So. San Francisco So. San Francisco, CA
Senior Civil Engineer
Prepared operations budget for department; prepared annual five year capital improvement program; supervised and trained engineering staff; implemented capital projects; coordinated activities with consultants, state and local agencies; investigated and reported on complaints and problems by residents and staff; worked with and coordinated activities with other city departments.

12/79 – 6/85 City of So. San Francisco So. San Francisco, CA
Associate Civil Engineer
Administered construction contracts. Project Manager for a 12 million dollars railroad grade separation and State Highway bridge modifications project. Resident Engineer and Project Engineer for a 4 million dollars department store conversion into Police, Fire, Recreation department offices, an emergency repair of a 33-inch sanitary forcemain, and in determining cause of damaged to 33-inch sanitary forcemain leading to recovery of approximately 1.5 million dollars.

8/77 – 12/79 City of Albany Albany, CA
Assistant Civil Engineer
Administered construction contracts; prepared traffic reports; performed safety inspections; oversaw the activities of 5 man public works crew; coordinated activities with other city departments; directed the maintenance of public buildings.

6/73 – 8/77 Contra Costa County Water District Concord, CA
Junior Civil Engineer
Water Supply Division prepared plans and specifications for construction; performed construction inspections; reviewed development plans; directed surveys of right-of-way; prepared right-of-way agreements; provided customer services.

DANIEL E. YAVORSKY, P.E., S.E.

Senior Engineering Manager
Senior Professional Associate

Years of Experience

45 (25 with PB; 20 with others)

Education

M.S., Civil Engineering, University of California at Berkeley, 1961
B.S., Civil Engineering, University of Illinois, 1957
O.C.S. Graduate, US Coast Guard Academy, 1957

Professional Affiliations

American Society of Civil Engineers; Society of American Military Engineers; Structural Engineers Association California; Structural Engineers Association of Texas

Professional Registrations

Professional Engineer, California, 1965 (17717)
Structural Engineer, California, 1971 (SE 1700)
Professional Engineer, Texas, 1982, (56815)

Key Qualifications

Dan Yavorsky is a senior engineering manager with Parsons Brinckerhoff (PB) and has over 40 years of experience in managing engineering design and construction for design-build and design-bid-build projects for metro rail transit, railroad, and highway bridge facilities. Dan's project management duties have included the production of project study reports and civil-structural construction documents requiring close California Department of Transportation (Caltrans), structural, geotechnical, seismic, visual, environmental, and mixed highway and railroad traffic control coordination. Other transportation projects were significantly influenced by Federal Railroad Administration (FRA) and American Railway Engineering and Maintenance of Way Association (AREMA) standards and have involved historic structures, noise and vibrations studies, and contamination mitigation. Dan is accustomed to implementing project procedures and quality standards; preparing project implementation plans; preparing and monitoring manpower budgets, construction estimates and project schedules; participating in value engineering programs; directing and reviewing design services, construction and pier review consultants; and negotiating and administering contracts.

Dan is presently the Structures Technical Resource Center manager for PB's Southern California offices. He is familiar with up-to-date LRFD seismic bridge engineering methods in California, including designs that incorporate Caltrans Bridge Design Specification (BDS) requirements. He recently participated in the upgrading of the Los Angeles County Metropolitan Transportation Authority's (MTAs) seismic criteria for subway structures, bridges, and aerial guideways, and of the Honolulu High-Capacity Transit Corridor Project structural criteria for the recent universal LRFD code revisions. He also managed engineering design and retrofit solutions involving base isolation, site-specific near-fault and rupture directivity ground motion effects, and soil-structure interaction resulting from anticlinal surface folding. He has coordinated engineering designs with the Southern Pacific, Burlington Northern Santa Fe and CSX Corporation railroads, Amtrak, and commuter rail in California, Florida, and Texas.

For the last 7 years, Dan has led a PB Reserch and Innovation program investigating more sustainable solutions for the construction of underground transportation facilities. A comprehensive final report is due the end of 2009.

Transit

- Honolulu 29-Mile High-Capacity Transit Corridor Project, Honolulu, Hawaii: lead structural engineer for this project, which consisted of a draft environmental impact statement (DEIS), a final environmental impact statement (FEIS), preparation of drawings, and performance specifications for the design-build construction.
- Bay Area Rapid Transit (BART) Offshore Transbay Tube (TBT) Seismic Retrofit, San Francisco and Alameda Counties: structural manager for the seismic retrofit of San Francisco BART's 5-mile underwater trans-bay tube. The project called for the preliminary and final design of the seismic retrofit for the TBT and the production of final construction contract bid documents. The design includes all permanent geotechnical elements and components required to meet the goals of the BART Earthquake Safety Program. This included the performance of studies and investigations to determine the earthquake-induced uplift movement on the TBT and its effect on operations and structural integrity.
- 5-MIle Irvine LRT Guideway Demonstration and Orange County Greak Park, Orange County, California: structural consultant that consisted of developing aerial and cut-and-cover guideway designs and preparing the performance specification for the design-build construction.
- Trinidad Rapid Rail Project, Trinidad, California: structural consultant for this project, which consisted of the preparation of the performance specification for the guideway structures of the design-build construction.
- Metrolink Orange Station Final Design, Orange, California: lead structural engineer for the final design of the tunnel under the BNSF tracks.
- Gold Line Foothill Extension Light Rail Transit (LRT) Project, Los Angeles, California: manager of LRT guideway and bridge structures, passenger stations, parking garages, and maintenance buildings to provide preliminary engineering and final environmental clearance services for the Foothill Extension, a 24-mile (39-kilometer) continuation of the Metro Gold Line, which opened in July 2003. The existing Gold Line connects the cities of Los Angeles, South Pasadena, and Pasadena. This extension will continue east to serve the cities of Arcadia, Monrovia, Duarte, Irwindale, Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont and Montclair, encompassing 12 stations, 17 new bridges, and an 80-car Maintenance & Operations (M&O) facility. PB is working with the Metro Gold Line Foothill Extension Construction Authority to develop a project understanding and performance technical specifications for the project. This package will be incorporated into two contract documents that the Authority will issue to solicit bids from prospective design-build contractors. Since 2006, PB has assisted the Authority in completing the advanced conceptual engineering/preliminary engineering and FEIS/final environmental impact report (FEIR) and obtaining a record of decision that will allow the project to obtain a full funding grant agreement from the Federal Transit Administration (FTA). PB completed the DEIS/Draft Environmental Impact Report (DEIR) for the Authority, which was published in May 2004. The Authority adopted a revised, locally preferred alternative in August 2004. Construction may begin with revenue service to the first five extension cities (Segment 1, 11.4 miles (18.3 kilometers), six stations, and M&O facility) beginning in 2009. Segment 2 (12.5 miles [20 kilometers] and six stations) will be completed to Montclair in 2014. The capital cost estimate for Segment 1 is approximately $500 million and for Segment 2 is $515 million. Dan is working with the Metro Gold Line Foothill Extension Construction Authority to develop a project understanding and performance technical specifications for the project.
- CenterLine Light Rail Transit Project, Orange County, California: manager of LRT aerial guideways, subways, stations, and maintenance buildings for the preliminary engineering of the 9-mile (14.5-kilometer) CenterLine light rail project. The design included at-grade, elevated viaduct and cut-and-cover tunnel alignment sections. PB is leading the preliminary

engineering of a light rail starter system for the Orange County Transportation Authority (OCTA) that will serve the cities of Santa Ana, Costa Mesa, and Irvine and the Orange County/John Wayne Airport. The CenterLine will complement Orange County's existing network of high occupancy vehicle (HOV) lanes, toll roads, freeways, roads, buses and trains by offering residents a new way to get around Orange County. The CenterLine will connect OCTA buses, Metrolink commuter rail, Amtrak, and National/ International aviation in Orange County. The locally preferred alternative, adopted in January 2004, will run from the Santa Ana Regional Transportation Center (SARTC) to John Wayne Airport in Irvine. OCTA included an additional 0.8-mile (1.3-kilometer) spur to serve Santa Ana College. The 9.3-mile (15-kilometer) light rail starter system begins at the SARTC with Metrolink and Amtrak connections. It travels through Orange County's busy employment centers and arrives at John Wayne Airport. Along the way, it will also provide access to the Santa Ana Government Center, Santa Ana College, Artists Village and Mater Dei High School, South Coast Plaza, the Orange County Performing Arts Center, the Irvine Business Center, and major business complexes. The design includes at-grade, elevated viaduct, and cut-and-cover tunnel alignment sections. Construction on the project should be completed by 2009.

- Sound Transit Link Light Rail Project, Seattle, Washington: structural design and construction sequencing specialist for the new 8-mile (13-kilometer) dual track North Link light rail line consisting of aerial, tunnel, and at-grade guideways and stations.
- Blue Line Maintenance Facility (LRT) Project, Los Angeles California: manager of building structures for the construction contractor providing the design/build expansion and seismic retrofit of the existing facilities.
- Eastside LRT Project, Los Angeles, California: manager of facilities design and contract documents for the Los Angeles Metro Rail Eastside LRT Design-Build contract (C0801) and Design-Bid-Build contract (C0802). The project included preliminary engineering services for a light rail transit fixed guideway system that would operate in a dual track configuration in the center of selected streets and provide for high platform center station arrangements for the at-grade LRT segments and cut-and-cover station boxes for the subway segment. This LRT system is approximately 6 miles long (9.6 kilometers) with eight stations.
- Los Angeles Metro Rail Project, Los Angeles County, California: deputy project manager responsible for coordinating all structural/architectural design activities for the stations, aerial structures, guideways, and lines that constitute the Los Angeles Metro rail system. This includes the 17.4-mile (28-kilometer), 16-station heavy rail Red Line subway system, the "backbone" of the Los Angeles transit system; the 22-mile (35-kilometer), 22-station light rail Blue Line connecting Los Angeles and Long Beach and the 14-mile (22.5-kilometer), 14-station Pasadena Extension to the Blue Line; and the 23-mile (37-kilometer), 16-station Norwalk-El Segundo Green Line, with a 16.5-mile (26.5-kilometer) section that will run on a fixed guideway in the median of the Glenn Anderson Freeway (I-105). PB, in joint venture, served as the engineering management consultants (EMC) for the MTA, with responsibility for program management, as well as tasks related to specific rail transit projects in Los Angeles County, including fixed facility preliminary design, final design and final design management, systems engineering, project control, procurement, and design services during construction and start-up for light and heavy rail. The EMC joint venture provided project-related services for the Red, Blue, Green, and Gold Lines. The Red Line is a heavy rail line running from Los Angeles to the San Fernando Valley. Segment 1 of the Red Line, Union Station to MacArthur Park, is 4.4 miles (7 kilometers); Segment 2, MacArthur Park to Hollywood/Vine is 6.7 miles (10.8 kilometers); and Segment 3, Hollywood/Vine to North Hollywood, extends the line 6.3 miles (10 kilometers). The Blue Line runs from Long Beach to Los Angeles; the Green Line runs from Norwalk to El Segundo. The 13.7-mile (22-kilometer), 13-station Gold Line, opened in July 2003, runs from Los Angeles to downtown Pasadena.

