

## Risk Mitigation Meeting Minutes #51

DATE: October 11, 2013  
 MEETING DATE: **October 08, 2013**  
 LOCATION: 821 Howard Street, 2<sup>nd</sup> Floor – Main Conference Room  
 TIME: 2:00pm  
 ATTENDEES: John Funghi, Albert Hoe, Eric Stassevitch, Alex Clifford, Richard Redmond, Vivian Chow, Beverly Ward, Luis Zurinaga, Bradley Lebovitz, Mark Benson, Jane Wang (PT)  
 COPIES TO: Attendees: Roger Nguyen, Mark Latch, Sanford Pong, Aileen Read, Chuck Morganson, James Sampson, David Kuehn, Jeffrey Davis  
 File: M544.1.5.0820  
 REFERENCE Project No. M544.1, Contract No. 149 Task 1-4.01  
 Program/Construction Management  
 SUBJECT: **Risk Management – Risk Mitigation Meeting  
 Risk Mitigation Report No. 51**

### RECORD OF MEETING

ITEM #	DISCUSSION	ACTION BY DUE DATE
1 -	<p>The Risk Manager provided a recap of last month meeting which performed an additional review of the current Risk items in summary form to ensure that the risk ratings of the remaining risks were appropriate for the current level of potential impacts and the risk refresh exercise.</p> <p>To ensure that the risk refresh accurately reflects the risks going forward the Risk Manager opened the meeting, for anyone, to voice his or her greatest concern that required further evaluation of the mitigation strategies in place. Additionally the Risk Manager requested the Committee to provide input on any new Risk that needs consideration.</p> <p><b>Risk 212:</b> UMS Inclined piles – 8” clearance between piles and tunnel results in damage or safety issues within the tunnel  <u>Discussion:</u> Concerns about the interface between the tunnel operation and UMS station piles. The discussion focused on the lack of clarity of how the proposed tunnel bracing in 1300 was to be installed in order to provide the necessary safe working environment for the tunneling operation. Several actions were identified to address the concerns and are listed below and on the Risk Status form. <b>Risk Rating 4</b></p> <p><b>Risk 211:</b> Differing site conditions encountered during ground freezing of Cross Passage 5 results in increased costs.  <u>Discussion:</u> The Committee expressed concern regarding how the Contractor</p>	


ITEM #	DISCUSSION	ACTION BY DUE DATE
	<p>will accomplish the necessary ground freezing with the tunnel operations continuing. Additional mitigation strategies were discussed. Follow up actions to address the concerns are listed below and on the updated Risk Status form.</p> <p><b>Risk Rating 2</b></p> <p><b>Risk 7:</b> Potential for excessive settlement of BART tunnels - SIGNIFICANT COMPENSATION GROUT REQUIRED OVER ESTIMATE ALLOWANCES).  <u>Discussion:</u> Concern regarding implementation of listed mitigation strategies that although feasible will most likely not be implemented. Risk committee agreed to update the mitigations to only list the ones that will actually be implemented if required. <b>Risk Rating 5</b></p> <p>Additionally the Committee raised a concern regarding the lack of progress of the tunnel production rate, over the originally planned 45 to 50ft a day. The committee suggested the tunnel production needs to be evaluated once TBM 2 is running, when the Contractor is in in full production mode then we will be able to make a better determination of how they are doing.</p>	
2 -	<b>Follow Up Action Items</b>	
	<p>A list of follow up action items were developed out of today's discussion concerning for Risk items noted below and expanded on in the detailed Risk Status forms:</p> <p>Risk 212 Action items:</p> <ul style="list-style-type: none"> <li>• Establish task force - to create action plan that specifically guides the Program successfully thru this risk.</li> <li>• Action plan to address Cost and Schedule concerns.</li> <li>• Confirm contract requirements in 1300 about tunnel bracing.</li> <li>• Update mitigation strategy – to include current contract requirements for 1300 related to bracing and work above the tunnel.</li> <li>• Follow up with the designed on what loads can the liner support?</li> <li>• Facilitate the early cooperation of 1252 Contractor and 1300 Contractor to implement appropriate plan.</li> <li>• Work together with 1300 Contractor – to sequence the work in a manner to avoid exposure to the condition.</li> </ul> <p>Risk 211 Action items:</p> <ul style="list-style-type: none"> <li>• Update mitigation strategy – Need early review of work plan, and identification of entity that will perform the work.</li> </ul> <p>Risk 7 Action items:</p> <ul style="list-style-type: none"> <li>• Review mitigation strategies and only list ones that have a likelihood of implementation.</li> </ul>	

**ACTION ITEMS –**

ITEM#	MTG DATE	Task #	DESCRIPTION	BIC	DUE DATE	STATUS
4	12/13/12		Risk 72 – 4 <sup>th</sup> & King (SSWP)	S. Pong C. Morganson	11/12/13	Open
2	10/08/13		Risks 212, 211, & 7 - Implement action items	Risk Committee	11/12/13	Open

Meeting adjourned at 3:35pm

These meeting minutes have been prepared by B. Ward and reviewed by E. Stassevitch, and are the preparer's interpretation of discussions that took place. If the reader's interpretation differs, please contact the author in writing within four (4) days of receipt of these minutes.

Signed:  [initials of preparer & reviewer]      Date: 11 Oct 13 [Date review completed.]

## Meeting Agenda

**Project No. M544.1, Contract No. CS-149**  
**Program/Construction Management**  
**Risk Mitigation Management Meeting No. 51**  
**October 8, 2013**  
**2:00pm – 4:00pm**  
 Central Subway Project Office  
 821 Howard St. 2<sup>nd</sup> Floor  
 Main Conference Room

**Attendees:**

Mark Benson		Richard Redmond		Roger Nguyen	
Alex Clifford		Albert Hoe		Eric Stassevitch	
Vivian Chow		Mark Latch		Beverly Ward	
John Funghi		Brad Lebovitz		Luis Zurinaga	

**1. Report on Red Risks (Risk Rating 6 and above)**

- Requirement Risks (83)
- Construction Risks (B, 99, 203, 204, 208)

**2. Report on Remaining Requirement and Design Risks**

- Requirement Risks (79)
- Design Risks (104, T, V)

**3. Active Risks**

- Market Risk (PR80)
- Construction Risks (7, 13, 15, 196, 202, 205, 210, 212, 213, 215, 216)

**4. New Risks (Assessment and mitigation strategy)**

Note: **Bolded** numerals indicate that risk is recommended to be retired.

## Meeting Attendance Sheet

**Project No. M544.1, Contract No. CS-149**  
**Program/Construction Management**  
**Risk Management Meeting No. 51**  
**October 08, 2013**  
**2:00 p.m. – 4:00 p.m.**  
 Central Subway Project Office  
 821 Howard Street, 2<sup>nd</sup> Floor  
 Main Conference Room

*Deliver Meeting Attendance Sheet with original signatures/initials to Document Control.*

NAME	AFFILIATION	PHONE	E-MAIL (for minutes)	INITIALS
Mark Benson	CSP	415-701-5295	<a href="mailto:Mark.Benson@sfmta.com">Mark.Benson@sfmta.com</a>	McB
Vivian Chow	SFMTA	415 701-5264	<a href="mailto:Vivian.chow.@sfmta.com">Vivian.chow.@sfmta.com</a>	vechow
Jeffrey Davis	FTA	415 744-2594	<a href="mailto:Jeffrey.s.davis@dot.gov">Jeffrey.s.davis@dot.gov</a>	
Alex Clifford	CSP	415 701- 5275	<a href="mailto:Alex.clifford@sfmta.com">Alex.clifford@sfmta.com</a>	A
John Funghi	SFMTA	415-701-4299	<a href="mailto:john.funghi@sfmta.com">john.funghi@sfmta.com</a>	JF
Albert Hoe	SFMTA	415-701-4289	<a href="mailto:albert.hoe@sfmta.com">albert.hoe@sfmta.com</a>	AH
Mark Latch	CSP	415-701-5294	<a href="mailto:mark.latch@sfmta.com">mark.latch@sfmta.com</a>	
Brad Lebovitz	STV/PMOC	510-464-8052	<a href="mailto:Bradley.lebovitz@stvinc.com">Bradley.lebovitz@stvinc.com</a>	BL
Richard Redmond	CSP	415-701-4288	<a href="mailto:Richard.redmond@sfmta.com">Richard.redmond@sfmta.com</a>	RR
Eric Stassevitch	CSP	415-701-4426	<a href="mailto:Eric.stassevitch@sfmta.com">Eric.stassevitch@sfmta.com</a>	ES
Beverly Ward	CSP	415-701-5291	<a href="mailto:Beverly.ward@sfmta.com">Beverly.ward@sfmta.com</a>	BW
Luis Zurinaga	SFCTA	415-716-6956	<a href="mailto:luis@sfcta.org">luis@sfcta.org</a>	LZ
Jane Wang				JW
		L. Zurinaga was in attendance, but did not sign in.		

Risk Register

PROJECT RISK REGISTER		Risk Profile					Severity Score					Legend		RISK RATING = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)		
Central Subway Project San Francisco		Likelihood Score	1	2	3	4	5	Low (1)	Medium (2)	High (3)	Very High (4)	Significant (5)	<3 Low	3 - 9 Medium	>10 High	SCORE = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)
REV : 25		5						< 10%	< 10% - 50%	> 50%	< 75% - 90%	> 90%				
DATE ISSUED: 10/08/13		4						< \$250K	< \$250K - \$1M	> \$1M - \$3M	< \$3M - \$10M	> \$10M				
		3						< 1 Month	< 1 - 3 Months	< 3 - 6 Months	< 6 - 12 Months	> 12 Months				
		2														
		1														
Final Risk ID	Risk Description	Mitigation Description	Risk Category	Probability %	Cost Impact	Schedule Impact	Calc Impact	Calc %	Risk Rating	Score	Status	Must Complete by Date				
Underground Tunnel																
1	Additional night shift work required at portal launch box due to bus storage facility relocation delay	Work with TJPA to coordinate construction schedules and GGB to coordinate Traffic Routing.	C	2	1	-	1	35%	1	2	No longer considered a risk. GGB not scheduled to be utilizing site until 2014	3/20/15 TUN1160				
2a	42"/48" sewer line relocated as part Utility 1 package is damaged by subsequent construction of the launch box.	1. Make follow-on contractor responsible for repairs to any existing utility lines. 2. Properly as built actual location as part of Utility 1 package and provide to Contract 3 Contractor	C	1	1	2	2	10%	2	3	Sewer Installation complete, awaiting as built drawing. Sewer installed according to contract drawings. Contract 1252 provisions for protection of existing utilities puts all cost and schedule risk on Contractor.	10/24/12 TUN1080				
5	Possibility that lowest level of tie-backs extending out from Moscone Center could be within the tunnel alignment.	1. Lower tunnel alignment 5' below the lowest expected tieback. 2. Include obstruction clause and allowance in contract documents.	C	1	1	1	1	10%	1	2	Contract Documents issued for bid, contain location of tiebacks from as built drawings, do not intersect tunnel alignment.	7/2/13 TUN1118				
7	Potential for excessive settlement of BART tunnels - SIGNIFICANT COMPENSATION GROUT REQUIRED OVER ESTIMATE ALLOWANCES	1. Early and extensive co-ordination with BART. 2. Survey BART tunnels to determine exact locations. 3. Checking effect of maximum expected settlement on tunnels. 4. Require EPBM TBM, Contractor to demonstrate effective control of ground settlements and correction of settlements by compensation grouting, and pre-installation of compensation grout piping under BART tunnels prior to tunneling reaching Market St. Require repair/adjustment plan. 5. Monitor movement of BART tunnels in real-time. 6.. Repair/adjust as needed. 7.. Include probable cost in estimate.	C	2	2	2	2	35%	4	8	Risk is considered active, with mitigation measures fully developed with the exception of Bus Bridge. Adjusted cost impact lower resulting in Risk rating increasing to 2 but still remains a low risk.	8/28/13 TUN1120				
8	Flowing groundwater in vicinity of UMS Station could make adequate annulus grouting difficult.	1. Use appropriate additives such as accelerators in primary annulus backfill grouting, if needed. 2. Use secondary grouting as needed.	C	1	1	1	1	10%	1	2	Plans issued for bid contain mitigation measures	8/28/13 TUN1120				
E	Underground obstructions tunnel and retrieval shaft	Include differing site conditions in GPs as well as DRB to adjudicate conflicts and minimize costs	C	2	2	3	3	35%	5	10	Mitigation measures have been implemented. Maintain adequate contingency throughout tunnel construction	2/5/14 TUN1124				
PR1	Actual TBM production rate may be slower than forecasted.	Assign significant liquidated damages for not meeting specific schedule dates.	C	1	1	3	2	10%	2	4	Considered Risk inherent in the work and reflected in the Current Cost Estimate. Risk will be reflected in Contractor's Bid. LDs included in contract.	2/5/14 TUN1124				
13	Damage / settlement 3x 5' to old brick sewer running parallel to tunnel alignment	Slip Line 3'x5' brick sewer before TBM reaches CTS.	C	1	1	-	1	10%	1	1	Tunnel profile has been lowered 25 ft. and plans developed for replacement of at risk utilities in advance of tunnel drive.	12/16/13 TUN1121				
15	Major TBM machine failure	Closely monitor condition and maintenance of the machines.	C	1	2	2	2	10%	2	4	Contractor has indicated that they plan to use a newly manufactured TBM for this project.	2/5/14 TUN1124				
115	Jet grouted station end walls are installed by Tunnel contractor. Station Contractor assumes risk of possibly leakage problems due to insufficiently quality of end walls.	1. In the 1252 contract, have tunnel contractor set aside a pre-determined amount of money in escrow that can be used to repair any leaks encountered by the station contractors after the in the jet grout end walls are excavated. 2. Alternatively, place an allowance in the station contracts for end wall leakage repair.	C	3	1	1	1	50%	3	6	Project configuration changes include headwall designs with multiple levels of redundancy. Warranty provisions added to contact language.	5/26/15 UMS1295				
116	TBM procurement, delivery and assembly takes longer than assumed in schedule.	Accommodate delay to TBM procurement and delivery, on the order of 2 or 3 months, with current float shown on the construction schedule.	C	2	2	2	2	35%	4	8	Mitigation measures are being implemented	5/20/13 TUN1095				

Risk Register

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Central Subway Project San Francisco		Likelihood Score	1	2	3	4	5	Low (1)	Medium (2)	High (3)	Very High (4)	Significant (5)	<3 Low	3 - 9 Medium	>10 High	SCORE = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)
REV : 25		5						< 10%	< 10% - 50%	> 50%	< 75% - 90%	> 90%				
DATE ISSUED: 10/08/13		4						< \$250K	< \$250K - \$1M	> \$1M - \$3M	< \$3M - \$10M	> \$10M				
		3						< 1 Month	< 1 - 3 Months	< 3 - 6 Months	< 6 - 12 Months	> 12 Months				
		2														
		1														
Final Risk ID	Risk Description	Mitigation Description	Risk Category	Probability %	Cost Impact	Schedule Impact	Calc Impact	Calc %	Risk Rating	Score	Status	Must Complete by Date				
B	Storage and testing of excavated soils from tunnel limits advance rate of tunneling.	1. Provide adequate storage and handling facility to accommodate testing activity. 2. Work with SAR to develop acceptance criteria, to minimize or eliminate testing requirements. 3. Require the contractor to provide a detailed workplan for testing, sorting and stockpile prior to hauling.	C	2	3	3	3	35%	6	9	Contractor is attempting to obtain the use of additional Caltrans parcel between Fourth & Fifth and Harrison & Bryant to help facilitate this work and provide additional storage area .	2/5/14 TUN1124				
MOS Station																
21	Incomplete cutoff of groundwater at MOS	1. Require additional grouting to limit leakage to permissible level. 2. Include probable grouting work in cost & schedule estimates.	C	1	1	-	1	10%	1	1	Mitigation measure to be made part of the contract documents	4/28/15 MOS1150				
22	Public complaints result in unanticipated restrictions on construction at MOS.	1. Public outreach. 2. Maintain regular and open communications so Public knows construction plans and progress at all times. 3. Require Contractor to assist Public Outreach efforts, maintain access to businesses and assist with deliveries and pick-ups, control noise and vibration, continuously cleanup site, and provide pedestrian and vehicle traffic and protection plans, informational signage, ADA ramps and minimum sidewalk widths. 4. Work with MOED to increase cleanup of the area and assist pedestrians across streets, as needed. 5. Monitor and enforce noise, vibration, ADA, traffic, and cleanup requirements. 6. Quickly process and resolve damage and accident claims from the Public. 7. Assumed this work in cost & schedule estimates.	C	1	1	-	1	10%	1	1	Implementation of mitigation measures part of Communication/Outreach plan and certain aspects to be included in the contract documents.	9/16/16 MOS1230				
F	Underground obstructions Stations (MOS)	1. Provide adequate allowance for differing site conditions to address unknown underground obstructions. 2. Show field verified obstructions discovered during previous contracts on contract drawings. 3. Make as-built drawings of structures adjacent to the work available to the contractor as reference drawings.	C	4	2	2	2	80%	8	16	Mitigation measures have been implemented.	4/28/15 MOS1150				
27	Loss of business results in unanticipated restrictions on construction at MOS.	1. Public outreach. 2. Maintain regular and open communications so Merchants know construction plans and progress at all times. 3. Require Contractor to coordinate with merchants, maintain access to businesses and assist with deliveries and pick-ups, continuously cleanup site, and provide pedestrian and vehicle traffic and protection plans, informational signage, and minimum sidewalk widths. 4. Require barriers to protect pedestrians and shield them from noise and dirt from construction. 5. Work with MOEWD to increase cleanup of the area and assist pedestrians across streets. 6. Include this work in cost & schedule estimates.	C	1	2	1	2	10%	2	3	Mitigation measures to be implemented and to the extent possible requirements will be written into contract documents to minimize disruptions to businesses.	4/28/15 MOS1150				
F	Underground obstructions Stations (UMS)	1. Provide adequate allowance for differing site conditions to address unknown underground obstructions. 2. Show field verified obstructions discovered during previous contracts on contract drawings. 3. Make as-built drawings of structures adjacent to the work available to the contractor as reference drawings.	C	4	2	2	2	80%	8	16	Mitigation measures have been implemented.	8/12/15 UMS 1320				
28	Incomplete cutoff of groundwater at UMS	1. If needed, perform grouting to mitigate the intrusion of groundwater. 2. Include in cost & schedule estimates.	C	1	2	1	2	10%	2	3	Mitigation measures in the form of consolidation grouting to be included in contract documents	8/12/15 UMS1320				

Risk Register

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Central Subway Project San Francisco				Likelihood Score	1	2	3	4	5	Low (1)	Medium (2)	High (3)	Very High (4)	Significant (5)	Legend	RISK RATING = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)					
REV : 25				5						< 10%	< 10% - 50%	> 50%	< 75% - 90%	> 90%	< 3 Low	2					
DATE ISSUED: 10/08/13				4						< \$250K	< \$250K - \$1M	< \$1M - \$3M	< \$3M - \$10M	> \$10M	3 - 9 Medium	SCORE = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)					
				3						< 1 Month	< 1 - 3 Months	< 3 - 6 Months	< 6 - 12 Months	> 12 Months	> 10 High						
				2																	
				1																	
Final Risk ID	Risk Description	Mitigation Description	Risk Category	Probability %	Cost Impact	Schedule Impact	Calc Impact	Calc %	Risk Rating	Score	Status	Must Complete by Date									
33	Damage to utilities at UMS causes delay to construction and/or consequential cost. (very close to walls adjacent to relocated utility trenches)	1. Intensive utility coordination and investigation. 2. Relocate utilities out of the way of construction wherever possible. 3. Show utilities on reference plans. 4. Have utility contact information and procedure on plans. 5. Have contingency repair/restoration plans. 6. Include probable impacts to schedule & cost in estimates.	C	2	1	1	1	35%	2	4	Although mitigation measure have been fully implemented, Increased probability due to proximity of new pile design to existing relocated utilities.	7/19/16 UMS1410									
34	Loss of business results in unanticipated restrictions on construction at UMS.	1. Public outreach. 2. Work closely with Merchant's Association. 3. Maintain regular and open communications so Merchants know construction plans and progress at all times. 4. Advertise that Stockton Street Merchants are Open for Business. 5. Require Contractor to coordinate with merchants, maintain access to businesses and assist with deliveries and pick-ups, continuously cleanup site, and provide pedestrian and vehicle traffic and protection plans, informational signage, and minimum sidewalk widths. 6. Require barriers to protect pedestrians and shield them from noise and dirt from construction. 7. Work with the Union Square BID or MOED to increase cleanup of the area and assist pedestrians across streets. 8. Include this work in cost & schedule estimates.	C	2	3	2	3	35%	5	10	Mitigation measures to be implemented and to the extent possible requirements will be written into contract documents to minimize disruptions to businesses.	9/7/16 UMS1430									
35	Ground support structure causes groundwater table to rise which results in leakage into adjacent structures. (new structure might create a dam that results into leaks into new and existing structures)	1. Perform detailed hydrogeologic modeling and analysis. 2. Monitor groundwater table at multiple locations and passive measures as necessary to mitigate. 3. Reference the Tech memo in contract documents. 4. Include probable costs in estimate.	C	1	2	-	1	10%	1	2	Mitigation measures incorporated in design based on updated Hydrogeologic analysis and report	9/7/16 UMS1430									
36	Damage to buildings or utilities as a result of heave from jet grouting at UMS.	Utilize tangent piles combined with surface jet grouting.	C	1	1	-	1	10%	1	1	Mitigation measures implemented in contract documents to reduce risk	4/14/15 UMS1310									
37	Damage to adjacent buildings at UMS due to surface construction activities.	1. Require protective barriers. 2. Have an emergency and rapid response customer focused task force to fix damaged facilities. 3. Quickly repair and reimburse resulting costs. 4. Include probable cost in estimate.	C	1	2	-	1	10%	1	2	Mitigation measures implemented in contract documents to reduce risk	9/7/16 UMS1430									
38	Tiebacks in Stockton Street misallocated (in path of walls and would have to be dug out within 20ft of surface level)	1. Direct contractor to dig out the tiebacks on the plans. 2. Include allowance and differing site conditions clause in contract. 3. Include this work in the cost and schedule estimates.	C	2	2	1	2	35%	3	6	Mitigation measures fully implemented, Advance utility relocation contract (1251) confirmed location of tiebacks. Risk rating has been reduced due to a lowering of the probability of event occurring	5/6/14 UMS1170									



Risk Register

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Central Subway Project San Francisco				Severity Score										2		
REV : 25				Likelihood Score	1	2	3	4	5	Probability	Low (1)	Medium (2)	High (3)	Very High (4)	Significant (5)	<3 Low
DATE ISSUED: 10/08/13				5					< 10%	< 10%	< 10% - 50%	> 50%	< 75% - 90%	> 90%	3 - 9 Medium	
				4					Cost Impact	< \$250K	< \$250K - \$1M	< \$1M - \$3M	< \$3M - \$10M	> \$10M	>10 High	
				3					Schedule Impact	< 1 Month	< 1 - 3 Months	< 3 - 6 Months	< 6 - 12 Months	> 12 Months		
				2					SCORE = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)							
				1												
Final Risk ID	Risk Description	Mitigation Description	Risk Category	Probability %	Cost Impact	Schedule Impact	Calc Impact	Calc %	Risk Rating	Score	Status	Must Complete by Date				
J	Macy's entrance conflict with new piles	1. Show known obstructions shown on as-built drawings on contract drawings. 2. Make as-built drawings available to contractor as reference drawings. 3. Have contractor field verify obstruction shown on as-built drawings and contract drawings	C	3	1	1	1	50%	3	6	Known obstructions are shown on the ES drawings. Allowance for differing site conditions added to UMS Station contract.	1/23/14 UMS1060				
Q	As-built drawings and UMS construction drawings do not contain enough information to produce shop drawings without significant surveying effort delaying construction north entrance.	1. Investigate if electronic files of design can be given to the contractor. 2. Clearly define shop drawing criteria in the technical specifications. 3. Make as-built drawings available as reference drawings to the contractor	C	3	1	1	1	50%	3	6	Specifications require contractor to survey USG in order to develop shop drawings for structural steel.	3/24/12 UMS1280				
CTS Station																
46	Public complaints result in unanticipated restrictions on construction at CTS. (schedule and estimate for underground work assumes 6 day work week and 2 shifts per day)	1. Public outreach. 2. Maintain regular and open communications so Public knows construction plans and progress at all times. 3. Require Contractor to assist Public Outreach efforts, maintain access to businesses and assist with deliveries and pick-ups, control noise and vibration, continuously cleanup site, and provide pedestrian and vehicle traffic and protection plans, informational signage, ADA ramps and minimum sidewalk widths. 4. Require barriers to protect pedestrians and shield them from noise and dirt from construction. 5. Work with MOED to increase cleanup of the area and assist pedestrians across streets, as needed. 6. Monitor and enforce noise, vibration, ADA, traffic, and cleanup requirements. 7. Quickly process and resolve damage and accident claims from the Public. 8. Include this work in cost & schedule estimates.	C	2	5	1	3	35%	6	12	Implementation of mitigation measures part of Communication/Outreach plan and certain aspects to be included in the contract documents.	10/9/17 CTS1500				
48	Incomplete drawdown of groundwater. (inside of box and inside of caverns)	1. Require additional grouting to limit leakage to permissible level. 2. Include probable grouting work in cost & schedule estimates. 3. Include allowance for dewatering within cavern during construction.	C	2	2	1	2	35%	3	6	Mitigation measures have been included in contract documents	5/1/16 CTS1140				
50	CTS station contractor delayed by tunnel contractor since station platform construction cannot start until tunnels have been finished.	1. Include provisions in CTS contract identifying the potential waiting period for tunnel contractor. 2. Actively monitor progress towards schedule milestones	C	2	1	2	2	35%	3	6	Constraints on CTS contractor added to specification "Work Sequence and Constraints"	12/16/13 TUN1122				
52	Unacceptable settlement and impact on major utilities at CTS. (OLD SEWERS AND OTHERS WITHIN 20FT SPACE BETWEEN TOP OF CAVERN AND STREET LEVEL)	1. Evaluate effect of potential settlement on utilities. 2. Slip-line sewer by TBM contractor. 3. Reinforce other utilities as needed, monitored during construction, and repair / replace, as needed. 4. Have contingency repair/restoration plan. 5. Utility contact information and procedure will be on plans. 6. Develop an allowance for utility repair. 7. Include probable cost in estimate.	C	3	3	1	2	50%	6	12	Project configuration change, lowered station 25 ft. reducing the probability of this risk. Risk rating lowered.	4/22/16 N-CTS9730				
F	Underground obstructions stations (CTS)	1. Provide adequate allowance for differing site conditions to address unknown underground obstructions. 2. Make as-built drawings of structures adjacent to the work available to the contractor as reference drawings	C	4	2	2	2	80%	8	16	Mitigation measures have been implemented.	10/9/17 CTS1500				
U	Proximity at junction of head house boundary wall and school yard may result in relocation of school yard during wall construction		C	1	1	1	1	10%	1	2	Project configuration changed to eliminate encroachment. Risk converted to Construction risk from Risk 55.	8/16/13 CTS1010				
General																
Demolition, Clearing , Earthwork																
Site Utilities, Utility relocations																
Hazmat, Contaminated Material																

Risk Register

PROJECT RISK REGISTER				Risk Profile					Severity Score					Legend		RISK RATING = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)	
Central Subway Project San Francisco				Likelihood Score	1	2	3	4	5	Probability	Low (1)	Medium (2)	High (3)	Very High (4)	Significant (5)	<3 Low	2
REV : 25				5	Yellow	Orange	Red	Dark Red	Dark Red	< 10%	< 10% - 50%	> 50%	< 75% - 90%	> 90%	3 - 9 Medium		
DATE ISSUED: 10/08/13				4	Green	Yellow	Orange	Red	Dark Red	< \$250K	< \$250K - \$1M	< \$1M - \$3M	< \$3M - \$10M	> \$10M	>10 High		
				3	Green	Yellow	Orange	Red	Dark Red	< 1 Month	< 1 - 3 Months	< 3 - 6 Months	< 6 - 12 Months	> 12 Months			
				2	Green	Yellow	Orange	Red	Dark Red								
				1	Green	Yellow	Orange	Red	Dark Red								
Final Risk ID	Risk Description	Mitigation Description	Risk Category	Probability %	Cost Impact	Schedule Impact	Calc Impact	Calc %	Risk Rating	Score	Status	Must Complete by Date					
Environmental Mitigations																	
65	Archeological/Cultural findings during construction increases schedule and/or cost. (Portal) AROUND 10%	1. Provide on-call Archeologist. 2. Provide allowance and procedure in contract for Archeological/Cultural discoveries.	C	1	2	1	2	10%	2	3	Additional boring taken in vicinity of portal indicated no evidence of Archeological/Cultural resources.	10/24/12 TUN1080					
66	Archeological/Cultural findings during construction increases schedule and/or cost.(Moscone) AROUND 10%	1. Provide on-call Archeologist. 2. Provide allowance and procedure in contract for Archeological/Cultural discoveries.	C	3	1	1	1	50%	3	6	Mitigated - Current exposure only to those amount above those currently identified	4/28/15 TUN1150					
67	Archeological/Cultural findings during construction increases schedule and/or cost. (UMS)...LESS THAN 1%	1. Provide on-call Archeologist. 2. Provide allowance and procedure in contract for Archeological/Cultural discoveries.	C	3	1	2	2	50%	5	9	Mitigation measures to be implemented in contract documents	8/12/15 UMS1320					
68	Archeological/Cultural findings during construction increases schedule and/or cost. (CHINA TOWN) ...AROUND 10%	1. Provide on-call Archeologist. 2. Provide allowance and procedure in contract for Archeological/Cultural discoveries.	C	3	1	2	2	50%	5	9	Mitigation measures to be implemented in contract documents	10/9/17 CTS1500					
Auto/bus/van access ways, roads																	
70	Change in traffic control requirements after bid.	1. Provide unit bid items to reimburse contractor for traffic management costs outside their control. 2. Include allowance in construction contracts for PCOs.	C	3	4	1	3	50%	8	15	Mitigation measures implemented.	5/22/17 STS1020					
71	Power supply interruptions to TBM's (no dual power feed currently planned)	Obtain TBM power directly from PG&E substation.	C	1	2	-	1	10%	1	2		2/5/14 TUN1124					
Train Control and Signals																	
72	Interface new Signaling and Train Control system to existing at Fourth and King	Connect new system in parallel with existing system until the new system has been tested and safety certified for operation.	C	2	2	3	3	35%	5	10	Awaiting approval of contract plans by Muni Operations.	3/4/16 STS1045					
PR78	Delays or complication by other SFMTA projects delays CSP: radio, fare collection, C3/TMC	1. Monitor other projects' developments. 2. Develop contingency plans as needed to avoid 1256 delay of revenue service.	C	2	1	1	1	35%	2	4		7/27/12 FDS 1940					
Traffic signals & Crossing Protn.																	
Purchase or lease of Real Estate																	
79	Delay in obtaining tunnel easements (3 #) (goes to condemnation) - Costs of ROW may cost more than expected	1. Engage Owners in negotiations as soon as possible. 2. PM/CM to provide real estate specialists to facilitate.	R	1	1	-	1	10%	1	1	Right of possession obtained on all three parcels. Cost agreement reached with 1455 Stockton & 801 Market.	9/7/2012					
PR80	ROW costs higher than anticipated.	Provide adequate contingency for potential higher costs	M	1	3	-	2	10%	2	3	Similar to Risk 81.	7/1/12 FDS 1240					
Reloc. of Household or Business																	
Vehicles																	
83	Cost of vehicles may be more than estimated due to sole source and small order	Time the procurement of the vehicles to be part of the procurement of the existing Breda LRVs.	R	3	4	1	3	50%	8	15	CSP vehicles to be included in overall SFMTA vehicle procurement contract.	11/17/17 STS 1500					
Preliminary Engineering																	
89	3rd Party reviews of Design documents delays completion of Final Design.	Provide assistance to 3rd Parties to facilitate their reviews and obtain concurrent partial approval for underground work.	D	1	2	2	2	10%	2	4	3rd Party coordination meeting ongoing.	5/23/12 FDS 1930					
Project Management for Design and Construction																	
95	Contractor default during construction impacts schedule. (key sub-contractor)	Assist Bonding company in transition and to maintain schedule.	C	1	2	2	2	10%	2	4		11/17/17 STS 1500					
99	Breakdown in relationships between SFMTA and Contractors during construction results in increased claims and delays to the overall construction schedule.	1. Executive partnering and alternate dispute resolution. 2. Provide incentives in construction contracts in addition to penalties	C	2	5	3	4	35%	8	16	Mitigation measures being implemented	7/27/12 FDS 1940					
100	Procurement of long lead items delays work. (fans, rails and special track work, TPSS, Escalators, elevators, TBM)	1. Include schedule milestones for procurement of and substantial payment for stored long lead items in contract to encourage early procurement. 2. Monitor procurement of critical items.	C	1	2	2	2	10%	2	4	Not considered a project risk.	11/17/17 STS 1500					

Risk Register

PROJECT RISK REGISTER				Risk Profile					Severity Score					Legend		RISK RATING = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)		
Central Subway Project San Francisco				Likelihood Score	1	2	3	4	5	Low (1)	Medium (2)	High (3)	Very High (4)	Significant (5)	<3 Low	3-9 Medium	>10 High	SCORE = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)
REV : 25				5					< 10%	< 10% - 50%	> 50%	< 75% - 90%	> 90%					
DATE ISSUED: 10/08/13				4					< \$250K	< \$250K - \$1M	< \$1M - \$3M	< \$3M - \$10M	> \$10M					
				3					< 1 Month	< 1 - 3 Months	< 3 - 6 Months	< 6 - 12 Months	> 12 Months					
				2														
				1														
Final Risk ID	Risk Description	Mitigation Description	Risk Category	Probability %	Cost Impact	Schedule Impact	Calc Impact	Calc %	Risk Rating	Score	Status	Must Complete by Date						
102	Late finish of early contract delays later contracts and extends PM / CM and incurs additional costs	1. Actively manage contracts and include incentive provisions for early completion in critical contracts. 2. Add buffer float to critical path to actively manage schedule contingency	C	2	1	2	2	35%	3	6	LONP 1 & 2 initiated to reduce this risk. See Risk 86. The mitigation of risks associated with early contracts will address this risk. Risk rating reduced due to mitigation measures implemented	12/30/20 MS 0010						
T	Delay on station emergency ventilation approval	1. Work with SFFD to develop a plan acceptable to each party. 2. Incorporate SFFD requirements into construction documents.	R	2	5	-	3	35%	5	10	SFFD agreed to the proposed plan by SFMTA	7/27/12 FDS 1940						
V	Incorporation of revised Planning Zoning/ development criteria for Moscone Station TOD impact MOS and CTS construction contract.	1. Participate and provide input of CSP constraints to SFMTA Real Estate during process of initial task to define best use. 2. Integrate work with SFMTA Real Estate into CSP.	D	2	1	2	2	35%	3	6		12/13/16 N-CTS1225						
PR37	Temporary construction power and ability to provide permanent power feed - PGE ability to provide power requirements to the program together with their other commitment	1. Identify temporary power requirements for station construction. 2. Investigate the timing of the permanent feed.	C	2	1	2	2	35%	3	6	Cost for First and Redundant electrical services need to be included in Cost Estimate.	5/3/18 STS1080						
Insurance, permits etc.																		
103	Difficulty in getting required permits.	1. Coordinate with permit officials and request permits as early as possible. 2. Obtain assistance obtaining permits from PM/CM & FD Consultants.	C	1	2	1	2	10%	2	3		12/18/12 FDS 1275						
104	CPUC approval at Grade Crossing for G0164d takes longer to negotiate / obtain than schedule allows	1. Obtain Grade Crossing approvals at final CPUC inspection at the completion of construction. 2. Coordinate closely with CPUC until approval is received.	R	2	3	2	3	35%	5	10	Providing preview of 90% submittal to CPUC and will resolve comments/issues from PE before finalizing design documents	7/27/12 FDS 1940						
105	Electrical service delays startup and testing.	1. Submit applications for new service as early as possible. 2. Coordinate closely with PG&E to ensure timely delivery of electrical service.	C	1	2	1	2	10%	2	3	Applications for new service have been submitted to PG&E.	11/17/17 STS 1500						
106	Risk of Labor dispute delaying the work.	Enforce designated gate for employees of the contract in dispute so that the rest of the work is not delayed.	C	2	1	1	1	35%	2	4		11/17/17 STS 1500						
Unallocated Contingency																		
111	Major Earthquake stops work	Include Force Majeure clause in contracts.	C	1	5	3	4	10%	4	8	Force Majeure clause included in contracts.	12/30/20 MS 0010						
112	Major safety event halts work	1. Require contractor Safety plan to address this risk. 2. CM inspections to ensure that safety plan and procedures are implemented.	C	1	5	3	4	10%	4	8	Health and Safety provisions included in contracts. CS Program provides full-time Safety Manager.	12/30/20 MS 0010						
196	The process of acquiring station licenses: acquisition/condemnation could significantly delay schedule and cost more than that presently planned.	1. Continue to negotiate with building owners 2. Required Notices and Appraisals to be completed 3. Commence condemnation process with City Attorneys	C		1	1	1	0%	4	-								
202	Cargo Preference (Ship America) must solicit U.S.- flag carriers. Civilian Agencies Cargo = at least 50% (governed by Cargo Preference Act of 1954	1. Require Ship America compliance agreement first tier contractors and subcontractors	C	1	1	1	1	10%	1	2								
203	Headwalls interface delay 1300 Contractor (SSTS)	1. Meet and develop recovery schedule 2. Review possible Adjustment to 1300 interface	C	3	3	2	3	50%	8	15								
204	AT&T Vault - New Sewer Work south of Bryant	1. Continue negotiations/coordination with utility owners. 2. Schedule analysis to confirm coordination	C	2	2	4	3	35%	6	12								
205	Prolong period of CMod's creates additional cost/causes bad blood between Resident Engineer and Contractor	1. CMod Task Force - 5 Areas of Improvement 2. Implement 3. Delegation of Authority	C	3	1	1	1	50%	3	6								

Risk Register

PROJECT RISK REGISTER		Risk Profile										Legend		
Central Subway Project San Francisco REV : 25 DATE ISSUED: 10/08/13		Severity Score					Low (1)	Medium (2)	High (3)	Very High (4)	Significant (5)	RISK RATING = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT) SCORE = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)		
		Likelihood Score	1	2	3	4	< 10%	< 10% - 50%	> 50%	< 75% - 90%	> 90%			
		5												< 3 Low
		4												3 - 9 Medium
		3												> 10 High
2														
1														
Final Risk ID	Risk Description	Mitigation Description	Risk Category	Probability %	Cost Impact	Schedule Impact	Calc Impact	Calc %	Risk Rating	Score	Status	Must Complete by Date		
208	Additional cost if we change direction going to the Pagoda	1. Develop Scope with designers currently under contract 2. Agree to alignment and details of new shaft location 3. Issue PCC to Contractor 4. Initial site works and borings if necessary 5. Obtain appropriate permits	C	3	3	2	3	50%	8	15				
210	Mission Bay Loop Grant – Needs to be built to allow for train turnarounds (June 2013)	1. Identify timeline for grant funding	C	4	1	1	1	80%	4	8				
211	Differing site conditions encountered during ground freezing of Cross Passage 5 results in increased costs.	1. Contractor has submitted a 'no cost, no schedule' PCC for ground freezing 2. Need early review of work plan, and identification of entity that will perform the work	C	1	2	2	2	10%	2	4				
212	UMS Inclined piles – 8" clearance between piles and tunnel results in damage or safety issues within the tunnel	1. Establish 1252 and 1300 contract requirements to construct within acceptable tolerances 2. Workshop to be held with BIH to discuss hold points during construction.	C	1	5	3	4	10%	4	8				
213	Micro Piles exist within tunnel path at UMS	1. Re-profile and realign tunnel to clear micropiles	C	2	3	1	2	35%	4	8				
214	Micro Piles at UMS interfere with Tube-a-manchette installation (60' deep micropiles)	1. Provide micro-pile as-built information to contractor 2. Realign tube-a-manchettes clear of micro-piles	C	3	1	1	1	50%	3	6				
215	DPW Excavation permit reviews delay contract works	1. Obtain a blanket excavation permits from DPW covering the area of work for 1253, 1254, 1255, 1256	C	2	1	1	1	35%	2	4				
216	Olivet building potential construction impact	1. Reach out to building owner and keep him abreast of CS construction activities.	C	1	1	2	2	10%	2	3				
217	Delays or complications construction by others – SF Dept. Of Technology, 3rd party utilities	1. Early engagement and coordination for agreements and plan development to avoid construction delays.	C	2	1	1	1	35%		4	DTIS MOU has been signed.			