- Eastside LRT Project, Los Angeles, California: manager of facilities design and contract documents for the Los Angeles Metro Rail Eastside LRT design/build aerial guideway segment, in association with Caltrans, and for the design/bid/build aerial, subway and at-grade segment. The project includes engineering services for a light rail transit fixed guideway system that would operate in a dual track configuration in the center of and over selected streets and provide for high platform center station arrangements for the at-grade LRT segments and cut-and-cover station boxes for the subway segment. This LRT system is approximately 6 miles long (10 kilometers) with eight stations.
- Mission Valley East LRT Project, City of San Diego, California: manager of structural and seismic analysis for the La Mesa segment of the Mission Valley East LRT. The Mission Valley East Light Rail Transit Project extends the San Diego Trolley 5.9 miles (9.5 kilometers) from the Mission San Diego LRT Station to Baltimore Drive on the east, where it will join the existing Orange Line in the City of La Mesa. PB, in joint venture, provided final design services, including project management, architecture, systems management, train signaling and communications, 70th Street Interchange improvements, community/agency coordination, 70th Street Station civil design, station architecture, track design, bridge independent design checks, retaining wall design, construction estimates, specifications, public art management and integration, and project controls. The line segment project includes three stations (two elevated, one at-grade) with modifications to two existing stations.
- Trinity Railway Express Intermodal Project, Fort Worth, Texas: chief engineer for the Trinity Railway Express Intermodal Project, a 34-mile (54-kilometer) dual track metro rail system between Dallas and Fort Worth. The project included bridges, tunnels, an intermodal transportation center, and an equipment maintenance facility.
- Central Florida Light Rail Transit System, Central Florida Regional Transportation Authority (LYNX) Orlando, Florida: manager of structures in the general management of construction documents for the 15-mile (24-kilometer) aerial guideway and 17-station system.
- Egyptian National Authority for Tunnel's Greater Cairo Metro Rail System and Nile River Tunnel Crossing, Egypt: manager of structures and architecture for the design-build underground and aerial lines and top-down subway stations. PB, serving as the owner's representative, led the joint venture team responsible for providing program management consultancy services for the turnkey design, construction, and commissioning of Line 2 of the Greater Cairo Metro System. This line, which was being implemented in stages, added 12 miles (19.2 kilometers) and 18 stations to the system, further relieving urban congestion and reducing air pollution. The first segment of Phase 1 opened for revenue service on October 2, 1996, and the remainder opened in September 1997. Phase 2A opened in April 1999, approximately eight months ahead of schedule. Phase 2B was completed in October 2000, two months ahead of schedule.
- Dallas Area Rapid Transit (DART) System, Texas: supervisory project engineer for central business district facilities for the alternatives analysis and preliminary design of this light rail transit system. PB led the general engineering consultant (GEC) joint venture responsible for providing services for DART's bus system improvement program, as well as planning; conceptual, preliminary, and final designs; and procurement management for the proposed 147-mile (235-kilometer) rail system.
- Metropolitan Atlanta Rapid Transit Authority (MARTA), Atlanta, Georgia: project structural engineer for subway and at-grade segment. PB provided services for the general engineering consultant joint venture during the development of this multibillion-dollar heavy rail transit system for the metropolitan Atlanta area, which included 60 miles (96 kilometers) of rapid transit lines, a 3.7-mile (6-kilometer) express busway corridor, 46 metro rail stations, and park-and-ride facilities for more than 33,000 automobiles. Services provided by the PB-led GEC joint venture for the heavy rail system include project management, engineering,

development of design criteria, design of system wide features and specific stations and line sections, quality control, and procurement and construction management. After winning a new five year contract whose services began in 2002, a new PB-led GEC team is now assisting MARTA in its transformation from a new and expanding system into a mature one whose primary focus is on maintenance, rehabilitation, and improved customer service.

- Caracus Metro, Caracas, Venezuela: manager of structures and seismic design for development of the prototype subways stations for the 35-mile-long (56-kilometer-long) network of aerial and tunneled guideways and stations. Also served as the lead structural engineer for the structural and seismic design of the first four subway stations.
- Bay Area Rapid Transit (BART) System, San Francisco, California: research and development representative and lead structural engineer for the structural and seismic design for at-grade, aerial, and subway stations and line sections. PB was retained, in joint venture, to serve as GEC for the BART system's design and construction. As a member of the joint venture PB contributed to the project's overall project management and administration, development of system wide civil, structural, and tunnel design criteria, development of special seismic design criteria, design and implementation of a 4.5-mile (7.2-kilometer) test track demonstration program, and design and construction management of the entire system. Dan participated in the development of the seismic criteria for aerial and tunnel guideways, stations, and the Oakland approach to the Trans-Bay Tube based on the analyses of Drs. N.M. Newmark of the University of Illinois and G.W. Housner of the California Institute of Technology. He contributed to the production of the fully computerized design of the aerial guideway structures. Dan also served as the lead structural engineer for the Berkeley-Richmond Line, including Ashby, Berkeley, and North Berkeley Stations, as well as for the 16th and 24th Mission Street Stations and the Oakland approach to the Trans-Bay Tube. He participated in the original planning and alternatives analysis to provide a BART Airport Extension.
- Additional transit projects and consulting:
  - Washington Metropolitan Area Transit Authority (WMATA) Aerial Girder Standardization Program for the Dulles Corridor Rapid Transit Project, Virginia: responsible for aerial guideway design
  - Southwest/Westpark Regional Rail Project, Houston, Texas: manager of aerial and subway guideways and stations
  - Niagara Frontier Transit Authority's LRT System, Buffalo, New York: structural supervisor for alternatives analysis
  - Dallas-Fort Worth Airport Automated People Mover, Texas: structural consultant for aerial guideways and stations
  - Buenos Aires Metro Top-Down Subway Stations, Argentina: value engineer
  - County of Honolulu Department of Transportation LRT System, Hawaii: structural supervisor for alternatives analysis for aerial and tunneled guideways and stations
  - New York and New Jersey Airport Access Program: value engineer and consultant for aerial stations and guideways

Airports

- National and Dulles Airports Expansion Program, Washington, DC: lead civil/structural engineer for the master planning and design supervision of this $1.5-billion redevelopment project to modernize facilities to accommodate increasing air traffic volume. The program involved renovation of existing facilities and construction of new facilities in the airports' infrastructure.

Rail

- Trinity Railway Express Intermodal Project, Fort Worth, Texas: chief engineer for the metro rail system between Dallas and Fort Worth.
- Port of Long Beach Rail Facilities, Long Beach, California: manager of structures for the cargo rail port access project.

Bridges

- Route US50/I-71 interchange and ramps, Cincinnati, Ohio: manager of structures for the bridge retrofit project.
- Interchange and Ramp Widenings, Franklin County, Ohio: manager of structures for the bridge retrofit project.

Previous Experience

Prior to joining PB, Dan served as a project manager for the design and construction of a number of major infrastructure projects in the United States and abroad.

Transit

- Houston Metropolitan Transit, Houston, Texas: manager of subways and aerial guideways with for a private consulting firm providing services to the Houston Metropolitan Transit Authority.
- Bay Area Rapid Transit System, San Francisco, California: research and development representative and lead structural engineer for the structural and seismic design for at-grade, aerial, and subway stations and line sections for the BART System. Dan participated in the development of the seismic criteria for aerial and tunnel guideways, stations, and the Oakland approach to the Trans-Bay Tube based on the analyses of Drs. N.M. Newmark and G.W. Housner. He also contributed to the production of the fully computerized design of the aerial guideway structures. Dan served as the lead structural engineer for the Berkeley-Richmond Line, including Ashby, Berkeley, and North Berkeley Stations, and for the 16th and 24th Mission Street Stations, and the Oakland approach to the Trans-Bay Tube.
- Caracas Metro, Caracas, Venezuela: manager of structures and seismic design for development of the prototype subways stations for the aerial and tunneled guideways and stations and lead structural engineer for the structural and seismic design of the first four subway stations.
- Metropolitan Atlanta Rapid Transit Authority, Atlanta, Georgia: project engineer for the subway and aerial guideways and stations.
- Niagara Frontier Transit Authority, Buffalo, New York: project engineer.

Water

- Libyan Coastal Belt Water Pipeline, Libya: manager of airport and seaport infrastructure for the design and construction of the Libyan Coastal Belt water pipeline project.
- Safaniya and Berri Island Reservoir Restoration, Saudi Arabia: project manager for the design and construction of the Safaniya and Berri Island reservoir restoration, offshore injection platform, desalting, and pipeline facilities.
- Texas Homeport Study, Houston, Texas: technical design and cost consultant to the mayor for Houston's Task Force Committee Texas Homeport study.

Airports

- King Khalid International Airport, Riyadh, Saudi Arabia: project engineer for the structural and architectural design of the terminals, control tower, parking, and access bridges.