**Risk Mitigation Status****Risk Reference: 1**

<b>Risk</b>	<b>Mitigation Strategy</b>
Additional night shift work required at portal launch box due to bus storage facility relocation delay.	1. Working with TJPA (Trans Bay Joint Power Authority) to coordinate construction schedules and GGB to coordinate Traffic Routing.

**Initial Assessment:** 2,0.5,1**Current Assessment:** Risk Rating 1 – Construction Risk**Risk Owner:** S. Wilson**Status Log:**

September 2011:

No longer considered a risk. GGB not scheduled to be utilizing site until 2014

December 2012:

1. Risk owner changed from J. Caulfield to S. Wilson
2. GGB construction still expected 2014
3. Revisit risk early 2014 and assess impact on portal construction

**Risk Mitigation Status****Risk Reference: 2**

<b>Risk</b>	<b>Mitigation Strategy</b>
Approvals required to relocate 42"/48" sewer line as part Utility 1 package take longer than expected	<ol style="list-style-type: none"><li>1. Obtain SFPUC acceptance of DPW's design for replacement of the 42" sewer line.</li><li>2. Relocate utilities in advance of launch box excavation.</li><li>3. Start utility relocations as early as possible.</li></ol>

**Initial Assessment:** 1, 1.5, 2**Current Assessment:** 0, 0, 0 –Retired**Risk Owner:** Matt Fowler**Status Log:**

October 2011 Meeting:

1. Sewer installation is complete as part of 1250 contract package.
2. Likelihood of occurrence of the risk is now zero (0).
3. Recommend to retire this risk from the project.

Risk retired by unanimous decision of the Risk Committee 10/13/11.

RETIRED

**Risk Mitigation Status****Risk Reference: 2a**

Risk	Mitigation Strategy
42"/48" sewer line relocated as part Utility 1 package is damaged by subsequent construction of the launch box.	<ol style="list-style-type: none"> <li>1. Follow on contractor responsible for repairs to any existing utility lines.</li> <li>2. Also included an option in Utility 1 package to delete this work and have it installed by Contract 3.</li> <li>3. Properly as built actual location as part of Utility 1 package and provide to Contract 3 Contractor</li> </ol>

**Initial Assessment:** 1, 2, 2**Current Assessment:** Risk Rating 2 – Construction Risk**Risk Owner:** S. Wilson**Status Log:**

September 2011:

1. Sewer Installation complete. Awaiting as built drawing.
2. Sewer installed according to contract drawings.
3. Sewer backfilled in cement sand slurry to protect it during launch box wall construction.

December 2012:

1. Risk owner changed from J. Caulfield to S. Wilson
2. 1252 Contractor is responsible for repairs to existing utility lines
3. As-built drawings have been provided to the 1252 contractor
4. Video survey of the sewer is required following construction
5. The sewer location was confirmed by the 1252 contractor during construction of the guide-walls

April 2013:

1. The launch box has been constructed down to invert level with no damage to the sewer line detected to date
2. Maintain risk rating until tunnel boring has been completed in this area

**Risk Mitigation Status****Risk Reference: 3**

<b>Risk</b>	<b>Mitigation Strategy</b>
Unacceptable settlement and impact on pavement or utilities from break-out (turn under) of TBMs from launch box.	1. Include jet grouting underneath utilities at TBM break out in contract documents and cost & schedule estimates.

**Initial Assessment:** 1, 1.5, 2**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** J. Caulfield**Status Log:**

January 2012 Meeting:

1. Plans issued for bid.
2. Jet grouting integral part of the design for launch box in breakout zone.
3. Costs for jet grouting included in contractor's bid price.
4. Instrumentation and monitoring included as part of contract.
5. Recommend to retire this risk from the project.
6. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

RETIRED



**Risk Mitigation Status****Risk Reference: 4**

Risk	Mitigation Strategy
Unacceptable settlement of buildings along tunnel alignment. (Old Navy Building / Virgin Music piled foundations)	<ol style="list-style-type: none"> <li>1. Evaluate settlement impact to buildings along tunnel alignment. Will monitor all buildings between I-80 and Post Street and north of Sacramento Street for settlement.</li> <li>2. Install tubámachettes for compensation grouting under the Whole Foods, Old Navy, Virgin Records, and the Columbus Avenue Bank of America buildings prior to the TBMs reaching these buildings.</li> <li>3. Require EPBM TBM and contractor to demonstrate effective control of ground and correction of settlements by compensation grouting.</li> <li>4. Require contractor to have contingency repair/restoration plan.</li> <li>5. Require repair of adverse impacts to be approved by a Structural Engineer.</li> <li>6. Include probable cost in estimate.</li> </ol>

**Initial Assessment:** 1, 1.5, 2**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** John Caulfield**Status Log:**

January 2012 Meeting:

1. Included compensation grouting and other mitigation measures to minimize impact of risk.
2. Risk has been transferred to tunnel contractor.
3. Instrumentation and monitoring requirements included in contract.
4. Tunnel bid price contains contractor's perception of risk.
5. Recommend to retire this risk from the Risk Register.
6. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

**Risk Mitigation Status****Risk Reference: 5**

<b>Risk</b>	<b>Mitigation Strategy</b>
Possibility that lowest level of tie-backs extending out from Moscone Center could be within the tunnel alignment.	<ol style="list-style-type: none"><li>1. Lowered tunnel alignment 5' below the lowest expected tieback.</li><li>2. Including obstruction clause and allowance in contract documents.</li></ol>

**Initial Assessment:** 1, 1, 1**Current Assessment:** Risk Rating 1 – Construction Risk**Risk Owner:** S. Wilson**Status Log:**

September 2011:

1. Tunnel contract has been awarded
2. Contract documents contain location of tiebacks from as built drawings.
3. Tunnel alignment was lowered to avoid the lowest expected tie back at Moscone Center.
4. Differing site conditions clause is included in Tunnel contract.
5. Recommend to retire this risk from the risk register.

December 2012:

1. Risk owner changed from J. Caulfield to S. Wilson.
2. Maintain risk rating as there is still a possibility that tiebacks are deeper than expected.

**Risk Mitigation Status****Risk Reference: 6**

<b>Risk</b>	<b>Mitigation Strategy</b>
Special ground stabilization required for Cross Passage #5	Plans and cost & schedule estimates to include jet grouting at Cross Passage 5.

**Initial Assessment:** 1, 0.5, 1**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** John Caulfield**Status Log:**

January 2012 Meeting:

1. Contract documents contain jet grouting for CP #5.
2. Tunnel contract has been awarded.
3. Recommend to retire this risk from the risk register.
4. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

RETIRED

**Risk Mitigation Status****Risk Reference: 7**

Risk	Mitigation Strategy
Potential for excessive settlement of BART tunnels - SIGNIFICANT COMPENSATION GROUT REQUIRED OVER ESTIMATE ALLOWANCES).	<ol style="list-style-type: none"> <li>1. Early and extensive co-ordination with BART.</li> <li>2. Survey BART tunnels to determine exact locations.</li> <li>3. Checking effect of maximum expected settlement on tunnels.</li> <li>4. Requiring EPBM TBM,</li> <li>5. Contractor to demonstrate effective control of ground settlements and correction of settlements by compensation grouting, and pre-installation of compensation grout piping under BART tunnels prior to tunneling reaching Market St.</li> <li>6. Require repair/adjustment plan.</li> <li>7. Monitor movement of BART tunnels in real-time.</li> <li>8. Repair/adjust as needed.</li> <li>9. Included probable cost in estimate.</li> </ol>

**Initial Assessment:** 1, 1.5, 2**Current Assessment:** Risk Rating 5 – Construction Risk**Risk Owner:** S. Wilson**Status Log:**

## February 2012:

1. Coordination with BART has been ongoing.
2. The BART tunnels have been surveyed.
3. An assessment of the effect of maximum anticipated settlement has been done.
4. Tunnel contract specifications require compensation grouting.
5. Tunnel contract specifications require the contractor to measure settlements in real time.
6. Tunnel contract specification require contractor to provide Action Level Plans that details measures to be taken if observed settlements and/or distortions exceed specified values.
7. Tunnel bid documents included bid items for Building Protection, including the BART tunnels.
8. EPBM TBM required for tunnel contract.
9. Coordinated with BART and Independent Review Panel (IRP) on specific check points for assessing effectiveness of control of the EPBM tunneling operations and related ground movements.
10. BART analysis of bus bridging concept reveals that it is not feasible due to lack of capacity in the system to handle the bridging.
11. Recommend to reduce this risk rating.

## June 2012 Meeting:

1. Contractor and construction manager have gone through BART background check and security training that will allow the contractor to perform the settlement monitoring.

## November 2012 Meeting:

1. Coordination with BART and IRP ongoing

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 7</b>
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December 2012:

1. Installation and pre-charging of the compensation grouting pipes will demonstrate the effectiveness of the system (mitigation 5)
2. **Recommend reducing this risk rating to 3, 1.5, 4.5** (reduced cost impact associated with grout)
  - a. Current probability (3), >50%, maintain probability rating
  - b. Current cost impact (4), \$3m - \$10m, recommend reduce cost impact to (2), \$250k - \$1m (based on expected cost of additional grout only)
  - c. Current schedule impacts (1), <1 month, maintain schedule impact
3. No more can be done.
4. Cost will be brought to the January meet.

January 2013:

1. Risk probability has been lowered, new Risk rating – 2, 2, 4.

October 2013:

1. Mitigation strategies will only list ones that have a likelihood of implementation.

**Risk Mitigation Status****Risk Reference: 8**

<b>Risk</b>	<b>Mitigation Strategy</b>
Flowing groundwater in vicinity of UMS Station could make adequate annulus grouting difficult during tunneling.	<ol style="list-style-type: none"><li>1. Use appropriate additives such as accelerators in primary annulus backfill grouting, if needed.</li><li>2. Use secondary grouting as needed.</li></ol>

**Initial Assessment:** 1, 1, 1**Current Assessment:** Risk Rating 1 – Construction Risk**Risk Owner:** S. Wilson.**Status Log:**

October 2011:

Plans issued for bid contain mitigation measures.

December 2012:

1. Risk owner changed from M. Fowler to S. Wilson
2. Maintain risk rating

**Risk Mitigation Status****Risk Reference: 9**

Risk	Mitigation Strategy
Mixed face (rock/soil) ground conditions beneath Stockton Street at Post Street. Potential for increase settlement tunneling through hard/soft interface (adjacent Union Square) newish buildings ...damage to façade limited	<ol style="list-style-type: none"><li>1. Probe and grout ahead of the TBM.</li><li>2. Secondary grouting, as needed.</li><li>3. Assumed above work in schedule and probable cost in estimate.</li></ol>

**Initial Assessment:** 1, 1, 1**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** Matt Fowler**Status Log:**

January 2012 Meeting:

1. Contract documents require contractor to probe and grout ahead of the TBM.
2. GBR included as part of contract.
3. Tunnel contract has been awarded.
4. Recommend to retire this risk from the risk register.
5. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

**Risk Mitigation Status****Risk Reference: 10**

Risk	Mitigation Strategy
Unforeseen ground conditions beneath the Stockton Tunnel. - hard rock and / or fractured rock band - slows TBM	<ol style="list-style-type: none"><li>1. Conduct additional investigation under the Stockton Street tunnel to confirm previous conclusion that the ground consists of highly fractured bedrock.</li><li>2. Required rock cutters on TBM while tunneling in rock.</li></ol>

**Initial Assessment:** 1, 1, 1**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** J. Caulfield**Status Log:**

January 2012 Meeting:

1. Tunnel contract includes GBR indicating subsurface condition for bidder to utilize in design of TBMs.
2. Rock cutters required while tunneling in rock.
3. Tunnel contract has been awarded.
4. Recommend to retire this risk from the risk register.
5. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.



**Risk Mitigation Status****Risk Reference: 11**

Risk	Mitigation Strategy
Buried valley beneath Stockton Street at Sacramento Street increases risk of settlement as TBM transitions from rock into soil. (old buildings and damage to façade more severe)	<ol style="list-style-type: none"><li>1. Probe and grout ahead of the TBM. Secondary grouting, as needed.</li><li>2. Assumed above work in schedule and probable cost in estimate.</li></ol>

**Initial Assessment:** 1, 1.5, 2**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** John Caulfield**Status Log:**

January 2012 Meeting:

1. Additional boring have been made to better define the ground conditions.
2. GBR reflects information from borings and is part of the Tunnel contract.
3. Contract documents require probing and grouting ahead of TBM.
4. Contract has been awarded.
5. Recommend to retire this risk from the risk register.
6. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

**Risk Mitigation Status****Risk Reference: 12**

<b>Risk</b>	<b>Mitigation Strategy</b>
Uncertainty of Alluvium/Colma Contact with respect to tunnel crown beneath Stockton Street in Chinatown.	1. Perform additional site investigations. 2. Lower tunnel 25' to reduce uncertainty.

**Initial Assessment:** 2, 1, 1**Current Assessment:** 0 0, 0– Design Risk (Retired)**Risk Owner:** John Caulfield**Status Log:**

January 2012 Meeting:

1. Additional boring have been made to better define the ground conditions and obtain information for ground improvement strategies.
2. Tunnel alignment lowered 25 feet, which places the tunnel deeper into the rock.
3. Recommend to retire this risk from the risk register.
4. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 13</b>
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<b>Risk</b>	<b>Mitigation Strategy</b>
Damage / settlement 3x 5' to old brick sewer running parallel to tunnel alignment	Slip Line 3'x5' brick sewer before TBM reaches CTS.

**Initial Assessment:** 1, 1, 1  
**Current Assessment:** Risk Rating 1 – Requirements Risk

**Risk Owner:** Matt Fowler

**Status Log:**

September 2011:

1. Tunnel profile has been lowered 25 ft.
2. Sewers will be video taped prior to and after tunnel drive.
3. Contract documents include allowance for repair of utilities damaged during tunnel drive.

May 2013:

1. 3x5 sewer at CTS does not require slip lining prior to tunnel construction.
2. Settlement impact was mitigated by lowering the tunnel 25'.
3. Recommend retiring this risk.

October 2013:

1. Expand risk description to include 3x5' sewer at the corner of Stockton Street and Columbus Avenue.
  - a. PUC AWSS is preventing slip lining work from commencing
  - b. Central Subway staff are working with PUC to develop a plan for resolution

**Risk Mitigation Status****Risk Reference: 14**

<b>Risk</b>	<b>Mitigation Strategy</b>
Excess settlement at break in to North Beach TBM Retrieval shaft due to low cover of alluvium.	<ol style="list-style-type: none"><li>1. Design/require ground treatment underneath utilities for TBM break in.</li><li>2. Include cost of ground treatment in cost estimate.</li></ol>

**Initial Assessment:** 1, 1, 1**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** John Caulfield**Status Log:**

January 2012 Meeting:

1. Contract documents include significant jet grouting program to mitigate settlement.
2. Tunnel contract has been awarded.
3. Recommend to retire this risk from the risk.
4. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

**Risk Mitigation Status****Risk Reference: 15**

Risk	Mitigation Strategy
Major TBM machine failure	Closely monitor condition and maintenance of the machines.

**Initial Assessment:** 1, 2, 2**Risk Owner:** S. Wilson**Current Assessment:** Risk Rating 2 – Construction Risk**Status Log:**

October 2011:

1. Risk remains active.
2. Contractor has indicated that they plan to use a newly manufactured TBM for this project.

October 2013:

1. TBMS have been designed specifically for Central Subway conditions
2. Update on preventative maintenance to be provided
3. Confirm number of spare main bearings available per specification

**Risk Mitigation Status****Risk Reference: 16**

Risk		Mitigation Strategy
TBM loss and / or damaged in Transit	✓ ✓	1. Provide provisions for insurance for TBM in transit to jobsite. 2. Include insurance costs in contract cost.

**Initial Assessment:** 1, 5, 5**Current Assessment:** Risk Rating 0 – Construction Risk**Risk Owner:** M. Benson**Status Log:**

February 2012:

1. Costs covered by Contractor's insurance.
2. Payment for delivery of TBM is staged in Mobilization bid item based on performance milestones.
3. Recommend to reduce risk to 1, 3, 3

September 2012:

1. Contractor has ordered spare parts
2. 2<sup>nd</sup> TBM will be used to mitigate loss
3. Contingency plan to be developed – investigate market for 2<sup>nd</sup> hand TBM's

October 2012:

1. Market for 2<sup>nd</sup> hand TBM's still to be investigated

November 2012 Meeting:

1. Market for 2<sup>nd</sup> hand TBM's will not be investigated.
2. Recommend retiring, will revisit in December 2012 Risk meeting.

April 2013:

1. The 1<sup>st</sup> TBM is due to arrive this month. The second 2<sup>nd</sup> TBM is due to arrive in June of this year.
2. Revisit this risk following arrival of the 2<sup>nd</sup> TBM.

September 2013:

1. The conveyor is the one item awaiting delivery.
2. Recommended to retire.
3. This risk was retired by unanimous consent by the Risk Assessment Committee on 09/10/13.

**Risk Mitigation Status****Risk Reference: 17**

Risk	Mitigation Strategy
Steep gradients result in accident and suspension or works	<ol style="list-style-type: none"><li>1. Require contractor Safety plan to address this risk.</li><li>2. CM inspections will ensure that safety plan and procedures are implemented.</li><li>3. Safety training of CM staff shall be done prior to beginning of work</li></ol>

**Initial Assessment:** 1, 2, 2**Current Assessment:** 0, 0, 0– Design Risk (Retired)**Risk Owner:** John Caulfield**Status Log:**

January 2012 Meeting:

1. Contractor insurance provision included in contract.
2. Contract specifications require a Job Hazard Assessment (JHA) and Environmental Health & Safety Plan (EHASP).
3. Tunnel gradient has been lowered between UMS and CTS.
4. Tunnel contract has been awarded.
5. Recommend to retire this risk from the risk register.

**Risk Mitigation Status****Risk Reference: 18**

<b>Risk</b>	<b>Mitigation Strategy</b>
Market risk in single or re-bid in tunnel contract due to excess work in SF area	Engage in extensive contractor outreach and promote assurances of being a reasonable contract partner. Invite contractor Industry Review comments. Use Contract Terms and Conditions that are fair and reasonable to attract contractors to bid. Provide quick alternative dispute resolution process, including obstruction clause and allowance for differing site conditions in contract documents.

**Initial Assessment:** 2, 4, 8**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** A. Wong**Status Log:**

November 2011 Meeting:

1. Mitigation measures have been fully implemented and active interest by multiple bidders has been demonstrated.
2. Tunnel contract awarded.
3. Recommend to retire this risk from the project risk register.
4. Risk retired by unanimous decision of the Risk Committee 11/10/11.



**Risk Mitigation Status****Risk Reference: 19**

Risk	Mitigation Strategy
NFPA 101 approval to exceed 5% gradient at portal may not be approved (emergency stair wells would be required)	1. Research if NFPA 101 is applicable to tunnel portal. 2. 2. Develop alternate strategies if NFPA 101 is applicable.

**Initial Assessment:** 1, 1, 1**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** R. Edwards/C. Campillo**Status Log:**

October 2011 Meeting:

1. P. Wilson presented previously retired risks for review by Risk Committee to ensure all risk that had previously been reduced to a zero rating were revetted and agreed to be retired.
2. Discovered inaccuracies in the risk register descriptions and mitigations that required revision. Risk Committee required further investigation and confirmation of the risk and mitigation efforts.

November 2011 Meeting:

1. Confirmed that NFPA 101 requirements do not apply to tunnel portal.
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 11/10/11.

**Risk Mitigation Status****Risk Reference: 20**

<b>Risk</b>	<b>Mitigation Strategy</b>
Incomplete seal at TBM break in and break out at Moscone station leads to excessive settlement.	Install slurry walls in addition to jet grout curtains at the north and south walls of the station by the tunneling contractor prior to arrival of first TBM at Moscone Station.

**Initial Assessment:** 1, 0.5, 1**Current Assessment:** 0, 0, 0 – Design Risk**Risk Owner:** Q. Chin**Status Log:**

January 2012 Meeting:

1. Mitigation measures in the form of new headwall designs include several layers of redundancy in addition to compensation grouting.
2. Recommend to retire this risk from the risk register.
3. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 21</b>
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<b>Risk</b>	<b>Mitigation Strategy</b>
Incomplete cutoff of groundwater at Moscone Station.	<ol style="list-style-type: none"><li>1. Require additional grouting to limit leakage to permissible level.</li><li>2. Assume probable grouting work in cost &amp; schedule estimates.</li></ol>

**Initial Assessment:** 1, 1, 1

**Current Assessment:** Risk Rating 1 – Construction Risk

**Risk Owner:** Q. Chin

**Status Log:**

February 2012:

1. Additional grouting has been made part of the contract documents.
2. Deep slurry walls are designed to cutoff groundwater.

**Risk Mitigation Status****Risk Reference: 22**

Risk	Mitigation Strategy
Public complaints result in unanticipated restrictions on construction at UMS station.	Public outreach. Maintain regular and open communications so Public knows construction plans and progress at all times. Require Contractor to assist Public Outreach efforts, maintain access to businesses and assist with deliveries and pick-ups, control noise and vibration, continuously cleanup site, and provide pedestrian and vehicle traffic and protection plans, informational signage, ADA ramps and minimum sidewalk widths. Work with MOED to increase cleanup of the area and assist pedestrians across streets, as needed. Monitor and enforce noise, vibration, ADA, traffic, and cleanup requirements. Quickly process and resolve damage and accident claims from the Public. Assumed this work in cost & schedule estimates.

**Initial Assessment:** 2, 1.5, 3**Current Assessment:** Risk Rating 1 – Construction Risk**Risk Owner:** J. Wang**Status Log:**

September 2011:

Implementation of mitigation measures part of Communication/Outreach plan and certain aspects to be included in the contract documents.

October 2013:

1. Central Subway staff are in regular communication with BID
  - a. UMS construction hoarding has incorporated suggestions from BID
  - b. Staff are working with BID to develop space activation to commence during the 2014 holiday moratorium
2. Construction updates are being communicated weekly via mailing lists, social networks and the Central Subway website
3. Sidewalks and windows are regularly cleaned during construction

**Risk Mitigation Status****Risk Reference: 23**

<b>Risk</b>	<b>Mitigation Strategy</b>
Time to relocate existing utilities at Moscone Station (fiber optics - uty 1, large water main - uty 2),	<ol style="list-style-type: none"><li>1. Intensive utility coordination and investigation.</li><li>2. Relocate utilities out of the way of construction wherever possible.</li><li>3. Show utilities on reference plans.</li><li>4. Have utility contact information and procedure on plans.</li><li>5. Have contingency repair/restoration plans.</li><li>6. Assumed probable impacts to schedule &amp; cost in estimates.</li></ol>

**Initial Assessment:** 1, 1, 1**Current Assessment:** 0, 0, 0 – Construction Risk**Risk Owner:** M. Benson**Status Log:**

September 2011:

1. Advance utility relocation contract (1250) is nearly complete, reducing this risk of cost and schedule impacts.

November 2012 Meeting:

1. 1250 Utility relocations complete
2. This risk was retired by unanimous consent of the Risk Assessment Committee on 11/08/12.

**Risk Mitigation Status****Risk Reference: 24**

Risk	Mitigation Strategy
Buildings adjacent to Moscone Station are subject to combined tunnel and station excavation settlement. (Wolf building and college building)	<ol style="list-style-type: none"> <li>1. Evaluate risk due to combined settlement to buildings along station.</li> <li>2. Underpin two buildings and install tubámachettes for compensation grouting under other buildings at risk.</li> <li>3. Monitor all buildings within the zone of influence of the excavation for settlement.</li> <li>4. Require EPBM TBM, and Tunnel and Station contractors to demonstrate effective control of ground and correction of settlements by compensation grouting.</li> <li>5. Require rigid concrete diaphragm ground support structure designed to ensure that adjacent structures are not affected by excavation.</li> <li>6. Require contactors to have contingency repair/restoration plan.</li> <li>7. Require repair of adverse impacts to be approved by a Structural Engineer.</li> <li>8. Include probable cost in cost estimate.</li> </ol>

**Initial Assessment:** 1, 2, 2**Current Assessment:** 0, 0, 0 – Construction Risk**Risk Owner:** Q. Chin**Status Log:**

February 2012:

1. Mitigation measures have been fully implemented in tunnel contract.
2. Underpinning of the Wolf and building was accomplished in the advance utility relocation contract (1250), reducing the cost and schedule impact.

May 2012 Meeting:

1. Specification 31 09 15 Structural Instrumentation & Monitoring, section 3.01 C.1. was revised to include deformation resulting from CN1252, as well as, the station construction.
2. Specification 31 43 14 Compensation Grouting, section 3.05 B. was revised to mention “Be prepared to inject grout... when structure settlement is expected based on experience gained from previous portions of Work (i.e., work performed in Contract 1252”.

June 2012 Meeting:

1. Recommend to retire this risk from the Risk Register.

August 2012 Meeting:

1. This risk was retired by unanimous consent of the Risk Assessment Committee on 8/09/12.

**Risk Mitigation Status****Risk Reference: 25**

Risk	Mitigation Strategy
Insufficient time in station schedule for fit out and finishes at MOS	Increase duration of activity in MPS.

**Initial Assessment:** 1, 2, 2**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** Q. Chin**Status Log:**

January 2012 Meeting:

1. Mitigation measure implemented in current MPS.
2. Recommend to retire this risk from the risk register.
3. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

RETIRED

**Risk Mitigation Status****Risk Reference: 26**

Risk	Mitigation Strategy
Mislocated Moscone Convention Center tiebacks. (angle v's position)	<ol style="list-style-type: none"><li>1. Review record drawings to locate.</li><li>2. Show probable location of tiebacks on reference plans.</li><li>3. Include allowance to locate and work around in contract documents and cost estimate.</li></ol>

**Initial Assessment:** 1, 4.5, 6**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** Q. Chin**Status Log:**

January 2012 Meeting:

1. Advance utility relocation contract (1250) confirmed location of tiebacks.
2. Differing site conditions clause included in contract.
3. Recommend to retire this risk from the risk register.
4. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.



**Risk Mitigation Status****Risk Reference: 27 (YBM)**

Risk	Mitigation Strategy
Loss of business results in unanticipated restrictions on construction.	Public outreach. <ol style="list-style-type: none"> <li>1. Work closely with Merchant's Association.</li> <li>2. Maintain regular and open communications so Merchants know construction plans and progress at all times.</li> <li>3. Advertise that Stockton Street Merchants are Open for Business. Require Contractor to coordinate with merchants, maintain access to businesses and assist with deliveries and pick-ups, continuously cleanup site, and provide pedestrian and vehicle traffic and protection plans, informational signage, and minimum sidewalk widths.</li> <li>4. Require barriers to protect pedestrians and shield them from noise and dirt from construction.</li> <li>5. Work with the Union Square BID or MOED to increase cleanup of the area and assist pedestrians across streets.</li> <li>6. Assumed this work in cost &amp; schedule estimates.</li> </ol>

**Initial Assessment:** 1, 4, 4**Current Assessment** Risk Rating 2 – Construction Risk**Risk Owner:** A. Wong**Status Log:**

September 2011:

Mitigation measures to be implemented and to the extent possible requirements will be written into contract documents to minimize disruptions to businesses.

December 2012:

1. Community outreach is being conducted including the Yerba Buena B.I.D., merchants association and childcare center.
2. Additional reach out required prior to commencement of YBM Station.

May 2013:

1. Outreach met with YBM alliance in April and collected email addresses from businesses for notifications and construction updates. Outreach are working with Yerba Buena BID, Yerba Buena Alliance, Moscone Centre
2. Outreach will meet with individual business owners once contractors schedule is obtained to provide an update and Central Subway contact information.
3. Contactor is required to:
  - Send 60day, and 30day notices to surrounding properties.
  - Coordinate with businesses regarding changes to property access and parking.
  - Install appropriate barriers to guide pedestrians around the construction site.
  - Keep areas adjacent to the site clean

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 27 (YBM)</b>
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October 2013:

1. Community meetings were held in September (TODCO/Woolf House and other project neighbors) to notify the community that work on the Yerba Buena / Moscone Station would be commencing soon.
2. 30day and 10day construction notices have been mailed

**Risk Mitigation Status****Risk Reference: 28**

<b>Risk</b>	<b>Mitigation Strategy</b>
Incomplete cutoff of groundwater at UMS.	<ol style="list-style-type: none"><li>1. If needed, grouting will be performed to mitigate the intrusion of groundwater.</li><li>2. Work is included in cost &amp; schedule estimates.</li></ol>

**Initial Assessment:** 1, 1.5, 2**Current Assessment:** Risk Rating 2 – Construction Risk**Risk Owner:** J. Wang**Status Log:**

February 2012:

1. Jet grouting at headwalls and behind tangent pile included in contract documents.

**Risk Mitigation Status****Risk Reference: 29**

<b>Risk</b>	<b>Mitigation Strategy</b>
Method and productivity for SEM excavation sequence proposed for Platform Cavern drifts at UMS more difficult than expected.	Require experienced SEM Contractor, approved SEM procedures, and continuous SEM inspection. Require shotcrete, as needed. Include shotcrete & inspection costs in estimate.

**Initial Assessment:** 3, 2, 6**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** A. Wong**Status Log:**

November 2011 Meeting:

1. Design configuration changed and eliminating SEM thus removing this risk from further consideration.
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 11/10/11.

RETIRED

**Risk Mitigation Status****Risk Reference: 30**

<b>Risk</b>	<b>Mitigation Strategy</b>
Slow advance of UMS platform cavern due to insufficiently experienced (SEM) labor.	Require demonstrated progress rates. Assumed learning curve in cost & schedule estimates.

**Initial Assessment:** 1, 2, 2**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** A. Wong**Status Log:**

November 2011 Meeting:

1. Design configuration changed and eliminating SEM thus removing this risk from further consideration.
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 11/10/11.

RETIRED

**Risk Mitigation Status****Risk Reference: 31**

<b>Risk</b>	<b>Mitigation Strategy</b>
Limited number of NATM/SEM experienced contractors leads to delay in UMS contract award and/or increase in bid prices.	Industry outreach with contractors, including international. Early education and polling of contractors. Invite contractors to review constructability of design.

**Initial Assessment:** 1, 2, 2**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** A. Wong**Status Log:**

November 2011 Meeting:

1. Design configuration changed and eliminating SEM thus removing this risk from further consideration.
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 11/10/11.

RETIRED

<b>Risk Mitigation Status</b>
<b>Risk Reference: 32</b>

Risk	Mitigation Strategy
Delay in advanced utility relocation delays ground treatment and start of construction. (Uty 2)	<ol style="list-style-type: none"> <li>1. Intensive coordination with and commitment from utility owners.</li> <li>2. Early completion incentive for utility relocation contract.</li> <li>3. Enforce franchise agreements.</li> </ol>

**Initial Assessment:** 1, 1, 1  
**Current Assessment:** Risk Rating 0 – Requirement Risk

**Risk Owner:** M. Benson

**Status Log:**

- September 2011:  
 Advance utility relocation contract (1251) is underway with a projected completion date in advance of advertising UMS construction contract.
- January 2012 Meeting:  
  1. CN1251 is 77% complete as of end of December.
  2. Utility companies are beginning cutovers to new joint trench facilities.
- March 2012:  
  1. PG&E and AT&T coordination is ongoing. AT&T has brought on additional resources to keep schedule.
- April 2012  
  1. PG&E and AT&T coordination is ongoing.
- May 2012  
  1. PG&E and AT&T coordination is ongoing.
  2. AT&T has brought on further additional resources to keep schedule.
  3. AT&T schedule has slipped based on their current staffing levels.
  4. SFMTA will request that AT&T begin night work to finish their cutover work ASAP.
- June 2012  
  1. No status update
- July 2012  
  1. No Status update
- November 2012 Meeting:  
  1. Completion and close out of AT&T work to be tracked under this risk.
  2. Currently expecting completion by end of November 2012.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 32</b>
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December 2012:

1. PG&E work is complete
2. AT&T are scheduled to be complete the first week of January.
3. The Maiden Lane water tie in is to be completed prior to commencement of the UMS station work
  - a. A quote from CCSF is being sought to self-perform the work

February 2013:

1. AT&T cutovers were completed at Union Square the first week in January 2013.
2. Maiden Lane water tie-in will be performed by SFWD. Need to establish a budget and index code for SFWD to perform this work.
3. Macy's are required to install a backflow preventer at the Macy's Men's store to allow the fire service to be cut over, and the existing water main to be abandoned. The existing water main is in the UMS station footprint and needs to be abandoned prior to UMS construction.

March 2013:

1. Maiden Lane water tie-in – budget has been approved for SFWD to self perform the work
2. Macy's Men's backflow preventer (120 Stockton Street) – A meeting was held with Macy's management on Friday 3/8/13, Macy's are not taking action to complete this work. Central Subway are preparing a letter advising Macy's that the existing water service to the building will be removed at commencement of the Union Square / Market Street Station construction.
3. Discuss increasing this risk rating and revising the mitigation strategy.