- Pertamina Arun Sumatra LNG Air Terminal, Pertamina, Indonesia: project structural engineer.
- Pago Pago International Fire/Crash Facilities, American Samoa: project structural engineer.

Facilities

- Senior structural engineer for a variety of facilities, ports, and infrastructure projects.

Publications

- "Single Stage Ground Support Geo-Structures," PB Network, 2006.
- "Top-Down Single Stage Ground Support Geo-Structures, A Resource Covering Environment, Cost Schedule, Design, Constructability, and Sustainability," PB Research and Innovation Program, Los Angeles, 2004.
- "Rail Transit Aerial Guideways and Stations in View of Recent Earthquakes," Technology, and Contracting Solutions, presented to the American Public Transit Association, Atlanta, Georgia, 1996 and published by APTA, Volume 3 – Way & Structures and Construction, 1996. Coauthored with Nachum Secker.
- Coauthor, "Advanced Underground Seismic Criteria and Progressive Structural Solutions for the Los Angeles County Metropolitan Transportation Authority," presented to the American Public Transit Association, Atlanta, Georgia, 1996 and published by APTA, Volume 3 – Way & Structures and Construction, 1996.
- "A Work for Our Times," PB Network, 1996.
- "LA's Seismic Lifelines," PB Network, 1996.
- "Efficient Guide way Geostructure," PB Network, 1996.
- "A Perspective: The Airport of the Future?" PB Network, 1995/1996.
- Coauthor, "Advanced Seismic Criteria for the Los Angeles County Metropolitan Transportation Authority," presented to the American Public Transit Association, Atlanta, Georgia, 1995.
- Coauthor, "Economic Underground Station and Guideways Make Temporary Ground Support Permanent," presented to the American Public Transit Association, New York, 1995.
- "Burying the World's Biggest Accelerator," presented to the 5TH International Conference on Underground Space and Earth Sheltered Structured, Proceeding, Delft University of Technology, The Netherlands, 1992.
- "Structural Evolution of the House for the Superconducting Super Collider," presented to the American Society of Civil Engineers, Texas Section Fall Convention, Houston, Texas, 1992.

Jin Zhao, P.E. jczhao@gmail.com

Years of experience: 9 Years

Education:
MS Construction Management Engineering 2005
Minor Environmental Engineering
San Jose State University, San Jose, CA
BS Mechanical Engineering 2002
University of California, Berkeley, CA

Professional Affiliation: California Professional License – Civil Engineering

Key qualifications:
Soild engineering experinece on multiple heavy civil projects. Skills include field contract administration, office engineering, document control support, change order reviews/negotiations, and claim analysis during construction phase. Evaluated and prepared progress payments, prepared meeting minutes, performed general inspection, and coordinated with design team to resolve design and field issues, prepared the weekly, monthly and quarterly reports, prepared the construction management plan, quality assurance plan, safety plan and risk management plan. Conducted the final progress payment and close out package. Provided mark-up drawings and field information to prepare as-built drawings. In addition, work experience includes being an assistant resident engineer of large public work providing construction/design support services to the client.
Special skills include civil and construction engineering design, estimating, purchasing and filed supervision; Scheduling and cost controls using Primavera Software, Expedition and Contract Mangement Information System; Electrical system designing for buildings and other civil engineering structures, controlling, and implementing electrical systems, and evaluating sensor systems. Thorough understanding of the integration of electrical and mechanical components. Knowledgeable and proficient in control graphic programs such as AutoCAD, 3-D modeling and Animation. Good understanding construction laws.

Relevant Experience:

San Andreas Pipeline No 3 – Welding Warranty Inspection, May 2012 to present
Project Construction Manager manages the project construction contracts as the "Owner Representative"; implements quality assurance plans to inspect welds to CWI standards; mitigates the venturi meter issues.

Crystal Springs and San Andreas Transmission System Upgrades, April 2012 to present
San Mateo, CA ($100 million)
Office Engineer provided construction and design support for the project. 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.

Lower Crystal Springs Dam Improvements, 2011 to April 2012
San Mateo, CA ($17 million)
Office Engineer provided construction and design support for the project. Worked closely with team to provide constructability, phasing and scheduling input. Provided document control support change order reviews, and claim analysis during construction phase. The project consisted of modification to the spillway, parapet wall and stilling basin.

San Andreas Pipeline #3 Installation, 2009 to 2011
San Francisco, CA ($16 million)
Office Engineer and Field Contracts Administrator provided support to the Project CM in the administration of the terms and conidtions of the contract. Managed contract change process and claims resolutions. Manged the preparation of change orders, including preparing Record of Negotiations and maintaining the contract files. Assisted the Project CM in contractual closeout to ensure all administrative and contractual

requirements are met. The project consisted of installation of 4.4 miles of 36-inch-diameter pipe from San Pedro Valve Lot in Daly City to Merced Manor Reservoir in San Francisco.

Stanford Heights Reservoir Rehabilitation, 2007 to 2009
San Francisco, CA ($23 million)
Office Engineer/Assistant Construction Project Manager for the seismically retrofit of the reservoir. The project involved the addition of moment frames, concreate shear walls, braces, struts and concrete footing. Other components included crack repairs, sealing of reservoir roof, replacement of the expansion joints and cover plates, access and water quality improvemnts and much more.

Summit Pump Station Upgrades, 2008
San Francisco, CA ($7 million)
Project Control Engineer/Scheduler. Responsible for the development of the CPM Master Schedules and coordinating the timely development and maintenance status reports, develop and maintain of master schedules, and continuously monitor progress. This project rebuilt the Summit Pump Station, which include a reinforced concrete structure, retaining walls, pumps, inlet-outlet piping, seismic reinforcement, fencing, electrical and I&C systems; HVAC, SCADA, landscaping and demolition of existing facility.

McLaren Tank Rehab & Seismic Upgrade, 2008
San Francisco, CA ($8 million)
Office Engineer/Assistant Construction Project Manager. This project consisted of the rehabilitation and seismic upgrade of the McLaren Tanks including rehabilitation and seismic upgrade of welded steel tanks; seismic bracing; interior lining replacement; cathodic protection; new interior/exterior coating; lead paint abatement; (N) inlet/drain/overflow piping and valves; security fencing; electrical improvements, paving and landscaping.

La Grande Tank Seismic Upgrade, 2007
San Francisco, CA ($5 million)
Office Engineer. The project consisted the replacement of the La Grande tank, including (N) reinforced concrete tank foundation; welded steel standpipe tank replacement; interior and exterior coating; cathodic protection; 1.5 miles of inlet/outlet piping and valves; instrumentation and controls system upgrades; security fencing; water quality monitoring systems; demolition of (E) facility, and site improvements.

Potrero Heights Reservoir Rehabilitation, 2007
San Francisco, CA ($7 million)
Project Control Engineer/Scheduler. This project performed upgrade to the existing Potrero Heights Reservoir to meet current seismic standards and conform to all State Health requirements which included seismic upgrade and relining; (N) roof deck coating; slope stability/rock anchor installation; security fence; water quality improvements; mechanical and electrical improvements.

Summit Reservoir Rehabilitation, 2006
San Francisco, CA ($8 million)
Project Control Engineer/Scheduler This project consisted of the upgrade of the existing Summit Reservoir to meet current seismic standards and conform to all State Public Health requirements. Water circulation problems were corrected with the construction of dedicated inlet and outlet structures. Seismic retrofit work took place on the roof slab, pier caps along the reservoir perimeter, and through the addition of a new reinforced concrete liner.

Stevenson Family (Home Builder) February 2003 to April, 2006.
Berkeley, CA.
Business focuses on remodeling houses and converting houses to high-end condominiums
Assignment included designing building plans, managing project finances, preparing construction schedules, purchasing materials, estimating and obtaining building permits. Also, manage all subcontractors and negotiate cost.

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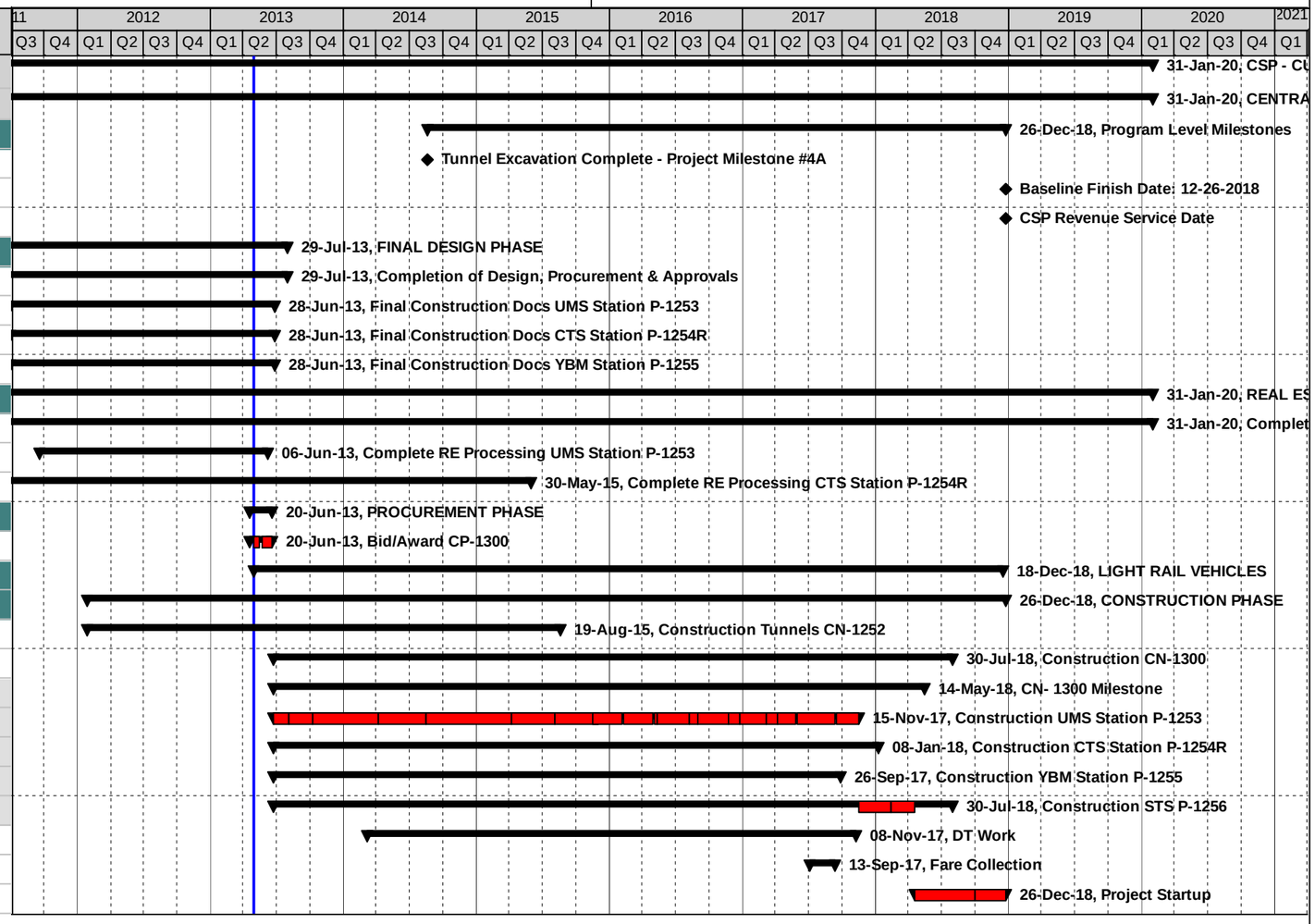
APPENDIX D
SCHEDULE