April 2013:

1. Maiden Lane water tie in is due to be completed this month.
2. Macy's Men's backflow preventer – SFMTA are investigating:
  - a. having the SFMTA mechanical engineering division design the backflow installation
  - b. having the installation work completed under the 1252 or 1300 contracts
  - c. seeking reimbursement for the work from Macy's
3. A letter is being prepared to send to Macy's by 4/15.
4. NTP for contract 1300 is expected early June 2013, the backflow prevention device and service cutover will need to be completed by this time.

May 2013:

1. Maiden Lane Water tie in completed Wednesday April 19<sup>th</sup> 2013.
2. Macy's Backflow
  - a. Central Subway have investigated and found an existing check valve within the public right of way.
  - b. Central Subway have requested an estimate from the SF Water Department to self-perform the installation of a new check valve and complete the connection to the building within the public right of way. No work will be required within the Macy's building.

June 2013:

1. PCC-13 has been issued to BIH to perform excavation, backfill, and restoration work for SFWD.

July 2013:

1. BIH have been issued a force account instruction to complete the civil work for the new connection at Macys Mens.



<b>Risk Mitigation Status</b>
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<b>Risk Reference: 32</b>
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2. The budget has been approved for the water department to carry out the cutover.
3. A coordination meeting will be held between the contractor and water department week commencing July 8<sup>th</sup>.
4. Target completion of cutover by end of August.

September 2013:

1. Backflow work at Macy's has been completed. Risk has been mitigated.
2. Risk retired by unanimous consent of Risk Assessment Committee 09/10/13.

RETIRED

**Risk Mitigation Status****Risk Reference: 33**

<b>Risk</b>	<b>Mitigation Strategy</b>
Damage to utilities causes delay to construction and/or consequential cost. (very close to walls adjacent to relocated utility trenches at UMS)	<ol style="list-style-type: none"><li>1. Intensive utility coordination and investigation.</li><li>2. Relocate utilities out of the way of construction wherever possible.</li><li>3. Show utilities on reference plans.</li><li>4. Have utility contact information and procedure on plans.</li><li>5. Have contingency repair/restoration plans.</li><li>6. Assumed probable impacts to schedule &amp; cost in estimates.</li></ol>

**Initial Assessment:** 1, 1, 1**Initial Assessment:** Risk Rating 2 – Construction Risk**Risk Owner:** J. Wang**Status Log:**

February 2012:

1. Although mitigation measure have been fully implemented, increased probability due to proximity of new pile design to existing relocated utilities.

**Risk Mitigation Status****Risk Reference: 34 (UMS)**

Risk	Mitigation Strategy
Loss of business results in unanticipated restrictions on construction.	Public outreach. 1. Work closely with Merchant's Association. 2. Maintain regular and open communications so Merchants know construction plans and progress at all times. 3. Advertise that Stockton Street Merchants are Open for Business. 4. Require Contractor to coordinate with merchants, maintain access to businesses and assist with deliveries and pick-ups, continuously cleanup site, and provide pedestrian and vehicle traffic and protection plans, informational signage, and minimum sidewalk widths. 5. Require barriers to protect pedestrians and shield them from noise and dirt from construction. 6. Work with the Union Square BID or MOED to increase cleanup of the area and assist pedestrians across streets. 7. Assumed this work in cost & schedule estimates.

**Initial Assessment:** 2, 2.5, 5**Current Assessment:** Risk Rating 5 – Construction Risk**Risk Owner:** A. Wong**Status Log:**

September 2011:

Mitigation measures to be implemented and to the extent possible requirements will be written into contract documents to minimize disruptions to businesses.

August 2012:

1. Community outreach was achieved prior to commencement of 1252 work on Stockton Street and is ongoing that includes the Union Square B.I.D.
2. The UMS specification includes language to maintain access to businesses and notes special events as in addendum #4, section 01 12 17

May 2013:

1. A weekly construction update is emailed to individual property owners and managers and is also uploaded to the Central Subway website.
2. Central Subway is working with the Union Square BID to establish a suitable construction site perimeter barrier, as well as to establish a park environment during the holiday moratorium to foster goodwill during construction.
3. CSP has engaged MJM to provide additional cleaning on a daily basis since the commencement of contract 1251 and will continue through the 1300 contract.

**Risk Mitigation Status****Risk Reference: 35**

<b>Risk</b>	<b>Mitigation Strategy</b>
Ground support structure causes groundwater table to rise which results in leakage into adjacent structures.( new structure might create a dam that results into leaks into new and existing structures)	<ol style="list-style-type: none"><li>1. Performed detailed hydrogeologic modeling and analysis.</li><li>2. Will monitor groundwater table at multiple locations and passive measures as necessary to mitigate.</li><li>3. Reference Technical Memo in contract specs.</li><li>4. Included probable costs in estimate.</li></ol>

**Initial Assessment:** 1, 1, 1**Current Assessment:** Risk Rating 1 – Construction Risk**Risk Owner:** J. Wang**Status Log:**

September 2011:

1. Hydrogeologic modeling was conducted and the results summarized in a Technical Memorandum title “UMS Groundwater Flow Model Development and Results” dated 8/22/11. Groundwater is anticipated to rise 9 to 12 feet.

May 2012:

1. Technical Memorandum “Technical Memorandum - UMS GROUNDWATER FLOW MODEL DEVELOPMENT AND RESULTS, Revision 0” dated August 22, 2011 is included in contract documents as a reference document in spec.
2. Groundwater levels will be checked monthly by UMS Station contractor.
3. BART agreement has provisions for mitigation of groundwater level rise.

**Risk Mitigation Status****Risk Reference: 36**

<b>Risk</b>	<b>Mitigation Strategy</b>
Damage to buildings or utilities as a result of heave from jet grouting.	Tangent piles combined with surface jet grouting will be utilized.

**Initial Assessment:** 1, 1.5, 2**Current Assessment:** Risk Rating 1 – Construction Risk**Risk Owner:** J. Wang**Status Log:**

April 2012:

1. Mitigation strategy change to reflect “tangent piles” rather than “secant piles”.
2. Protection of Existing Property spec requires contractor to repair damage caused by their actions.

**Risk Mitigation Status****Risk Reference: 37**

<b>Risk</b>	<b>Mitigation Strategy</b>
Damage to adjacent buildings due to surface construction activities at UMS.	<ol style="list-style-type: none"><li>1. Require protective barriers.</li><li>2. Quickly repair and reimburse resulting costs.</li><li>3. Included probable cost in estimate.</li></ol>

**Initial Assessment: 1, 1, 1****Current Assessment: Risk Rating 1 – Construction Risk****Risk Owner: J. Wang****Status Log:**

March 2012:

1. Mitigation strategy "Have emergency and rapid response customer-focused task force to fix damaged facilities" was removed.
2. Repair of damage by contractor is contractor's responsibility to repair. Specification 01 76 29, Part 1.08 Replacement requires the contractor to immediately repair any damage at their expense.

**Risk Mitigation Status****Risk Reference: 38**

Risk	Mitigation Strategy
Tiebacks in Stockton Street miss located (in path of walls and would have to be dug out within 20ft of surface level)'	<ol style="list-style-type: none"> <li>1. Contractor has been directed on the plans to dig out the tiebacks.</li> <li>2. Include allowance for differing site conditions to contract.</li> <li>3. Assume this work in the cost and schedule estimates.</li> </ol>

**Initial Assessment:** 3, 1.5, 5**Current Assessment:** Risk Rating 3 – Construction Risk**Risk Owner:** M. Benson**Status Log:**

February 2012:

1. Advanced utility relocation contract (1251) confirmed location of tiebacks.
2. Tiebacks are shown in contract drawings.
3. Note on ES-001 directs contractor to remove tiebacks.
4. Allowance for differing site conditions has been included in the contract.

September 2012:

1. Update to be provided next meeting

October 2012:

1. Allowance for differing site conditions has not been included into the contract. PM/CM Design Manager to review bid items for inclusion into the contract documents.

November 2012 Meeting:

1. Confirm allowance for differing site conditions has been included as bid item in 1300 contract

May 2013:

1. Contractor has been instructed to remove the tiebacks as part of the contract 1300 scope of work.

**Risk Mitigation Status****Risk Reference: 39**

<b>Risk</b>	<b>Mitigation Strategy</b>
Modifications to Ellis Street Garage could trigger seismic retrofit.	1. Apply to The Department of Building Inspection for proposed retrofit modifications to the Ellis Street garage proposed by the consultant team.

**Initial Assessment:** 3, 2.5, 8**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** J. Wang**Status Log:**

November 2011 Meeting:

1. Design configuration changed and eliminating work in Ellis Street garage thus removing this risk from further consideration.
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 11/10/11.

RETIRED



**Risk Mitigation Status****Risk Reference: 40**

Risk	Mitigation Strategy
Buildings adjacent to UMS Station are subject to combined tunnel and station excavation settlement. (more sensitive structures)	<ol style="list-style-type: none"> <li>1. Evaluate risk due to combined settlement to buildings along station.</li> <li>2. Install tubámachettes for compensation grouting under Virgin Records building. Will monitor all buildings within the zone of influence of the excavation for settlement.</li> <li>3. Require EPBM TBM, and Tunnel and Station contractors to demonstrate effective control of ground and correction of settlements by compensation grouting.</li> <li>4. Require rigid concrete diaphragm ground support structure designed to ensure that adjacent structures are not affected by excavation.</li> <li>5. Require contractors to have contingency repair/restoration plan. Require repair of adverse impacts to be approved by a Structural Engineer.</li> <li>6. Include probable cost in cost estimate.</li> </ol>

**Initial Assessment:** 2, 1.5, 3**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** J. Wang/J. Caulfield**Status Log:**

January 2012 Meeting:

1. Mitigation measures have been implemented in contract documents to reduce risk.
2. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

**Risk Mitigation Status****Risk Reference: 41**

<b>Risk</b>	<b>Mitigation Strategy</b>
Secant pile walls may prove more expensive and / or take longer to install than expected (walls on incline)	1. Investigate other forms of types of pile wall to reduce costs

**Initial Assessment:** 3, 2.5, 8**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** J. Wang/J. Caulfield**Status Log:**

January 2012 Meeting:

1. A combination of different types of pile walls have been developed for the entire perimeter of the station and annex.
2. Cost estimates required to confirm savings.
3. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

RETIRED

**Risk Mitigation Status****Risk Reference: 42**

<b>Risk</b>	<b>Mitigation Strategy</b>
Insufficient space in station to house equipment	Consultant team to verify that the space provided is adequate for specified equipment.

**Initial Assessment:** 1, 3, 3**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** J. Wang**Status Log:**

January 2012 Meeting:

1. Project configuration space proofed against current requirements reducing risks.
2. Recommend to retire this risk from the project.
3. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

RETIRED

**Risk Mitigation Status****Risk Reference: 43**

<b>Risk</b>	<b>Mitigation Strategy</b>
Insufficient time in station schedule for fit out and finishes	Increase duration of activity in MPS.

**Initial Assessment:** 4, 1.5, 6**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** J. Wang**Status Log:**

January 2012 Meeting:

1. Duration was increased after Workshop 3.
2. Recommend to retire this risk from the project.
3. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

RETIRED

**Risk Mitigation Status****Risk Reference: 44**

Risk	Mitigation Strategy
BART impose additional constraints and / or take longer to approve FD submissions (for connection) than planned delaying completion of design	1. Intensive meetings with BART will resume with the commencement of Final Design.

**Initial Assessment:** 2, 2, 4**Current Assessment:** 0, 0, 0 – Requirement Risk (Retired)**Risk Owner:** J. Wang**Status Log:**

## January 2012 Meeting:

1. Regular bi-weekly meeting have been established to manage risk.
2. Permit required from BART if facilities in question are owned by BART.
3. Related to Risk L. No permit required from BART is facilities in question are transferred to SFMTA.

## February 2012

1. Powell Station upgrades will not be done until after UMS station is constructed reducing the need for design coordination at this time.

## April 2012 Meeting:

1. Property Transfer Agreement is expected to be executed by the end of this month.
2. Cooperative Agreement also to be executed by the end of this month.

## May 2012 Meeting:

1. The Amendment to the Cooperative Agreement was approved by BART on May 10.
2. It is in the process of being submitted to SFMTAB for approval.
3. This risk was retired by unanimous consent of the Risk Assessment Committee on 5/24/12.

**Risk Mitigation Status****Risk Reference: 45**

Risk	Mitigation Strategy
Market risk - few bidders (less than 3 benefited bids) for UMS station	<ol style="list-style-type: none"> <li>1. Engage in extensive contractor outreach and promote assurances of being a reasonable contract partner.</li> <li>2. Invite contractor Industry Review comments.</li> <li>3. Use Contract Terms and Conditions that are fair and reasonable to attract contractors to bid.</li> <li>4. Provide quick alternative dispute resolution process, including obstruction clause and allowance for differing site conditions in contract documents.</li> <li>5. Use website to raise awareness of the program.</li> </ol>

**Initial Assessment:** 2, 4, 8**Current Assessment:** 0, 0, 0 – Market Risk**Risk Owner:** A. Wong**Status Log:**

## February 2012 Meeting:

1. Design does not include SEM construction, thereby increasing the number of qualified contractors capable of constructing the station.
2. Contractor outreach is ongoing. One hundred and fifty program brochures were sent out to contractors listed on the contractor database.
3. Mitigation strategy added: "Use website to raise awareness of the program"

## March 2012 Meeting:

1. A CTS Meet & Greet Conference will be held on March 20 to give to prospective prime and subcontractors information on the CTS contract and all other remaining contracts within the program.

## April 2012 Meeting:

1. CTS Station Contract Meet & Greet attracted many contractors who were also informed about the upcoming UMS Station contract.
2. A similar Meet & Greet for UMS Station contract is being planned.

## August 2012 Meeting:

1. Satisfactory response received for CTS. The same mitigation strategy has been implemented for UMS.
2. Bid opening to be deferred by 1 week to allow issuance of Addendum No 6.

## September 2012 Meeting:

1. This risk was retired by unanimous consent of the Risk Assessment Committee on 9/13/12.

**Risk Mitigation Status****Risk Reference: 46 (CTS)**

Risk	Mitigation Strategy
Public complaints result in unanticipated restrictions on construction at CTS. (schedule and estimate for underground work assumes 6 day work week and 2 shifts per day)	<ol style="list-style-type: none"> <li>1. Public outreach. Maintain regular and open communications so Public knows construction plans and progress at all times.</li> <li>2. Require Contractor to assist Public Outreach efforts, maintain access to businesses and assist with deliveries and pick-ups, control noise and vibration, continuously cleanup site, and provide pedestrian and vehicle traffic and protection plans, informational signage, ADA ramps and minimum sidewalk widths.</li> <li>3. Require barriers to protect pedestrians and shield them from noise and dirt from construction.</li> <li>4. Work with MOED to increase cleanup of the area and assist pedestrians across streets, as needed.</li> <li>5. Monitor and enforce noise, vibration, ADA, traffic, and cleanup requirements. Quickly process and resolve damage and accident claims from the Public.</li> <li>6. Assumed this work in cost &amp; schedule estimates.</li> </ol>

**Initial Assessment:** 2, 3, 6**Current Assessment:** Risk Rating, 6 – Construction Risk**Risk Owner:** A. Wong / B. Chau**Status Log:**

January 2012:

1. Implementation of mitigation measures part of Communication/Outreach plan and certain aspects to be included in the contract documents.

May 2013:

1. CCDC are assisting the Central Subway outreach effort in Chinatown
2. Weekly construction updates are being uploaded to the Central Subway website, translated copies will be hand delivered through Chinatown
3. The contractor will be required to comply with the contract specifications and City ordinances for noise and dust control.
4. Discuss revising mitigation strategies
  - '4' – MOED is not involved in Chinatown, contractor is required to maintain cleanliness adjacent to site

October 2013:

1. Community meeting held in September to notify merchants and residents that construction of the Chinatown station would be commencing soon.
2. 30day and 10day construction notices have been mailed out
3. Construction updates are being communicated weekly via social media, mailings, and the Central Subway website. CCDC are also hand delivering translated construction notices to project neighbors.

**Risk Mitigation Status****Risk Reference: 47 – CTS Station**

Risk	Mitigation Strategy
Revisions to the SEM sequence at CTS during construction, which differ from the plan, could lead to significant delays if not sufficiently pre-planned.	<ol style="list-style-type: none"> <li>1. Revisit sequence strategy during FD.</li> <li>2. Address change through flexible bid schedule</li> <li>3. Utilize contractor pre-qualification: Require experienced SEM Contractor, approved SEM procedures, and continuous SEM inspection.</li> <li>4. Provide attractive T + C's (e.g. differing site conditions)</li> <li>5. Conduct peer review for FD</li> <li>6. Provide performance incentives including crew incentives for production.</li> <li>7. Require shotcrete, as needed. Include shotcrete &amp; inspection costs in estimate.</li> <li>8. Include language on drawing or in specification that allocates all risk to the contractor for change in sequence</li> </ol>

**Initial Assessment:** 3, 4, 12**Current Assessment:** 0 0, 0– Design Risk**Status Log:**

May 28, 2009 Meeting:

1. Revised the Risk and Mitigation statements.
2. Items 1 and 2: Must wait for Final Designer to develop these items
3. Item 3: Check with VTA on pre-quals used there; conduct a survey to generate a list of qualified, available SEM contractors (check with J. Bhore). Conduct some outreach at the upcoming RETC.
4. Item 4: Confer with J. Bhore
5. Item 5: Must wait for Final Designer to develop this item
6. Item 6: Confer with J. Bhore

June 23, 2009 Meeting:

1. A. Hoe identified recent SEM work and found only four locations in the USA where it is being used. The biggest concern is getting qualified personnel to do the work. This calls for an outreach program that will increase chances of obtaining these qualified personnel and contract terms that increase the Project's chances of keeping these personnel on the Project.
2. The SEM process is viable, but project needs to refrain from stipulating Means and Methods.
3. In order to achieve acceptable SEM results, Project needs a good GBR and all instrumentation in place.
4. A means of mitigating possible uncertainties with the SEM work is to perform gradation analysis on EPBM spoils.

August 27, 2009 Meeting:

1. A. Hoe indicated that in his discussions with Caltrans, relative to SEM, they recommended flexibility in any contract with a SEM firm.
2. J. Bhore provided A. Hoe with T&C's as examples of possible incentives that could be used to improve SEM productivity.
3. The objective in improving SEM productivity is to get meaningful money down to the working crew. A. Hoe will also look into using safety incentives as well as training programs through the unions.



<b>Risk Mitigation Status</b>
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<b>Risk Reference: 47 – CTS Station</b>
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4. It is expected that there will be several SEM contracts in the Bay Area at the time CSP is planning to do the CTS. A. Hoe will prepare a time-phase schedule of these projects to determine the degree to which there will be a SEM laborer shortage.
5. It was agreed that the TBM will provide good geotechnical information as it bores through the CTS ahead of the SEM mining operation. It will be necessary to assure that the TBM operation obtains this information.
6. A. Hoe will contact V. Romero to inquire about the incentives that were used on the SFPUC project.
7. A. Hoe will arrange to talk to labor representatives on options to get incentives to crew foremen.

September 24, 2009 Meeting:

1. A. Hoe continues to work the mitigation strategy for this risk, especially in the area of assuring that the Project can attract experienced contractors and retain experienced workers.
2. The possibility of reducing the CTS cavern cross section was suggested. One way to do this would be to make the North and South reaches the same. This would reduce excavation and schedule thereby saving money as well as, hopefully, increasing the factor of safety for the cross section. The increased factor of safety would reduce the concern for excessive settlement. A reduced cross section would also eliminate some of the potential for delay addressed by Risk 47 in that there would be less of the SEM method applied. One problem with reducing the cross section is that the Project architects believe the reduced section would be too restrictive.
3. There was some discussion that reducing the cross section could be presented as a secondary mitigation. This was discounted, however, as the attendees suggested this reduced section be pursued as a primary mitigation as soon as the final designer comes on board. This suggestion will be presented to the Project's Design Oversight Manager.

April 27, 2010 Meeting:

1. A. Hoe indicated that Final Designer will be asked how to address differing site conditions relative to the SEM of the CTS. It was stated that we do not want to repeat Beacon Hill where differing site conditions and unclear measurement for payment led to serious claims.
2. Regarding the issue of obtaining and keeping experienced labor, the use of incentives was again discussed. Overtime can and should be planned for. Bonuses are more of a problem because it is not clear how much of it gets to the workers, which of course, are the ones targeted for incentives.
3. A. Hoe will bring the SEM Final Designer to the next risk mitigation meeting to discuss the SEM process and the measurement and payment issue.

June 2, 2010 Meeting:

1. A. Hoe indicated that he had discussions with the Station Final Designer relative to keeping quality personnel on the job for the SEM work. They suggested that contract language be added to attract supervisors and foremen from outside the region by offering incentives. The designer indicated that an adequate number of experienced laborers are in the area, it is the experienced supervisors that need to be attracted and retained through incentives and bonuses. Project needs to discuss the issue of incentives with the City attorney to see if incentives can be addressed in the General Conditions.
2. The problem with the SEM work is that it needs to be somewhat prescriptive. The degree to which it is prescriptive is difficult to determine. The Project has hired the Preliminary Designer Geotechnical expert for SEM to perform Final Design for the SEM tunneling at CTS and to provide continuous support at the face to adjust means and methods as conditions require.
3. Albert Hoe will request a Final designer accompany him to the next risk mitigation meeting to discuss the issue of measurement and payment as it relates to the SEM at the CTS.

September 16, 2010 Meeting:

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 47 – CTS Station</b>
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1. Since commencing to address this risk, attendees have recognized that resolution is based on assuring that the Project has a skilled and committed work force for the CTS SEM. Because the crew that will perform the CTS SEM work is historically transitory and will seek the best remuneration available to them, contract arrangements that can get money to the crew are essential to attract and maintain the most skilled labor. Attendees commented that planned incentives for the work force almost always get squelched. An example of this is incentives employing early completion bonuses.
2. It was suggested that the Project might be able to pay for SEM work on a piece rate. European contractors work on a piece rate for SEM work. The possibility of using bonuses for meeting or exceeding scheduled milestones was also discussed. These incentives, however, create problems when delays hinder bonuses or meeting piece work targets. This is especially true with SEM which needs to continuously assess work and adjust for changing conditions.
3. It was agreed that the most direct method of getting incentives to the crew would be through overtime pay. Two 10 hour shifts would accomplish this and fit with a 24 hour operation. Paying the overtime might be enough to incentivize the SEM crew.
4. R. Edwards agreed to be responsible for developing a matrix of the various incentive options for SEM crew. This matrix will be presented at the next risk mitigation meeting with the intent of selecting a viable option(s) to go forward.

October 28, 2010 Meeting

1. The discussion then focused on item 3 of the strategy; utilizing contractor prequalification, require experienced SEM Contractor, approved SEM procedures and continuous SEM inspection. Prequalification would potentially have schedule impacts to the procurement process. It was discussed that to avoid schedule impacts, and not prequalify, changes could be made to enhance the specification to include specific requirements that bidders would have to adhere to. This would in essence attempt to accomplish the same goal of getting qualified contractors to perform the work but not necessarily address the risk. The specification language could at a minimum address sequence changes, if any, could only be made, so as not to cause any delay to the contractor.
2. It was also suggested that incentives to early completion could be investigated as part of the specifications. It was noted that with any incentive, there must be a corresponding disincentive clause to preserve a balanced approach to the use of public funds. It was also suggested that other contracting strategies could also be utilized other than prequalifying; such as best value, a 2 step process similar to what CalTrans uses for their A plus B contracts. This concept utilizes both cost and schedule to evaluate the bid. Further investigation will be required to ensure that the SFMTA has the ability to utilize this procurement strategy.
3. E. Stassevitch agreed to be responsible for obtaining more information on best value for those in attendance that were not familiar with the details of the contracting method. This information together with the matrix will be presented at the future risk mitigation meeting with the intent of selecting a viable option(s) to go forward.

December 16, 2010 Meeting:

1. Continue to evaluate means of mitigating risk prior to bid. Enhancing specification to address issues that would normally be included in a prequalification process was discussed as one method of obtaining experienced contractor's.

January 13, 2011 Meeting:

1. Discussed impact of Risk Mitigation Meeting held on January 7<sup>th</sup> to specifically address to possibility of lowering CTS by 25 to 30 and what effect this would have on other risks.
2. A comprehensive review of all risks was conducted specifically focused on potential effect to risk definition, likelihood of occurrence of cost and schedule effects.
3. The following risks will need to be reevaluated based on the outcome of the decision to lower CTS. Risk 48, 49, 51, 52, 52a, 53, 54, 55, 57, 80, 81, 82, and possibly 115. Need to confirm the actual Risk description for 115.

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<b>Risk Reference: 47 – CTS Station</b>
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November 2011 Meeting:

1. R. Edwards indicated that many of the mitigation measures have been incorporated during the FD phase. R. Edwards reviewed the progress to date: The sequence of excavation has been reviewed and maintained; prequalification's have been ruled out in favor of including experience and qualifications in the Division 1 specifications; T & C have been improved to include Geotechnical Baseline Report and Dispute Resolution Board provisions to make the contract conditions more attractive to potential contractors; a comprehensive Constructability review workshop was conducted on January 7, 2011 and incorporated in the FD; incentives have been discussed and vetted in previous meeting and found difficult to incorporate in the contract language; Recent meeting have been held to focus on a recommended bid item list to address the various tool box items required of SEM, see (Oct 5, 2011 Memo from A. Reid).
2. A group discussion on the incorporation of specific language on the plans or specification or both that places on the impacts of cost and schedule on the contractor should as alternate approach to sequencing other than that prescribed in the contract documents would allow reduction of this risk rating.

December 2011 Meeting:

1. Follow up action required to provide evidence of language to transfer risk to contractor in case of proposed changes to sequence in the updated contract specifications.

January 2012 Meeting:

1. Language to transfer risk to contractor in case of proposed changes to sequence have been included in the updated contract specifications to 01 25 00 Substitution, 1.02C.
2. Risk retired by unanimous consent of Risk Assessment Committee on 1/12/12.

February 2012 Meeting:

1. The PMOC doesn't believe the language in Division 1 specification section 01 25 00 to place cost and schedule impacts to changes in SEM sequence upon the contractor on the 100% Design Submittal really addresses the SEM sequence. Appropriate specification language to be forwarded to PMOC.
2. Risk status to be changed to active until proper material is presented to indicate contract documents contain the necessary provisions.

March 2012 Meeting:

1. 100% Design contract documents will be distributed to PMOC for verification of implementation of mitigation strategies.

April 2012 Meeting:

1. PMOC to verify implementation of mitigation strategies.

May 2012 Meeting:

1. The Risk Committee is concerned that the language in 01 25 00 does not adequately address the transfer of risk to the contractor for any changes to the SEM construction as outlined in the contract documents.
2. Requests for change to SEM construction will be addressed during the submittal process in construction to ensure that the risks are transferred at that time.

June 2012 Meeting:

No update.

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<b>Risk Reference: 47 – CTS Station</b>
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December 2012:

1. Suggest additional language be included in the specification to require submittals for significant work elements (such as SEM) be submitted well in advance (90days) of the proposed commencement of the relevant activity.
2. SEM construction will be address as part of the submission of Contractors Work Plan submittal.
3. This risk was retired by unanimous consent of the Risk Assessment Committee on 12/13/12.

RETIRED

**Risk Mitigation Status****Risk Reference: 48**

<b>Risk</b>	<b>Mitigation Strategy</b>
Incomplete drawdown of groundwater at CTS (inside of box and inside of caverns).	<ol style="list-style-type: none"><li>1. Require additional grouting to limit leakage to permissible level.</li><li>2. Include dewatering bid item in contract.</li><li>3. Include probable grouting and dewatering work in cost &amp; schedule estimates.</li></ol>

**Initial Assessment:** 2, 1, 3**Current Assessment:** Risk Rating 3 – Construction Risk**Risk Owner:** Q. Chin**Status Log:**

February 2012:

1. Mitigation strategy “Include dewatering bid item in contract” was added to status log.
2. Bid item for dewatering has been included in the contract documents (TB – 14 Drilled Gravity Dewatering Pipes).

**Risk Mitigation Status****Risk Reference: 49**

Risk	Mitigation Strategy
Market risk - few bidders (less than 3 bonafide bids) for CTS contract resulting in higher costs than planned.	<ol style="list-style-type: none"> <li>1. Develop a Contractor Outreach Plan to engage in extensive contractor outreach and promote assurances of being a reasonable contract partner.</li> <li>2. Invite contractor Industry Review comments.</li> <li>3. Use Contract Terms and Conditions that are fair and reasonable to attract contractors to bid. Use the SFPUC T&amp;C's as a guide.</li> <li>4. Provide quick alternative dispute resolution process, including obstruction clause and allowance for differing site conditions in contract documents.</li> <li>5. Website</li> </ol>

**Initial Assessment:** 3, 4, 12**Current Assessment:** 1, 4, 4 – Market Risk**Risk Owner:** A. Wong**Status Log:**

September 24, 2009 Meeting:

1. The Project is developing relationships with contractors. A. Wong has been conducting some contractor outreach.
2. A. Wong to prepare a status log to account for work to date and present at the next meeting.

October 23, 2009 Meeting:

It was agreed that A. Wong would complete the items below prior to the next risk mitigation meeting:

1. Expand the risk statement to include the complete set of construction contracts.
2. Reword the mitigation statement to reflect the present plan and status of the outreach work.
3. Account for the risk mitigation strategy for Risk 49 (SEM at CTS) in this risk's mitigation strategy.
4. Develop a draft outreach plan.
5. Develop an approach for linking to the present website that is devoted to contractor information.

December 8, 2009 Meeting:

1. The Risk Statement was revised to include all contracts, not just the CTS contract. The Mitigation Strategy statement was revised to include the development of a Contractor Outreach Plan.(Done)
2. It was agreed that the Contractor Outreach Plan would be placed in the "Communications/Outreach Plan" presently being prepared for the Project. A. Wong will draft the Contractor Outreach Plan for inclusion in the aforementioned plan by December 31, 2009.
3. In regard to providing attractive bidding opportunities to contractors, it was recognized that the SFPUC recently completed work with City attorneys on changing standard contract terms and conditions (T&C's) for the purpose of making these T&C's less onerous to contractors. These changed T&C's are being utilized on the presently ongoing SFPUC WSIP. D. Hudson will work with V. Romero to obtain one or more applicable SFPUC T&C's, review and report at the next risk mitigation meeting on applicability to CSP contracts.
4. D. Hudson and A. Wong to provide the Project with a recommendation on CSP use of a DRB.

January 21, 2010 Meeting:

1. A. Wong has included the Contractor Outreach Plan in the Project's Community Outreach Plan per the action item from the last mitigation meeting. This plan will provide the framework for identifying contractors and targeting specific approaches to these contractors for each

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upcoming contract. A. Wong will work with V. Romero to assist in identifying outreach approaches and contractors to target. A. Wong will present a draft schedule of contractor outreach activities for review at the next risk mitigation meeting.

2. In keeping with the action assigned at the last risk mitigation meeting (No. 7), D. Hudson reviewed the T&C's that the SFPUC recently completed for application on WSIP. The SFPUC worked with City attorneys to modify standard T&C's for the purpose of making them more attractive to contractors. It was agreed that the Project needs to modify certain of its present set of T&C's to make upcoming contracts more attractive to contractors. A. Wong and D. Hudson will develop a draft document with recommended modifications to the T&C's for review at a meeting to be called for this purpose only on or about February 8.
3. Also, in keeping with the action assigned at the last risk mitigation meeting, D. Hudson presented a document, "Dispute Resolution Recommendation (Draft)" outlining reasons for and the processes generally used for DRB's. D. Hudson's recommendation was that the Project incorporate DRB requirements into the major construction contracts as a means of making contracts more attractive to contractors as they normally favor a mechanism for resolving disputes in a timely manner outside of litigation. Discussion ensued on the value of DRB's with SFMTA indicating that their experience has generally been that it is difficult to get qualified and unbiased board members. Also, SFMTA is concerned about the cost to maintain and to keep the DRB updated on the issues. W. Neilson suggested that the Project consider a "Project Neutral" dispute resolution format that employs an independent knowledgeable entity that offers independent opinions on project issues. A. Wong and D. Hudson will develop a draft document presenting alternative dispute resolution processes for review at a meeting to be called for this purpose only on or about February 9.

February 18, 2010 Meeting:

1. In accordance with an action from the last mitigation meeting, A. Wong presented a draft schedule of contractor outreach activities that he had prepared. This schedule contained a time line and tied outreach activities to major contractor events. This schedule will eventually be a guide for preparing for key contractor events where the Project can develop relationships with contractors that hopefully will lead to a more competitive bidding environment. One of the first outreach activities that A. Wong is working on is the development of a "Contractor Database" which will be used to facilitate correspondence with key contractors, alerting them to the Project's upcoming contracts, etc.
2. A. Wong will present a draft of the Contractor database at the next risk mitigation meeting. He has started this process by identifying contractors in trade magazines.
3. A. Wong met with the Laborers International Union of North America on 2/17/10. The Union wants to form a relationship with the Project to enhance member training. The Union is sponsoring a contractor meeting in September 2010 and this may be a good opportunity for the Project to further its contractor outreach. A. Wong will continue to work with the union as this appears to be a positive relationship. The Union provided A. Wong with some contractor contacts to populate the Contractor Database.
4. In keeping with the action assigned at the last risk mitigation meeting (No. 8), D. Hudson and A. Wong developed a draft document recommending modifications to the T&C's (General Provisions) that, they believe, would be more acceptable to contractors than the present T&C's. Some of the recommended changes are intended to make the T&C's more user friendly by clarifying terms and utilizing standard usage terms. These changes are expected to be more easily approved than the more substantive changes. See attached "Comments on SFMTA General Provisions" for the items that are being suggested for modification. A. Wong and D. Hudson will evaluate the SFPUC T&C modifications that were recently made to see if any of these can also be used on the Project. A. Wong will tie any contractor exchanges (emails, meetings, events, etc.) to possible T&C modification as contractors often express opinion on T&C's that they find unattractive to them.
5. Also, in keeping with the action assigned at the last risk mitigation meeting, D. Hudson discussed the dispute resolution process; he presented a stepped process for dispute resolution.
6. D. Hudson has reached out to Bay Area AGC for input on dispute resolution. A discussion ensued regarding the resources that might be required to support a DRB. D. Hudson is to develop an estimate of the resources required for discussion at the next risk mitigation meeting.

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7. A. Wong and D. Hudson will meet with legal on 2/25/10 to discuss dispute resolution recommendations as well as possible modifications to the T&C's to obtain Legal's opinion of the possibility of approval. Legal has indicated that it believes some modification to the T&C's is necessary. A statement was made that it is important to recognize that the T&C's are meant to protect the City.

March 11, 2010 Meeting:

1. In accordance with his action from the last risk mitigation meeting, A. Wong presented a list of contractors (primarily tunnel contractors) that he received from V. Romero to commence populating the contractor database. He will discuss the list further with V. Romero to refine it. A. Wong is developing a set of marketing materials (tri-fold similar to the one he prepared for RETC last year), for use at upcoming conferences. He is targeting the tunnel conference in Vancouver in May and the one in Seattle in June. He has identified Project related personnel who will be attending the conferences and who have agreed to see that the marketing material is made available to the contractors attending the conference. A. Wong is still investigating the marketing process to use to get contractors to approach the project and show genuine interest in it.
2. A. Wong and D. Hudson met with the City Attorney on March 4 to discuss the possibility of implementing a dispute resolution process as well as modifying certain T&C's. While the City Attorney is not favorable to a DRB, he indicated that it is the Project's business decision. D. Hudson will investigate the Project Neutral approach further. He is expecting material from a Project Neutral Firm within a few days to assist with his evaluation of this possible option for dispute resolution. Based on the fact that most people associated with construction recommend a DRB for a tunnel contract and less so for other construction contracts, it was suggested that the DRB be implemented on the Tunnel contract and perhaps not on any of the other contracts. A. Wong plans to poll contractors on their opinion of dispute resolution as soon as he finalizes the contractor database and establishes communications with the contractors. D. Hudson will draft the Project's position on dispute resolution by 3/19/10 for internal review. This draft will eventually be formalized in a letter from J. Funghi to C. Rohan recommending the approach that the Project should take for dispute resolution.
3. The City Attorney and SFMTA Contract Administrator are in favor of updating the T&C's (The Project needs too keep the SFMTA Contract Administrator in the process of T&C updates). D. Hudson will draft a contract document with T&C's modifications by 3/31/10. While the modified T&C's need to be ready for the Tunnel contract, the plan is to have them ready for the Utility Contract 2 where they will be initially vetted.