Activity Name	Original Duration	Start	Finish
CSP - CURRENT MASTER PROJECT SCHEDULE	3626	18-Mar-10 A	31-Jan-20
CENTRAL SUBWAY PROJECT	3626	18-Mar-10 A	31-Jan-20
Program Level Milestones	1588	21-Aug-14	26-Dec-18
Tunnel Excavation Complete - Project Milestone #4A	0		21-Aug-14
Baseline Finish Date: 12-26-2018	0		26-Dec-18*
CSP Revenue Service Date	0		26-Dec-18*
FINAL DESIGN PHASE	632	01-Sep-10 A	29-Jul-13
Completion of Design, Procurement & Approvals	413	01-Sep-10 A	29-Jul-13
Final Construction Docs UMS Station P-1253	378	01-Jul-11 A	28-Jun-13
Final Construction Docs CTS Station P-1254R	378	01-Jul-11 A	28-Jun-13
Final Construction Docs YBM Station P-1255	354	01-Jul-11 A	28-Jun-13
REAL ESTATE	3626	18-Mar-10 A	31-Jan-20
Complete RE Processing Tunnel CP-1252	2496	18-Mar-10 A	31-Jan-20
Complete RE Processing UMS Station P-1253	326	19-Sep-11 A	06-Jun-13
Complete RE Processing CTS Station P-1254R	1549	01-Aug-10 A	30-May-15
PROCUREMENT PHASE	63	19-Apr-13 A	20-Jun-13
Bid/Award CP-1300	63	19-Apr-13 A	20-Jun-13
LIGHT RAIL VEHICLES	1417	01-May-13	18-Dec-18
CONSTRUCTION PHASE	2521	27-Jan-12 A	26-Dec-18
Construction Tunnels CN-1252	1296	27-Jan-12 A	19-Aug-15
Construction CN-1300	1866	21-Jun-13	30-Jul-18
CN- 1300 Milestone	1789	21-Jun-13	14-May-18
Construction UMS Station P-1253	1609	21-Jun-13	15-Nov-17
Construction CTS Station P-1254R	1663	21-Jun-13	08-Jan-18
Construction YBM Station P-1255	1559	21-Jun-13	26-Sep-17
Construction STS P-1256	1866	21-Jun-13	30-Jul-18
DT Work	928	06-Mar-14	08-Nov-17
Fare Collection	50	05-Jul-17	13-Sep-17
Project Startup	173	18-Apr-18	26-Dec-18



APPENDIX E:
DELEGATION OF AUTHORITY

SFMTA
Municipal Transportation Agency

DELEGATION OF AUTHORITY TO APPROVE AND EXECUTE CONTRACTS FOR AND ON BEHALF OF THE SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY

Pursuant to the authority vested in me by Resolution No. 10-008 of the SFMTA Board of Directors, I hereby delegate to John Funghi, Program Director of Central Subway Project, without the authority to re-delegate, the contracting authority to approve and execute Contracts pertaining to all Central Subway Project, up to $100,000 per Contract.

All such transactions entered into pursuant to this Authority shall be compiled and reported to the SFMTA Board of directors on a quarterly basis.

This delegation is effective January 1, 2013 and shall remain in effect until further written notice or amendment.

Date: 1·07·2013

Edward D. Reiskin
Director of Transportation

Attest and Certify:

R. Boomer

Roberta Boomer
Secretary,
San Francisco Municipal Transportation Agency

SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY
BOARD OF DIRECTORS

RESOLUTION NO. 10-008

WHEREAS, In 2000, the San Francisco Municipal Transportation Agency Board of Directors (SFMTA Board) adopted Resolution No. 00-0125, and 2002, the SFMTA Board adopted Resolution No. 02-110, which resolutions established contracting policies for the SFMTA, including setting limits on contractual amounts subject to the approval of the Director, requiring all contracts to be in writing, and other related matters; and

WHEREAS, On November 6, 2007, the voters passed Proposition A, which, among other things, added subsection (g) to Section 8A.102 of the City's Charter; subsection (g) authorizes the SFMTA Board to adopt threshold amounts under which the Director and his or her designees may approve contracts, notwithstanding any provisions of Chapters 6 or 21 of the City's Administrative Code; and

WHEREAS, In order to reduce administrative paperwork and streamline processing of certain contract approvals, the SFMTA Board would like to modify the existing policy to give the Executive Director/CEO broader discretion to approve contracts and contract modifications; and

WHEREAS, The SFMTA Board of Directors intends that this resolution will supersede Resolutions Nos. 00-0125 and 02-110; now, therefore, be it

RESOLVED, That the SFMTA Board adopts the following regarding the approval of all contracts, leases, real property conveyance and acquisition agreements, memoranda of understanding, and amendments to such contracts, with the exception of collective bargaining agreements:

1. **Expenditure Contract Approval:** The **Executive Director/CEO** may approve and execute any contract, lease, real property acquisition agreement or memorandum of understanding (hereafter "Contract") having anticipated expenditures equal to or less than $500,000.

    a. The **Executive Director/CEO** may re-delegate in writing the authority to approve and execute Contracts subject to the limits set forth below:

        i. **Deputy Executive Director** – The Executive Director/CEO may re-delegate contracting authority up to the full authority given to the Executive Director/CEO by the SFMTA Board of Directors.

        ii. **Chief Construction Officer** - The Executive Director/CEO may re-delegate contracting authority to approve and execute Contracts up to $250,000 per Contract.

iii. **Division Directors** - The Executive Director/CEO may re-delegate contracting authority to approve and execute Contracts up to $150,000 per Contract to any Director of a division having a direct reporting relationship to the Executive Director/CEO.

b. No manager or staff member receiving delegated contracting authority in accordance with this Resolution may re-delegate this authority to others.

c. The **Executive Director/CEO** shall present to the Secretary of the SFMTA Board of Directors a completed original delegation of authority letter for each staff member receiving a delegation of authority. The Secretary of the SFMTA Board of Directors shall review the delegation letter and certify its conformance with the terms and conditions of this resolution. The delegation of authority shall be in effect once certified by the Secretary of the SFMTA Board of Directors.

2. **Change Orders or Amendments**: The **Executive Director/CEO** may approve and execute any single change order or amendment (hereafter "Amendment") to any Contract having anticipated expenditures up to $500,000 in accordance with subsections a, b and c below unless the change order or amendment is subject to approval by the Board of Supervisors under Charter Section 9.118:

a. **Original Contract Amounts up to $500,000** - The authority given to the Executive Director/CEO will be limited to cumulative increases of 50% of the original contract amount, and time extensions up to 25% of the original contract term.

b. **Original Contract Amounts between $500,000 and $9,999,999** - The authority given to the Executive Director/CEO will be limited to cumulative increases approved by the Executive Director/CEO of 25% of the original contract amount, or $250,000, whichever is greater, and time extensions up to 25% of the original contract term.

c. **Original Contract Amounts greater than or equal to $10,000,000 and less than $50,000,000** - The authority given to the Executive Director/CEO will be limited to cumulative increases of 10% of the original contract amount, or $2,500,000, whichever is greater, and time extensions up to 25% of the original contract term.

d. **Original Contract Amounts greater than or equal to $50,000,000** - The authority given to the Executive Director/CEO will be limited to $5,000,000 and time extensions up to 25% of the original contract term.

e. **Re-delegations** - The Executive Director/CEO may authorize the Deputy Executive Director, Chief Construction Officer, or Directors of a division having a direct reporting relationship to the Executive Director/CEO, to

further delegate authority to approve Amendments within their respective divisions, up to the limits set forth below:

$500,000	Deputy Executive Director
$200,000	Chief Construction Officer
$100,000	Director (having direct reporting relationship to the Executive Director/CEO)
$50,000	Deputy Director, Area Manager, and Senior Contracts Manager
$25,000	Project Manager
$15,000	Resident Engineer; Contract Administrator

Amendments approved pursuant to any re-delegation under this subsection are subject to the cumulative limitations for Amendments set forth in subsections a, b and c above.

f. The **Executive Director/CEO** shall present to the Secretary of the SFMTA Board of Directors a completed original delegation of authority letter for each staff member receiving a delegation of authority. The Secretary of the SFMTA Board of Directors shall review the delegation letter and certify its conformance with the terms and conditions of this resolution. The re-delegation of authority shall be in effect once certified by the Secretary of the SFMTA Board of Directors.