April 27, 2010 Meeting:

1. In accordance with his action from the last risk mitigation meeting, D. Hudson made recommendations relative to the form of dispute resolution to be used for the upcoming Project contracts. He recommended a DRB for the Tunnel Contract based on his discussions with contractors. D. Hudson contends that tunneling contractors expect to see this type of dispute resolution format and that if the Project were not to use a DRB on the Tunneling Contract, this would serve to send the wrong message to the contractors. Also, not to use a DRB on the Tunneling Contract would, in all probability, limit the number of contractors that would bid on this contract.
2. D. Hudson also discussed use of the Project Neutral. This form of alternate dispute resolution is expected to be more conducive to the station and systems contracts, than it would for the Tunneling Contract. By definition, the Project Neutral would have more day-to-day involvement than the DRB. However, contractors have indicated that they would like dispute resolution formats to remain above the job, as opposed to the day-to-day involvement. This would indicate that contractors would be more comfortable with the DRB, rather than the Project Neutral.
3. There was some discussion about using the DRB for the Tunnel Contract and the Project Neutral for the stations and systems contracts. It was agreed that the DRB will be recommended for the Tunneling Contract and that D. Hudson will commence preparing the recommendation for review at the next risk mitigation meeting. D. Hudson will also recommend the dispute resolution format for the stations and the systems contract at the next meeting. It was agreed that the recommendation would be approved by the Risk Assessment Committee; subsequently it will be formalized in a letter from J. Funghi to C. Rohan.



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4. It was also agreed that there would be only one dispute resolution recommendation letter to address all the remaining Project contracts. To bolster the recommendation, it was agreed that in addition to presenting discussions with contractors, etc., hard data from a respected contractor organization or contractor periodical that presents a contractor poll of dispute resolution formats would be useful. V. Romero volunteered to provide D. Hudson with some hard data to substantiate his recommendation.
5. A. Wong and D. Hudson discussed their work recommending changes to T&C's to make them more attractive to contractors. D. Hudson indicated that General Provision review did not reveal anything onerous, although a Peer Review comment stated that the General Provisions are not user friendly. D. Hudson indicated that there are instances where he and A. Wong have standardized terminology and generally made items more clear. For example, differing site conditions are addressed under allowances: this is made more prominent. Attendees indicated that they expected to see more General Provision items that could be changed so as to be more favorable to contractors. Based on his work with another City project, V. Romero will provide D. Hudson with 12 items that identify potential T&Cs that could be changed on the Project. D. Hudson will discuss these items at the next risk mitigation meeting.

June 2, 2010 Meeting:

1. In accordance with his action from the last risk mitigation meeting, D. Hudson handed out a document entitled "Dispute Resolution Recommendation (Draft 2 – per risk meeting of 4/27/10)". This document provides background on dispute resolution objectives and a recommended process as follows:

General

Incorporate partnering and a stepped negotiation process for disputes in the contract terms and conditions in all major contracts.

Also, include in all major contracts an Alternative Dispute Resolution (ADR) option prior to the stepped negotiation, subject to the approval of both parties. This can be informal/advisory or formal, but should be implemented before the dispute goes on for too long. Studies have shown that ADR is more effective if used early in the process before both parties become entrenched.

ADR can be continued after the stepped negotiation process and prior to litigation in one last attempt to resolve the dispute.

Implement a centralized claims group to evaluate each dispute independent of the RE and to support the RE office in negotiations. They would look at a dispute before it was elevated out of the RE's office for resolution. This group would also support any alternative dispute resolution processes.

Tunnel Contract

DRBs originated in the tunneling industry and as such are common practice on tunneling contracts. Therefore, tunneling contractors will expect to see a DRB provision on this contract, which has been standard on all local Bay Area tunnel contracts. Not including a DRB in the tunneling contract will set an adversarial tone from the beginning.

Other Major Contracts

Due to the various types of claims that can occur on these contracts, the use of a Project Neutral (PN) appears to be a good solution. The PN will be jointly chosen by the Agency and the Contractor and will attend regular site meetings in order to become familiar with the project, stay abreast of developing disputes, and to be available for immediate and informal consultation as needed.

2. A Wong will arrange a meeting with the City attorney before the end of June 2010 to present the Project's recommendation on dispute resolution. D. Hudson and A. Wong will present the proposed specification for dispute resolution which has utilized SFPUC language tailored to CSP. While City attorney, R. Stone, has indicated previously that he does not favor a DRB, he has indicated that this is a

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Project business decision. To bolster the Project's recommendation to use a DRB on the tunneling contract, A. Wong and D. Hudson will reference projects such as WSIP (3 tunnel contracts), Boston, LA, etc. that successfully used a DRB for their tunneling contracts.

3. In accordance with the understanding from the last risk mitigation meeting, the Risk Assessment Committee (RAS) evaluated Risk 49 based on the risk owner, A. Wong's, request for a reduction in risk probability. The RAS agreed with A. Wong that a significant amount of mitigation work has been accomplished on this risk and that the risk scoring can be reduced from a 3, 4, 12 to a 2, 4, 8. This is the first risk reduction. It reduces a "Red" risk to a "Yellow" risk.

July 22, 2010 Meeting:

1. D. Hudson and A. Wong met with the City Attorney to discuss possible dispute resolution formats to be used on the CSP. In particular, they were advocating a DRB to be used for the upcoming tunnel contract. Their position is based on the fact that the majority of people with significant tunneling expertise recommend a DRB for tunnel contracts as it appears to be successfully utilized on the majority of these contracts. In addition, tunneling contractors have, in general, indicated that they favor a DRB. Consistent with previous meetings with the City Attorney that were held to discuss dispute resolution issues, the attorney indicated that he is not in favor of a DRB, however, he states that the format of dispute resolution is a business decision for the CSP. Based on the City Attorney's position, the CSP has elected to approach formulating its recommendation for dispute resolution format on CSP as follows:
2. A. Wong will continue to contact tunneling contractors to solicit their reaction to pursuing a tunnel contract without a DRB. (A. Wong had contacted two tunneling contractors prior to subject meeting; he is going to work with V. Romero to identify at least two additional contractors from whom he can obtain a reaction. The two contractors already contacted indicate that they would bid on a tunnel contract that did not have a DRB, but would most probably add a relatively significant amount of money to account for risk to them associated with this situation.)
3. A. Wong will work with V. Romero to identify the confluence of tunneling work in the United States that is expected in the time frame that the CSP tunnel contract is planned for award. To aid in developing a defensible position on the confluence of work affecting market conditions, A. Wong and V. Romero will discuss this issue with parties that they believe can speak to the market condition that might result. i.e., would the CSP tunnel contract be at risk for higher bids due to lack of competition.
4. Based on the above two actions, A. Wong and D. Hudson will draft a recommendation to J. Funghi prior to the end of August that will state the CSP's position on dispute resolution format to be used for the tunnel contract, i.e., utilize a DRB on the tunnel contract or not. Whatever the recommendation, it will include the stepped negotiation process that has been referenced in previous risk mitigation meeting minutes. (It is believed that should the CSP elect to go without a DRB on the tunnel contract, it will not use a Project Neutral on the balance of contracts. The reverse is also true).
5. If the recommendation is to utilize a DRB on the tunnel contract, it will include the proposed specification for dispute resolution which utilizes SFPUC language tailored to CSP. In addition, to bolster the recommendation, it will reference projects such as WSIP (3 tunnel contracts), Boston, LA, etc. that successfully used a DRB for their tunneling contracts.
6. If the recommendation is not to utilize a DRB on the tunnel contract, the recommendation will address the possible impact to the CSP tunnel contract in view of the perception that tunneling contractors strongly favor the DRB.
7. Progress continues to be made on contractor outreach. A. Wong is populating the contractor data base. He is presently assisting with the CSP plans for participating in the upcoming Prime Contractor Tunneling Conference, sponsored by the labor unions, to be held September 29 at SFO.

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September 16, 2010 Meeting:

1. A. Wong completed his actions from the previous meeting by contacting additional tunneling contractors to solicit their reaction to pursuing a tunnel contract without a DRB. (A. Wong contacted a total of five tunneling contractors). Consistent with prior contractor input, the additional contractors indicated that they would bid on a tunnel contract that did not have a DRB, but would most probably add a relatively significant amount of money to account for risk to them associated with this situation. A. Wong concludes from his discussions with tunneling contractors that contracts with a DRB would attract more bidders than those without.
2. A. Wong and V. Romero are continuing to identify the confluence of tunneling work in the United States that is expected in the time frame that the CSP tunnel contract is planned for award. To aid in developing a defensible position on the confluence of work affecting market conditions, A. Wong and V. Romero will discuss this issue with parties that they believe can speak to the market condition that might result, i.e., would the CSP tunnel contract be at risk for higher bids due to lack of competition.
3. A. Wong prepared a draft document for J. Funghi to forward to C. Rohan recommending that a DRB be used for the tunnel contract. The recommendation utilizes SFPUC DRB language that is presently being used on their WSIP contracts and includes the stepped negotiation process previously outlined by D. Hudson and that has been referenced in previous risk mitigation meeting minutes. The SFPUC language is tailored to the CSP.
4. To bolster the recommendation, it will reference projects such as WSIP (3 tunnel contracts), Boston, LA, etc. that successfully used a DRB for their tunneling contracts and address the possible impact to the CSP tunnel contract that could occur in the absence of a DRB in view of the perception that tunneling contractors strongly favor the DRB. Progress continues to be made on contractor outreach.
5. A. Wong continues to populate the contractor data base. He is presently assisting with the CSP plans for participating in the upcoming Prime Contractor Tunneling Conference, sponsored by the labor unions, to be held September 29 at SFO. The target audience for this Conference is tunneling contractors and related equipment suppliers. At this Conference, J. Funghi and A. Wong will talk about project scope, tunneling contract scope, schedules, T&C's, DBE requirements, etc. to give prospective bidders a good idea of the CSP tunneling contract.

October 28, 2010 Meeting

1. A. Wong gave an update on contractor outreach indicating CSP participation in the Prime Contractor Tunneling Conference, sponsored by the labor unions, held September 29 at SFO. The event was well attended by tunneling contractors and related equipment suppliers. At this Conference, J. Funghi and A. Wong talked about project scope, tunneling contract scope, schedules, T&C's, DBE requirements, etc. to give prospective bidders a good idea of the CSP tunneling contract.
2. A. Wong also mentioned CSP participation in the City of San Francisco's Mega Project conference held at the Design Center which highlighted major projects planned or underway by the city.
3. A. Wong also has updated the leaflet handed out at these events and indicated a tremendous interest by the contracting community for the tunnel contract.
4. The CSP plans to attend the upcoming event in January reaching out to the subcontracting community. Fifteen (15) prime contractors have signed up already indicating very strong interest in the tunnel contract.
5. J. Stoltz representing V. Romero presented a summary of tunneling work in the United States that is expected in the time frame that the CSP tunnel contract is planned for award. Noted were several major tunnel projects that had been canceled or deferred lending credibility to the position that market conditions have changed significantly in favor of a more competitive bidding environment i.e lower bids, for the CSP tunnel contract.
6. A. Wong circulated a draft DRB document believed to be acceptable for the tunnel contract. The document utilizes SFPUC DRB language that is presently being used on their WSIP contracts and includes the stepped negotiation process previously outlined by D. Hudson and that has been referenced in previous risk mitigation meeting minutes. The SFPUC language has been tailored to the CSP.

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December 16, 2010 Meeting:

1. A. Wong distributed final DRB language to be incorporated into Division 1 specifications for the Tunnel Contract.
2. A. Wong also indicated the participation in the Cities Mega Project Conference to highlight Central Subway contracting opportunities. Leaflet with project information is being updated.
3. Plan to participate in Contractor Outreach in January – At least 15 primes have already expressed interest as well many subcontractors.

Info from previous meetings??????

November 2011 Meeting:

1. A. Wong report that since the tunnel contract bid, several outreach efforts to the contracting community have taken place; SF Mega Project Conference; RETC conference; An updated project brochure was distributed at both major events attracting contractors from, the region, nationally and internationally.
2. Future efforts to focus on the timing on the station contracts and finding the appropriate venues to provide information on the dollar value of the contract and the type of work involved.
3. Terms and conditions that are attractive to the contracting community, namely GBR and DBR Contract provisions recommended for the Tunneling contract will be carried over to the station contracts.

December 2011 Meeting:

1. Central Subway brochure being updated to reflect current schedule. The brochure will function as an outreach tool to prospective bidders.
2. Mitigation strategy added to request assistance from Dr. Sauer on developing a list of potential bidders for CTS SEM construction.

February 2012 Meeting:

1. Central Subway brochure was sent out to 150 parties that were identified from the CS Contractor Database.

March 2012 Meeting:

1. Meetings were held with several prime contractors interested in bidding the CTS contract.
2. Contractor Meet & Greet conference to be held following CTS pre-bid conference on March 20.
3. Risk rating lowered to 2, 4, 8.

April 2012 Meeting:

1. A Pre-bid Conference and contractor Meet & Greet was conducted on March 20.
2. 218 participants representing 24 prime contractors and 8 potential Joint Venture teams participated in the event.
3. SFMTA Contract Administration has distributed approximately 180 contract packages to date.

August 2012 Meeting:

1. CTS to be re-bid. Propose to close existing risk and open a new risk under the same number.
  - a. Original bidders do not re-bid, new bids are higher than previous bids
2. Retire Risk and open new risk for CTS re-bid
3. Key actions to mitigate;
  - a. Issue memo to SFMTA Board advise bid rejection and proceeding to re-advertise by 8/9/12
  - b. Issue letter rejecting bids to contractors by 8/15/12
  - c. Re-advertise the contact on 8/20/12

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- d. Issue advertisement notice to all contractors 8/20/12 (email also if consistent and appropriate)
  - e. Conduct pre-bid conference with potential bidders on 8/28/12
  - f. Proposed bid due date 9/18/12
4. This risk was retired by unanimous consent of the Risk Assessment Committee on 8/09/12.

RETIRED

**Risk Mitigation Status**

**Risk Reference: 50**

Risk	Mitigation Strategy
Station contractor delayed by tunnel contractor since station contractor cannot break in to the tunnels until the tunnels have been finished.	1. Include Milestone dates in Tunnel Contract when the turnover of tunnels to CTS contractor has to occur. 2. Actively monitor progress towards schedule milestones. 3. Add constraints in CTS contract specification.

**Initial Assessment:** 3, 4, 11  
**Current Assessment:** Risk Rating 3 – Construction Risk

**Risk Owner:** M. Benson

**Status Log:**

September 24, 2009 Meeting:

- Attendees agreed that an LONP is one item that would alleviate this risk.
- A request for an LONP is presently being prepared. It appears at this time that an LONP has a good chance of being granted.

February 2012:

- Constraints on CTS contractor added to specification sections Work Sequence and Contract Interface.
- LONP was granted by FTA for construction of the launch box.

March 2013:

- Contract 1300 Specification section 01 12 17, 4 a) – tunneling equipment to be removed from CTS 450days following NTP (timeframe approved through CMB and included in CN 1300 addendum 3).

April 2013:

- Discuss revising this risk description to 'break into tunnel delayed by 1252 contractor' as applicable to the 1300 contract.
- Specification timing for tunneling equipment to be removed from UMS and YBM to be checked
- Current 1252 cross passage completion dates and 1300 tunnel break in dates (if NTP June 20, 2013):

<b>Contract 1252</b>			<b>Contract 1300</b>		
Milestone (complete)	Contract constraint (days following NTP)	Current Milestone date	Milestone	Contract Constraint (days following NTP)	Milestone Date (if NTP June 20, 2013)
CP1	851	6/4/14	Break into tunnel CTS	450	9/13/14
CP2, CP3 & 4	851, 915	6/4/14, 8/6/14	Break into tunnel UMS	620	3/2/15
CP5	Not a milestone	8/8/14	Break into tunnel YBM	620	3/2/15
Tunnel Substantial completion	1157	4/10/15	Tunnel Portal Access	830	9/28/15

May 2013:

- PMCM will continue to monitor the interface between the 1252 and 1300 contracts.
- No change to report.

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June 2013:

1. PMCM continue to monitor the interface between the 1252 and 1300 contracts.

**Risk Mitigation Status****Risk Reference: 51**

Risk	Mitigation Strategy
Buildings adjacent to CTS Station are subject to combined tunnel and station excavation settlement. (Mandarin Tower less so than other masonry buildings)	<ol style="list-style-type: none"> <li>1. Evaluate risk due to combined settlement to buildings along station.</li> <li>2. May underpin Mandarin tower.</li> <li>3. Monitor all buildings within the zone of influence of the excavation for settlement.</li> <li>4. Require EPBM TBM, and Tunnel and Station Contractors to demonstrate effective control of ground and correction of settlements by compensation grouting.</li> <li>5. Require continuous inspection of ground support system during excavation to ensure that settlements are limited.</li> <li>6. Require contractor to have contingency repair/restoration plan. Repair of adverse impacts will have to be approved by a Structural Engineer.</li> <li>7. Transfer settlement information to station contractor at completion of tunnel contract.</li> <li>8. Include probable cost in cost estimate.</li> </ol>

**Initial Assessment:** 4, 2, 8**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** Q. Chin/ J. Caulfield**Status Log:**

December 8, 2009 Meeting:

1. R. Edwards was identified as risk owner.
2. A. Hoe will status the mitigation strategy.
3. Consideration needs to be given to whether or not the Mandarin Tower will be part of a separate entrance-if not, then underpinning is simpler.

January 21, 2010 Meeting:

1. Risks 51 and 52 were discussed as a single entity. Regarding the settlement risks (there are 12 in the Risk Register: Nos. 3, 4, 7, 9, 11, 13, 14, 20, 24, 40, 51 and 52), it was agreed that V. Romero would review this set and make recommendations, if applicable, for combining certain of these risks, as well as developing a generic mitigation strategy for similar risks, e.g., tunnel related settlement or station excavation related settlement. V. Romero will present his recommendations at the next risk mitigation meeting.
2. A. Hoe discussed the status of the risk mitigation strategies. As a result of this discussion, it was recognized that there is a risk to obtaining timely access rights from affected property owners to install tubamachettes beneath their building foundations for possible compensation grouting.
3. R. Edwards will revise both risk mitigation strategies to account for obtaining timely access at the next risk mitigation meeting. This should be worked with G. Hollins who will be responsible for obtaining the access permission.



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<b>Risk Reference: 51</b>

February 18, 2010 Meeting:

1. Risks 51 and 52 were discussed as a single entity. I. Pawlik spoke for V. Romero in response to the actions given him in the last risk mitigation meeting. These actions were to review this set of settlement risks and make recommendations for combining certain of these risks, as well as developing a generic mitigation strategy for similar risks, e.g., tunnel related settlement or station excavation related settlement. I. Pawlik recommended that risks 3 and 14 be combined; risk 20 be eliminated; risks 9 and 11 be combined. This recommendation is being reviewed.
2. The Project needs to address the Peer Reviewer's comments that recommended underpinning the Mandarin Tower before the tunneling operation.
3. R. Edwards is firming up the scope of compensation grouting requirements that require access to the building. He is also working with G. Hollins to commence the plan for securing this building access.
4. The Project will need an agreement with the property owner that if his building experiences movement greater than a specified amount, the Project can implement compensation grouting. This is recognized as having the potential for a long negotiation process as there are approximately 45 of these buildings requiring access agreements. The first buildings to be impacted are those affected by the tunneling. R. Edwards will start with these buildings and work with V. Romero and I Pawlik to develop a priority list of buildings that need to have compensation grouting and to prepare a mitigation strategy statement to address this risk.

March 11, 2010 Meeting:

1. Risks 51 and 52 were discussed as a single entity. I. Pawlik handed out a "Building Data Summary" matrix dated 3/11/10. This matrix shows the buildings requiring mitigation based on PE analysis as of May 2009. The matrix differentiates between buildings requiring mitigation due to tunneling operations and those due to station or open-cut construction. Every building fronting the alignment will get monitoring instrumentation and pre-construction surveys; select buildings will require compensation grouting.
2. It was agreed that it would be advantageous to get started on developing a dialogue with building owners as soon as possible in order to identify any unforeseen problems that might surface during subsequent negotiations for access agreements. In this regard, V. Romero will arrange for a meeting by 3/18/10 to identify personnel who will draft a plan and schedule for the first five buildings requiring compensation grouting as well as to assure that the compensation grouting is in conformance with the EIR. Soon thereafter, the Project will commence dialogue with building owners seeking permission (construction license) to install grouting tubes under their buildings for the purpose of compensation grouting should that need arise.

April 27, 2010 Meeting:

1. V. Romero presented a plan for building protection and repair. He stated that the tunneling operation is expected to cause negligible damage to buildings; station excavations would cause moderate to severe damage if nothing is done. There are nine buildings at the CTS that are expected to experience severe to very severe damage due to the station excavation. There is a plan to compensation grout for tunnel work at the Virgin, Old Navy and Bank of America buildings. These buildings are already in the easement process.
2. As stated at the last risk mitigation meeting, every building fronting the alignment will get monitoring instrumentation and pre-construction surveys; select buildings will require compensation grouting. Also, as stated at the last meeting, attendees reinforced their contention that it would be advantageous to get started on developing a dialogue with building owners as soon as possible in order to identify any unforeseen problems that might surface during subsequent negotiations for access agreements. In this regard, V. Romero will work with G. Hollins to pick nine properties at CTS within the Washington to Jackson block. They will work with A. Wong, who has considerable experience in the area of interfacing with affected parties, to develop a plan for approaching these nine property owners. G. Hollins will present this draft plan at the next risk mitigation meeting.

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June 2, 2010 Meeting:

1. G. Hollins was not at the meeting, but he prepared a summary of his work on Risk 51 and this was provided to the meeting attendees for their information. He indicated that he had gathered ownership/contact information for all nine properties anticipated to have unacceptable settlement adjacent to the CTS. The Project is starting with the CTS because it has the most affected buildings. All nine properties are anticipated to require compensation grouting. G. Hollins will work with V. Romero to get a better understanding of the method of protection proposed for each building (compensation grouting, underpinning, etc.) and prepare a draft letter to building owners that addresses the impact to their buildings. This draft letter will be ready for review at the next risk mitigation meeting.
2. It was agreed that V. Romero would be responsible for preparing a document that would identify the properties requiring agreements for pre-construction surveys, monitoring instrumentation, and building protection (compensation grouting, underpinning, etc). The document should list the agreements needed for each contract. V. Romero indicated that CS155-1 has identified buildings impacted by the tunnel and that CS155-2 is preparing the list for the stations.
3. G. Hollins will develop a schedule for presentation at the next risk mitigation meeting that will show need dates for executed licenses. The schedule will also show dates that need to be met should it become necessary to condemn property of non-cooperative owners.

July 22, 2010 Meeting:

1. A peer review of the CTS has resulted in a recommendation to lower this station by 30 feet to reduce settlement. The CSP is evaluating this recommendation.
2. G. Hollins indicated that the station designer has identified 20 properties at CTS that will require compensation grouting and/or micro piles due to settlement concerns resulting from the station excavation. There were nine such properties identified at the time of the last risk meeting. G. Hollins will draft a letter for review at the next risk meeting that will be sent initially to the 20 properties. This will be a standard letter suitable for sending to all settlement affected properties along the alignment. This letter will contain a license to be executed for the purpose of allowing CSP access to the building. In addition to a description of the CSP's temporary easement necessary to implement the intended foundation work (compensation grouting and/or micro piles), the letter will contain generic language allowing the CSP to attach monitoring instrumentation on the buildings should the final monitoring plan that will be developed later require such instrumentation at any given building.
3. G. Hollins will develop a schedule for presentation at the next risk mitigation meeting that will show need dates for executed licenses. The schedule will also show dates that need to be met should it become necessary to condemn property of non-cooperative owners. This will be a standard letter suitable for sending to all settlement affected properties along the alignment. This letter will contain a license to be executed for the purpose of allowing CSP access to the building. In addition to a description of the CSP's temporary easement necessary to implement the intention, the Project will need an agreement with the property owner that if his building experiences movement greater than a specified amount, the Project can implement compensation grouting. This is recognized as having the potential for a long negotiation process as there are approximately 45 of these buildings requiring access agreements. The first buildings to be impacted are those affected by the tunneling. R. Edwards will start with these buildings and work with V. Romero and I Pawlik to develop a priority list of buildings that need to have compensation grouting and to prepare a mitigation strategy statement to address this risk.

September 16, 2010 Meeting:

1. A peer review of the CTS has resulted in a recommendation to lower this station by 30 feet to reduce settlement. The CSP is evaluating this recommendation.
2. The station designer has identified 20 properties adjacent to CTS that will require compensation grouting and/or micro piles due to settlement concerns resulting from the station excavation. G. Hollins is continuing to draft a letter for review at the next risk meeting that will be sent initially to the 20 properties. This will be a standard letter suitable for sending to all settlement affected properties along the alignment. This letter will contain a license to be executed for the purpose of allowing CSP access to the building. In addition to a

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description of the CSP's temporary easement necessary to implement the intended foundation work (compensation grouting and/or micro piles), the letter will contain generic language allowing the CSP to attach monitoring instrumentation on the buildings should the final monitoring plan that will be developed later require such instrumentation at any given building.

3. G. Hollins developed and presented a schedule that shows need dates for executed licenses. The schedule also shows dates that need to be met should it become necessary to condemn property of non-cooperative owners. See attached "CTS License Condemnation Schedule" 9.16.10. The schedule has been developed from a need date of January 2012 and with activities backed up from that point in time. This schedule indicates that presently there is adequate time to acquire the necessary licenses. The schedule indicates that the need date to acquire the licenses in time to support the schedule would be April 2011. G. Hollins says that he will start the process soon- this will add more float to this activity.
4. G. Hollins stated that one of the reasons that license condemnation is required is that in an emergency situation the City has the right to go in and make repairs to a building, however, compensation grouting is not an emergency situation. The license is for access to the building for assessment, monitoring and compensation grouting.
5. J. Funghi suggested that the Project invite all affected building owners to a meeting where the Project would explain its position and owners could jointly share their concerns. G. Hollins will commence with plans for this meeting.

#### October 28, 2010 Meeting

1. A peer review of the CTS has resulted in a recommendation to lower this station by 30 feet to reduce settlement. The CSP is evaluating this recommendation.
2. The station designer has identified 20 properties adjacent to CTS that will require compensation grouting and/or micro piles due to settlement concerns resulting from the station excavation.
3. G. Hollins presented a draft letter for review that will be sent initially to the 20 properties. This is a standard letter suitable for sending to all settlement affected properties along the alignment. The letter contains a license to be executed for the purpose of allowing CSP access to the building. In addition to a description of the CSP's temporary easement necessary to implement the intended foundation work (compensation grouting and/or micro piles), the letter contains generic language allowing the CSP to attach monitoring instrumentation on the buildings should the final monitoring plan that will be developed later require such instrumentation at any given building.
4. G. Hollins continues to develop and update the schedule that shows need dates for executed licenses. The schedule also shows dates that need to be met should it become necessary to condemn property of non-cooperative owners. The schedule has been developed from a need date of January 2012 and with activities backed up from that point in time. The schedule currently indicates that there is adequate time to acquire the necessary licenses. The schedule indicates that the need date to acquire the licenses in time to support the schedule would be April 2011.
5. G. Hollins stated that one of the reasons that license condemnation is required is that in an emergency situation the City has the right to go in and make repairs to a building; however, compensation grouting is not an emergency situation. The license is for access to the building for assessment, monitoring and compensation grouting.
6. J. Funghi suggested that the Project invite all affected building owners to a meeting where the Project would explain its position and owners could jointly share their concerns. G. Hollins will commence with plans for this meeting.

#### December 16, 2010 Meeting:

1. CTS station depth currently being discussed with the potential for lowering up to 30 feet. Lowering would improve scores for several risks by reducing the likelihood of occurrence and cost and schedule impacts.
2. Proposed letter to effected parties was distributed for review. The process of when the letter would be distributed and to whom was discussed. Primarily deals with the effects of the consolidated grouting program and effected residence need to be informed of the

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construction process and how it may effect them. It is important to meet with the Outreach team and discuss the approach prior to circulating the letter.

November 2011:

1. Acceptable settlement limits are set out in Settlement Report.
2. CN1252 has allowable settlement limits that are consistent with Settlement Report.
3. Currently reviewing CN1252 construction work plans to ensure that adequate settlement tolerances are reserved for CN1254.
4. Peer Review Workshop conducted in January 2011 recommended relocation of cross cut cavern and lowered station reducing the likelihood of underpinning Mandarin Tower.
5. Settlement monitoring plan is required in both CN1252 & CN1254.
6. Building Protection (BP) drawings indicate buildings that require monitoring.
7. CN 1252 requires the use of EPBM TBM.
8. Compensation grouting is required to mitigate settlement in both CN1252 & CN1254 contract specifications.
9. Memo has been produced by CSDG quantifying the amount of compensation grouting expected.

December 2011 Meeting:

1. ECP being developed to account for additional compensation grouting due to settlement during tunneling.

January 2012 Meeting:

1. Tunnel settlements will be made available to station contractor.
2. Recommend to retire this risk from the risk register.
3. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

April 2012:

1. Specification 31 09 15 Structural Instrumentation & Monitoring, section 3.01 C.1. was revised to include deformation resulting from CN1252, as well as, the station construction.
2. Specification 31 43 14 Compensation Grouting, section 3.05 B, was revised to mention "Be prepared to inject grout... when structure settlement is expected based on experience gained from previous portions of Work (i.e., work performed in Contract 1252)".

**Risk Mitigation Status****Risk Reference: 52**

Risk	Mitigation Strategy
Unacceptable settlement and impact on major utilities at CTS. (OLD SEWERS AND OTHERS WITHIN 20FT SPACE BETWEEN TOP OF CAVERN AND STREET LEVEL)	<ol style="list-style-type: none"> <li>1. Evaluate effect of potential settlement on utilities.</li> <li>2. Slip-lined sewer by CTS contractor.</li> <li>3. Other utilities will be reinforced as needed, monitored during construction, and repaired / replaced as needed.</li> <li>4. Contractor to correct impact of settlements by repair.</li> <li>5. Have contingency repair/restoration plan.</li> <li>6. Utility contact information and procedure will be on plans.</li> <li>7. Develop an allowance for utility repair.</li> <li>8. Include probable costs in estimate.</li> </ol>

**Initial Assessment:** 4, 2, 8**Current Assessment:** Risk Rating 6 – Construction Risk**Risk Owner:** Q. Chin/ R. Edwards**Status Log:**

December 8, 2009 Meeting:

1. R. Edwards was identified as risk owner.
2. A. Hoe will status the mitigation strategy.
3. Mitigation strategy needs to establish metrics for acceptable settlement criteria.
4. Eliminated Mitigation Strategy Item 6: "Cistern at Washington St. will be repaired at the completion of construction and damaged pavements replaced" from this risk and will make a new Risk 52a to address the risk to the cistern.(Done)

January 21, 2010 Meeting:

1. An action from the last risk mitigation meeting to "move Mitigation Strategy Item No. 6 to a new Risk 52a" was not done. R. Rocco will update the register accordingly.

November 2011:

1. Revised mitigation strategy 1 to indicate slip-lining of sewer by CTS contractor, not TBM contractor.
2. Removed mitigation strategy 2 "will pre-install tubamachettes for compensation grouting".
3. Revised mitigation strategy 4 to eliminate use of compensation grouting to correct impact of settlement.
4. Sewers will be slip-lined prior to cavern construction.
5. Affected utilities requiring monitoring are listed in BP drawings.
6. Technical specifications address requirement for leak detection and mitigation plans to repair leaks.

January 2012 Meeting:

1. SFPUC submitted comments on the Effects of Settlement on Utilities report.
2. SFMTA will respond to comments.

February 2012:

1. Mitigation strategy added to "Develop an allowance bid item for utility repair".
2. SFMTA responded to comments. None of the responses change the mitigation strategy for this risk.

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3. Leak detection requirements added to contract.
4. Allowance for utility repair included in contract.

September 2012 Meeting:

1. CTS has been resolved

October 2012 Meeting:

1. UMS & YBM yet to be closed out

May 2012:

1. **Recommend reducing this risk rating to 3 (2, 2, 1)** (reduce probability and cost impact)
  - a. Current probability (3), >50%, recommend reduce probability to (2), 10-50%
  - b. Current cost impact (3), \$1m - \$3m, recommend reduce cost impact to (2), \$250k - \$1m (CN 1300 CTS AL-8 = \$250k)
  - c. Current schedule impacts (1), <1 month, maintain schedule impact
2. Risk rating to remain at 6

**Risk Mitigation Status****Risk Reference: 52a**

Risk	Mitigation Strategy
Cistern at Washington St is damaged.	<ol style="list-style-type: none"> <li>1. Cistern at Washington St. will be repaired at the completion of construction and damaged pavement replaced.</li> <li>2. Add performance specification to CTS station contract for testing of existing cistern.</li> <li>3. Investigate possibility of placing reconstruction of cistern to SFFD future bond measure.</li> </ol>

**Initial Assessment:** 3, 2, 6**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** Q. Chin**Status Log:**

September 2011:

Recommend to retire this risk from the project.

October 2011:

1. This risk remains active.
2. Mitigation strategy added to add performance specification to CTS station contract for testing of existing cistern.
3. Mitigation strategy added to investigate possibility of placing reconstruction of cistern to SFFD future bond measure.

February 2012 Meeting:

1. Requirement to conduct condition assessment on cistern before and after cavern construction has been added to Protection of Existing Property specification.

April 2012 Meeting:

1. Documentation showing verification that mitigation strategy has been implemented was requested.

May 2012 Meeting:

1. Documentation showing verification that mitigation strategy has been implemented was presented.
2. Recommend to retire this risk from the Risk Register.
3. This risk was retired by unanimous consent of the Risk Assessment Committee on 5/24/12.

**Risk Mitigation Status****Risk Reference: 53**

<b>Risk</b>	<b>Mitigation Strategy</b>
Insufficient space in CTS station to house equipment	1. Verify that the space provided is adequate for specified equipment.

**Initial Assessment:** 3, 2.5, 8**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** Q. Chin**Status Log:**

November 2011 Meeting:

1. Project configuration changed and resulting space proofed.
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 11/10/11.

RETIRED



**Risk Mitigation Status****Risk Reference: 54**

<b>Risk</b>	<b>Mitigation Strategy</b>
Insufficient time in station schedule for fit out and finishes at CTS.	Increase duration of activity in MPS.

**Initial Assessment:** 3, 2.5, 8**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** Q. Chin**Status Log:**

March 2012 Meeting:

1. Duration of activity was increased after Workshop 3. The schedule was subsequently revisited in Risk Workshop 4.
2. Review of the current schedule indicates there is ample time in the schedule for fit and finishes.
3. Recommend to retire this risk from the project.
4. Risk retired from risk register by unanimous consent of Risk Assessment Committee on 3/8/12.

**Risk Mitigation Status****Risk Reference: 55**

Risk	Mitigation Strategy
Proximity at junction of head house boundary wall and school play ground may result in relocation of school yard during wall construction	Modify project configuration to eliminate any encroachment, or relocation, of the school play area.

**Initial Assessment:** 4, 0.5, 2**Current Assessment:** 0, 0, 0 – Requirement Risk (Retired)**Risk Owner:** Q. Chin**Status Log:**

September 2011:

1. Project configuration changed to eliminate encroachment, and reduce overall risk rating.
2. Recommend to retire this risk from the project.

October 2011:

1. This risk remains active.
2. Toe of retaining wall might impact construction of slurry wall.

January 2012 Meeting:

1. Station wall shifted away from adjacent property to avoid potential conflict with school yard.
2. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.
3. New risk to be created to track risk associated with potential conflict with toe of retaining wall during construction of slurry wall.

**Risk Mitigation Status****Risk Reference: 56**

Risk	Mitigation Strategy
Escalation more / less than expected (Increase in bid prices to hedge possible increases in cost of volatile commodities).	<ol style="list-style-type: none"> <li>1. In the current economic environment, escalation is just as likely to be less as more than anticipated.</li> <li>2. For volatile materials and equipment, provide substantial payment for stored materials and equipment to encourage early procurement</li> <li>3. Include an escalation clause for volatile commodities in contracts.</li> </ol>

**Initial Assessment:** 5, 2.5, 13**Current Assessment:** Risk Rating 0 – Market Risk**Risk Owner:** A. Wong**Status Log:**

September 24, 2009 Meeting:

1. Escalation varies over the duration of a project. It is favorable to the Project now, but could be a concern in the near future.
2. This risk needs to be monitored, but little can be done about it at this time.

February 2012:

1. Escalation clause will not be included in contracts because current market projections do not warrant escalation provisions.
2. Current cost estimate includes a 3.3% escalation.
3. Bid costs will be based on commodity prices at the time of bidding.
4. Contractors are likely to include potential escalation of commodities in contracts based on forecasted escalation at the time of bidding.
5. Risk rating reduced to 2, 3, 6

November 2012:

1. Various market factors have changed but overall risk remains unchanged.

May 2013:

1. Contract 1300 bid prices have been received.
2. Risk associated with material pricing is carried by the contractor.
3. Recommend retiring this risk.

June 2013:

1. The 1300 Contract has been awarded.
2. This risk was retired by unanimous consent by the Risk Assessment Committee on 06/13/13.

**Risk Mitigation Status****Risk Reference: 57**

Risk	Mitigation Strategy
<p>The process of acquiring property: acquisition/condemnation and relocation of tenants could significantly delay schedule and cost more than that presently planned.</p>	<ol style="list-style-type: none"> <li>1. Develop a real estate schedule. The schedule must be of sufficient detail and be agreed by project participants to identify key activity due dates. (Done)</li> <li>2. Appraisals to be completed end of June (Done)</li> <li>3. PM/CM will provide relocation specialists to facilitate (Done)</li> <li>4. Develop tenant relocation options including schedule and cost implications.</li> <li>5. Engage Owners in negotiations as soon as possible to obtain and vacate property prior to demolition.</li> <li>6. Draft Tenant Relocation Plan to be completed by 1/31/10.</li> </ol>

**Initial Assessment:** 3, 4, 12**Current Assessment:** 0, 0, 0 – Requirement Risk**Risk Owner:** G. Hollins**Status Log:**

May 28, 2009 Meeting:

1. Revised the Risk and Mitigation statements

June 23, 2009 Meeting:

1. RE Schedules not confidential – they follow CFR
2. FTA review is now shorter than originally planned.

July 27, 2009 Meeting:

1. Revised Item 1 to indicate that Relocation Plan is to be completed January 31, 2010.
2. Revised Item 2 to indicate that appraisals for two fee simple properties are completed.
3. Revised Item 3 by splitting into two-making a new Item 4.
4. Letters to property owners are drafted-expected out 7/29/09.
5. Joint development is a possibility at the 4<sup>th</sup> and Folsom fee simple property.

August 27, 2009 Meeting:

1. It was agreed that the Housing of Last Resort risk and the opportunities for joint development should be addressed. R. Rocco to work with G. Hollins and B. Norris to develop these strategies prior to the next Risk Mitigation Meeting.

September 24, 2009 Meeting:

1. Attendees discussed opportunities for joint development at the two fee sites (service station and Hogan and Vest). It is recognized that the owners of these properties in all probability will want more money than is presently in the budget because they will contend that the site could be developed at a higher use in the future. All agreed that joint development is a complicated issue owing to the number of players involved and the fact that the players keep their agenda close to the vest.

<b>Risk Mitigation Status</b>
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2. While the Project does not want to involve itself in the joint development process, it none-the-less needs to understand the issue and direct as much of the process as it can if it wants to avoid the possibility of a missed opportunity or a possible cost risk.
3. If the Project elects not to be involved in any joint development activities it may want to consider a risk allocation of "accept" for this risk.
4. Risk Owner was changed from E. Cruz to G. Hollins

October 23, 2009 Meeting:

1. It was agreed that the risk and mitigation statements need to be reworded to reflect the latest thinking on this risk.
2. It was agreed that G. Hollins, D. Greenaway and B. Norris would develop options for acquiring the property and successfully relocating the residents  
The above actions are scheduled for completion by the next risk mitigation meeting (the options may not be fully completed in this time-frame, but a draft should be done).

December 8, 2009 Meeting:

1. Risk mitigation strategy items were reordered to be in line with rational implementation.(Done)
2. Risk mitigation strategy to include the submission of an offer letter.
3. It was agreed to evaluate the options list that G. Hollins prepared prior to the meeting and to narrow down the list to several optimum choices which need to be "sold" to the Board of Supervisors. High level political buy-in is required.
4. Options to be part of the Relocation Plan and to be a pamphlet outlining the "paths" that are available to tenants that need relocation.
5. Part of option development and evaluation will involve actuarial analysis-D. Greenaway to ask C. Law to identify an actuary.
6. City ordinance requires TOD. Options need to consider this requirement.

January 21, 2010 Meeting:

- 1.Offers for the two fee properties are out. G. Hollins has been working on developing residential relocation options and he presented these preliminary options at the meeting. G. Hollins will develop a draft strategy memo with relocation options for J. Funghi review by 1/26/10.

February 18,2010 Meeting:

1. The mitigation of this risk is taking place to a certain extent beyond the risk mitigation meeting process with the MOH and top level SFMTA personnel setting up a Steering Committee, etc.
2. G. Hollins will update the mitigation strategy to incorporate the latest direction that is emanating from outside the Project on this risk.

March 11, 2010 Meeting:

1. G. Hollins indicated that the new Relocation Consultant is on board as of 3/10/10. G. Hollins revised the Risk Mitigation statement to include the fact that a Steering Committee has been formed to review relocation options and recommend a course of action with the tenants.
2. A question was raised about whether or not the FTA would approve funds for relocation options in advance of an approved Relocation Plan. G. Hollins will find the answer to this question and report by next meeting.
3. It was recognized that it is necessary to expand the detail of the present real estate schedule including, among other things: development of options including life-time payment amounts; Steering Committee buy-in of the options; preparation of pamphlets to be provided to tenants explaining options; FTA approval of funds to support real estate activities in advance of approved Relocation Plan, if needed (see above action by G. Hollins).

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April 27, 2010 Meeting:

1. G. Hollins provided a summary of recent developments:
  - The Relocation Plan was submitted to the Board
  - The 2<sup>nd</sup> round of tenant interviews is underway
  - The Steering Committee has indicated that the Broadway/Sansome site is the choice for permanent relocation housing.
2. It was agreed that the above were positive developments that have acted to reduce some of the impact of this risk. However, there still remains risk such as the situation at the Service Station at 4<sup>th</sup> and Folsom that is remaining uncooperative regarding permitting access for borings. G. Hollins stated that the offer to the Service Station is contingent on the amount, if any, of the contamination found at the site.
3. G. Hollins will prepare a revised risk and strategy that reflects the risks that remain on this item, for example:
  - What risk remains at the Service Station?
  - Is there any risk to relocation of the commercial tenants at CTS?
  - What if residential tenants want more of a settlement than is presently envisioned?
  - Is there any unanticipated exposure for additional costs for the Broadway/Sansome site?
  - What is exposure for temporary relocation housing, i.e., if Project experiences significant schedule delay?
  - Are there any costs anticipated in complying with the City Planning Commission's expected request to see the CTS Head House provide an added beneficial use to the community?

June 2, 2010 Meeting:

1. G. Hollins was not at the meeting, but he prepared a summary of his work on Risk 57 and this was provided to the meeting attendees for their information. His summary indicated the following:
2. A Draft Relocation Impact Study & Last Resort Housing Plan (Plan) was prepared and submitted to the FTA on April 26, 2010. FTA approval of the Plan is expected by June 11, 2010. Should any tenant not be satisfied with his or her benefits, the Plan identifies the SF Relocation Appeals Board as the appropriate appellate body.
3. The SFMTA Steering Committee has recommended that funds be made available to the SF Mayor's Office of Housing (MOH) for the construction of replacement housing within Chinatown; such housing units will be reserved for tenants displaced by the Project. The SFMTA is negotiating a Memorandum of Understanding (MOU) with MOH. Among other considerations, the MOU should establish (1) the unit mix (number of studios, one-bedrooms, etc.) to accommodate the relocated households, (2) schedule constraints for the construction of this replacement housing and (3) a cap of SFMTA's financial responsibility toward the construction this replacement housing.
4. The Project's relocation consultant has completed all residential household interviews and information gathering at the Chinatown site. The relocation consultant has completed interviews will all commercial tenants at the Chinatown site. Further information is needed to confirm which items/improvements in the commercial spaces are personal property; this affects both the relocation benefit amounts and the purchase price of the building.
5. The Project has completed all property, goodwill and fixtures and equipment appraisals for the Chinatown and Moscone properties. The project has advanced condemnation actions for these properties. The SFMTA Board has approved a recommendation for condemnation and the Project team is preparing Resolutions of Necessity for the SF Board of Supervisors. A Board hearing to vote on the Resolutions is expected in late June. Following SF Board approval, the Project will file for a Right of Possession in court. At this time, all funds must be deposited with the court. The Project team is working with the SFMTA grants division to ensure the funds are available.
6. Following the Order of Possession, the Project will access the gas station site and complete its environmental site assessment. The final purchase price for both fee acquisition sites will be contingent on the completion of environmental site assessments and other environmental due diligence.

<b>Risk Mitigation Status</b>
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July 22, 2010 Meeting:

1. G. Hollins indicated that the FTA has approved the Relocation Impact Study & Last Resort Housing Plan (Plan). SFMTA Board approval is planned for August 3 and Board of Supervisors approval for the end of September. It was agreed that at this point, the relocation issue looks positive-it is expected that both boards will approve the Plan.
2. Remaining risk for relocating residential tenants could be in finding temporary housing in a timely manner, although identification of this housing is presently proceeding according to schedule. There is the possibility that relocation of the eight commercial tenants could now be the bigger problem as there are few options available to relocate these tenants.
3. The present relocation plan has satisfied City requirements to replace the housing units to be lost as a result of the demolition of the Hogan-Vest building. By identifying a permanent residential housing facility to be constructed at Broadway-Sansome.
4. Attendees believe that there has been progress in reducing the level of this risk. It was agreed that after Board of Supervisor approval, expected at end of September, this risk would be put forward for reduction in likelihood. At that time, it is expected that temporary residential housing and relocation options for commercial tenants would also be in a somewhat more certain position adding confidence that the level of this risk could be reduced.

September 16, 2010 Meeting:

1. G. Hollins indicated that the SFMTA Board approved the Relocation Impact Study & Last Resort Housing Plan (Plan) on August 31. Board of Supervisors approval is now planned for the week of October 18.
2. At the last meeting, there was concern that relocation of the eight commercial tenants could be a problem. In response to this concern, the relocation consultant, Universal, has commenced a more concerted effort to speak with the commercial tenants and SFMTA is investigating low interest loans to re-establish the commercial tenants.
3. At the previous risk mitigation meeting, as well as in the subject meeting, attendees agreed that there has been progress in reducing the level of this risk. It was suggested that after Board of Supervisor approval, previously planned for end of September, now expected in mid October, this risk would be put forward for reduction in likelihood. At the time of the next meeting, it is expected that temporary residential housing and relocation options for commercial tenants would also be in a somewhat more certain position adding confidence that the level of this risk could be reduced. R. Rocco will work with G. Hollins to prepare the "Risk Assessment Committee-Mitigation Evaluation" form for presentation to the Risk Assessment Committee at the next meeting to seek a reduction of this risk from a "Red" to a "Yellow".

October 28, 2010 Meeting:

1. G. Hollins indicated that the SFMTA Board approved the Relocation Impact Study & Last Resort Housing Plan (Plan) on August 31. Board of Supervisors approval is now planned for the week of December 7.
2. At the last meeting, there was concern that relocation of the eight commercial tenants could be a problem. In response to this concern, the relocation consultant, Universal, has commenced a more concerted effort to speak with the commercial tenants and SFMTA is investigating low interest loans to re-establish the commercial tenants.
3. At the previous risk mitigation meeting, as well as in the subject meeting, attendees agreed that there has been progress in reducing the level of this risk. It was suggested that after Board of Supervisor approval, previously planned for mid October, now expected in December, this risk would be put forward for reduction in likelihood. At the time of the next meeting, it is expected that temporary residential housing and relocation options for commercial tenants would also be in a somewhat more certain position adding confidence that the level of this risk could be reduced.
4. E. Stassevitch will work with G. Hollins to prepare the "Risk Assessment Committee-Mitigation Evaluation" form for presentation to the Risk Assessment Committee at the next meeting to seek a reduction of this risk from a "Red" to a "Yellow"

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September 2011: (The following includes updates since September 16, 2010 meeting)

1. G. Hollins indicated that the SFMTA Board approved the Relocation Impact Study & Last Resort Housing Plan (Plan) on August 31. Board of Supervisors approval is now planned for the week of December 6. At the last meeting, there was concern that relocation of the eight commercial tenants could be a problem. In response to this concern, the relocation consultant, Universal, has commenced a more concerted effort to speak with the commercial tenants and SFMTA is investigating low interest loans to re-establish the commercial tenants.
2. At the previous risk mitigation meeting, as well as in the subject meeting, attendees agreed that there has been progress in reducing the level of this risk. It was suggested that after Board of Supervisor approval, previously planned for end of September, now expected in December, this risk would be put forward for reduction in likelihood.
3. At the time of the next meeting, it is expected that temporary residential housing and relocation options for commercial tenants would also be in a somewhat more certain position adding confidence that the level of this risk could be reduced. R. Rocco will work with G. Hollins to prepare the "Risk Assessment Committee-Mitigation Evaluation" form for presentation to the Risk Assessment Committee at the next meeting to seek a reduction of this risk from a "Red" to a "Yellow".
4. *Easement Acquisition:* In order to protect against schedule delays, the City filed eminent domain actions for the three easements in January 2011 and deposited the fair market value of the easement acquisitions with the court. On March 15, 2011, the City filed for prejudgment possession of these easements. The Project was granted possession of all three easements on July 5<sup>th</sup>, 2011.
5. *Property Acquisition:* The SFMTA has reach agreement on the purchase price of the Chinatown Station Site (933 Stockton). The project is preparing the final purchase and sale agreement for execution. SFMTA Board has approved the 933 Stockton purchase and the close of escrow will occur on November 1, 2011. The SFMTA has completed an update of the appraisal for the Moscone Station Site (266 Fourth). The updated fair market value appraisal has been reviewed and approved by the FTA on September 19, 2011. The SFMTA is preparing a new Offer of Just Compensation to complete negotiations for the purchase of 266 Fourth. The SFMTA is preparing to file for access to this property to complete Phase 2 environmental drilling by November of this year.
6. *Commercial Tenant Relocation:* The Relocation Plan was approved by the San Francisco Board of Supervisors in December 2010. The SFMTA has made offers to provide goodwill loss assistance to all (8) commercial tenants. The SFMTA issued a 90-day notice to vacate to all commercial tenants on August 1. (2) of the (8) businesses have relocated to date. A third business is expected to vacate by the end of September. The SFMTA anticipates that all commercial relocations will be completed by October 2011.
7. *Residential Tenant Relocation:* The SFMTA has issued entitlement letters to all residential tenants, confirming the unit size, moving expenses and rent subsidies available for the relocation of each household. The SFMTA issued a 90-day notice to vacate to all residential households on August 1. To date (12) of the (19) residential households have been relocated. All remaining households have been provided referrals for available units and the SFMTA relocation team is meeting with each household on a weekly basis to locate suitable replacement sites. The SFMTA anticipates that all residential relocations will be completed by October 2011.
8. Since the SFMTA has possession of the (3) easements and preparing for a November 1 close of escrow for the purchase of 933 Stockton, the remaining property acquisition risk lies primarily with the 266 Fourth. We have made significant progress in our communication and negotiation with the owner of 266 Fourth, but have not yet agreed to a purchase price. Should current efforts to reach a negotiated settlement fail, the SFMTA is prepared to pursue eminent domain through the court beginning in October 2011. If needed, the eminent domain court hearing process would be completed by May 2012. Advertisement of the MOS Station contract will occur in July 2012 and NTP is expected in December of 2012. This gives the project approximately 3 months from the date of possession until contract advertisement to address any environmental remediation that is discovered during the Phase 2 drilling. Based on these factors, we recommend this risk be reduced from Red to Yellow.



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9. The relocation risk will remain until the last commercial tenant and residential tenant have been successfully relocated. However, the SFMTA has increased the resources dedicated to relocation and began to schedule regular weekly check-ins with all remaining tenants. The SFMTA has also provided specific moving assistance, rent subsidy payments (residential) and goodwill loss payments (commercial) to each tenant. Lastly, the SFMTA has put all tenants on notice that all relocations must be complete by the end of October 2011 (90-notice to vacate were issued on August 1, 2011). This gives the project approximately 6 months of float between the end of relocation activities and the advertisement of the CTS Station contract; scheduled for April 2012. Based on these factors, we recommend this risk be reduced from Red to Yellow.

November 2011 Meeting:

1. Two commercial and four residential tenants still required to be moved at 933 Stockton. Two of the residential tenants plan to buy property. Hogan & Vest plan to stay until 12/31/11, but no later than 1/31/12.
2. 266 Fourth Street Phase 2 ESA results are expected second week of December.
3. FTA has approved the revised appraisal for 266 Fourth Street.
4. Remediation costs (if any) will be subtracted from the SFMTA offer for the property.

December 2011 Meeting:

1. One tenant left at 933 Stockton expected to be vacated by 1/31/12.
2. Phase 2 ESA results show top five feet of soil contains elevated levels of lead. No contamination discovered below five feet.
3. Check from state for appraisal has been received.
4. Date of condemnation is expected to be 12/21/2011. Right of Entry/Possession expected 120 after filing (5/25/2012).
5. Ninety-day notices to be sent out to the two tenants.
6. DPH process for closing a gas station needs to be started.
7. Planning department may require condition approval permit to close the gas station.
8. Diminution of value of 266 Fourth Street for remediation of the lead contamination will be considered in the final offer to the owner of the site.

January 2012 Meeting:

1. CTS Site: Close of escrow occurred on January 10, 2012.
2. CTS Site: One commercial tenant is remaining at 933 Stockton (the property manager). This tenant will vacate on 2/15/12.
3. MOS Site: The Phase 2 ESA Report was completed on January 9, 2012. According to the report, the top 5' to 6' of soil (fill material) is considered CA non-RCRA hazardous waste; shallow groundwater appears to be impacted by petroleum hydrocarbons and may require additional monitoring.
4. MOS Site: The Phase 2 Report has been forwarded to the property appraiser to update the FMV of the property.
5. MOS Site: The project filed a motion for Pre Judgment possession on December 22, 2011. Right of Entry/Possession is scheduled for May 29, 2012. Right of Entry/Possession includes relocation of all tenants.
6. MOS Site: The project will prepare and transmit 90-Day notices on February 27, 2012.
7. MOS Site: The project is consulting the Planning Department regarding requirement to prepare a Gasoline Service Station Conversion application.
8. Risk reduced to 1, 4, 4.

February 2012 Meeting:

1. CTS Site: Remaining commercial tenant will vacate on 2/15/12.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 57</b>
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2. MOS Site: The Phase 2 Report has been finalized and signed off by AECOM and SFMTA.
3. MOS Site: Right of Entry/Possession is scheduled for May 29, 2012. The SFMTA is working on a stipulation agreement – through the court – that would allow the gas station operator to remain onsite following the May 29, 2012 possession date with a 30-day notice to vacate trigger. This stipulation would only take effect if the property owner concedes to all of the SFMTA's demands.
4. MOS Site: The project will prepare and transmit 90-Day notices on February 27, 2012.
5. MOS Site: The project is consulting the Planning Department regarding requirement to prepare a Gasoline Service Station Conversion application.

March 2012 Meeting:

1. CTS Site: Remaining commercial tenant has vacated property.
2. MOS Site: The Phase 2 Report has been finalized and signed off by AECOM and SFMTA.
3. MOS Site: Property appraiser has prepared an updated appraisal based on ESA Phase 2 findings. Updated appraisal has been reviewed by Project Staff, the City Attorney's Office and SFMTA Real Estate. A review appraisal has been requested.
4. MOS Site: Right of Entry/Possession is scheduled for May 29, 2012. The SFMTA is working on a stipulation agreement – through the court – that would allow the gas station operator to remain onsite pending a 40-day notice to from the SFMTA. This stipulation would only take effect if the property owner concedes to all of the SFMTA's demands. Similar to possession through the court hearing process, the stipulation agreement requires the property owner to give notice to the smog shop operator, but does not obligate the property owner to remove the smog shop operator (should the smog shop operator refuse to vacate). In this case, removal/eviction of the smog shop operator would be enforced by the Sheriff. Based on this possibility, the Project will factor into the schedule all activities required to remove smog shop operator. Thus, a 40-day notice will likely turn into a 60-day or a 90-day notice to give the Sheriff enough time to clear the property. Project staff will confirm the amount of time required for the Sheriff to evict the smog shop operator, should it be necessary.
5. MOS Site: The project transmitted 90-Day notices to the gas station and smog shop on February 29, 2012.
6. MOS Site: The project has confirmed – in consultation with the Planning Department and City Attorney's Office – that a Gasoline Service Station Conversion application will be required. Assuming the current gas station operator will not share revenue information, the SFMTA will be required to seek a Conditional Use Approval from the Planning Commission to close the station. The Project has requested this financial information as a condition to executing the stipulation agreement.

April 2012 Meeting:

1. MOS Site: The Phase 2 Report has been finalized. An updated appraisal (based on ESA Phase 2 findings) has also been completed. The review appraisal is scheduled to be complete by the week of April 2, 2012.
2. MOS Site: Right of Entry/Possession is scheduled for May 29, 2012. The SFMTA is working on a stipulation agreement – through the court – that would allow the gas station operator to remain onsite pending a 40-day notice to from the SFMTA. It is anticipated that the stipulated agreement will be executed prior to the scheduled April 12, 2012 court date. If this stipulated agreement is signed, the April 12, 2012 court date will not be required, the SFMTA will have possession of the property following transmission of a 40-day notice to the property owner.
3. MOS Site: The project transmitted 90-Day notices to the gas station and smog shop on February 29, 2012 and is actively looking for replacement sites for both businesses.
4. The SFMTA has begun preparation of a Gasoline Service Station Conversion application. This application should be ready to submit by the week of April 9, 2012 and it is anticipated that all required Planning Department/Planning Commission approvals will be in hand by the middle of July.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 57</b>
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May 2012 Meeting:

1. MOS Site: The Phase 2 Report, updated appraisal (based on ESA Phase 2 findings) and review appraisal have been completed. The SFMTA issued a letter to the FTA on April 27, 2012 requesting concurrence of the Revised Just Compensation Offer for 266-286 4th Street.
2. MOS Site: The SFMTA executed a stipulation agreement with the property owner that would allow the gas station operator to remain onsite pending a 40-day notice to from the SFMTA. The SFMTA anticipates issuing the 40-day notice to the property owner at the end of May, 2012.
3. MOS Site: The project transmitted 90-Day notices to the gas station and smog shop on February 29, 2012. A copy of the 90-day Notice to Vacate was hand-delivered to the smog shop operator on April 3, 2012 to confirm their receipt of this required notice. The Project will deliver a 30-day notice to the gas station and smog shop on June 3, 2012. In the meantime, the Project staff has located a replacement site for the smog shop currently in operation at 266 Fourth Street. This replacement site is in San Francisco and the business owner is waiting for final bids from qualified movers and should have a move-date confirmed shortly.
4. An Interim Use application and Gasoline Service Station Conversion application for the MOS site were approved by the Planning Commission.

June 2012 Meeting:

1. MOS Site: The Phase 2 Report, updated appraisal (based on ESA Phase 2 findings) and review appraisal have been completed. On June 4, 2012, the FTA concurred with the Revised Just Compensation Offer for 266-286 4th Street.
2. MOS Site (Possession): The SFMTA issued a 40-day notice to the property owner on May 29, 2012, giving possession of the property by July 6, 2012.
3. MOS Site (Relocation): The smog shop operator accepted the SFMTA's Goodwill and FF&E compensation offer on May 29, 2012. The SFMTA issued a 30-day notice to the smog shop operator on June 1, 2012; which requires the business to be fully relocated by June 3, 2012.
4. An Interim Use application and has been approved by the Planning Department.
5. The Conditional Use application has been submitted, along with payment, to the Planning Department. The project is waiting for the Conditional Use hearing to be scheduled at the Planning Commission.

July 2012 Meeting:

1. MOS Site: The Phase 2 Report, updated appraisal (based on ESA Phase 2 findings) and review appraisal have been completed. On June 4, 2012, the FTA concurred with the Revised Just Compensation Offer for 266-286 4th Street. On June 25, 2012, the SFMTA mailed a Revised Just Compensation Offer for 266-286 4th Street to the property owner.
2. The SFMTA took possession of the property by July 6, 2012.
3. MOS Site (Relocation): The smog shop operator and gas station shut down business operations by July 6, 2012.
4. The Conditional Use application has been submitted, along with payment, to the Planning Department. The Conditional Use hearing is scheduled at the Planning Commission on August 9, 2012.

August 2012 Meeting:

1. SFMTA has possession of all required real estate and all tenants have been successfully relocated. Recommend retirement of this risk.
2. Risk to be closed. Potential closing cost/budget impact risk.
3. This risk was retired by unanimous consent of the Risk Assessment Committee on 8/09/12.

**Risk Mitigation Status****Risk Reference: 58**

Risk	Mitigation Strategy
<p>Delay in vacation and interference with existing building services of sub-sidewalk basements delays utility relocations.</p>	<ol style="list-style-type: none"> <li>1. Send out NOI to property owners (Done).</li> <li>2. Send letter identifying course of action to owners and dates for completion (Done).</li> <li>3. Gather legal documents from DBI showing revocation status. (Done)</li> <li>4. Engage Owners in negotiations as soon as possible. Obtain assistance from PM/CM and Utility Designer to facilitate. (Do this now)</li> <li>5. Provide design, permit expediting, and construction assistance to building owners.</li> </ol>

**Initial Assessment:** 3, 3.5, 11**Current Assessment:** 0, 0, 0 – Requirement Risk (Retired)**Risk Owner:** D. Greenaway**Status Log:**

May 28, 2009 Meeting:

1. Revised the Mitigation statement

June 23, 2009 Meeting:

1. Revised Item 3 to indicate that this item is done.
2. The PM/CM is to take the lead in negotiating with Speedway. It was agreed to engage with Speedway now and be prepared to pay for the work. Project should get rough drawings to show Speedway the work that is required.
3. The City Attorney's Office indicated that the Project has the legal authority to force property owners out, but not the authority to make them pay for the work.
4. Some property owners are uncooperative – don't want to do upgrades – we need to determine cost of paying for the work.
5. A question was raised about how to get DBI permit if we are not the property owner.
6. It was agreed to develop a strategy for each sub-sidewalk property case as they were recognized as being somewhat unique.
7. If the nuisance ordinance does not pass, Project needs to account for the time necessary to sue for Warrant of Entry.

July 27, 2009 Meeting:

1. The strategy for this risk is proceeding on schedule at this time with no obvious concerns.

August 27, 2009 Meeting:

1. There is concern that the surcharge on the sidewalk basement closure wall at Neiman Marcus may require the wall to be thicker than desired, and take up more of their interior space.
2. Neiman Marcus has expressed concern that PG&E costs to relocate utilities is costing them considerably more than they believe is warranted. CSP to arrange to facilitate meeting between PG&E and Neiman Marcus to maintain the good relations presently existing between Neiman Marcus and CSP. B. Norris to prepare a letter to Neiman Marcus for N. Ford signature offering to facilitate meeting.
3. The Nuisance and Appeals ordinances have gone through second readings. Both will go to full Board on September 15.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 58</b>

June 2, 2010 Meeting:

1. This risk was not on the agenda, but was added as a discussion item because a Nuisance Hearing had occurred a few hours prior to the meeting providing valuable input to the status of this risk. The mitigation of this risk has proceeded relatively well. This is due primarily to the fact that the Project has effectively defined the strategy for the basement permit revocation, identified the need and scope of the Nuisance Ordinance and subsequently obtained this ordinance in a timely fashion, and established a reimbursement process. At this point in time, only a limited number of sub-sidewalk properties are now considered to be a problem. For example, Barney's of New York which had been a concern a few months ago, is now cooperating; Macy's sewer relocation issue has been resolved; Neiman Marcus is planning to relocate their facilities; and, Crate and Barrel is planning to relocate their transformer.
2. The first Nuisance Hearing, held on 6.02.10, was for 800 and 838 Market Street properties. The Hearing Officer acts as an arbiter, and explains to the property owner that if they do not meet their obligations (scope and schedule), a lien will be imposed on their property. As a result of this, the Hearing Officer requires the Project to establish an abatement cost should it be necessary for the Project to step in to complete the work for the property owner. J. Burns will commence with preparing the cost for 800 and 838 Market Street as well as 1719 Stockton and 24-34 Ellis Street as these four properties are considered "uncooperative" at this point in time. A Nuisance Hearing will be held for 1719 Stockton and 24-34 Ellis Street next week.
3. There was some discussion regarding the possibility that the "cooperative" properties might not be as aware of the Nuisance Ordinance imposition of a lien for non-performance as the "uncooperative" owners and, as a result, they may be under the Project radar, i.e., the Project may be surprised at a late date that some "cooperative" owners are not performing. To address this, D. Greenaway will send a letter, prior to June 11, to the remaining sub-sidewalk basement property owners informing them of their obligations and penalties under the Nuisance Ordinance.
4. It was agreed to change the risk owner to J. Funghi.

July 22, 2010 Meeting:

1. A letter was sent on June 21 to seven property owners who have been cooperating with CSP to vacate the sub-sidewalk vaults. Subsequent to the letter, D. Greenaway and G. Hollins initiated visits to these seven properties to check progress. Visits have been made to 1 and 39 Stockton. Property owners have been accommodating.
2. G. Hollins indicates that four property owners appear to be uncooperative at this time. These are 800 and 838 Market, 17-19 Stockton and 24-34 Ellis. R. Edwards stated that Optional Bid Items will be included in Contract 1251 for the contractor to remove elements from the sub-sidewalk basements and construct primary closure walls (17-19 Stockton), and to construct secondary closure walls (800 and 838 Market). While not yet established, a similar approach for 24-34 Ellis will be developed. The Option relating to 17-19 Stockton will be in the bid documents as they go out. Optional bid items for 800-838 Market and 24-34 Ellis will be added by addendum – pending upcoming Nuisance Hearings with those property owners.

September 16, 2010 Meeting:

1. G. Hollins believes that the Project is making good progress with vacating the sub-sidewalk basements. The agreement for the property at 800 Market is complete. It is expected that all work on this property's sub-sidewalk closure will be completed by December. Three property agreements still requiring resolution are:
  - 838 Market is nearing the end of the Nuisance Hearing Process. The property owners still need to move items from the basement, but they may not need to build a primary wall. R. Edwards is assuming they do not need to backfill the space.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 58</b>
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- 17-19 Stockton is the most contentious; they have not come to the table yet. The Nuisance Hearing is September 30. One of the problems is that the owner's engineer, Soha Engineering, is contending that the sidewalk is part of the support needed for earthquake resistance.
  - 24-34 Ellis is slated for a Nuisance Hearing on September 23. The plan for this property is to pass the ducts through the basement, a wall is not required.
2. At the previous risk meeting, R. Edwards stated that Optional Bid Items will be included in Contract 1251 for the contractor to remove elements from the sub-sidewalk basements and construct primary closure walls (17-19 Stockton), and to construct secondary closure walls (800 and 838 Market). While not yet established, a similar approach for 24-34 Ellis will be developed. The Option relating to 17-19 Stockton will be in the bid documents as they go out. Optional bid items for 800-838 Market and 24-34 Ellis will be added by addendum – pending upcoming Nuisance Hearings with those property owners.

October 28, 2010 Meeting:

1. G. Hollins believes that the Project is making good progress with vacating the sub-sidewalk basements. The agreement for the property at 800 Market is complete. It is expected that all work on this property's sub-sidewalk closure will be completed by December.
2. At the previous risk meeting, R. Edwards stated that Optional Bid Items will be included in Contract 1251 for the contractor to remove elements from the sub-sidewalk basements and construct primary closure walls (17-19 Stockton), and to construct secondary closure walls (800 and 838 Market). While not yet established, a similar approach for 24-34 Ellis will be developed.
3. E. Stassevitch will work with G. Hollins to prepare the "Risk Assessment Committee-Mitigation Evaluation" form for presentation to the Risk Assessment Committee at the next meeting to seek a reduction of this risk from a "Red" to a "Yellow".

December 16, 2010 Meeting:

1. Impact of ECP 5 was discussed and specifically how it would effect 838 Market and 17- 19 Stockton.
2. Risk Owner to be updated to G. Hollins.

September 2011:

1. All property owners in the vicinity of the UMS station, with the exception of 17-19 Stockton, have completed the relocation of their facilities from the subsidewalk basement vaults and constructed a closure wall.
2. 17-19 Stockton continues to work with the utility agencies to complete the relocation of their utility facilities to behind property line.
3. Recommend to retire this risk from the project.

October 2011:

1. This risk remains active.
2. 17-19 Stockton need to complete their vacation of the subsidewalk basement vault.

January 2012 Meeting:

1. SFMTA has initiated Nuisance Ordinance hearing to remove private property from 17-25 Stockton subsidewalk vault (last remaining property to complete vacation of subsidewalk vaults).
2. A Nuisance hearing was held on December 22, 2011. Another hearing is scheduled for January 19, 2012.
3. SFMTA has executed CN1251 options to have contractor assist in relocation of utilities from vault.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 58</b>
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March 2012:

1. The tenant will have completed their work by the 3/2/12.
2. The owner has received switchgear approval from PG&E and are now free to order their switchgear. PG&E is developing a contract with the owner.
3. On 1/26/12 the Nuisance Hearing officer stated that they will give written ruling but did not say when they would. We are still waiting on that ruling.

April 2012 Meeting:

1. All of the tenants' work is complete.
2. The owners switchgear has been ordered and delivered
3. PG&E Contracts with Property Owner have been sent out.
4. The hearing officer has given Property Owner till 5/21/12 to vacate basement
5. Property owner has sent payment to PG&E.
6. Upon receipt of payment PG&E to cut over gas and electric; property owner to demolish the existing electrical equipment.

May 2012 Meeting

1. Owner demolished existing electrical equipment on May 1 thereby finally completing vacation of sub-sidewalk basement.
2. Recommend to retire this risk.
3. This risk was retired by unanimous consent of the Risk Assessment Committee on 5/12/12.

**Risk Mitigation Status****Risk Reference: 59**

<b>Risk</b>	<b>Mitigation Strategy</b>
Insufficient time in schedule to complete IGA's (joint utility trench issues) to meet relocation schedule (Agency resources etc)	<ol style="list-style-type: none"><li>1. Continue negotiations utility owners.</li><li>2. Obtain assistance from PM/CM and Utility Designer to facilitate.</li><li>3. PM/CM and utility designer to provide assistance to utility owners.</li></ol>

**Initial Assessment:** 1, 2, 2**Current Assessment:** 0, 0, 0 – Requirement Risk (Retired)**Risk Owner:** D. Greenaway**Status Log:**

January 2012 Meeting:

1. IGA's completed.
2. Recommend to retire this risk from the risk register now that the majority of the work is complete on one advanced contract and underway on the other.
3. Risk retired from risk register by unanimous consent of Risk Assessment Committee 1/12/12.

RETIRED



**Risk Mitigation Status****Risk Reference: 60**

Risk	Mitigation Strategy
Utility companies do not complete relocations in timely manner. (UTY 1 and UTY 2)	<ol style="list-style-type: none"> <li>1. Continue negotiations with utility owners.</li> <li>2. PM/CM will assist utilities with access and to schedule their work.</li> <li>3. Require Utility Relocation contractor to provide assistance to utilities.</li> <li>4. Include in contract allowance for Contractor to assist Utilities and incentive for early completion.</li> <li>5. Enforce franchise requirements.</li> </ol>

**Initial Assessment:** 1, 2, 2**Current Assessment:** 0, 0, 0 – Construction Risk**Risk Owner:** M. Benson**Status Log:**

September 2011:

1. Work is complete on one advanced contract and underway on the other.

January 2012 Meeting:

1. Utility cutover for portal and Moscone Station nearing completion.
2. Utility cutover for UMS has begun.
3. The risk rating has been increased due to potential impact on construction schedule for UMS headwalls.

February 2012:

1. AT&T current schedule estimates that their cutover at UMS will be complete by end of May.
2. AT&T current schedule estimates that their cutover at MOS will be complete by March.
3. Risk rating reduced to 3, 2, 6.
4. Risk owner was changed from D. Greenaway to M. Benson.

July 2012:

1. AT&T current schedule estimates that their cutovers at UMS will be complete by end of September.
2. AT&T completed their cutovers at MOS on July 2<sup>nd</sup>.
3. PG&E current schedule estimates that their cutovers at UMS will be completed early to mid-August.
4. SFWD current schedule estimates that their cutovers at UMS will be completed by end of July with the following exceptions: Maiden Lane, Macy's Men's, Armani and Disney stores. Armani and Disney cutovers are impacting the 1252 work at the Ellis Street Shaft.

August 2012:

1. AT&T meeting held 8/9/12. AT&T now targeting completion prior to Holiday Moratorium. BIH can work around.
2. PG&E cutovers complete; South UMS headwall 8/13/12, North UMS headwall 8/20/12, Ellis St 8/27/12.
3. SFWD has 2 connections left – Armani and Disney.
4. Macy's backflow preventer not holding up 1252 but needs to be complete prior to 1253

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 60</b>
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September 2012:

1. Regular weekly meetings are being held with AT&T management; current cutover completion is still scheduled for 11/24/12.
2. PG&E has completed the cutover of all the primary feeder lines and has one remaining secondary feeder for the cutover of the Barney's fire pump.
3. SFWD has the following connections left to complete: a) main connection at Stockton/ Maiden Lane, b) fire connection at Disney and c) fire connection at Macy's Men's Store. SFWD has sent a letter to Macy's regarding the need for them to install a backflow preventer prior to completing their fire connection. The Macy's connection is not impacting 1252 work but will need to be completed prior to the 1252 work starting.
4. L3 (QWEST) cutover expected to be completed by 9/14/12.