3. **Revenue Contracts:** The Executive Director/CEO is authorized to approve all revenue contracts and cumulative modifications of such revenue contracts up to 50 percent of their original value unless the revenue contract is subject to approval by the Board of Supervisors under Charter Section 9.118.

4. **Fare Media Contracts:** The **Executive Director/CEO** is authorized to delegate the authority to the **Chief Financial Officer or the Senior Manager of Revenue,** to approve and execute agreements for the sale or distribution of fare media and fare cards where the commissions to be paid under such agreements are not expected to exceed $250,000 in any calendar year.

5. **Commodity and General Services Contracts:** The **Executive Director/CEO** or his or her designee is authorized to approve contracts for commodities and services formerly subject to the sole approval of the Purchaser prior to the formation of the SFMTA; and be it

FURTHER RESOLVED, That all contracts and contract amendments on behalf of the SFMTA shall be in writing, shall be approved as to form by the City Attorney's Office, and be it

FURTHER RESOLVED, That the Executive Director/CEO shall submit a written report to the San Francisco Municipal Transportation Agency Board of Directors on a quarterly basis which shall summarize and describe all contract instruments executed and competitive solicitations issued pursuant to the delegations of authority granted above; and be it

FURTHER RESOLVED, That the SFMTA authorizes the Executive Director/CEO to accept work that has been satisfactorily completed, approve release of retention, and approve contract closeouts.

I certify that the foregoing resolution was adopted by the Municipal Transportation Agency Board of Directors at its meeting of JAN 05 2010.

R. Boomer

Secretary to the Board of Directors
San Francisco Municipal Transportation Agency

SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY
BOARD OF DIRECTORS

RESOLUTION NO. 09-191

WHEREAS, The Policy and Governance Committee of the SFMTA Board of Directors has reviewed the calendar items that appear before the SFMTA Board of Directors and has recommended that certain types of calendar items need not appear before the SFMTA Board; and

WHEREAS, Delegating the authority to approve certain calendar items will reduce administrative paperwork and streamline processing of certain contract, grant or claim approvals; and

WHEREAS, The SFMTA Quarterly Contracting Report will be expanded to include information about contracts and the City' Attorney's Office will provide an annual report regarding claims; now, therefore, be it

RESOLVED, That the Executive Director/CEO or his designee is authorized to issue competitive solicitations for contracts not requiring Board of Supervisors' approval as set forth in Charter Section 9.118 without further action by the SFMTA Board; and be it

FURTHER RESOLVED, That the Executive Director/CEO or his designee is authorized to reject any or all bids, quotes, or proposals and authorize reissuance and re-advertisement of such requests for proposals, bid calls or other competitive solicitations; and be it

FURTHER RESOLVED, That unless the granting agency requires an authorizing resolution from this Board as to a particular grant, the Executive Director/CEO or his designee is authorized to approve and execute agreements to accept and expend grant funds or to transfer grant funds to a public agency that will be a sub-recipient of such funds; and be it

FURTHER RESOLVED, That the Executive Director/CEO or his designee is authorized to apply for, accept and expend grant funds, and is authorized to delegate such authority in writing in his or her sole discretion; and be it

FURTHR RESOLVED, That pursuant to Charter Section 6.102 and Article II of Chapter 10 of the San Francisco Administrative Code, the Chief of the Bureau of Claims Investigation and Administration of the City Attorney's Office is authorized to settle unlitigated claims against the SFMTA for an amount not to exceed $25,000 with the concurrence of the Executive Director/CEO.

I certify that the foregoing resolution was adopted by the Municipal Transportation Agency Board of Directors at its meeting of NOV 03 2009.

R. Boomer

Secretary to the Board of Directors
San Francisco Municipal Transportation Agency

APPENDIX F
PROPERTY LICENSE AGREEMENTS

central T subway

Connecting people. Connecting communities.

Transmittal

CS Transmittal No. 2216

To:	Jeff Davis FTA 201 Mission Street, Suite 1650 San Francisco, CA 94105	**From:**	John Funghi
		Project No./Contract No.:	M544.1, CS-149
		Task No./Title:	1-6.01 Interagency Coordination
		Project Phase:	
Date:	April 25, 2013	**Subject:**	Property Agreements Summary 04/25/2013 Update
Reference:			

Sent via:	☐ *mail*	☐ *overnight*	☐ *messenger*	☐ *hand-delivered*
	☐ *fax – **No:***		☒ *email – **Address:***	jeffrey.s.davis@dot.gov

The following:		***For your:***	***Due date:***
☐ *copy of letter/memo*	☐ *estimate*	☒ *information/use*	N/A
☐ *minutes/agenda*	☐ *schedule*	☐ *action*	
☒ *report*	☐ *deliverable*	☐ *review/comment*	
☐ *presentation*	☐ *review comment form*	☐ *response to comment*	
☐ *cd / dvd*	☐ *no review comment form*	☐ *concurrence*	
☐ *specifications*	☐ *review comments*	☐ *incorporation of comments*	
☐ *half-size drawings*	☐ *response to comments*	☐ *verification*	
☐ *full-size drawings*	☐ *concurrence with response*	☐ *signature*	
☐ *sketches/maps/layouts*	☐ *verification of incorporation*	☐ *acceptance/approval*	
☐ *reference material*	☐ *acceptance/approval*	☐ *other* _____	
☐ *other* _____		_____	

Item No.	***Copies***	***Description***	***Rev. No.***	***Date***
1	1	Property Agreements Summary Update		04/25/13

If enclosures are not as noted, kindly notify us at once.

Remarks:

Attached please find April 25 weekly update of Property Agreements Summary.

John Funghi
Program Director

JF:ES:smk

cc: David Kuehn, STV (w/attachments) david.kuehn@stvinc.com
Brad Lebovitz, STV (w/attachments) bradley.lebovitz@stvinc.com
Eric Stassevitch, CSP (w/attachments)
CS File No. M544.1.5.4020.a

central T subway

Connecting people. Connecting communities.

Property Agreements Summary - 4/25/13

		needed	obtained	Percentage	Comments
	Property Licenses required for Tunnel Construction				
BY SFMTA	Tunnel Group A	10	5	50%	the remaining 5 properties will require 4 licenses
BY CN-1252	Tunnel Group B	178	135	76%	
	Total	188	140	74%	
	Property Licenses required for Station Construction				
BY SFMTA	Station Group A	27	20	74%	7 licenses are outstanding
BY CN-1300	Station Group B	74	4	5%	SFMTA has obtained 4 of the Station Group B licenses
	Total	101	24	24%	