October 2012:

1. Regular weekly meetings are continuing with AT&T management; current cutover completion is still scheduled for 11/24/12.
2. PG&E secondary feeder for the cutover of the Barney's fire pump completed on 10/1/12..
3. SFWD completed the fire connection at the Disney Store on 9/27/12. The following connections left to complete: a) main connection at Stockton/ Maiden Lane, b) fire connection at Macy's Men's Store. SFWD has sent a letter to Macy's regarding the need for them to install a backflow preventer prior to completing their fire connection. The Macy's connection is not impacting 1252 work but will need to be completed prior to the 1253 work starting.
4. SFDT completed cutovers on 9/23/12.
5. This risk was retired by unanimous consent of the Risk Assessment Committee on 10/18/12.

**Risk Mitigation Status****Risk Reference: 61**

<b>Risk</b>	<b>Mitigation Strategy</b>
Utility relocation is delayed due to non-standard materials not being available. (UTY 1 and UTY 2) AWSS special material?	Work with utilities and contractor to identify and acquire non-standard materials well in advance of time that they are needed.

**Initial Assessment:** 0, 0, 0**Current Assessment:** 0, 0, 0 – Construction Risk**Risk Owner:** A. Wong**Status Log:**

September 2011:

1. Mitigations measures being implemented to manage risk.

February 2013:

1. Risk recommended to be retired.
2. Risk mitigation were met, utilities Contracts are done.
3. This risk was retired by unanimous consent of the Risk Assessment Committee on 02/14/13.

**Risk Mitigation Status****Risk Reference: 62**

Risk	Mitigation Strategy
Hazardous materials during building demolition. (China Town)	<ol style="list-style-type: none"><li>1. Provide hazardous material procedure and bid item for removal and disposal.</li><li>2. Include hazardous materials handling procedures in contract documents.</li><li>3. Include costs in contract for hazardous materials handling.</li></ol>

**Initial Assessment:** 3, 2, 6**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** Q. Chin**Status Log:**

January 2012 Meeting:

1. Phase 1 ESA performed.
2. Hazardous materials handling procedures included in contract documents.
3. Costs for work included in program cost estimate.
4. Bid item for materials handling included in contract.
5. Retired by unanimous consent of Risk Assessment Committee on 1/12/12.

February 2012 Meeting:

1. PMOC requested copy of Division 1 specifications for their review to confirm that the risk can be retired.

April 2012 Meeting:

1. CTS 100% Contract Documents was distributed to PMOC to show verification that mitigation strategies were implemented.
2. This risk is retired from the Risk Register.

**Risk Mitigation Status****Risk Reference: 63**

Risk	Mitigation Strategy
Hazardous materials in soils during excavation.	<ol style="list-style-type: none"><li>1. Provide hazardous material procedure and bid item for removal and disposal.</li><li>2. Provide allowance for hazardous materials handling and disposal in contracts.</li></ol>

**Initial Assessment:** 1, 2, 2**Current Assessment:** 0, 0, 0 – Requirement Risk (Retired)**Risk Owner:** R. Edwards**Status Log:**

March 2012 Meeting:

1. Phase 2 ESA to be conducted at UMS to pre-classify soils to more accurately estimate the amount (if any) of hazardous materials in soil.
2. Phase 2 ESA at Moscone headhouse site has been completed.
3. MOS Station contractor will be required to pre-classify soil outside of headhouse footprint at the beginning of construction.
4. Provisions for handling hazardous materials are included in contract documents.
5. Allowance for handling and disposal of hazardous materials is included in contract documents.

May 2012 Meeting:

1. Recommend to retire this risk from the risk register.
2. This risk was retired by unanimous consent of the Risk Assessment Committee on 5/24/12.

**Risk Mitigation Status****Risk Reference: 64**

Risk	Mitigation Strategy
Environmental remediation at 76 Gas Station underestimated.	<ol style="list-style-type: none"><li>1. Current investigation shows that the existing ground has been remediated.</li><li>2. Phase II site investigation to confirm.</li><li>3. Monitor during construction to verify.</li></ol>

**Initial Assessment:** 2, 1.5, 3**Current Assessment:** 0, 2, 0 – Requirement Risk (Retired)**Risk Owner:** E. Stassevitch**Status Log:**

September 2011:

1. Phase 2 site investigation is on schedule for week of October 31, 2011.
2. Site Investigation Report will follow approximately six weeks later.
3. Remediation costs, if any, will be included in project cost.

January 2012 Meeting:

1. Phase 2 ESA discovered elevated levels of lead in the top five feet of soil.
2. The costs for remediation of this contamination will be deducted from the appraised value of the property.

March 2012 Meeting:

1. Recommend to retire this risk from the risk register.
2. Risk retired from risk register by unanimous consent of Risk Assessment Committee on 3/8/12.

**Risk Mitigation Status****Risk Reference: 65**

<b>Risk</b>	<b>Mitigation Strategy</b>
Archeological/Cultural findings during construction increases schedule and/or cost. (Portal) AROUND 10%	1. Provide on-call Archeologist. 2. Provide allowance and procedure in contract for Archeological/Cultural discoveries.

**Initial Assessment:** 1, 1.5, 2**Current Assessment:** Risk Rating 2 - Construction Risk**Risk Owner:** S. Wilson**Status Log:**

September 2011:

Additional boring taken in vicinity of portal indicated no evidence of Archeological/Cultural resources.

November 2012:

1. Recommend retiring, will revisit in December 2012 Risk meeting.

December 2012:

1. Risk owner changed from D. Greenaway to S. Wilson.
2. Guide-wall excavations were completed with no evidence of archaeological significant findings.
3. A monitoring plan is in place to minimize time and cost implications should archaeological significant material be encountered.
4. Risk will remain active.

**Risk Mitigation Status****Risk Reference: 66**

Risk		Mitigation Strategy
Archeological/Cultural findings during construction increases schedule and/or cost.(Moscone) AROUND 10%	<ul style="list-style-type: none"> <li>√</li> <li>√</li> </ul>	<ul style="list-style-type: none"> <li>1. Provide on-call Archeologist.</li> <li>2. Provide allowance and procedure in contract for Archeological/Cultural discoveries.</li> </ul>

**Initial Assessment:** 1, 1.5, 2**Current Assessment:** Risk Rating 3 – Construction Risk**Risk Owner:** Q. Chin**Status Log:**

February 2012 Meeting:

1. Allowance for archeological discoveries included in contract.
2. Procedure for addressing archeological discoveries is included in contract.
3. Current exposure is only to those amounts above those currently identified.
4. Recommend to reduce the risk rating.

March 2013:

1. Allowance for archaeological discoveries included in CN 1300 YBM-AL-6
2. Discuss reducing this risk rating (current schedule impact > 12months), and transferring risk ownership to CM team
3. It was discussed that the cost impact should be reduced from 2 (\$250k to \$1m) to 1, <\$250k, the risk rating revised to 3



**Risk Mitigation Status****Risk Reference: 67**

Risk		Mitigation Strategy
Archeological/Cultural findings during construction increases schedule and/or cost. (UMS)...LESS THAN 1%	✓ ✓	1. Provide on-call Archeologist. 2. Provide allowance and procedure in contract for Archeological/Cultural discoveries.

**Initial Assessment:** 1, 1.5, 2**Current Assessment:** Risk Rating 5 – Construction Risk**Risk Owner:** M. Benson**Status Log:**

February 2012 Meeting:

1. Mitigation measures to be implemented in contract documents.
2. Recommend this risk rating be reduced to 3.

March 2013:

1. Discuss reducing this risk rating and Transferring ownership to CM
2. Reduced cost impact to 1 (<\$250k), risk rating reduced to 5

**Risk Mitigation Status****Risk Reference: 68**

Risk		Mitigation Strategy
Archeological/Cultural findings during construction increases schedule and/or cost. (CHINATOWN) ...AROUND 10%	<ul style="list-style-type: none"> <li>√</li> <li>√</li> </ul>	<ul style="list-style-type: none"> <li>1. Provide on-call Archeologist.</li> <li>2. Provide allowance and procedure in contract for Archeological/Cultural discoveries.</li> </ul>

**Initial Assessment:** 1, 2.5, 3**Current Assessment:** Risk Rating 5 – Construction Risk**Risk Owner:** M. Benson**Status Log:**

February 2012 Meeting:

1. Mitigation measures to be implemented in contract documents.
2. Recommend that this risk rating be reduced to 3.

March 2013:

1. Mitigation measures implemented, specification section 01 45 00 and CTS bid item allowance CTS-AL-6 (\$100,000).
2. Discuss reducing this risk rating, current cost impact is 2 (\$250k - \$1m)
3. Reduce cost impact to 1 (<\$250k), risk rating becomes 5
4. Risk transferred to Construction Risk

**Risk Mitigation Status****Risk Reference: 69**

Risk	Mitigation Strategy
Historic preservation requirements for 933-949 Stockton.	<ol style="list-style-type: none"> <li>1. Retain Historic Preservation Architect.</li> <li>2. Perform Historic Architectural Building Survey/Historic Engineering Record Documentation.</li> <li>3. Identify details of the facade to be preserved and their disposition and obtain concurrence of the City's Historic Preservation Officer.</li> <li>4. Estimate includes cost to reuse in the station.</li> <li>5. Place a display in the station high-lighting the historical significance of the existing building, original site, and surrounding neighborhood.</li> </ol>

**Initial Assessment:** 2, 1.5, 3**Current Assessment:** 0, 0, 0 – Requirement Risk (Retired)**Risk Owner:** D. Greenaway/Q. Chin**Status Log:**

September 2011 Meeting:

1. Mitigation measures implemented. Process complete.
2. Recommend retiring this risk from the project.

October 2011 Meeting:

1. Risk remains active.
2. Letter sent to Sue Lee (Archeology).
3. Photo survey completed.

March 2012 Meeting:

1. The Historic Architectural Building Survey/Historic Engineering Record Documentation has been completed.
2. Station design to include a display case for historical/archaeology purposes.
3. Recommend to retire this risk from the risk register.
4. This risk not retired. Required historical preservation elements need to be included in construction documents

April 2012:

1. Historical Preservation Report by Carey & Co. was inconclusive. Historical importance not known.
2. The report went back to Planning department on 04/13/12.
3. Need to develop a display for the station. Space reserved for this in station.

May 2012 Meeting:

1. Memo from SF Planning dated 4/27/12 received stating that no negative impact to historic preservation will be encountered by demolishing 933 Stockton.
2. Conditional use authorization for the site can now proceed.
3. Recommend to retire this risk.
4. This risk was retired by unanimous consent of the Risk Assessment Committee on 5/24/12.

**Risk Mitigation Status****Risk Reference: 70**

<b>Risk</b>	<b>Mitigation Strategy</b>
Change in traffic control requirements after bid.	<ol style="list-style-type: none"><li>1. Provide unit bid items to reimburse contractor for traffic management costs outside their control.</li><li>2. Include allowance to construction contracts for PCOs.</li></ol>

**Initial Assessment:** 3, 1.5, 5**Risk Owner:** R. Edwards**Current Assessment:** Risk Rating 8 – Construction Risk**Status Log:**

March 2012 Meeting:

1. Allowance added to construction contracts for PCOs.
2. Additional PCOs can be provided at a program level, if needed.
3. Contractor proposed changes would be reviewed and approved prior to implementation. Review would confirm no impact (or beneficial impact) to cost and schedule.
4. External pressure to change traffic control is minimized by detailed involvement of DPT during design and development of traffic control plans and specifications.
5. In case of CTS, traffic routing and changes have been reviewed with local entities such as Gordon Lau School.
6. Recommend to reduce this risk.

**Risk Mitigation Status****Risk Reference: 71**

<b>Risk</b>	<b>Mitigation Strategy</b>
Power supply interruptions to TBM's (no dual power feed currently planned)	Chance of power outage is miniscule.

**Initial Assessment:** 1, 1, 1**Current Assessment:** Risk Rating 1 – Construction Risk**Risk Owner:** S. Wilson**Status Log:**

November 2012 Meeting:

1. Recommend retiring, will revisit in December 2012 Risk meeting.

September 2013 Meeting:

1. Power supplied to the TBM does not seem adequate. If power is lost, PG&E has the ability to restore power quickly, but replacing power takes a couple of months.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 72</b>

<b>Risk</b>	<b>Mitigation Strategy</b>
Interface new Signaling and Train Control system to existing at Fourth and King	New system will be connected in parallel with existing system until the new system has been tested and safety certified for operation.

**Initial Assessment:** 2, 3, 5  
**Current Assessment:** Risk Rating 5 – Design Risk

**Risk Owner:** S. Pong

**Status Log:**

October 2011 Meeting:

1. Recommend to retire this risk from the project.
2. Risk not retired. Systems contract drawings need approval of Muni Operations.

November 2011:

1. Functional requirements for the interface have been approved by Muni Operations.
2. 90% design drawings for Systems contract will be forwarded to Muni Operations for their review and comment.

January 2012 Meeting:

1. Concept design with SFMTA Operations recommended safety enhancements have been approved.
2. ECP for recommended safety enhancements prepared and will be submitted to CMB for approval.

February 2012:

1. CMB approved ECP for Operational & Safety Upgrades.
2. SFMTA Muni Operations signed off on ECP.
3. ECP being implemented by design team.
4. Recommend to reduce this risk rating.

September 2012 Meeting:

1. Update to be provided next meeting.
2. New plan to be advised, mitigation strategy to be revised.

October 2012 Meeting:

1. Central Subway have sent a letter to Ops including contract specifications, temporary and permanent requirements seeking concurrence
2. Ross/Carlos to provide a briefing next meeting regarding how signaling interface design has ensured functionality at the end of each weekend shutdown.

November 2012 Meeting:

1. Technical specifications now approved.
2. A presentation is to be given at the December Risk meeting to demonstrate that the signaling design has confirmed functionality can be maintained where required, and reinstated following the 6 weekend shutdowns.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 72</b>
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December 2012 Meeting:

1. Clarification system will not be parallel
2. System train control will not be done during track and OCS construction
3. New switch machine have similar controls as the old machine.
4. Expansion of the Site Specific Work Plan will be established for review by the Risk Committee.

July 2013 Meeting:

1. AFMTA to begin discussions with CN 1300 Contractor – Tutor Perini to develop site specific work plans and identify weekend work windows.

**Risk Mitigation Status****Risk Reference: 73**

Risk	Mitigation Strategy
Integration of new equipment at Transportation Management Center (TMC) at 1455 Market Street with existing equipment at Lenox OCC.	<ol style="list-style-type: none"> <li>1. New system will be connected in parallel with existing system until the new system has been tested and safety certified for operation.</li> <li>2. Coordinate CSP design with C3 design.</li> </ol>

**Initial Assessment:** 3, 2, 6**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** C. Campillo**Status Log:**

## November 2011 Meeting:

1. Changed risk description to change OCC at West Portal to OCC at Transportation Management Center (TMC) at 1455 Market Street.
2. Added mitigation strategy to coordinate CSP design with C3 design.
3. C3 90% Design documents have been furnished to CN1256 design team.
4. CN1256 team to integrate the C3 design into their 90% Design documents.
5. R. Edwards addressed this risk stating we need to bring back this risk item for more detail.

## November 2011 Meeting:

1. This item to be revisited at a future meeting.

## December 2011 Meeting:

1. R. Edwards stated this has been resolved. Primary will be 1455 and the backup will be at Lenox. Confirmation will be given by SFMTA C3 Program Manager Frank Lau.

## January 2012 Meeting:

1. Meeting is arranged with C3 and Radio Project to finalize strategy and develop plans for integration of CSP into OCC.
2. 90% Electrical drawings show interconnectivity between TMC and Lenox OCC.
3. 90% drawings to be submitted to SFMTA Operations for approval.
4. Recommend to reduce this risk rating.
5. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.



**Risk Mitigation Status****Risk Reference: 74**

Risk	Mitigation Strategy
Insufficient time in schedule for testing and commissioning S&C	<ol style="list-style-type: none"> <li>1. Increase duration for this task in the master schedule.</li> <li>2. Add Division 1 Testing and Commissioning Specification including requirements for Plan, personnel and Committee.</li> </ol>

**Initial Assessment:** 4, 2.5, 10**Current Assessment:** 0, 0, 0 – Requirement Risk**Risk Owner:** C. Campillo**Status Log:**

December 8, 2009 Meeting:

1. R. Nguyen was identified as the risk owner.
2. Risk Mitigation Strategy needs to be rewritten.
3. This risk is part of DP3 contract
4. R. Nguyen to include in the rewritten risk mitigation strategy: a Start-Up Plan, identification of a Start-Up Manager; identification of a Start-Up Committee.

January 21, 2010 Meeting:

1. R. Nguyen indicated that he interprets this risk as “systems testing.” He presented the schedule activities associated with this risk and the related durations and float changes that have occurred over the period from August 2008 to October 2009. It was agreed that more detail is needed in the schedule to define the testing.
2. R. Edwards will identify an individual to provide more detail on start up and testing requirements. Whatever the result of obtaining this input, it appears that more time will be needed to accomplish this work.
3. It may be necessary to use some Buffer Float to account for any additional time to conduct the testing. The Project can use “some” of this float now that it has permission to perform final design.
4. R. Nguyen rewrote the mitigation strategy per his action at the last risk meeting; however, as a result of comments at the meeting, he needs to revise the strategy to include “testing of train controls and signals. R. Nguyen will establish the scope of this risk and a more detailed schedule of activities and durations for presentation at the next risk mitigation meeting.

February 18, 2010 Meeting:

1. R. Edwards indicated that there is a need to evaluate the schedule to determine the full impact of this risk. He says that the Project shows 80 days for start up and testing-the LA Gold Line had greater than this. R. Edwards will break down the start up and testing into more activities, mainly to identify predecessor activities so that milestones can be set for these activities. R. Edwards will work with R. Whitwell to assist in addressing this risk.

March 11, 2010 Meeting:

1. R. Whitwell developed the schedule activities for the S&C per the action at the last risk mitigation meeting. He is working on assigning durations to these activities and will meet with Project Controls on 3/18/10 for this purpose.
2. R. Edwards will work with R. Whitwell to determine options that are reasonable, but aggressive, for starting S&C activities earlier in order to minimize or negate impact on project completion and Revenue Service.
3. R. Edwards will report on the above two activities at the next risk mitigation meeting. It was stated that S&C includes implementing the Safety Certification Checklist.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 74</b>
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April 27, 2010 Meeting:

1. There was not much progress made this last month on this risk mitigation. R. Whitwell is working on assigning durations to the S&C activities that have been identified and has met with Project Controls for this purpose. R. Edwards will work with R. Whitwell to determine options that are reasonable, but aggressive, for starting S&C activities earlier in order to minimize or negate impact on project completion and Revenue Service. R. Edwards stated that four months is not enough time for the S&C task, however, identification of early work could make this happen. R. Edwards will report on this activity at the next risk mitigation meeting.

June 2, 2010 Meeting:

1. R. Edwards, R. Whitwell and meeting attendees concur that the four months presently in the schedule for the testing and commission work is insufficient. Without a different approach, this would take about 12 months to complete. R. Edwards is proposing to identify systems work that can be performed early so that portions of the start up and testing can be accelerated thus relieving the tight schedule. R. Whitwell is working to identify more detail in the schedule so that these early work items can be inserted in the schedule for Project review for viability. For example, work could start at Moscone while the CTS mining is continuing. It is anticipated that all systems work could be done up to the CTS before the CTS is completed. While this approach divides the system installation, it allows for an earlier start. Systems acceptance, of course, is based on the whole system.
2. R. Edwards will provide a preliminary schedule of accelerated systems activities at the next meeting that commence defining the approach he has identified to accelerate the systems work. In addition, he will provide a list, with pros and cons, of the above items that were suggested at the meeting to facilitate accelerating the work.

July 22, 2010 Meeting:

There has not been significant progress made on mitigation actions for this risk. R. Edwards is presently working with the designer to develop more detail in the schedule so that portions of the start up and testing activities can be identified for acceleration thus relieving the tight schedule. Progress in this regard will be reported at the next risk meeting tentatively set for August 26, 2010.

October 28, 2010 Meeting:

R. Whitwell is working with the designer to develop more detail in the schedule so that portions of the start up and testing activities can be identified for acceleration thus relieving the tight schedule. Progress in this regard will be reported at the next risk meeting.

January 2012 Meeting:

1. Recommend six additional months be added for testing and commissioning.
2. Mitigation strategy added: "Add Division 1 Testing and Commissioning Specification including requirements for Plan, personnel and Committee".

June 2012 Meeting:

No status update.

July 2012 Meeting:

1. Division 1 Section 01 80 00 Systems Testing, Integration, Start Up, and Commissioning updated and included in Section Index approval due 7/16/12

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 74</b>
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August 2012 Meeting:

1. Draft RFP prepared for Sole Source Thales Advanced Train Control Contract. Schedule will be updated as scope of work is further defined.

September 2012 Meeting:

1. The current schedule includes 6 months for startup activities, preceded by 2 months of buffer float, schedule to be reviewed next meeting.
2. RFP issued proposals due 24<sup>th</sup> October 2012.

October 2012 Meeting:

1. Candidate to retire
2. There is approximately 6 months in the schedule for startup, 2 months of buffer float prior.
3. Review updated schedule for combined contract next meeting

November 2012 Meeting:

1. 1300 combined contract schedule reviewed
2. Risk to be retired
3. This risk was retired by unanimous consent of the Risk Assessment Committee on 11/08/12.

RETIRED

**Risk Mitigation Status****Risk Reference: 75**

Risk	Mitigation Strategy
Signals and Comms equipment may need to be stored off site.	1. It is normal for the contractor to store equipment offsite or at the factory until it is needed.

**Initial Assessment:** 3, 0.5, 2**Current Assessment:** Risk Rating 0 – Construction Risk - Retired**Risk Owner:** S. Pong**Status Log:**

December 2011:

1. This risk would only apply to Agency-Furnished Equipment or Materials.

November 2012 Meeting:

1. Recommend retiring, will revisit in December 2012 Risk meeting.

April 2013:

1. Recommend retiring this Risk.
2. This risk was retired by unanimous consent of the Risk Assessment Committee on 04/11/13.

**Risk Mitigation Status****Risk Reference: 76**

Risk	Mitigation Strategy
CS system may need re-design to new system (not yet identified - Coordinating with SFMTA Accessible Services on the wayfinding system for the visually impaired.)	1. Include new system requirements (electronic floor tactile system) into station contracts

**Initial Assessment:** 1, 1, 1**Current Assessment:** 0, 0 0 – Design Risk**Risk Owner:** R. Edwards**Status Log:**

September 2011:

1. Developing new system.
2. Recommend to retire this risk from the project.

October 2011:

1. This risk remains active.
2. Change mitigation strategy to include new system requirements (electronic floor tactile system) into station contracts.

March 2012 Meeting:

1. Landmarking/Wayfinding system identified by SFMTA Accessible Services will be incorporated into station contracts by addendum and/or revised drawings.

April 2012 Meeting:

No update.

May 2012 Meeting: Update

1. Landmarking/Wayfinding system identified by SFMTA Accessible Services will be incorporated into station contracts by addendum and/or revised drawings. (Note: there is no established industry or ADA standard for the “landmarking” system – only best practices approach).
2. Landmarking/Wayfinding (passive) system identified by SFMTA Accessible Services to replace the RISS (remote infra-red signage system), i.e. “Talking Signs” trademark vendor system.

June 2012 Meeting:

No status update.

September 2012 Meeting:

1. Specific scope not available, to be reassessed when scope becomes available.

November 2012 Meeting:

1. This risk was retired by unanimous consent of the Risk Assessment Committee on 11/08/12.

**Risk Mitigation Status****Risk Reference: 77**

<b>Risk</b>	<b>Mitigation Strategy</b>
Translink behind schedule and fare system not available at ROD.	1. Accelerate implementation of Translink system.

**Initial Assessment:** 0, 1.5, 0**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** C. Campillo**Status Log:**

November 2011 Meeting:

1. Mitigation measures implemented. Translink now known as Clipper up and running on existing system effective Jan 2011.
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 11/10/11.

RETIRED

**Risk Mitigation Status****Risk Reference: 78**

Risk	Mitigation Strategy
Current scope defines Lenox as point of connection - a late change of differing location would cause redesign and additional costs -Location of Operation Central Control (OCC) and coordination with OCC project.	<ol style="list-style-type: none"> <li>1. Combine SFMTA Systems and Systems Integration into one group reporting directly to the Deputy Director of TP&amp;D to coordinate these projects.</li> <li>2. The project will also provide assistance to the OCC project during Final Design to resolve any open issues.</li> <li>3. Incorporate C3 requirements into project contracts.</li> </ol>

**Initial Assessment:** 1, 3, 3**Current Assessment:** 0, 0, 0 – Requirement Risk (Retired)**Risk Owner:** C. Campillo**Status Log:**

October 2011 Meeting:

1. Market/OCC strategy has been changed. C3 integral part of project.
2. Recommend to retire this risk from the project.
3. Risk Assessment Committee agreed that this risk should remain active until Muni Operations approves CN1256 construction documents.

January 2012 Meeting:

1. Transportation Management Center (TMC) at 1455 Market Street has been identified as point of connection to Central Subway system.
2. Cross connect between Lenox OCC and TMC has been approved by Muni Operations.
3. 90% Systems drawings show interconnection between Lenox OCC and TMC.
4. 90% drawings will be sent to Muni Operations for approval.
5. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 79</b>

Risk	Mitigation Strategy
Delay in obtaining tunnel easements (3 #) (goes to condemnation) - Costs of ROW may cost more than expected	<ol style="list-style-type: none"> <li>1. Engage Owners in negotiations as soon as possible.</li> <li>2. PM/CM will provide real estate specialists to facilitate.</li> </ol>

**Initial Assessment:** 2, 3, 6  
**Current Assessment:** Risk Rating 1 – Requirement Risk

**Risk Owner:** A. Clifford

**Status Log:**

October 2011 Meeting:

1. All Tunnel easements have been acquired.
2. Recommend to retire this risk from the project.
3. This risk will be revisited next month since not all easements have been obtained

November 2011 Meeting:

1. Right of entry received for properties requiring easement.
2. Costs have been identified through appraisals of properties.
3. Actual value of easements needs to be negotiated with property owners.
4. Added mention of battered piles at UMS headwalls to the risk description as they will cross property lines.

December 2011:

1. Right of possession for each of the three required parcels has been obtained.

January 2012 Meeting:

1. City Attorney's Office is finalizing final easement deed language and price for all three easements.
2. To date owners of 801 Market and 1455 Stockton have agreed to purchase price of easement.
3. Awaiting cost agreement with 790 Market.
4. Recommend to reduce the risk rating.
5. Risk rating reduced to 1, 1, 1.

February 2012 Meeting:

1. SFMTA is working with City Attorneys Office to finalized easement deed indemnity language for the 790 Market easement.

March 2012 Meeting:

1. SFMTA has provided the City Attorney's Office with additional information regarding tunnel and station related settlement at 790 Market. This information will be shared with the property owner at 790 Market in order to address their concerns of settlement and requests to include certain indemnity language in the tunnel easement. Current draft of the tunnel and station grouting licenses contain the requested indemnity language; CCSF Risk Manager, SFMTA and City Attorney do not feel owner's request for indemnity is appropriate in the easement deed.



<b>Risk Mitigation Status</b>
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<b>Risk Reference: 79</b>
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April 2012 Meeting:

1. No update from the March report-out.

May 2012 Meeting:

1. No update from the March report-out.

June 2012 Meeting:

1. No update from the March report-out.

July 2012 Meeting:

1. No update from the March report-out.

August 2012 Meeting:

1. The SFMTA has agreed to a final purchase price for the 801 Market and 1455 Stockton easements. 801 Market will transfer title (of the easement) through a purchase and sale agreement and 1455 Stockton will transfer title through a stipulated agreement. Final purchase price negotiations for easement under 790 Market are ongoing.

September 2012 Meeting:

1. Central subway has pre-possession for all 3 easements.
2. Negotiations continue on terms and conditions for 801 Market and 1455 Stockton.
3. Negotiations continue on final purchase price for 790 Market easement.

October 2012 Meeting:

1. Central subway has pre-possession for all 3 easements.
2. The SFMTA has executed a final stipulation agreement for possession of the easement under 1455 Stockton and all remaining funds have been transferred to the property owner.
3. Negotiations continue on terms and conditions for 801 Market.
4. Negotiations continue on final purchase price for 790 Market easement.

November 2012 Meeting:

1. Central subway has pre-possession for all 3 easements.
2. The SFMTA has executed a final stipulation agreement for possession of the easement under 1455 Stockton, final transfer of funds is pending signature of the easement deed from the property owner.
3. Negotiations continue on terms and conditions for 801 and 790 Market.

December 2012 Meeting:

1. Central subway has pre-possession for all 3 easements.
2. Final transfer of funds for 1455 Stockton easement is pending signature of the easement deed from the property owner.
3. Negotiations continue on final purchase price, terms and conditions for 801 Market and 790 Market Easement Agreements.

February 2013 Meeting:

1. Central subway has pre-possession for all 3 easements.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 79</b>
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2. Purchase and Sale Agreements for the 1455 Stockton easement and the 801 Market have been finalized. Final execution is pending the receipt of stamped and signed legal descriptions and plat maps from the San Francisco County Surveyor.
3. Negotiations continue on final purchase price, terms and conditions for the 790 Market Easement Agreement.

March 2013:

1. 1455 Stockton and 801 Market easement deeds executed by SFMTA Director.
2. 790 Market price and terms are still being negotiated.

April 2013:

1. Risk owner changed from G. Hollins to A. Clifford
2. 790 Market Street - The current difference between the Central Subway offer and the owners valuation + severance damages is \$280,000

October 2013:

1. Owners appraised easement value has been included in RAMP update 5

**Risk Mitigation Status****Risk Reference: 80**

Risk	Mitigation Strategy
Delay in obtaining access to Moscone and Chinatown station sites (goes to condemnation).	<ol style="list-style-type: none"> <li>1. Engage Owners in negotiations as soon as possible.</li> <li>2. PM/CM will provide real estate specialists to facilitate.</li> <li>3. File for condemnation, as necessary.</li> <li>4. Obtain revised appraisal.</li> </ol>

**Initial Assessment:** 2, 3, 6**Current Assessment:** 0, 0, 0 – Requirement Risk – Retired**Risk Owner:** G. Hollins**Status Log:**

## October 2011 Meeting:

1. See Risk 57 for status of this risk.
2. Recommend to retire this risk from the project.
3. This risk remains active because access to Moscone site has not been obtained..

## November 2011 Meeting:

1. Preparing to file condemnation/preposition of Moscone site.
2. Risk description changed to include cost impact of environmental remediation.
3. Revised mitigation strategy to include file for condemnation, as necessary.
4. Mitigation strategy changed to include need for Phase 2 ESA, revised appraisal and additional remediation costs.
5. Phase 2 ESA borings were completed on 11/10/11.
6. Awaiting balance of state funds needed to account for revised appraisal cost.

## December 2011 Meeting:

1. Diminution of value based on results of Phase 2 ESA to be considered to lower acquisition costs for property.

## January 2012 Meeting:

1. SFMTA closed escrow on 933 Stockton on January 10, 2012.
2. 266 Fourth Street: The project filed a motion for Pre Judgment possession on December 22, 2011. Right of Entry/Possession is scheduled for May 29, 2012. Right of Entry/Possession includes relocation of all tenants.
3. Continuing to negotiate cost with owner in parallel with condemnation proceedings.
4. Risk reduced to 1, 3, 3.

## February 2012 Meeting:

1. The SFMTA is working on a stipulation agreement – through the court – that would allow the gas station operator to remain onsite following the May 29, 2012 possession date with a 30-day notice to vacate trigger. This stipulation would only take effect if the property owner concedes to all of the SFMTA's demands.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 80</b>
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March 2012 Meeting:

1. The parties have traded edits to stipulation agreement. The owners would like a 40-day notice. City Attorney's Office and SFMTA are weighing this request and other language changes. Should the parties not reach an agreement, possession is scheduled for May 29, 2012.

April 2012 Meeting:

1. The parties continue to negotiate the stipulation agreement. It is anticipated that this agreement will be executed before April 12, 2012. Should the parties not reach an agreement, possession is scheduled for May 29, 2012.

May 2012 Meeting:

1. The stipulation agreement was executed on April 12, 2012. The SFMTA anticipates issuing the 40-day notice to vacate on May 25, 2012 for a July 3 site possession.

June 2012 Meeting:

1. The SFMTA issuing the 40-day notice to vacate on May 29, 2012 for a July 6 site possession.

July 2012 Meeting:

1. The SFMTA took possession of the property on July 6, 2012. The site is vacant as of July 6, 2012.

August 2012 Meeting:

1. The SFMTA is in possession of the property and the site is vacant. Recommend retirement of this risk.
2. This risk was retired by unanimous consent of the Risk Assessment Committee on 8/09/12.

**Risk Mitigation Status****Risk Reference: 81**

Risk	Mitigation Strategy
Additional ROW requirements	<ol style="list-style-type: none"> <li>1. Identify additional ROW.</li> <li>2. Engage owners as soon as possible to acquire property.</li> </ol>

**Initial Assessment:** 1, 3, 3**Current Assessment:** 0, 0, 0 – Requirement Risk (Retired)**Risk Owner:** G. Hollins**Status Log:**

September 2011:

1. No additional ROW is required to construct the project.
2. Recommend to retire this risk from the project.

October 2011:

1. This risk remains active.
2. Parking spaces within Union Square Garage need to be acquired to build entrance at Union Square.
3. BART property at Apple entrance needed for UMS station entrance.

January 2012 Meeting:

1. SFMTA to confirm final number of temporary and permanent parking stalls and ramps need at Union Square Garage (USG).
2. SFMTA to complete appraisal of parking stalls and ramps in USG.
3. Contingency will cover cost above anticipated costs for parking stalls at USG.
4. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

**Risk Mitigation Status****Risk Reference: 82**

Risk	Mitigation Strategy
ROW issues may impact vent shafts and / or stair locations	<ol style="list-style-type: none"> <li>1. Adjust project configuration to address risk.</li> <li>2. Negotiate with BART for purchase of entrance.</li> </ol>

**Initial Assessment:** 1, 3, 3**Current Assessment:** 0, 0, 0 – Requirement Risk (Retired)**Risk Owner:** G. Hollins/J. Wang**Status Log:**

September 2011:

1. Mitigation measures implements to eliminate risks.
2. Recommend to retire this risk from the project.

October 2011:

1. This risk remains active.
2. BART stairs near Apple store is needed for UMS station.
3. See Risk L & Risk 44 for further discussion.

January 2012 Meeting:

1. Discussion with BART in process regarding transfer of real estate for Ellis Street entrance.
2. Use of Ellis-O'Farrell Garage is no longer required due to design change ECP FD-005.
3. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 83</b>

Risk	Mitigation Strategy
Cost of vehicles may be more than estimated due to sole source and small order	1. Time the procurement of the vehicles to be part of the procurement of the SFMTA LRV procurement contract.

**Initial Assessment:** 1, 1.5, 2  
**Current Assessment:** Risk Rating 8 – Requirement Risk

**Risk Owner:** L. Ames

**Status Log:**

April 2012 Meeting:

1. Fleet procurement plan needs to be checked with Fleet agency.
2. Lewis Ames is working at a program level with Operations to look at alternatives and options for procurement.

May 2012 Meeting:

1. An RFP is being developed by CH2M Hill for high-floor vehicles.
2. SFMTA will attempt to attach the procurement of the four CS vehicles to a procurement contract of another transit property that is currently pursuing procurement of vehicles.

June 2012 Meeting:

1. No status update.

September 2012 Meeting:

1. CH2M Hill is now preparing an update of the LRV Procurement Plan. CH2M Hill is working under for SFMTA Transit and led by John Haley’s staff under an on-call contract to support the update and help integrate the RFP vehicle specification process led by Elson Hao
2. Julie Kirschbaum, Manager of Service Planning/TEP is leading an effort to produce a new city-wide travel forecast as the means to support the capacity need for LRV fleet plan requirements in 2025.

The Plan is expected to be circulated, presented, approved; in 2012 etc. specific next steps in the 3rd and 4th quarters of 2012 will be provided in the next report.

3. The Procurement Plan is expected to include assessing the feasibility for SFMTA to attach the procurement of the four CS vehicles to a procurement contract of another transit property that is pursuing procurement of vehicles.

October 2012 Meeting:

1. Risk increased from (1,2, 2) to risk rating (4,4,16)
2. There is a possibility that the cost of the LRV significantly exceed the budget
3. Risk to be reviewed next meeting, status of LRV procurement plan to be advised

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 83</b>
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4. SFMTA Transit Division issued a revised procurement plan to the FTA in October identifying the following actions in the near term;
  - a. Provide ROM Cost, funding schedule and cashflow drawdown November 2012
  - b. LRV Concept report December 2012
  - c. Service Demand Modeling Updates December 2012
  - d. Central Subway Service Plan Model Revisions December 2012
  - e. Finalize Fleet Strategy including Base Order Qty December 2012
  - f. Complete Acquisition Plan December 2012
  - g. Release updated Fleet Management Plan to FTA February 2013
  - h. Release updated Central Subway Service Plan to FTA February 2013
  - i. Release updated LRV Procurement Plan to FTA February 2013

November 2012 Meeting:

1. Item 4a above – not yet received continue to monitor with LRV Procurement PM.

December 2012:

1. Item 4a items received Nov. 20 from SFMTA LRV Procurement PM include draft schedule, scope and budget.
2. CS team met with SFMTA Finance to initiate a cost control protocol and procedure for release of CS funds for procurement.
3. The draft schedule, scope and budget were submitted to the FTA Nov. 29 for review and comment prior releasing funds.
4. The FTA PMO is expected to provide a report to the SFMTA and CS by Dec. 15.
5. CS team to prepare a Task Order that will incorporate the final schedule, scope and budget.
6. The SFMTA LRV Procurement staff is currently expending funds in anticipation of receiving funds for retroactive costs.

January 2013:

1. Most of the procurement actions will advance by the end of February
2. Ground rules are being developed to control our funds from being syphoned away.
3. Expected December report from the FTA/PMO has not been received.

February 2013 Meeting:

1. Most procurement actions are still tracking for February
2. FTA/PMO report was received early February 2013
3. Central Subway is preparing a memorandum of understanding to track funds, FTA comments are being incorporated into the memorandum



<b>Risk Mitigation Status</b>
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<b>Risk Reference: 83</b>
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March 2013:

1. Central Subway completed a Memorandum of Agreement with SFMTA transit division to establish the phases, costs, scope and timing of initial LRV procurement activities resulting in an LRV procurement RFP in May 2013, and vendor selection early 2014.

April 2013:

1. The RFP Package due May 2013 is expected to be complete on time.

May 2013:

1. Request for Qualifications for new LRV's was released in March
2. Responses were due April 22
3. The review process is now underway with the results of the review due late June
4. Procurement of 175 cars
5. Award expected in 2014
6. First cars expected in 2016

June 2013:

1. APTA meetings were held. One on one interviews with individuals who responded to the RFQ
2. Feedback comments on specification are being incorporated into the RFP to be released in June
3. Schedule impact has been lowered to a risk rating of (1).
4. Current assessment is an 8

July 2013

1. RFP now scheduled for SFMTA Board approval in August prior to release.
2. Currently routing and vetting internal approvals for submission to Board

September 2013

1. Due to the purchase of the vehicles no long being a sole source order the risk description will be revised to reflect the current purchase status.

October 2013:

1. RFQ released March 29, 2013 identified three qualified bidders to participate in procurement for Light Rail Vehicles (LRV4). Statement of Qualifications received April 22nd, 2013.  
Four car builders, AnsaldoBreda, CAF USA Inc, Kawasaki Rail Car Inc, Siemens Industry Inc, are requested to submit proposals in response to RFP.
2. SFMTA Board approved the issuance of the RFP September 3, 2013 to procure up to 260 LRV4s.
  - a. Base order will be 175 – 24 expansion +151 replacement LRV4s.
  - b. Option for 85
3. The Notice of Advertisement, the RFP and specifications are now on the CCSF Office of Contracts web site:  
<http://mission.sfgov.org/OCABidPublication/BidDetail.aspx?K=7262>

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 83</b>
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The scope covers design, manufacture, test, parts, special tools, manuals and training.

4. Pre-bid Conference: 10/29/2013 10am at SFMTA Muni Metro East Facility 601 25th St., 2nd Fl., Rm. 235  
Bids Due: 2 pm 12/10/2013
5. Project Management Plan will be drafted and be in place prior to NTP.
6. Challenges: Extended procurement includes time gap between delivery of first 24 cars and 151 cars that requires FTA approval; funding and financing sources not clear

**Risk Mitigation Status****Risk Reference: 84**

<b>Risk</b>	<b>Mitigation Strategy</b>
More vehicles may be required than estimated.	Current the number of vehicles required for 2030 service does not change w/wo the Very Short Line.

**Initial Assessment:** 1, 2, 2**Current Assessment:** 0, 0, 0 – Requirement Risk (Retired)**Risk Owner:** L. Ames**Status Log:**

February 2012 Meeting:

1. Current Fleet Management Plan forecasts that no additional vehicles will be required than currently estimated for the Central Subway Program.
2. Risk retired from the risk register by unanimous consent of the Risk Assessment Committee on 2/9/2012.

**Risk Mitigation Status****Risk Reference: 85**

<b>Risk</b>	<b>Mitigation Strategy</b>
Delay in achieving ROD delays schedule (ROD planned end October 2008)	

**Initial Assessment:** 2, 3.5, 7**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** A. Wong**Status Log:**

November 2011 Meeting:

1. ROD received November 2008.
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 11/10/11.

RETIRED

**Risk Mitigation Status****Risk Reference: 86**

Risk	Mitigation Strategy
<p>Obtain FTA approval of a Letter of No Prejudice (LONP) to construct the TBM Launch Box Portal Structure, complete the Temporary Trolley Re-route, and incur associated construction management costs for these items.</p>	<p>Monitor and take corrective action as necessary to achieve the following;</p> <ol style="list-style-type: none"> <li>1. Validate cost, schedule and budget impacts (Done)</li> <li>2. Complete and submit request to enter Final Design (FD) and for LONP and supporting documentation (Done).</li> <li>3. Address any questions that FTA may have with the requests to enter FD and for the LONP (Done).</li> <li>4. Work with FTA to justify the benefits of the LONP.</li> <li>5. Keep the SFMTA Board informed of LONP status:               <ul style="list-style-type: none"> <li>• Brief Board on continuous basis</li> <li>• Brief Board on Letter Requesting LONP</li> <li>• Brief Board after obtaining FTA LONP</li> <li>• Brief Board at time of request to advertise Tunnel contract</li> </ul> </li> </ol>

**Initial Assessment:** 3, 4, 12**Current Assessment:** 0, 0, 0 – Requirement Risk (Retired)**Risk Owner:** E. Stassevitch**Status Log:**

May 28, 2009 Meeting:

1. Revised the Risk and Mitigation statements
2. Need to be an attractive plan to sell to the Board.
3. Make arrangements for AECOM's D. Mendes to begin preparation of LONP.

June 23, 2009 Meeting:

1. It was agreed that the Project has to go to the Board to get approval to proceed with the LONP.
2. A comment was made that this risk might not be as onerous as originally thought.
3. A cost estimate will be necessary in order to inform the Board of the benefits of the LONP.
4. Strategy to go to Board to request LONP after FMOC report on financial capacity – if report is not good, probably can't get LONP.

July 27, 2009 Meeting:

1. The request for LONP (TBM's and Launch Box) will be issued with the request to enter final design at end of August.
2. Item 1: Project has estimated cost of Launch and associated items at \$70 million. Project needs to demonstrate that it has the money.  
Action :L Zurinaga
3. The request for LONP (TBM's and Launch Box) will be issued with the request to enter final design at end of August.

August 27, 2009 Meeting:

1. While it is recognized that SFMTA Board approval is not required to issue the LONP, there is a need to get a sense of the Board's disposition regarding their approval, or disapproval, of the bid call for the Launch Box construction.
2. It was agreed to brief the Board, through the Executive Director, on the Project's plan to issue a LONP.

**Risk Mitigation Status****Risk Reference: 87**

<b>Risk</b>	<b>Mitigation Strategy</b>
Insufficient design and processes in place to achieve project readiness to request entry into FD (October 2009)	Complete remaining items to be submitted on the Checklist for Entry to Final Design.

**Initial Assessment:** 3, 4, 12**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** R. Rocco**Status Log:**

November 2011 Meeting:

1. FTA granted Entry into FD in January 2010.
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 11/10/11.

RETIRED

**Risk Mitigation Status****Risk Reference: 88**

<b>Risk</b>	<b>Mitigation Strategy</b>
Bid protest delays award and NTP for Final Design.	Strictly adhere to Procurement Best Practices and Protest Procedures.

**Initial Assessment:** 2, 2.5, 5**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** A. Wong**Status Log:**

November 2011 Meeting:

1. Final Design contract all received NTP in first two quarters of 2010.
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 11/10/11.

RETIRED

<b>Risk Mitigation Status</b>
<b>Risk Reference: 89</b>

<b>Risk</b>	<b>Mitigation Strategy</b>
3rd Party reviews of Design documents delays completion of Final Design.	Provide assistance to 3rd Parties to facilitate their reviews and obtain concurrent partial approval for underground work.

**Initial Assessment:** 2, 2, 2

**Current Assessment:** Risk Rating 2 – Design Risk

**Risk Owner:** R. Edwards

**Status Log:**

January 2012 Meeting:

1. Meetings with Third Party reviewers have been and continue to be held with Muni Operations, DBI, SFFD, BART, etc.
2. Late review comments will be handled as addendum.

May 2012 Meeting:

1. A peer review panel was convened to assist in DBI reviews.
2. SFFD has been paid to assist in review and approval of Central Subway contract documents.
3. Meetings with other third party reviewers are ongoing.

June 2012 Meeting:

1. Coordination with 3<sup>rd</sup> Party reviewers continues.

August 2012 Meeting:

1. Majority of third party reviews have been closed. Remaining reviews are in process of going through closure phase (requiring concurrence and verification of comments). Responses have been provided to each 3<sup>rd</sup> party comment. Priority was given to 3<sup>rd</sup> party reviewers with permit approval authority such as SFFD, SFPUC and DBI. Note that the design phase has been closed.

September 2012 Meeting:

1. Process of closing out PUC and DBI comments is ongoing.
2. PUC requirements as per draft MOU scope are being incorporated into 1256 by addendum.

October 2012 Meeting:

1. Process of closing out PUC and DBI comments is ongoing.
2. PUC requirements as per draft MOU have been incorporated into combined contract.

November 2012 Meeting:

1. Central Subway continue to work with PUC and DBI to close out remaining comments

December 2012 Meeting:

1. The process of closing out all comments from PUC and DBI to is ongoing.



<b>Risk Mitigation Status</b>
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<b>Risk Reference: 89</b>
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February 2013 Meeting:

1. Meeting scheduled with PUC early March to address remaining comments
2. Status of close out of DBI electrical and mechanical to be confirmed.

March 2013 Meeting:

1. Not a delay.
2. Verification by reviewers of comment incorporation task is remaining.

April 2013:

1. Verification by reviewers of comment incorporation task is ongoing.

May 2013:

1. The status of close out of the DBI comments is as follows:
  - a. CTS – complete
  - b. UMS – complete
  - c. YBM – 95% complete (only mechanical comments require close out)

June 2013:

1. YBM – 100% complete
2. Verification of 90% comments from reviewers are still being closed out.

July 2013:

1. DBI approved the design of all three stations.
2. Verification of 90% comments from reviewers still being closed out.

**Risk Mitigation Status****Risk Reference: 90**

Risk	Mitigation Strategy
Multiple outside design consultants & mix of SFMTA / City could result in delays and additional costs due to complexities in design coordination.	<ol style="list-style-type: none"> <li>1. Conduct regular coordination meeting, integration meetings, interdiscipline meeting, design oversight reviews and partnering to encourage and promote a positive work environment.</li> <li>2. Allocate additional costs to contingency.</li> </ol>

**Initial Assessment:** 3, 3, 9**Current Assessment:** 0, 0, 0 – Design Risk**Risk Owner:** R. Edwards**Status Log:**

November 2011 Meeting:

1. Executed options to complete designs for Systems contract.
2. Sufficient costs are in project budget to complete designs.
3. Mitigation strategy will be updated to reflect cost being carried in contingency.

December 2011 Meeting:

1. Delivery schedule of final design packages remains fixed.

February 2012 Meeting:

1. Design coordination within Contract Packages is responsibility of Consultant Design Manager for both consultant and City forces.
2. Design Oversight assists in Design Consultant fulfilling responsibility for coordination.
3. Additional costs for option (consultant design for City-planned work) have been covered by the allocated contingency.
4. No additional costs above allocated contingency are anticipated on the station contracts.
5. Risk rating reduced to 2, 2, 4.

May 2012 Meeting:

1. Cost and schedule for delivery of final design documents is currently not affected by the complexities of design coordination.

June 2012 Meeting:

No status update.

August 2012 Meeting:

1. Agree on complexities in the design coordination. Design contracts including design integration sign-offs are complete for UMS, CTS and MOS station contracts. Design phase has closed and moved onto bid support phase.

September 2012 Meeting:

1. SFMTA and City design elements have been received and incorporated into design documents
2. Staff plan being updated for review early October.

October 2012 Meeting:

1. Staff plan being issued October

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 90</b>
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December 2012 Meeting:

1. Staffing plan Rev 1, was issued to the PMOC on December 11<sup>th</sup>.
2. This risk was retired by unanimous consent of the Risk Assessment Committee on 12/13/12

RETIRED

**Risk Mitigation Status****Risk Reference: 91**

Risk	Mitigation Strategy
Obtain prompt approval of FTA Full Funding Grant Agreement (FFGA).	Monitor and take corrective action as necessary to achieve the following; <ol style="list-style-type: none"> <li>1. 65% Final Design of Tunneling and Stations contracts,</li> <li>2. Determine cost, schedule and budget impacts of 65% Final Design of Tunneling and Stations contracts,</li> <li>3. SFMTA approval of FFGA application,</li> <li>4. Complete and submit request FFGA and supporting documentation,</li> <li>5. Assist FTA to promptly complete Technical and Financial Capacity Review and Risk Analysis updates,</li> <li>6. Work with FTA at both the Regional and National levels to address any questions with regard to the FFGA request,</li> <li>7. Work with Congress to address any questions with regard to the FFGA request,</li> <li>8. SFMTA and Board of Supervisors approval of the FFGA.</li> </ol>

**Initial Assessment:** 3, 3.5, 11, subsequent assessment 4,4, 16**Current Assessment:** 0, 0, 0 – Requirement Risk – Retired**Risk Owner:** E. Stassevitch**Status Log:**

May 28, 2009 Meeting:

1. Revised the Risk and Mitigation statements.
2. In the process of selecting the Final Design contractor to develop the 65%.

December 8, 2009 Meeting:

1. Attendees expressed some concern about the FCA report.
2. Need to take credit for items that have been completed. Initiate roadmap discussion.

**Include update from previous meeting?????**

October 2011 Meeting:

1. Tunnel contract has been awarded. 65% Final Design packages have been completed for all station contracts and STS contract.
2. Cost, schedule and budget impacts for the 65% Final Design packages have been addressed.
3. The FFGA application has been submitted with supporting documentation.
4. Update of PMP is pending.
5. The Technical and Financial Capacity Review as well as Risk Refresh have been completed.
6. SFMTA is continuing to work with partners at regional and national levels to address questions with regard to the FFGA application.

November Meeting 2011:

1. PMP Rev 2 was sent out for review that addressed PMOC comments.
2. SFMTA received acceptance from PMOC on the RCMP & TCC reports.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 91</b>
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December 2011 Meeting:

1. Financial Capacity Report (FCR) is still being reviewed by FTA.
2. Agency readiness for FFGA has been submitted by PMOC to FTA.

January 2012 Meeting:

1. Awaiting response from FTA.
2. Risk rating increased to 4, 4, 16. Roger Nguyen

February 2012 Meeting:

1. Received comments from FTA on February 3.

March 2012 Meeting:

1. Execution of FFGA is expected in July 2012.

April 2012 Meeting:

1. Execution of FFGA is expected in August 2012.

May 2012 Meeting:

1. Execution of FFGA is expected in September 2012.

June 2012 Meeting:

No status update.

July 2012 Meeting:

1. No new status update FFGA is still expected in September 2012.

August 2012 Meeting:

1. FFGA is not expected before October

September 2012 Meeting:

1. FFGA document approval is expected approximately 10/17/12
2. Ceremonial signing expected late October 2012

October 2012 Meeting:

1. FFGA document approval has been received, ceremonial signing held.
2. Risk rating reduced to 0,0, 0 – risk to be retired
3. New risk to be opened to track timely receipt of FFGA funds

**Risk Mitigation Status****Risk Reference: 92**

<b>Risk</b>	<b>Mitigation Strategy</b>
Additional construction contracts (over current proposed 7) resulting in multiple contractor interfaces and the potential for increased contractor conflicts/delays and management costs.	Maintain current strategy of two Utility and five Construction contracts. Strategy has survived SBE reviews to date.

**Initial Assessment:** 3, 5, 15**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** A. Wong**Status Log:**

November 2011 Meeting:

1. There are no plans at this time to increase the number of construction contracts.
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 11/10/11.

RETIRED

**Risk Mitigation Status****Risk Reference: 93**

<b>Risk</b>	<b>Mitigation Strategy</b>
Reduction of current strategy of 4 major civil contracts result in too large for reasonable economic competition (opposite to risk #100)	Package individual contracts to attract bidders. Ensure that contracts are large enough to attract qualified bidders, but not too large to limit competition. Keep Contract packages to \$250 million or below.

**Initial Assessment:** 1, 5, 5**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** A. Wong**Status Log:**

November 2011 Meeting:

1. No change in the number of contracts is currently anticipated. Mitigation measures to keep contract packages attractive to bidder are being implemented.
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 11/10/11.

RETIRED

**Risk Mitigation Status****Risk Reference: 94**

<b>Risk</b>	<b>Mitigation Strategy</b>
Bid protests delay award and NTP for construction contracts	Strictly adhere to Procurement Best Practices and Protest Procedures.

**Initial Assessment:** 1, 2, 2**Current Assessment:** Risk Rating 0 – Market Risk**Risk Owner:** A. Wong**Status Log:**

September 2011:

Mitigation measures being implemented.

November 2012:

1. Combined contract out to bid, revisit following bid opening.

June 2013:

1. No bid protests have been received.
2. Recommend retiring this risk.
3. This risk was retired by unanimous consent by the Risk Assessment Committee on 06/13/13.



**Risk Mitigation Status****Risk Reference: 95**

<b>Risk</b>	<b>Mitigation Strategy</b>
Contractor default during construction impacts schedule. (key sub-contractor)	Assist Bonding company in transition and to maintain schedule.

**Initial Assessment:** 2, 2, 2**Current Assessment:** Risk Rating 2 – Construction Risk**Risk Owner:** A. Wong**Status Log:**

May 2013:

1. 1252 Joint venture partners are all well established, experienced companies. Condon Johnson & Nicholson could be replaced by other local companies if required.
2. Maintain this risk rating.

**Risk Mitigation Status****Risk Reference: 96**

Risk	Mitigation Strategy
Re-bid due to bid prices exceeding budget (by well over 10%) delays award of a contract or contracts. (negotiation with lowest bidder not possible)	<ol style="list-style-type: none"> <li>1. Engage in contractor outreach and promote assurances of being a reasonable contract partner.</li> <li>2. Use Contract Terms and Conditions that are fair and reasonable to attract contractors to bid.</li> <li>3. For volatile materials &amp; equipment provide substantial payment for stored materials and equipment and an escalation clause in contracts.</li> <li>4. Provide quick alternative dispute resolution process, including obstruction clause and allowance for differing site conditions in contract documents.</li> <li>5. Incorporate provision to allow negotiated price if bid exceeds 10% of the Engineer's estimate.</li> </ol>

**Initial Assessment:** 2, 4, 8**Current Assessment:** 0, 0, 0 – Market Risk (Retired)**Risk Owner:** A. Wong**Status Log:**

## February 2012 Meeting:

1. Current bidding environment is positive for the Program.
2. It was agreed that a provision be added to the Special Provisions to allow negotiated price if bid exceeds 10% of the Engineer's estimate.
3. DRB and partnering provisions were added to Tunnel contract.

## March 2012 Meeting:

1. Indications are that we have a competitive bidding environment and exceeding the engineer's estimate is not expected.
2. The provision to allow negotiated price if bid exceeds 10% of the Engineer's estimate will not be included in the contact document.

## April 2012 Meeting:

No update.

## May 2012 Meeting:

1. Mitigation strategy #5 will not be utilized because program believes that bidding environment is favorable and that the provision to allow negotiated price will not be necessary.
2. The SF Charter does not allow negotiated contracts if multiple bids are received on a public works contract.
3. Recommend to retire this risk from the Risk Register.
4. This risk retired by unanimous consent of the Risk Assessment Committee on May 24, 2012.

**Risk Mitigation Status****Risk Reference: 97**

<b>Risk</b>	<b>Mitigation Strategy</b>
Conflicts arising from Contractors working concurrently in the same work space results in delays and claims for additional costs (systems / civil interface)	<ol style="list-style-type: none"><li>1. Limit the number of contractors working in the same workspace by scheduling contracts appropriately and demobilizing contractors upon substantial completion.</li><li>2. Accelerate work to avoid delays and claims, as necessary.</li></ol>

**Initial Assessment:** 3, 2, 5**Current Assessment:** Risk Rating 0 – Construction Risk**Risk Owner:** R. Edwards**Status Log:**

February 2012:

1. Division 1 Contract Interface specification includes language to address multiple contractors working in the same area.
2. Completion milestones are included in Special Provisions.

May 2013:

1. Combined contract 1300 eliminates interface between systems and civil contractor
2. Recommend retiring this risk.
3. This risk was retired by unanimous consent of the Risk Assessment Committee on 05/10/13.

**Risk Mitigation Status****Risk Reference: 98**

<b>Risk</b>	<b>Mitigation Strategy</b>
Unqualified Contractors submit bids below reasonable market expectations	1. Establish and enforce appropriate qualifications requirement for contractors to be deemed a responsible bidder.

**Initial Assessment:** 1, 5, 5**Current Assessment:** 0, 0, 0 – Market Risk**Risk Owner:** A. Wong**Status Log:**

January 2012:

1. Mitigation measures being implemented.

September 2012:

1. No bids received from unqualified contractors
2. This risk was retired by unanimous consent of the Risk Assessment Committee on 09/13/12

RETIRED

<b>Risk Mitigation Status</b>
<b>Risk Reference: 99</b>

Risk	Mitigation Strategy
Breakdown in relationships between SFMTA and Contractors during construction results in increased claims and delays to the overall construction schedule.	<ol style="list-style-type: none"> <li>1. Executive partnering and alternate dispute resolution.</li> <li>2. Train staff in adherence to issue resolution process</li> </ol>

**Initial Assessment:** 5, 3, 8  
**Current Assessment:** Risk Rating 8 – Construction Risk

**Risk Owner:** M. Benson

**Status Log:**

February 2012 Meeting:

1. Mitigation measures being implemented.
2. Incentives not being used due to legal obstacles.
3. Recommend to reduce the risk rating.

December 2012:

1. The combined contract will reduce the number of interfaces between contracts and potential for relationships to become strained
2. The CMOD process is being improved for quicker resolution of change orders
3. Mitigation 2 - 'Provide incentives in construction contracts in addition to penalties' was removed from the mitigation strategy as this is not being used (as noted in the February 2012 update).

March 2013:

1. A breakdown in the relationship has occurred due to untimely resolution of changes and unresolved contract interpretation issues.
2. SFMTA CMod SWAT team dedicated to processing changes has been implemented to improve the performance of change processing.
3. This improvement has been recognized by both parties.
4. An issue resolution process has been formalized to address disputes and avoid claims.

April 2013:

1. The issue resolution process is not being followed consistently. BIH are not responding in a timely manner and are revisiting prior agreements in the issue resolution process.
2. Brian Kelleher is developing observations and training for adherence to issue resolution process.

May 2013:

1. New Issue Resolution Ladder process presented at the CMB

June 2013:

1. The first meeting was held with BIH on May 21<sup>st</sup>, 2013 utilizing the refined issue resolution process that was presented to the CMB in May with positive results. A follow up meeting is being held June 14<sup>th</sup> to further refine the process.
2. Staff training in the issue resolution process is ongoing.
3. A similar meeting with Tutor Perini will be held in future.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 99</b>
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October 2013:

1. Issue resolution ladder is not working as intended and is to be discussed at the next partnering session

**Risk Mitigation Status****Risk Reference: 100**

Risk	Mitigation Strategy
Procurement of long lead items delays work. (fans, rails and special track work, TPSS, Escalators, elevators, TBM)	<ol style="list-style-type: none"> <li>1. Include schedule milestones for procurement of and substantial payment for stored long lead items in contract to encourage early procurement.</li> <li>2. Monitor procurement of critical items.</li> </ol>

**Initial Assessment:** 2, 2, 2**Current Assessment:** Risk Rating 2 – Construction Risk**Risk Owner:** R. Redmond**Status Log:**

February 2012:

1. Contract provisions SP-13 include provisions for storage of materials in bonded warehouse.
2. Contract milestones include adequate time to procure long lead time materials.

May 2013:

1. The first TBM has been delivered to site. Testing of the second TBM was complete May 3<sup>rd</sup>.
2. Payment for long lead items shown in GP's or SP's
3. Recommend transferring this risk to Construction Risk to monitor procurement or critical items

July 2013:

1. Risk changed from Market Risk to Construction Risk.
2. Risk owner changed from R. Edwards to R. Redmond.
3. CN 1300 Contractor - Tutor Perini has been requested to include long lead items in baseline schedule.
4. Revisit following review of baseline schedule submittal (expected mid July).

**Risk Mitigation Status****Risk Reference: 101**

<b>Risk</b>	<b>Mitigation Strategy</b>
More expensive staffing costs as a result of attracting labor into the expensive cost of living in San Francisco	Revise Professional Services estimate to reflect cost in San Francisco.

**Initial Assessment:** 4, 2, 8**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** A. Wong**Status Log:**

December 2011 Meeting:

1. Mitigation measures implemented and risk rating lowered.
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 12/15/11.

RETIRED



<b>Risk Mitigation Status</b>
<b>Risk Reference: 102</b>

Risk	Mitigation Strategy
Late finish of early contract delays later contracts and extends PM / CM and incurs additional costs	<ol style="list-style-type: none"> <li>1. Actively manage contracts and include incentive provisions for early completion in critical contracts.</li> <li>2. Buffer float added to critical patch to actively manage schedule contingency</li> </ol>

**Initial Assessment:** 1, 2, 3  
**Current Assessment** Risk Rating 3 – Construction Risk

**Risk Owner:** A. Wong

**Status Log:**

September 2011:

1. LONP 1 & 2 initiated to reduce this risk. See Risk 86.
2. The mitigation of risks associated with early contracts will address this risk.
3. Risk rating reduced due to mitigation measures implemented.

May 2013:

1. The early utilities relocation contracts were completed within an appropriate contract time periods.
  - a. Mitigation measures were taken to address issues to accomplish the requirement. Measures taken
    - i. Extensive coordination with utility companies
    - ii. Acceleration
    - iii. Schedule re-sequencing
    - iv. Deferment of activities to follow on contracts
2. The follow on contacts are reflective of the early contract impacts, when known in a timely manner.
  - a. Follow on contacts include
    - i. Updated schedule and milestone
    - ii. Updated work scope with included early contract deferred activities
3. The interface between contract 1252 and 1300 is being monitored under Risk #50.
4. Recommend maintaining this risk rating.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 103</b>

Risk	Mitigation Strategy
Difficulty in getting required permits.	<ol style="list-style-type: none"> <li>1. Coordinate with permit officials and request permits as early as possible.</li> <li>2. Obtain assistance obtaining permits from PM/CM &amp; FD Consultants.</li> </ol>

**Initial Assessment:** 1, 1.5, 2  
**Current Assessment:** Risk Rating 2 – Construction Risk

**Risk Owner:** A. Clifford

**Status Log:**

December 2012:

1. Monthly meetings are being held between the 3<sup>rd</sup> Party team and design oversight managers to discuss the permitting requirements of each contract and provide a status of procurement of the required permits.
2. A Permit matrix has been developed to track the progress of the permits being sought for the program.

April 2013:

1. Permit applications are being submitted as early as possible
2. Central Subway are working with DBI to close out remaining issues for issuance of DBI Building permit prior to NTP
3. Central subway are working with DPW to obtain an 'overall excavation permit' for each work area (CTS, UMS, YBM, STS) to reduce the risk of delay to the 1300 contractor obtaining excavation permits.

October 2013:

1. Building and demolition permits have been issued
2. Outstanding permits and needed dates are being tracked weekly
3. No change to the status of this risk

<b>Risk Mitigation Status</b>
<b>Risk Reference: 104</b>

<b>Risk</b>	<b>Mitigation Strategy</b>
CPUC approval at Grade Crossing for G0164d takes longer to negotiate / obtain than schedule allows	<ol style="list-style-type: none"> <li>1. Grade Crossing approvals are not received until final CPUC inspection at the completion of construction.</li> <li>2. Close coordination with CPUC will continue until approval is received.</li> </ol>

**Initial Assessment:** 2, 3.5, 7  
**Current Assessment:** Risk Rating 5 – Construction Risk

**Risk Owner:** S. Pong

**Status Log:**

September 2011:

1. Providing preview of 90% submittal to CPUC and will resolve comments/issues from PE before finalizing design documents.

January 2012 Meeting:

1. Design team conducted informal review meeting with CPUC on 12/6/11 in preparation for 1256 pre-final submittal. CPUC provided 5 comments at the meeting that will be incorporated by the designers:
  - Evaluate curb extension at Portal
  - Evaluate curb tapering or end treatments
  - Evaluate train coming sign at 4<sup>th</sup>/Bryant and 4<sup>th</sup>/Brannan
  - Evaluate black out/no left turn sign
  - Evaluate guide stripping
2. CPUC issued Resolution SX-92 granting SFMTA approval to construct the new and modified grade crossings in March 11, 2010. This approval is good for 3 years.
3. SFMTA will need to file for an extension of SX-92 at least 30 days before March 11, 2013.
4. SFMTA will need to file CPUC Form G within 30 days after the completion of construction.
5. Recommend to reduce this risk rating.
6. Risk rating reduced to 2, 2.5, 5.

April 2012 Meeting:

1. CPUC review comments are being incorporated into the 100% contract documents.

May 2012 Meeting:

No update.

July 2012 Meeting:

1. CPUC reviewed and approved 11 of 12 comments noted on RCF-066. RCF-66 Comment 49 remains open with no CPUC concurrence or Verification. Comment 49 states the Muni standard Red X "Crossbuck" signal is not consistent with MUTCD standards and is strongly discouraged by the CPUC for new construction. Comment 49 will be resolved with CPUC to assure successful application of SX-92 for new and modified grade crossings due February 11, 2013.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 104</b>
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August 2012 Meeting:

1. Mitigation measures to be discussed with CPUC at the August 16, 2012 Safety and Security Meeting.
2. State PUC to review documents, validate and sign off.

September 2012 Meeting:

1. Meeting held with CPUC.
2. Document review ongoing.

October 2012 Meeting:

1. Requirements have been incorporated into the design documents
2. Letter to be sent to CPUC for concurrence

November 2012 Meeting:

1. Confirmation of concurrence is being sought from PUC and is expected to be received by February 2013

December 2012:

1. Approval by the CPUC is given for a specific window of time, and if need another approval will need to be requested.
2. Follow up on letter sent to CPUC for concurrence

January 2013 Meeting:

1. A request for a continuance from CPUC will be sent.

February 2013 Meeting:

1. A letter requesting an extension (continuance) was sent to CPUC February 8<sup>th</sup> 2013 and is now being processed.
2. The letter was vetted with CPUC for comments prior to being sent.

March 2013:

1. Extension of the timeframe to complete the construction of at grade crossings by 3 years was received from CPUC March 6<sup>th</sup> 2013
2. Discuss transferring this risk to CM team

April 2013:

1. Construction, testing, and safety requirements need to be met to enable CPUC signoff at completion.
2. Another request for extension will need to be submitted if construction and approval is not received by January 1<sup>st</sup> 2016.

May 2013:

1. Discuss transferring to Construction Risk and maintain current risk owner.
2. Risk has been transferred to a Construction category, Risk owner remains as Sanford Pong
3. Final form approval from CPUC will be given after construction completion.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 104</b>
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July 2013

1. Confirmed design issues have been resolved and agreed to with CPUC, schedule extension granted. Schedule Extensions are for a maximum of three years, another request will need to be generated in 2016.

September 2013:

1. One comment remains open regarding the 'crossbuck" on. Resolution is still pending.

**Risk Mitigation Status****Risk Reference: 105**

<b>Risk</b>	<b>Mitigation Strategy</b>
Electrical service delays startup and testing.	<ol style="list-style-type: none"><li>1. Submit applications for new service as early as possible.</li><li>2. Coordinate closely with PG&amp;E to ensure timely delivery of electrical service.</li></ol>

**Initial Assessment:** 1, 1.5, 2**Current Assessment:** Risk Rating 2 – Construction Risk**Risk Owner:** R. Edwards**Status Log:**

September 2011:

Applications have been submitted to obtain service as early as possible.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 106</b>

Risk	Mitigation Strategy
Risk of Labor dispute delaying the work.	In case of a Labor dispute, it is standard practice for the contractor to enforce designated gate for employees of the contract in dispute so that the rest of the work is not delayed. During the MMT contract, the designated gate system limited delay to one day in five years.

**Initial Assessment:** 3, 2.5, 8  
**Current Assessment:** Risk Rating 2 – Construction Risk

**Risk Owner:** R. Redmond

**Status Log:**

February 2012 Meeting:

1. It is not anticipated that a labor dispute will delay the work in the current economic climate.
2. Recommend to reduce this risk rating.

March 2013:

1. Discuss clarifying that the risk considered is a union strike.
2. Risk owner changed from R. Edwards to R. Redmond.
3. There have been no labor issues or strikes on the project in the last 3 years.
4. **Recommend reducing this risk rating to 2 (2, 1, 1)**
  - a. Current probability (3), >50%, reduce probability to (2) 10-50%
  - b. Current cost impact (3), \$1m - \$3m, recommend reduce cost impact to (1), <\$250k (contract provides time but not cost)
  - c. Current schedule impacts (2), 1-3 months, reduce schedule impact to (1) < 1 month (based on project labor history)
5. Risk rating reduced to 2

**Risk Mitigation Status****Risk Reference: 107**

Risk	Mitigation Strategy
Market risk in achieving 100% bonding capacity (cost and reduction in contractors able to get performance bonding)	1. Structure bonding appropriately for Contract 1300

**Initial Assessment:** 3, 2.5, 8**Current Assessment:** Risk Rating 0 – Market Risk**Risk Owner:** A. Wong**Status Log:**

September 2011:

1. Seven construction contracts are planned for the program.
2. Three contracts have been awarded.
3. The four remaining contracts are anticipated to be less than the tunnel contract, which was awarded for \$235 million.

August 2012:

1. All estimates still under \$250million
2. Does not seem to be a problem for UMS or CTS

April 2013:

1. Risk updated to specify that risk is referring to performance bonding.
2. Obtaining performance bonding for the \$750m contract 1300 is not a problem for the market.
3. Issues have been raised in relation to performance bond coverage over the various and extensive warranty periods nominated in the various project specifications.
4. Contract 1300 specification has been revised to structure bonding appropriately for the 1300 contract.
5. Sureties obligations have been limited to 5 years after substantial completion, and up to 10% of construction costs.
6. Mitigation strategy revised from 'Structure construction contracts not to exceed \$250 million' to 'structure bonding appropriately for Contract 1300'.

July 2013:

1. Tutor Perini given Notice to Proceed June 17<sup>th</sup> 2013 having satisfied bonding requirements
2. Recommend retiring this risk.
3. Risk retired by unanimous consent of Risk Assessment Committee 7/09/13.



**Risk Mitigation Status****Risk Reference: 108**

Risk	Mitigation Strategy
Inability of SFMTA / State (State of CA more than City) to achieve mitigation in market risk through alternate contract clauses etc (as set down in Contract Package document) - Bidders perception of SFMTA litigation reputation could result in significantly higher bids and reduced number of bidders (inability to change GC's and alter contracting industry perception of the City)	<ol style="list-style-type: none"> <li>1. Engage in contractor outreach and promote assurances of being a reasonable contract partner.</li> <li>2. Use Contract Terms and Conditions that are fair and reasonable to attract contractors to bid.</li> <li>3. For volatile materials &amp; equipment provide substantial payment for stored materials and equipment and an escalation clause in contracts.</li> <li>4. Provide quick alternative dispute resolution process, including obstruction clause and allowance for differing site conditions in contract documents.</li> </ol>

**Initial Assessment:** 2, 4, 8**Current Assessment:** 0, 4, 0 – Retired**Risk Owner:** A. Wong**Status Log:**

October 2011 Meeting:

1. General Conditions have been modified to allow for Dispute Resolution Board (DRB) process.
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 10/13/11.