Property Agreements Summary
Weekly Update - 4/25/13

	STATION No. REQ'D FOR 1300	TUNNEL No. REQ'D FOR 1252	Side of Tunnel	Tunnel Group	Station Group	Block & Lot	Location	BY TUNNEL CONTRACTOR: Tunnel Monitoring Sent	BY TUNNEL CONTRACTOR: Tunnel Monitoring Needed By	BY STATION CONTRACTOR: Extended Station Monitoring Sent	BY STATION CONTRACTOR: Extended Station Monitoring Needed By	Interior Station Monitoring Sent	Interior Station Monitoring Needed By	Station Compensation Grouting Sent	Station Compensation Grouting Needed By	Tunnel Compensation Grouting Sent	Tunnel Compensation Grouting Needed By	UMS Inclined Piles Sent	UMS Inclined Piles Needed By	Easement Possession	Status
		1				0101-031	725 FILBERT ST		2/1/2013								2/1/2013					OFFER LETTER SENT 4/9
		2				0101-045	659 COLUMBUS AVE		2/1/2013								2/1/2013					OFFER LETTER SENT 4/9
		3				0101-005	1717-1719 POWELL ST		2/1/2013								2/1/2013					OFFER LETTER SENT 4/9
		4	W	A		0130 001	1455 STOCKTON ST	9/17/2010	2/1/2013							4/6/2012	2/1/2013			Y	CONDEMNATION FILED 4/9
		5	W	A		0130 002	1435 - 1445 STOCKTON ST	1/17/2012	Y							4/6/2012	Y				SIGNED BY OWNER
	1	6	E	A	A	0328 002	790 MARKET ST	9/28/2010	Y	9/9/2011	Y	9/9/2011	Y	9/9/2011	Y	9/28/2010	Y			Y	SIGNED BY OWNER 7/30/12
		7	W	A		3705 048A	801 MARKET ST	9/28/2010	Y	9/28/2010				9/28/2010	N/A	3/26/2012	Y			Y	SIGNED BY OWNER
		8	E	A	B	3751 105,112, 155	795 FOLSOM ST	12/12/2011	Y	12/12/2011	5/1/2014						Adjacent				OBTAINED BY CSP
		9	E	A		3751 411-415	788 HARRISON ST		Y								Adjacent				
UNION ST		10	E	B		0116-020A	580 GREEN ST		4/1/2013												
		11	E	B		0117 001	619 UNION ST	8/22/2011	Y												
		12	E	B		0117 002	1527 STOCKTON ST	8/22/2011	4/1/2013												
		13	E	B		0117 003	1521 - 1523 STOCKTON ST	8/22/2011	Y												
		14	E	B		0117 004	500 - 524 COLUMBUS AVE	8/22/2011	Y						N/A						
		15	W	B		0117 005	501 - 543 COLUMBUS AVE	8/22/2011	4/1/2013												
		16	W	B		0117 016	1636 - 1656 POWELL ST	8/22/2011	Y												
		17	W	B		0117 017	575 COLUMBUS AVE	8/22/2011	Y												
		18	W	B		0117 018	563 - 565 COLUMBUS AVE	8/22/2011	Y												
		19	W	B		0117 019	549 - 561 COLUMBUS AVE	8/22/2011	Y												
		20	E	B		0117 020	552 - 566 COLUMBUS AVE	8/22/2011	Y												
		21	E	B		0117 021	548 COLUMBUS AVE	8/22/2011	Y												
		22	W	B		0130 009	1411 - 1433 STOCKTON ST	8/22/2011	Y												
		23	W	B		0130 010	702 - 712 VALLEJO ST	8/22/2011	Y												
		24	E	B		0131 012	1418 STOCKTON ST	8/22/2011	4/1/2013												
		25	E	B		0131 026	401 - 451 COLUMBUS AVE	8/22/2011	4/1/2013												
		26	E	B		0146 011	1300 STOCKTON ST	8/22/2011	Y												
		27	E	B		0146 012	1318 - 1324 STOCKTON ST	8/22/2011	Y												
		28	E	B		0146 013	1328 - 1330 STOCKTON ST	8/22/2011	Y												
		29	E	B		0146 015	1334 - 1348 STOCKTON ST	8/22/2011	Y												
		30	E	B		0146 016	1350 - 1362 STOCKTON ST 633 - 641 VALLEJO ST	8/22/2011	Y												
		31	W	B		0147 001	1355 - 1365 STOCKTON ST	8/22/2011	Y												
		32	W	B		0147 002	1343 - 1351 STOCKTON ST	8/22/2011	Y												
		33	W	B		0147 003	1325 - 1341 STOCKTON ST	8/22/2011	Y												RECEIVED 11/9/12
		34	W	B		0147 004	1319 - 1323 STOCKTON ST	8/22/2011	Y												
		35	W	B		0147 005	700 BROADWAY	8/22/2011	Y												
BROADWAY		36	W	B		0160 001	705 - 715 BROADWAY	8/22/2011	Y												Letter also sent 1/24/12
		37	W	B		0160 002	1247 - 1251 STOCKTON ST	8/22/2011	Y												
		38	W	B		0160 003	1241 - 1245 STOCKTON ST	8/22/2011	Y												
		39	W	B		0160 004	1235 STOCKTON ST	8/22/2011	Y												
		40	W	B		0160 005	1201 STOCKTON ST	8/22/2011	Y												
		41	E	B		0161 018	1200 - 1206 STOCKTON ST	8/22/2011	Y												
		42	E	B		0161 019	1208 - 1214 STOCKTON ST	8/22/2011	4/1/2013												
		43	E	B		0161 020	1216 - 1218 STOCKTON ST	8/22/2011	Y												
		44	E	B		0161 021	1220 - 1222 STOCKTON ST	8/22/2011	Y												
		45	E	B		0161 022	1224 - 1226 STOCKTON ST	8/22/2011	Y												
		46	E	B		0161 023	1230 STOCKTON ST	8/22/2011	Y												
		47	E	B		0161 024	1238 - 1242 STOCKTON ST	8/22/2011	Y												
		48	E	B		0161 029	1248 STOCKTON ST	8/22/2011	Y												
		49	E	B		0178 001	711 PACIFIC AVE	8/22/2011	Y												
		50	E	B		0178 011	1100 - 1104 STOCKTON ST	8/22/2011	Y												Letter also sent 1/24/12
		51	E	B		0178 012	1108 STOCKTON ST	8/22/2011	Y												
		52	E	B		0178 013	1116 STOCKTON ST	8/22/2011	Y												
		53	W	B		0179 001	1195 - 1199 STOCKTON ST	8/22/2011	Y												
		54	W	B		0179 002	1151 - 1153 STOCKTON ST	8/22/2011	Y												
		55	W	B		0179 006	1129 - 1133 STOCKTON ST	8/22/2011	Y												
		56	W	B		0179 007	1123 - 1125 STOCKTON ST	8/22/2011	Y												
		57	W	B		0179 008	1115 - 1121 STOCKTON ST	8/22/2011	Y												
		58	W	B		0179 010	1107 - 1111 STOCKTON ST	8/22/2011	Y												
		59	W	B		0179 011	1101 STOCKTON ST	8/22/2011	Y												
		60	W	B		0179 041	1141 - 1145 STOCKTON ST	8/22/2011	Y												
		61	W	B		0179 042	1135 - 1139 STOCKTON ST	8/22/2011	Y												
	2	62	W	B	B	0192 001	1035 - 1055 STOCKTON ST	8/22/2011	4/1/2013	12/14/2011	3/12/2014										
CHINATOWN	3	63	W	B	A	0192 002	1019 - 1027 STOCKTON ST	8/22/2011	Y	9/16/2011	Y	9/16/2011	Y	9/16/2011	Y						RECEIVED 11/13/12
	4	64	W	B	A	0192 003	1013 - 1015 STOCKTON ST	8/22/2011	4/1/2013	9/16/2011	6/7/2013	9/16/2011	6/7/2013	9/16/2011	6/7/2013						DELIVERED TO OWNER 4/10
	5	65	W	B	A	0192 004	1009 - 1011 STOCKTON ST	8/22/2011	Y	9/16/2011	Y	9/16/2011	Y	9/16/2011	Y						SIGNED BY OWNER 7/29/12
	6	66	W	B	B	0192 005	940 WASHINGTON ST	8/22/2011	Y	12/14/2011	Y										
	7	67	W	B	B	0192 006	0954 WASHINGTON ST	8/22/2011	Y	12/14/2011	3/12/2014										
	8	68	W	B	B	0192 041	835 - 845 JACKSON ST	8/22/2011	Y	12/14/2011	3/12/2014										
	9	69	E	B	B	0193 018	870 WASHINGTON ST	8/22/2011	Y	12/14/2011	3/12/2014										
	10	70	E	B	A	0193 019	1000 - 1032 STOCKTON ST	8/22/2011	Y	9/16/2011	Y	9/16/2011	Y	9/16/2011	Y						SIGNED BY OWNER 12/6
	11	71	E	B	B	0193 020	1034 - 1038 STOCKTON ST	8/22/2011	Y	12/14/2011 9/16/11	1/1/2014	Contractor	1/1/2014	N/A	N/A 1254						
	12	72	E	B	B	0193 021	1044 STOCKTON ST	8/22/2011	Y	12/14/2011 9/16/11	1/1/2014	Contractor	1/1/2014	N/A	N/A 1254						
	13	73	E	B	B	0193 022	1060 - 1064 STOCKTON ST	8/22/2011	Y	12/14/2011	3/12/2014										
	14	74	E	B	B	0193 023	1066 - 1068 STOCKTON ST	8/22/2011	4/1/2013	12/14/2011	3/12/2014										
	15	75	E	B	B	0193 024	1074 - 1076 STOCKTON ST	8/22/2011	4/1/2013	12/14/2011	3/12/2014										
	16	76	E	B	A	0210A 002-103	950 STOCKTON ST	8/22/2011	4/1/2013	9/16/2011	6/7/2013	9/16/2011	6/7/2013	9/16/2011	6/7/2013						Offer letter sent 3/23/12
	17	77	E	B	B	0210 012	868 CLAY ST	8/22/2011	Y	12/14/2011	Y										Sent to 0210 012
	18	78	E	B	B	0210 015	31 - 37 SPOFFORD ST	8/22/2011	Y	12/14/2011	3/12/2014										Sent to 0210 015
	19	79	E	B	B	0210 018	867 - 869 WASHINGTON ST	8/22/2011	Y	12/14/2011	3/12/2014										Sent to 0210 018
	20	80	E	B	B	0210 019	863 WASHINGTON ST	8/22/2011	Y	12/14/2011	3/12/2014										Sent to 0210 019
	21	81	E	B	B	0210A 021	39 - 49 SPOFFORD ST	8/22/2011	4/1/2013	12/14/2011	3/12/2014										Sent to 0210 021
CHINATOWN	22	82	E	B	A	0210 047	902-930 STOCKTON ST	8/22/2011	Y	9/16/2011	Y	9/16/2011	Y	9/16/2011	Y						SIGNED BY OWNER 11/30/12
	23	83	W	B	A	0211 002	925 STOCKTON ST	8/22/2011	Y	9/16/2011	Y	9/16/2011	Y	9/16/2011	Y						ROUTED FOR SIGNATURE
	24	84	W	B	A	0211 003	913 - 917 STOCKTON ST	8/22/2011	Y	9/16/2011	Y	9/16/2011	Y	9/16/2011	Y						SIGNED BY OWNER 8/6/12
	25	85	W	B	A	0211 004	901 - 907 STOCKTON ST	8/22/2011	Y	9/16/2011	Y	9/16/2011	Y	9/16/2011	Y						SIGNED BY OWNER 9/5/12
	26	86	W	B	A	0211 005	910 - 914 CLAY ST	8/22/2011	Y	9/16/2011	Y	9/16/2011	Y	9/16/2011	Y						SIGNED BY OWNER 3/27/13
	27	87	W	B	A	0211 006	916 - 920 CLAY ST	8/22/2011	Y	9/16/2011	Y	9/16/2011	Y	9/16/2011	Y						SIGNED BY OWNER 8/9/12
	28	88	W	B	B	0211 007-010	950 CLAY ST	8/22/2011	Y	12/14/2011	3/12/2014										
	29	89	W	B	B	0224 001	865 STOCKTON ST	8/22/2011	Y	12/14/2011	3/12/2014										
	30	90	W	B	B	0224 002	843 STOCKTON ST	8/22/2011	Y	12/14/2011	Y										
	31	91	W	B	B	0224 003	833 STOCKTON ST	8/22/2011	Y	12/14/2011	3/12/2014										
	32	92	W	B	B	0224 004	827 STOCKTON ST	8/22/2011	Y	12/14/2011	3/12/2014										
	33	93	W	B	B	0224 005	809 STOCKTON ST	8/22/2011	Y	12/14/2011	Y										
	34	94	W	B	B	0224 006	801 STOCKTON ST	8/22/2011	4/1/2013	12/14/2011	3/12/2014										
	35	95	W	B	B	0224 081- 97	929 CLAY ST	8/22/2011	Y	12/14/2011	3/12/2014										
	36	96	E	B	B	0225 013	800 STOCKTON ST	8/22/2011	Y	12/14/2011	3/12/2014										
	37	97	E	B	B	0225 014	814 - 828 STOCKTON ST	8/22/2011	Y	12/14/2011	3/12/2014										
	38	98	E	B	B	0225 016	830 - 842 STOCKTON ST	8/22/2011	Y	12/14/2011	3/12/2014										
	39	99	E	B	B	0225 017	850 STOCKTON ST	8/22/2011	Y	12/14/2011	3/21/2014										
		100	E	B		0242 014	790 CALIFORNIA ST	8/22/2011	Y												
		101	E	B		0242 016	730 STOCKTON ST	8/22/2011	Y												
		102	E	B		0242 017	738 STOCKTON ST	8/22/2011	Y												
STOCKTON TUNNEL		103	E	B		0242 018	752 STOCKTON ST	8/22/2011	Y												
		104	E	B		0242 020	891 - 897 SACRAMENTO ST	8/22/2011	4/1/2013												
		105	E	B		0242 057 - 068	720 STOCKTON ST	8/22/2011	4/1/2013												
		106	W	B		0243 007A	707 STOCKTON ST	8/22/2011	4/1/2013												
		107	W	B		0243 058	945 SACRAMENTO ST	8/22/2011	Y												
		108	W	B		0256 001	655 STOCKTON ST	8/22/2011	4/1/2013												
		109	W	B		0256 002	645 STOCKTON ST	8/22/2011	4/1/2013												
		110	W	B		0256 003	621 STOCKTON ST	8/22/2011	Y												
		111	W	B		0256 005	601 STOCKTON ST	8/22/2011	4/1/2013												
		112	E	B		0257 012	600 STOCKTON ST	8/22/2011	4/1/2013												
		113	E	B		0271 015	586 BUSH ST	8/22/2011	4/1/2013												
		114	E	B		0271 016	510 STOCKTON ST	8/22/2011	4/1/2013												
		115	E	B		0271 017	530 STOCKTON ST	8/22/2011	Y												
		116	E	B		0271 018	540 STOCKTON ST	8/22/2011	4/1/2013												
		117	E	B		0271 019	550 STOCKTON ST	8/22/2011	Y												
		118	W	B		0272 001	701 PINE ST	8/22/2011	4/1/2013												
		119	W	B		0272 001A	535 STOCKTON ST	8/22/2011	Y												
		120	W	B		0272 002	525 STOCKTON ST	8/22/2011	4/1/2013												
		121	W	B		0272 004	600 - 610 BUSH ST	8/22/2011	4/1/2013												
		122	W	B		0285 001	601 - 611 BUSH ST	8/22/2011	Y												
		123	W	B		0285 003	427 - 439 STOCKTON ST	8/22/2011	Y												
		124	W	B		0285 004	417 STOCKTON ST	8/22/2011	4/1/2013												
		125	W	B		0285 005	400 - 406 SUTTER ST	8/22/2011	Y												
		126	E	B		0286 017	585 BUSH ST	8/22/2011	Y												
		N/A	E	B		0286 024	340-390 SUTTER ST		N/A												0286-024 = 0286-017
		127	E	B		0294 011	278 - 298 POST ST	8/22/2011	4/1/2013												
		128	E	B		0294 013	340 STOCKTON ST	8/22/2011	4/1/2013												Listed as 0294-013A in CN1252 spec
		129	E	B		0294 015	391 - 399 SUTTER ST	8/22/2011	Y												
		130	W	B		0295 016	345 STOCKTON ST	8/22/2011	Y												
UNION SQUARE	40	131	W	B	B	0308 001	UNION SQUARE GARAGE	8/22/2011	Y	9/9/2011	7/27/2013	9/9/2011	8/12/2013								
	41	132	E	B	A	0309 011	212 STOCKTON ST	8/22/2011	Y	5/30/2012	Y	5/30/2012	Y	5/30/2012	Y						RECEIVED 4/24/13
	42	133	E	B	B	0309 012	177 MAIDEN LN	8/22/2011	4/1/2013	12/12/2011	7/27/2013										
	43	134	E	B	A	0309 013	216 STOCKTON ST	8/22/2011	Y	5/30/2012	6/7/2013	5/30/2012	6/7/2013	5/30/2012	6/7/2013						Offer letter sent 5/30/12
	44	135	E	B	A	0309 014	218 - 222 STOCKTON ST	8/22/2011	Y	5/30/2012	Y	5/30/2012	Y	5/30/2012	Y						SIGNED BY OWNER 8/2/12
	45	136	E	B	A	0309 020	234 - 240 STOCKTON ST	8/22/2011	Y	5/30/2012	Y	5/30/2012	Y	5/30/2012	Y						signed by owner 11/2/12
	46	137	E	B	B	0309 021	250 - 260 STOCKTON ST	8/22/2011	4/1/2013	12/12/2011	7/27/2013										
	47	138	E	B	B	0309 022	275 POST ST	8/22/2011	4/1/2013	12/12/2011	7/27/2013										
	48	139	E	B	B	0309 023	259 POST ST	8/22/2011	4/1/2013	12/12/2011	7/27/2013										
	49	N/A	E		B	0313 010	20-26 O'FARRELL ST				7/27/2013										
	50	140	E	B	A	0313 017	120 STOCKTON ST	8/22/2011	4/1/2013	5/30/2012	6/7/2013	5/30/2012	6/7/2013	5/30/2012	6/7/2013			6/12/2012	6/7/2013		SENT TO OWNER 4/11
	51	141	E	B	A	0313 018	150 STOCKTON ST	7/8/2011	Y	5/30/2012	Y	5/30/2012	Y	5/30/2012	Y			1/17/2012	Y		signed by owner 9/27/12
	52	142	W	B	A	0314 001	233 GEARY ST	7/8/2011	4/1/2013	5/30/2012	6/7/2013	5/30/2012	6/7/2013	5/30/2012	6/7/2013			6/12/2012	Y		SENT TO OWNER 4/11
	53	143	W	B	A	0314 002	101 STOCKTON ST	8/22/2011	4/1/2013	5/30/2012	6/7/2013	5/30/2012	6/7/2013	5/30/2012	6/7/2013			6/12/2012	6/7/2013		SENT TO OWNER 4/11
	54	144	W	B	B	0314 015	239 GEARY ST	8/22/2011	4/1/2013	12/12/2011	7/27/2013										
	55	145	W	B	A	0327 001-003, 020	55 STOCKTON ST	7/8/2011	Y	5/30/2012	Y	5/30/2012	Y	5/30/2012	Y			1/17/2012	Y		SIGNED BY OWNER 8/29/12
	56	146	W	B	A	0327 004	39 STOCKTON ST	8/22/2011	Y	5/30/2012	Y	5/30/2012	Y	5/30/2012	Y						SIGNED BY OWNER 4/5/13
	57	147	W	B	A	0327 005	19 STOCKTON ST	8/22/2011	4/1/2013	5/30/2012	6/7/2013	5/30/2012	6/7/2013	5/30/2012	6/7/2013						IN CONDEMNATION
	58	148	W	B	B	0327 008	24 - 34 ELLIS ST	8/22/2011	Y	12/12/2011	7/27/2013	contractor	8/12/2013								
	N/A		W	B		0327 011	72 ELLIS ST	8/22/2011	N/A RFI-18												

Property Agreements Summary
Weekly Update - 4/25/13

STATION No. REQ'D FOR 1300	TUNNEL No. REQ'D FOR 1252	Side of Tunnel	Tunnel Group	Station Group	Block & Lot	Location	BY TUNNEL CONTRACTOR: Tunnel Monitoring Sent	BY TUNNEL CONTRACTOR: Tunnel Monitoring Needed By	BY STATION CONTRACTOR: Extended Station Monitoring Sent	BY STATION CONTRACTOR: Extended Station Monitoring Needed By	Interior Station Monitoring Sent	Interior Station Monitoring Needed By	Station Compensation Grouting Sent	Station Compensation Grouting Needed By	Tunnel Compensation Grouting Sent	Tunnel Compensation Grouting Needed By	UMS Inclined Piles Sent	UMS Inclined Piles Needed By	Easement Possession	Status
59	149	W	B	B	0327 018	165 - 167 O'FARRELL ST	8/22/2011	4/1/2013		7/27/2013										
60	150	W	B	B	0327 021	121 O'FARRELL ST	8/22/2011	Y	12/12/2011	7/27/2013										
61	151	W	B	A	0327 025	1 STOCKTON ST	8/22/2011	Y	5/30/2012	Y	5/30/2012	Y	5/30/2012	Y						RECEIVED 4/24/13
62	152	W	B	B	0327 026-056	181 O'FARRELL		4/1/2013		7/27/2013										
63	153	E	B	B	0328 001	760 MARKET ST	8/22/2011	4/1/2013	12/12/2011	7/27/2013										
64	154	E	B	A	0328 003-004	48 STOCKTON ST	7/8/2011	Y	5/30/2012	Y	5/30/2012	Y	5/30/2012	Y			1/17/2012	Y		SIGNED BY OWNER 7/30/12
65	155	W	B	B	0329 001	800 - 830 MARKET ST	8/22/2011	Y	12/12/2011	7/27/2013	contractor	8/12/2013								
66	156	W	B	B	0329 002, 002A	838 - 842 MARKET ST	8/22/2011	4/1/2013	12/12/2011	7/27/2013										
67	N/A	W	B	B	0329 003	846 MARKET ST	8/22/2011	N/A RFI-18		7/27/2013										
	N/A	W	B		0329 004	856 MARKET ST	8/22/2011	N/A RFI-18												
	N/A	W	B		0329 005	870 - 890 MARKET ST	8/22/2011	N/A RFI-18												
68	N/A	W	B	B	0329 006	61 - 65 ELLIS ST	8/22/2011	N/A RFI-18		7/27/2013										
	157	W	B		3705 004	54 - 68 4TH ST	8/22/2011	Y												
	158	W	B		3705 005	70 - 74 4TH ST	8/22/2011	Y												
	159	W	B		3705 006	84V 4TH ST	8/22/2011	3/1/2013												VERBAL PERMISSION
	160	W	B		3705 048B	22 4TH ST	8/22/2011	3/1/2013												252 PRE-CON OUTSTANDING
	161	E	B		3706 047	799 MARKET ST	8/22/2011	Y												
	162	E	B		3706 096-124	765 MARKET ST	8/22/2011	Y												
	163	E	B		3723 113-117	763 MISSION ST	8/22/2011	3/1/2013												AKA 101 FOURTH ST.
	164	W	B		3724 067	801 - 825 MISSION ST	8/22/2011	Y												
	165	W	B		3724 070	150 4TH ST	8/22/2011	Y												
69	166	W	B	A	3733 008	250 4TH ST	8/22/2011	Y	5/30/2012	Y	5/30/2012	Y	5/30/2012	Y						SIGNED BY OWNER 4/1/13
70	167	W	B	B	3733 014	816 FOLSOM ST	8/22/2011	Y	12/12/2011	Y	contractor	3/12/2014								
71	168	W	B		3733 098	316 - 318 CLEMENTINA ST	8/22/2011	3/1/2013	12/12/2011	N/A										
72	169	W	B	B	3733 105	321 CLEMENTINA ST	8/22/2011	Y	12/12/2011	3/12/2014	contractor	3/12/2014								
73	170	W	B	A	3733 108	801 - 805 HOWARD ST	8/22/2011	Y	5/30/2012	Y	5/30/2012	Y	5/30/2012	Y						RECEIVED 11/12/12
74	171	W	B	B	3733 109	240 4TH ST	8/22/2011	Y	12/12/2011	3/12/2014	contractor	3/12/2014								252 PRE-CON OUTSTANDING
75	172	E	B	B	3734 091	701 - 799 HOWARD ST	8/22/2011	Y	12/12/2011	3/12/2014	contractor	3/12/2014								
	173	E	B		3751 165	343 - 345 04TH ST	8/22/2011	Y												
76	174	W	B		3752 001	300 4TH ST	8/22/2011	Y	12/12/2011	5/21/2014										
77	175	W	B	B	3752 002	310 - 324 04TH ST	8/22/2011	Y	12/12/2011	5/21/2014										
	176	W	B		3752 008-009	360 4TH ST	8/22/2011	Y												
	177	W	B		3752 010	360 4TH ST	8/22/2011	Y												
	178	W	B		3752 011	370 4TH ST	8/22/2011	Y												
	179	W	B		3752 011A	390 4TH ST	8/22/2011	3/1/2013												1252 COMPLETE
78	180	W	B	B	3752 401 - 473	821 FOLSOM ST	8/22/2011	Y	12/12/2011	5/21/2014										
	181	E	B		3761 063	CALTRANS		Y												MONITORED UNDER LEASE
	182	E	B		3762 032	475 4TH ST	8/22/2011	Y												
	183	E	B		3762 112	425 4TH ST	8/22/2011	Y												
	184	E	B		3762 121	598 BRYANT ST	8/22/2011	Y												
	185	W			0130 040	625 GREEN	9/17/2010	N/A							4/6/2012	2/1/2013				CONDEMNATION FILED 4/9
79		W			0192 012	1114 - 1118 POWELL ST			12/14/2011	3/12/2014										
80		W		B	0192 039	821 - 823 JACKSON ST				3/12/2014										
81		E		B	0193 017	852 - 864 WASHINGTON ST			12/14/2011	3/12/2014										
82		E		B	0193 021A	43 - 53 ROSS ALY			12/14/2011	3/12/2014										
83		E		B	0193 025	759 - 777 JACKSON ST			12/14/2011	3/12/2014										
84		E		B	0210A 011	852 - 854 CLAY ST			12/14/2011	3/12/2014										Sent to 0210 011
85		E		B	0210A 018A	845V WASHINGTON ST			12/14/2011	3/12/2014										Sent to 0210 018A
86		E		B	0210A 020	855 - 857 WASHINGTON ST	8/22/2011	N/A	12/14/2011	3/12/2014										Sent to 0210 020
87		W		B	0224 007	918 SACRAMENTO ST			12/14/2011	3/12/2014										
88		W		B	0224 008	920 SACRAMENTO ST			12/14/2011	3/12/2014										
89		W		B	0224 030	232V JOICE ST			12/14/2011	3/12/2014										
90		W		B	0224 031	240 - 242 JOICE ST			12/14/2011	3/12/2014										
91		W		B	0224 032	937 - 949 CLAY ST			12/14/2011	3/12/2014										
92		E		B	0225 018	W. WONG PLAYGROUND			12/14/2011	3/12/2014										
93		E		B	0225 019	857 CLAY ST			12/14/2011	3/12/2014										
94		E		B	0225 020	843 - 853 CLAY ST			12/14/2011	3/12/2014										
95		E		B	0309 009	156 GEARY ST			9/9/2011	10/21/2013	9/9/2011	N/A 1253								
96		E		B	0309 010	166 GEARY ST			9/9/2011	10/21/2013	9/9/2011	N/A 1253								
97		W		B	0314 004	170 O'FARRELL ST			12/12/2011	10/21/2013										
98		W		B	0314 013, 013A	281 GEARY ST			12/12/2011	10/21/2013										
99		W		B	0314 014	251 - 259 GEARY ST			12/12/2011	10/21/2013										
		W			0327 013	120 POWELL ST														
	186	W			0327 024	POWELL STATION	8/22/2011	3/1/2013												
		W			3733 093	266 FOURTH ST														
100		W			3733 148-158	826 FOLSOM				5/21/2014										AKA 3733-151-157
		W			3733 159	328 TEHAMA ST			12/12/2011	N/A										
101		W		B	3733 159-161	320 CLEMENTINA ST			12/12/2011	5/21/2014										
		W			3733 160	825 HOWARD ST			12/12/2011	N/A										
		W			3752 003	328 FOURTH ST														
	187				3761 005C	600-610 BRYANT STREET		Y												BIH INCLUSION
	188				3777 001	500-504 FOURTH STREET		Y												BIH INCLUSION

MARKET STREET / YERBA BUENA / MOSCONE LAUNCH BOX

187	Tunnel Monitoring Agreements Total Needed
183	Tunnel Monitoring Agreements Needed & Sent
135	Tunnel Monitoring Agreements Received
101	Extended Station Monitoring Total Needed
92	Extended Station Monitoring Needed & Sent
25	Extended Station Monitoring Received
36	Interior Station Monitoring Total Needed
30	Interior Station Monitoring Needed & Sent
20	Interior Station Monitoring Received
27	Station Compensation Grouting Total Needed
27	Station Compensation Grouting Needed & Sent
20	Station Compensation Grouting Received
8	Tunnel Compensation Grouting Total Needed
5	Tunnel Compensation Grouting Needed & Sent
3	Tunnel Compensation Grouting Received
6	UMS Inclined Pile Total Needed
6	UMS Inclined Pile Needed & Sent
4	UMS Inclined Pile Received
207	Licenses obtained
365	Licenses required

Notes to Property Agreements Spreadsheet:

1. Tunnel Monitoring refers to an agreement needed in CN1252 for exterior monitoring of buildings.
2. Extended Station Monitoring refers to an agreement needed in the Station contracts for exterior monitoring of buildings adjacent to the proposed station.
3. Interior Station Monitoring refers to an agreement needed in the Station contracts for interior monitoring of buildings adjacent to the proposed station.
4. Station Compensation Grouting refers to an agreement needed in the Station contracts for those buildings that will require compensation grouting during station construction.
5. Tunnel Compensation Grouting refers to an agreement needed in the CN1252 for those buildings that will require compensation grouting during tunnel construction.
6. UMS Inclined Piles refers to an agreement needed for those buildings that will have inclined piles that cross the property line for either tunnel or station construction.
7. Colored boxes indicate agreement needed by date yet not received
8. Blank boxes indicate agreement needed yet not requested

Y - Agreement received and on record
A - Group A Buildings as defined in contract specifications section 31 09 15 Structural Instrumentation and Monitoring
B - Group B Buildings as defined in contract specifications section 31 09 15 Structural Instrumentation and Monitoring
AP - Appraisal complete.
AR - Appraisal review complete.
OF - Offer presented.
OR - Offer rejected.

- Agreement not needed
- Agreement not needed yet requested
- Agreement needed within one year
- Agreement needed within 120 days
- Agreement needed within 60 days
- Updated information since last publication
- Monitoring Instrumentation has been installed however a permission slip has not been obtained

4/25/13 Update Comments:
'Needed By' dates have been updated
Signed Agreements were returned for 2 Station Group A Properties, 1 Stockton and 212 Stockton St
SFMTA obtained permission slips for 2 Station Group B properties
BIH received verbal permission to access 84 4th Street (City College), BIH will follow up to obtain a permission slip
No other permission slips have been reported by BIH this period

4/19/13 Update Comments:
BIH reported 1 additional permission slip this period.
5 Properties that do not require monitoring as per RFI-18 have been updated to 'N/A RFI 18'

4/12/13 Update Comments:
No additional tunnel permissions or station compensation grouting licenses were obtained this period.

4/5/13 Update Comments:
39 Stockton Street License signed by owner 4/5/13
250 Fourth Street License signed by owner 4/1/13
1 additional Tunnel permission was received this period

3/29/13 Update Comments:
910-914 Clay Street - Station compensation grouting license was signed by owner on 3/26/13
No additional Tunnel permissions were reported this period
'1252 Complete = Pre-construction inspection has been completed and external monitoring has been installed for the 1252 Contract, the permission slip is outstanding

3/22/13 Update Comments:
No additional Station licenses were received this period
1 additional Tunnel permission was reported this period

3/15/13 Update Comments:
3 Additional Tunnel Compensation Grouting licenses have been added
3 Additional Tunnel Exterior monitoring licenses have been added
721-725 Filbert, 1717-1719 Powell Street, 659 Columbus Ave
No additional Station licenses were received this period
No additional Tunnel permissions were reported this period

3/8/13 Update Comments:
No additional Station compensation grouting licenses have been obtained this period
795 Folsom Street monitoring agreement obtained by Central Subway
BIH reported an additional 5 permission slips this period
Note: 'ISM' = Interior Station Monitoring, 'ESM' = Exterior Station Monitoring