RETIRED

**Risk Mitigation Status****Risk Reference: 109**

Risk	Mitigation Strategy
Additional Homeland security requirements imposed on Transit Agencies. (eg possible refuge in MOS, CTS, UMS for Earthquake, terrorist or other such event)	1. Work closely with FTA to identify requirements.

**Initial Assessment:** 2, 3.5, 7**Current Assessment:** 1, 0, 0 – Requirement Risk (Retired)**Risk Owner:** R. Edwards**Status Log:**

September 2011:

1. Homeland Security document control procedures have been implemented for the program.
2. SFMTA hosts a monthly meeting with the Fire Life Safety Committee of which the SFMTA liaison to Homeland Security Agency is a member.
3. No new construction requirements related to Homeland Security have been imposed on the program.

January 2012 Meeting:

Contract documents have been sent to Lea Militello, SFMTA liaison to Department of Homeland Security, for review and comment.

May 2012 Meeting:

1. No new Homeland Security requirements have been identified.
2. If new Homeland Security requirements are required, the costs of those systems are expected to be paid for by the agency requesting those systems.
3. This risk was retired by unanimous consent of the Risk Assessment Committee on 5/24/12.

RETIRED

**Risk Mitigation Status****Risk Reference: 110**

<b>Risk</b>	<b>Mitigation Strategy</b>
Unanticipated poor weather delays work. Delay could be extended by Holiday Moratorium period.	<ol style="list-style-type: none"><li>1. Schedule open excavations during dry season.</li><li>2. Durations assume normal weather delay and moratoriums.</li><li>3. Include acceleration clauses in contracts.</li><li>4. Cooperatively work with Contractor to mitigate delays.</li></ol>

**Initial Assessment:** 2, 3.5, 7**Current Assessment:** 0, 0, 0 – Construction Risk**Risk Owner:** M. Benson**Status Log:**

## February 2012 Meeting:

1. Acceleration of work will be done as necessary to maintain program schedule.
2. Costs for acceleration of work will be addressed through change order process.
3. Acceleration costs will be covered by project contingency.
4. Recommend to reduce this risk rating.

## September 2012 Meeting:

1. Recommend retiring this risk
2. Revisit next meeting
3. This risk was retired by unanimous consent of the Risk Assessment Committee on 10/18/12.

RETIRED

<b>Risk Mitigation Status</b>
<b>Risk Reference: 111</b>

Risk	Mitigation Strategy
Major Earthquake stops work	1. Include "Force Majeure" clause in contracts.

**Initial Assessment:** 5, 3, 4

**Current Assessment:** Risk Rating 4 – Construction Risk

**Risk Owner:** A. Wong

**Status Log:**

February 2012:

1. General Provisions Section 702, B.1 allows for non-compensable time extension to a contract in the case of an earthquake.

August 2012 Meeting:

1. Mitigation plan to be prepared to deal with the event of an earthquake occurring

September 2012 Meeting:

1. Mitigation plan/emergency response plan to be prepared

October 2012 Meeting:

1. Requirements for Central Subway mitigation/emergency response plan to be discussed next meeting
2. 'Force Majeure' inclusion in contracts to be reviewed next meeting

November 2012 Meeting:

1. Requirements for Central Subway mitigation/emergency response plan to be discussed next meeting
2. Outline scope of plan to be developed if required.

**Risk Mitigation Status****Risk Reference: 112**

Risk	Mitigation Strategy
Major safety event halts work	1. Require contractor to provide for a full-time Safety Manager.

**Initial Assessment:** 5, 3, 4**Current Assessment:** Risk Rating 4 – Construction Risk**Risk Owner:** M. Benson**Status Log:**

February 2012:

1. Contract Technical Specifications Section 01 35 29.10 – Health and Safety includes procedures and contractor requirements to prevent accidents.
2. Contracts require contractor to provide a full-time Safety Manager.
3. Central Subway Program retains a full-time Safety Manager.

July 2013:

1. Safety inspections being carried out monthly.
2. Safety inspection observations are being communicated to the contractor as required.
3. Cal OSHA mining inspections held every 2 months.
4. Executive safety meetings being held quarterly.

**Risk Mitigation Status****Risk Reference: 113**

<b>Risk</b>	<b>Mitigation Strategy</b>
Finance charges may be required (assumptions on FTA funding at \$150m per annum optimistic) - finance costs would be in order of \$100-150M	Finance charges are over estimated given the project cash flow requirements.

**Initial Assessment:** 4, 2.5, 10**Current Assessment:** 0, 0, 0 – Requirement Risk**Risk Owner:** E. Stassevitch**Status Log:**

November 2011 Meeting:

1. Bridge financing (at no additional cost) from regional funding partners is being sought in case FTA funding is delayed.

December 2011 Meeting:

1. Recommend to retire this risk from the project risk register.
2. Risk retired by unanimous decision of the Risk Committee 12/15/11.

RETIRED

**Risk Mitigation Status****Risk Reference: 114**

Risk	Mitigation Strategy
Grout pipes for Bart underpinning are too long and cannot be installed accurately from small shaft.	<ol style="list-style-type: none"><li>1. DP1 has proposed "belling out" the bottom of the grout shaft on Ellis Street so that a larger directional drill rig can be utilized to more accurately install these grout pipes.</li><li>2. Investigate possibility of grouting from BART tunnel.</li></ol>

**Initial Assessment:** 4, 2, 8**Risk Owner:** S. Wilson**Current Assessment:** 0, 0, 0 – Construction Risk**Status Log:**

October 2011:

1. Test program to be conducted by tunnel contractor.
2. Investigation of grouting program on previous contracts to be conducted by tunnel contractor.

January 2012 Meeting:

1. Eliminated mitigation strategy 2 – "PMCM and DP1 will investigate the possibility of using the basement of the old Virgin Records Store (Block 328 Lot 002) for installation of grout pipes"
2. Tunnel contract documents allow contractor to modify the size of the grout shaft on Ellis Street as needed to install the grout tubes.
3. Recommend to reduce this risk rating.

June 2012 Meeting:

1. Workshop with contractor and designer held on January 19, 2012 to discuss compensation grouting of BART tunnel. Contractor plans to use specialized equipment to accurately place grout tubes.
2. Recommend to reduce the risk rating.

August 2012 Meeting:

1. Update required regarding description of mitigation in submittals prior to work.

September 2012 Meeting:

1. Contractor submitted method statement submitted
2. This risk was retired by unanimous consent of the Risk Assessment Committee on 9/13/12.

**Risk Mitigation Status****Risk Reference: 115**

Risk	Mitigation Strategy
<p>Jet grouted station end walls are installed by tunnel Contractor. Station Contractor assumes risk of possibly leakage problems due to insufficiently qualify of end walls.</p>	<ol style="list-style-type: none"> <li>1. In the 1252 contract, have tunnel contractor set aside a pre-determined amount of money in escrow that can be used to repair any leaks encountered by the station contractors after the in the jet grout end walls are excavated.</li> <li>2. Alternatively, place and allowance in the station contracts for end wall leakage repair.</li> <li>3. Include "Clawback" provision in tunnel contract to allow station contractor to transfer costs of repair to headwall to the tunnel contractor.</li> <li>4. Require tunnel contractor to be present to witness station excavation of headwalls.</li> </ol>

**Initial Assessment:** 1, 1, 3**Current Assessment:** Risk Rating 3 – Construction Risk**Risk Owner:** S. Wilson**Status Log:**

September 2011:

1. Project configuration changes include headwall designs with multiple levels of redundancy.
2. Warranty "clawback" provisions added to tunnel contact language.

December 2012:

1. Risk owner changed from J. Caulfield/J. Wang to S. Wilson
2. Mitigations 1, 2 and 3 have not been implemented.
3. The 1252 contract includes a Warranty Bond of 10% of the contract value for 2 years following final acceptance. Should funds need to be obtained to remediate leakage problems, Central Subway will source these from the bond holder.
4. The forecast completion date for the portal structure is April 2015, current estimate schedule for station excavation (latest of 3 stations) is November 2015. Therefore the excavation of the station caverns and exposure of the end walls will fall within the warranty period of the 1252 contract.



<b>Risk Mitigation Status</b>
<b>Risk Reference: 116</b>

Risk	Mitigation Strategy
TBM procurement, delivery and assembly takes longer than assumed in schedule.	<ol style="list-style-type: none"> <li>1. Allow adequate time to allow procurement of TBM in MPS.</li> <li>2. Provide Notice to Contractor on time concerns</li> </ol>

**Initial Assessment:** 3, 1, 3  
**Current Assessment:** Risk Rating 4 – Construction Risk

**Risk Owner:** M. Benson

**Status Log:**

February 2012:

1. Mitigation strategy #1 “The most likely delay to TBM procurement and delivery, on the order of 2 or 3 months, could be accommodated with current float shown on the construction schedule” was removed.
2. Mitigation strategy #2 “Include milestones in contract for procurement of TBM” was not used.
3. Contract includes substantial completion requirements including liquidated damages for delay in completion by milestone date.
4. NTP 1 for TBM procurement was issued on 1/27/12.
5. Contractor has estimated 10 months to procure and deliver TBM to site.
6. LOPN2 was approved by FTA to build launch box and MOS headwalls.
7. Recommend to reduce this risk rating.

April 2012:

1. BIH has entered into a contract with Robbins to procure two TBMs; one to be delivered no later than January 2013 and one no later than February 2013.

April 2013:

1. The 1<sup>st</sup> TBM is arriving this month, the 2<sup>nd</sup> TBM is due to arrive in June this year.
2. BIH are procuring a gantry crane for the TBM assembly, if the gantry crane is not approved for use adjacent to the I-80 bridge an alternate crane would need to be sourced. The delay due to this is expected to be less than 1 month.
3. **Recommend reducing this risk rating to 3 (2, 2, 1)** (reduced schedule impact associated with sourcing another crane)
  - a. Current probability (2), 10 - 50%, maintain probability rating
  - b. Current cost impact (2), \$250k - \$1m, maintain cost impact
  - c. Current schedule impacts (2), 1 -3 months, recommend reducing schedule impact to (1), <1month

June 2013:

1. BIH received approval from Caltrans to use their proposed gantry crane.
2. TBM # 1 arrived April 25<sup>th</sup>, 2013 and assembly has been completed. Assembly of TBM 1 was planned to take 6 weeks, with an actual assembly time of approximately 8 weeks. Contractor is working additional shifts to minimize delay resulting in little impact to the schedule.
3. TBM #1 is scheduled to be launched June 24<sup>th</sup>, TBM # 2 is schedule to arrive July 2<sup>nd</sup>.

July 2013

1. Assembly of TBM #1 was originally scheduled to take 35 days and has taken approximately 45 days to date.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 116</b>
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2. The recovery schedule submitted by BIH this shows 35 days for assembly and commissioning of TBM 2.
3. BIH have advised that the timeframe for assembly and commissioning of TBM 2 is achievable as delays affecting the assembly of TBM 1 (late tail shield, delay in gantry crane erection) will not be experienced in the assembly of TBM 2. Also, preparation of TBM 2 was further advanced in the factory prior to delivery, and lessons learned from assembly of TBM 1 will be incorporated into assembly of TBM 2.

**Risk Mitigation Status****Risk Reference: 117**

Risk	Mitigation Strategy
BART lining is not in the condition assumed for the settlement analysis after liner inspection is performed.	This risk will be confirmed or deleted after completion of the BART tunnel survey (condition assessment). If confirmed, mitigation will likely involve repair and/or reinforcement of the part tunnels

**Initial Assessment:** 2, 2, 4**Current Assessment:** 0, 2, 0 – Retired**Risk Owner:** J. Caulfield**Status Log:**

October 2011 Meeting:

1. BART tunnel survey was completed. No reinforcement will be required.
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 10/13/11.

RETIRED

**Risk Mitigation Status****Risk Reference: 118**

Risk	Mitigation Strategy
Insufficient room on the launch box site to launch 2 TBMs concurrently.	1. If there is insufficient room for both, a 2 or 3 week delay would be realized. Reflect expected delay into the construction schedule.

**Initial Assessment:** 4, 2, 8**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** J. Caulfield**Status Log:**

October 2011 Meeting:

1. The Tunnel contractor has confirmed that this is no longer a risk.
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 10/13/11.

**Risk Mitigation Status****Risk Reference: 119**

<b>Risk</b>	<b>Mitigation Strategy</b>
Schedule of design deliverables could impact the 65% design completion.	1. Actively manage design development to ensure timely deliverable of required submittals to avoid impact to FFGA review process.

**Initial Assessment:** 1, 1, 1**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** R. Edwards**Status Log:**

November 2011 Meeting:

1. Design deliverables provided on time and with sufficient detail to address 65% design submittal requirements.
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 11/10/11.

RETIRED

**Risk Mitigation Status****Risk Reference: 120**

<b>Risk</b>	<b>Mitigation Strategy</b>
Geologists identify hard sandstone that could impact pipe canopy installation and other activities.	<ol style="list-style-type: none"><li>1. Perform additional boring in several locations in the vicinity of revised station configuration to best determine subsurface geologic profile.</li><li>2. Provide GBR in contract documents.</li><li>3. Include above work in schedule and probable cost in estimate.</li></ol>

**Initial Assessment:** 2, 3, 5**Current Assessment:** 0, 3, 0 – Design Risk (Retired)**Risk Owner:** Q. Chin**Status Log:**

January 2012 Meeting:

1. Additional boring performed did not reveal any new information regarding hard sandstone.
2. GBR included in contract documents.
3. Differing site conditions clause included in contract documents.
4. Cost and schedule impacts included in program cost estimate and MPS.
5. Recommend to retire this risk.
6. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

**Risk Mitigation Status****Risk Reference: 121 - CTS**

<b>Risk</b>	<b>Mitigation Strategy</b>
Resolution of travel time issue from surface to station platform for customers.	1. Reconfigure station layout to eliminate any additional travel time issues related to station platform to surface

**Initial Assessment:** 1, 1, 1**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** Q. Chin**Status Log:**

November 2011 Meeting:

1. Station configuration changes resulting from the overall lowering of the station maintained travel time within acceptable limits.
2. Recommend to retire this risk from the project risk register.
3. This risk will be revisited next meeting.

December 2011 Meeting:

1. New configuration of the escalator is compliant with the travel time, under 4 minutes to get out of the station.

Risk retired by unanimous decision by Risk Committee on 12/15/11.

**Risk Mitigation Status****Risk Reference: 122**

Risk	Mitigation Strategy
Impact on Washington Street of the new headhouse design, Need to itemize all impacts and see if they are consistent with the SEIR. School bus access on Washington Street during construction	<ol style="list-style-type: none"> <li>1. Reconfigure station layout to not create any new impacts, or increase magnitude of impacts currently identified in the SEIR.</li> <li>2. Include routing that is acceptable to SFUSD and prepare traffic control scenarios in contract drawings.</li> <li>3. Develop primary mitigation to allow closure of Washington Street.</li> </ol>

**Initial Assessment:** 4, 2, 8**Risk Owner:** Q. Chin**Current Assessment:** 0, 2, – Requirement Risk (Retired)**Status Log:**

## October 2011 Meeting:

1. Currently evaluation of impacts indicates no additional or no increase in magnitude.
2. Recommend retiring this risk from the project.
3. This risk will be revisited next meeting since concurrence on bus reroute has not been obtained.

## November 2011 Meeting:

1. Meeting with Muni Operations and Service Planning was held on 8/29/11 to address traffic and transit issues involving CTS construction. Alternate school bus stop locations were discussed.
2. Meeting with Gordon Lau School Principal was held on 9/21/11. Two proposed drop off locations were discussed, 1) Clay & Powell at existing Muni bus stop, and 2) on near side on Powell at Washington.
3. SFDPT objected to option 2 since it conflicts with cable car stop and the restricted traffic flow at this location. A proposal to move the bus stop to the far side of Powell at Washington was suggested. Additionally, DPT agreed to a traffic detour onto Sacramento for Washington Street traffic during station construction.
4. This new proposal will be conveyed to Gordon Lau principal for concurrence.

## December 2011 Meeting:

1. Gordon Lau school principal tentatively concurs with the traffic plan during construction.
2. Meeting between CCDC and Gordon Lau principal to be set up to confirm proposed location of temporary school bus stop.

## January 2012 Meeting:

1. CCDC provided concurrence Principal Chew is agreeable with the counter-proposal of locating the school bus stop between Washington and Clay Streets.
2. Recommend to retire this risk from the risk register.
3. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.



**Risk Mitigation Status****Risk Reference: 123**

<b>Risk</b>	<b>Mitigation Strategy</b>
Impact of new headhouse design on church near station construction.	1. Reconfiguration of station layout such that there is no impact to church

**Initial Assessment:** 1, 1, 1**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** Q. Chin**Status Log:**

November 2011 Meeting:

1. Station reconfiguration does not impact church.
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 11/10/11.

RETIRED

**Risk Mitigation Status****Risk Reference: 124 - CTS**

<b>Risk</b>	<b>Mitigation Strategy</b>
Potential additional changes related to new headhouse design layout.	1. Maintain functionality from original design with new station configuration

**Initial Assessment:** 1, 1, 1**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** Q. Chin**Status Log:**

November 2011 Meeting:

1. Headhouse design layout has maintained functionality through the design process. .
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 11/10/11.

RETIRED

**Risk Mitigation Status****Risk Reference: 125 - CTS**

<b>Risk</b>	<b>Mitigation Strategy</b>
Number of escalators may be inadequate. If one is broken, customer flow may be impacted and redundancy is not available.	1. Provide design that is consistent with design criteria.

**Initial Assessment:** 0, 0, 0**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** Q. Chin**Status Log:**

November 2011:

1. SFMTA design criteria provide an inherent acceptance of this risk as a policy of the agency. .
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 11/10/11.

RETIRED

**Risk Mitigation Status****Risk Reference: 138/197**

Risk	Mitigation Strategy
Lack of staging area for UMS station construction.	<ol style="list-style-type: none"> <li>1. Work with Traffic Engineer to identify staging area on street.</li> <li>2. Pre-classify soil to reduce double handling of soil.</li> <li>3. Include costs for staging area in cost estimate.</li> </ol>

**Initial Assessment:** 3, 2, 6**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** Q. Chin**Status Log:**

January 2012:

1. Staging areas are shown in the traffic drawings.
2. Costs for staging area have been included in contract.
3. Phase 2 ESA will be conducted to pre-classify the soil for disposal.
4. Likelihood of occurrence was lowered to 2.

May 2012 Meeting:

1. UMS soil has been pre-approved for disposal at several landfills.
2. The UMS soil classification report has been made available to bidders.
3. Recommend to retire this risk from the risk register.
4. This risk was retired by unanimous consent of the Risk Assessment Committee on 5/24/12.

**Risk Mitigation Status****Risk Reference: 152**

Risk	Mitigation Strategy
North entrance at UMS resolution	1. Work with BID, Rec & Park, Arts Commission Civic Design Review & Mayor's Office of Accessibility to resolve connection from Union Square to UMS station.

**Initial Assessment:** 4, 2, 6**Current Assessment:** 0, 0, 0 - Retired**Risk Owner:** J. Wang**Status Log:**

October 2011 Meeting::

1. Agreement has been reached on layout of north entrance connection at Union Square.
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 10/13/11.

RETIRED

**Risk Mitigation Status****Risk Reference: 153**

<b>Risk</b>	<b>Mitigation Strategy</b>
Widen stairs at entrance at Apple	1. Work closely with BART and station designers to find acceptable solution to both.

**Initial Assessment:** 3, 2, 6**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** J. Wang**Status Log:**

October 2011 Meeting:

1. The stairway configuration remains the same and impacts to those elements will be restored after construction.
2. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 10/13/11.

**Risk Mitigation Status****Risk Reference: 167-9**

Risk	Mitigation Strategy
Lack of staging area for CTS station construction.	1. Work with Traffic Engineer to identify staging area on street 2. Include costs for staging area in cost estimate.

**Initial Assessment:** 3, 2, 6**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** Q. Chin**Status Log:**

January 2012 Meeting:

1. Staging area is mainly from headhouse site. Truck access on Washington Street is shown in the traffic drawings.
2. Costs for staging area have been included in contract.
3. Recommend to reduce the risk rating to 3.
4. Risk reduced to 2, 2, 4.

May 2012 Meeting:

1. Recommend to retire this risk from the risk register.
2. This risk was retired by unanimous consent of the Risk Assessment Committee on 5/24/12.

RETIRED

**Risk Mitigation Status****Risk Reference: 169**

<b>Risk</b>	<b>Mitigation Strategy</b>
Lack of staging area for UMS station construction.	<ol style="list-style-type: none"><li>1. Work with Traffic Engineer to identify staging area on street</li><li>2. Include costs for staging area in cost estimate.</li></ol>

**Initial Assessment:** 3, 2, 6**Current Assessment:** 3, 2, 6 – Construction Risk**Risk Owner:** Q. Chin**Status Log:**

September 2011:

1. Costs for staging area have been included in contract.
2. Recommend to reduce the risk rating to 3.

\*\*\*SEE RISK 167-9



**Risk Mitigation Status****Risk Reference: 170/192**

<b>Risk</b>	<b>Mitigation Strategy</b>
Haul routes longer than planned at CTS.	1. Include cost for 100 mile round trip haul to disposal site in Cost Estimate.

**Initial Assessment:** 3, 2, 6**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** Q. Chin**Status Log:**

March 2012 Meeting:

1. Current Cost Estimate contains cost for 100 mile round trip haul to disposal site.
2. Recommend to retire this risk from the risk register.
3. Risk retired from risk register by unanimous consent of Risk Assessment Committee on 3/8/12.

RETIRED

**Risk Mitigation Status****Risk Reference: 177**

Risk	Mitigation Strategy
Lack of staging area for Moscone station construction.	1. Work with Traffic Engineer to identify staging area on street. 2. Include costs for staging area in cost estimate.

**Initial Assessment:** 3, 2, 6**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** Q. Chin**Status Log:**

January 2012 Meeting:

1. Staging areas on street have been identified in traffic drawings by allowing permanent closure of two traffic lanes during construction.
2. Costs for staging area have been included in contract.
3. Recommend to reduce the risk rating to 2, 2, 4
4. Risk reduced to 2, 2, 4.

May 2012 Meeting:

1. This risk was retired by unanimous consent of the Risk Assessment Committee on 5/24/12.

RETIRED

**Risk Mitigation Status****Risk Reference: 190**

<b>Risk</b>	<b>Mitigation Strategy</b>
Tunnel haul routes longer than planned.	Include cost for 100 mile round trip haul to disposal site in Cost Estimate.

**Initial Assessment:** 1, 3, 2**Current Assessment:** 0, 0, 0 - Design Risk (Retired)**Risk Owner:** J. Caulfield**Status Log:**

March 2012 Meeting:

1. Current Cost Estimate contains cost for 100 mile round trip haul to disposal site.
2. Recommend to retire this risk from project.
3. Risk retired from risk register by unanimous consent of Risk Assessment Committee on 3/8/12.

**Risk Mitigation Status****Risk Reference: 193**

<b>Risk</b>	<b>Mitigation Strategy</b>
Redesign to lower station may impact schedule and cost at CTS.	<ol style="list-style-type: none"><li>1. Process ECP for lowering station</li><li>2. If approved, assess cost and schedule impact on redesign</li></ol>

**Initial Assessment:** 2, 3, 5**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** Q. Chin**Status Log:**

October 2011 Meeting:

1. ECP to lower CTS was approved.
2. Costs and schedule impacts have been evaluated on the redesign and been determined not to impact schedule and cost of CTS.
3. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 10/13/11.

**Risk Mitigation Status****Risk Reference: 194**

<b>Risk</b>	<b>Mitigation Strategy</b>
Constructability of CTS station may cause redesign.	<ol style="list-style-type: none"><li>1. Conduct constructability review</li><li>2. Evaluate constructability review comment to evaluate whether redesign is warranted.</li><li>3. Incorporate recommendations through ECP procedure</li><li>4. Evaluate cost and schedule impact.</li></ol>

**Initial Assessment:** 2, 3, 6**Current Assessment:** 0, 0, 0 – Retired**Risk Owner:** Q. Chin**Status Log:**

October 2011 Meeting:

1. Constructability review was performed in January 2011. An ECP was executed to lower the station.
2. Costs and schedule impacts have been evaluated on the redesign.
3. Recommend to retire this risk from the project risk register.

Risk retired by unanimous decision of the Risk Committee 10/13/11.

**Risk Mitigation Status****Risk Reference: 195**

Risk	Mitigation Strategy
Constructability of UMS design may cause redesign	<ol style="list-style-type: none"><li>1. Conduct constructability review</li><li>2. Evaluate constructability review comment to evaluate whether redesign is warranted.</li><li>3. Incorporate recommendations through ECP procedure</li><li>4. Evaluate cost and schedule impact.</li></ol>

**Initial Assessment:** 2, 3, 6**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** J. Wang**Status Log:**

January 2012:

1. Constructability review was conducted in August 2011.
2. Redesign of elements included in 90% as well as incorporation of primary mitigations to lower costs.
3. Recommend to reduce this risk rating.
4. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

RETIRED

<b>Risk Mitigation Status</b>
<b>Risk Reference: 196</b>

Risk	Mitigation Strategy
<p>The process of acquiring station licenses: acquisition/condemnation could significantly delay schedule and cost more than that presently planned.</p>	<ol style="list-style-type: none"> <li>1. Continue to negotiate with building owners</li> <li>2. Required Notices and Appraisals to be completed</li> <li>3. Commence condemnation process with City Attorneys</li> </ol>

**Initial Assessment:** new risk

**Risk Owner:** A. Clifford

**Current Assessment:** Risk Rating 4 – Construction Risk

**Status Log:**

September 2012 Meeting:

1. Risk 57 retired August 2012. New Risk 196 opened.
2. To date 9/27 required Station Licenses have been signed by the respective property owners.
3. 5/27 have reached verbal agreement or have been sent to the owner for signature.
4. 13/27 Licenses are outstanding
  - a. 7 of the 13 outstanding Licenses are progressing toward agreement
  - b. The Program team is currently preparing for condemnation on the following 6 Licenses should
    - 1 Stockton (Apple) & 212 Stockton (Bulgari) (same property manager)
    - 216 Stockton (Dior)
    - 39 Stockton (Disney)
    - 19 Stockton (Armani) – unresponsive owner
    - 250 Fourth Street (Olivet University)
5. Targeting Board of Supervisors 10/23/12
  - a. remaining Notice of Intent to Appraise mailed 8/30/12
  - b. finalize list of condemnation properties by 9/14/12
  - c. remaining appraisals to be completed by 9/20/12
  - d. meeting with board clerk 9/21/12
  - e. government code offer letters to be sent by 9/27/12

November 2012 Meeting:

1. To date;
  - a. 11/27 required station licenses have been signed by the respective property owners.
  - b. 4/27 have reached verbal agreement or final drafts have been sent to the owner to sign.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 196</b>
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- c. 12/27 Station licenses remain outstanding, 3 of which are being negotiated with the a single property owner (Macy's) and are expected to reach agreement.
2. 9/27 Remaining station licenses + 2 remaining tunnel easements (Central Subway has possession of the two tunnel easements) have been calendared for the December 11<sup>th</sup> Board of Supervisors Hearing.
  - a. Central Subway project team and the City Attorney's office submitted draft Resolutions of Necessity to the Clerk of the Boards office November 5<sup>th</sup>.
  - b. The Central Subway Project team continues to negotiate with the property owners.
  - c. The required access for compensation grouting and building monitoring is expected approximately May 10<sup>th</sup> 2013 should this need to be obtained through the eminent domain process.

April 2013:

1. Outstanding Tunnel & Station Group A licenses: (a, b and c do not have the condemnation option available at this time)
  - a. **Macy's 3 properties** – licenses for the remaining 3 properties to be sent to Macy's 4/11/13 (233 Geary, 120 Stockton, 101 Stockton)
  - b. **1013-1015 Stockton Street** – the final agreement was hand delivered to the owners representative for signature 4/10/13. Signature of the 3 owners is expected by 4/19
  - c. **3 Pagoda properties** (725 Filbert, 659 Columbus, 1717 Powell) – details and offer letters have been sent to owners
  - d. 950 Stockton Street – Central Subway continues to negotiate with the HOA and land owner while working with the City attorney to commence condemnation if agreement cannot be reached by 4/19
  - e. 216 Stockton – resolving final issues with owner (condemnation to commence 4/19 if agreement cannot be reached)
  - f. 1 Stockton and 212 Stockton – final agreement sent to owner for signature 4/9/13
  - g. 1455 Stockton Street – condemnation suit filed 4/9/13, possession estimated mid August 2013
  - h. 19 Stockton Street – condemnation suit filed 2/13/13, possession estimated 7/6/13

July 2013:

1. 4 Licenses to be obtained by SFMTA are outstanding
  - a. 659 Columbus Ave (1252 Contract)
    - License has been verbally agreed and sent to the owner for signature (expecting signed agreement by 7/15).
    - The Program has not prepared to condemn this license.
  - b. 1455 Stockton (1252 Contract)
    - The pre-judgment possession hearing scheduled for 7/9/13 has been continued to 7/23/13. Estimated possession date is now 8/26/13.
    - The project team continues to seek resolution of the license through negotiation with BofA and the owner.
  - c. 950 Stockton (1300 Contract)
    - Condemnation action filed 7/8/13. Possession of the license is estimated to be late November 2013.
    - The project team continues to work with the Mandarin Tower Homeowners Association (HOA) and the owner to reach agreement. Currently the Project team is requesting the HOA to sign the agreement with a condition that compensation grouting work cannot proceed until agreement from the landowner is received.
  - d. 19 Stockton (1300 Contract)
    - Condemnation suit filed 2/13/13.
    - The owner has engaged trial condemnation attorneys and is challenging the City's 'right to take' this license.
    - The pre-judgment possession hearing originally scheduled for 6/7/13 and was continued by the court.
    - City attorney availability pushed pre-judgment possession hearing date to early August 2013.



<b>Risk Mitigation Status</b>
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<b>Risk Reference: 196</b>
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- Owner attorney availability pushed pre-judgment possession hearing date September 9<sup>th</sup> 2013. If the motion for pre-judgment possession is successful, possession of the license would be obtained approximately October 11<sup>th</sup> 2013.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 197</b>
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3. The first Project exposure to risk due to delays in future federal grant receipts will be in the 3rd Qtr 2013 when the 2<sup>nd</sup> New Starts annual allocation (item 1b above) should be funded in October-November at the close of the Federal Fiscal Year13.
4. The estimation of the risk due to delay in federal receipts or receipts that are reduced from the current cash flow schedule shown above is High.
5. This estimation is based on the immediate actual record of the FFGA being delayed for 1 year and the current national debate over federal deficits vs. economic stimulus during the current great recession. A related factor is that the Central Subway was a target of the House of Representatives in the previous session to not receive any federal funding.

December 2012 Meeting:

1. The first allocation of \$85 million shown in item 1a. was received Nov. 16.
2. The CS team provided an updated 80 month Funding and Expenditure Plan to a professional Financial Advisor under contract with the SFMTA who will present financing options and estimates of debt interest costs in order for the SFMTA to generate debt financing funds as bridge funding for the Central Subway.
3. The Program Director is expected to meet with the SFMTA Director of Transportation, the City Controller, the Financial Advisor and SFMTA Finance Staff Dec. 6 to review the projected debt financing proposal.

May 2013 Meeting:

1. The application for the next increment of \$145 million shown in item 1a. will be prepared for submittal by the end of June 2013.
2. The Project Controls group will update 80 month Funding and Expenditure Plan including the two primary construction expenditures based on a cost loaded schedule with the apparent low bid for 1300 expenditures May 20.
3. SFMTA Finance staff will update the CS Financial Model with the revised estimated expenditures to produce the cash flow and financing options and estimates of debt interest costs in order for the SFMTA to generate debt financing funds as bridge funding for the Central Subway at the end of 2013 or early 2014.
4. The above information will be used by Finance staff and the CS Program Director to brief the SFMTA Director of Transportation. Follow on steps will be updates with the City Controller, the Financial Advisor and SFMTA Finance Director to determine a more specific schedule and commitment dates for the projected SFMTA debt financing.
5. The Central Subway Funding and Financing Scenarios as of 16 April 2013 shown above primarily depend on the next FTA allocation in September 2013 of \$145 million and the remaining Prop. 1B allocation in 2013.
6. This risk was retired by unanimous consent of the Risk Assessment Committee on 05/10/13.

**Risk Mitigation Status****Risk Reference: 198**

Risk	Mitigation Strategy
Outreach efforts to get more bidders - 1300 Contract	1. Develop a Contractor Outreach Plan: 2. Engage in extensive contractor outreach and promote assurances of being a reasonable contract partner.

**Initial Assessment:** 5, 2, 4**Current Assessment:** Risk Rating 0 – Market Risk**Risk Owner:** A. Wong**Status Log:**

## December 2012 Meeting:

1. Identified Risk and refined risk statement together with development of mitigation strategies.
2. Pre bid conference meeting took place and a meet and greet to allow the Prime Contractor to meet with sub consultants
3. Extended the bidding period an additional 3mos from January to March
4. List of Prime Contractors who attended the conference:
  - a. Kiewit
  - b. Tutor Perini Corp
  - c. R&L Brosamer
  - d. Dragados USA
  - e. S.J. Smoroso Construction Co., Inc. – (Table)
  - f. Reeds Construction
  - g. Sener Engineering & Systems, Inc.
  - h. Quality Engineering Inc.
  - i. Impregilo/S.A.S. Healy – (Table)
  - j. Alfred Williams Consultancy, LLC
  - k. Barnard Construction Company, Inc.
  - l. Skanska, Shimmick

## January 2013 Meeting:

1. No new updates

## February 2013 Meeting:

1. List of Prime Contractor established and attended the CCO required SBE individual outreach session (January 25 – February 1) prior to bid submission:
  - a. Kiewit Infrastructure West Co.
  - b. Tutor Saliba Corporation
  - c. S.J. Amoroso Construction Co., Inc., FCC and Southland
  - d. Skanska, Shimmick and Stacy Witbeck

## March 2013:

1. Kiewit Infrastructure West Co. has withdrawn from the bid

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 198</b>
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May 2013:

1. 3 bids received April 18<sup>th</sup>.
2. Recommend retiring this risk.
3. This risk was retired by unanimous consent of the Risk Assessment Committee on 05/10/13.

RETIRED

**Risk Mitigation Status****Risk Reference: 199**

<b>Risk</b>	<b>Mitigation Strategy</b>
No interests from potential bidders although participated in outreach meet and greet.	1. Continuous efforts with Prime to get them to bid.

**Initial Assessment:** 2, 4, 7**Current Assessment:** 0, 0, 0 – Construction Risk**Risk Owner:** A. Wong**Status Log:**

December 2012:

1. Identified Risk and refined risk statement together with development of mitigation strategies.

January 2013:

1. Deemed by the Risk Committee to not represent at risk or replicated a risk already established; therefore it will be retired from the active Risk Register.

RETIRED

**Risk Mitigation Status**

**Risk Reference: 200**

Risk	Mitigation Strategy
Dealing with Larger Contractor Group	1.

**Initial Assessment:** X, X, X

**Current Assessment:** X, X, X – Construction Risk

**Risk Owner:** R. Redmond

**Status Log:**

January 2013:

1. - Deemed by the Risk Committee to not represent at risk or replicated a risk already established; therefore it will be retired from the active Risk Register.

RETIRED

**Risk Mitigation Status****Risk Reference: 201**

Risk	Mitigation Strategy
Bid Protest - 1300 Contract	1. Establish and enforce appropriate qualifications requirement for contractors to be deemed a responsible bidder.

**Initial Assessment:** 1, 1, 1**Current Assessment:** Risk Rating 0 – Market Risk**Risk Owner:** A. Hoe**Status Log:**

December Meeting 2012:

1. Identified Risk and refined risk statement together with development of mitigation strategies.

January 2013:

1. Specification language worded to allow for quick response without impact to schedule.

February 2013:

1. No change in the status of this risk

March 2013:

1. No change to the status of this risk

June 2013:

1. No bid protests have been received for contract 1300.
2. Recommend retiring this risk.
3. This risk was retired by unanimous consent by the Risk Assessment Committee on 06/13/13.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 202</b>

Risk	Mitigation Strategy
Cargo Preference must solicit U.S. - flag carriers. Civilian Agencies Cargo = at least 50% (governed by Cargo Preference Act of 1954)	1. Require compliance agreement first tier contractors and subcontractors

**Initial Assessment:** 1, 1, 1  
**Current Assessment:** Risk Rating 1 - Construction Risk

**Risk Owner:** R. Redmond

**Status Log:**

December 2012 Meeting:

1. Identified Risk and refined risk statement together with development of mitigation strategies.

January 2013 Meeting:

1. No indication from Maritime admin what the penalty would be for non-compliance, if the Contractor does not adhere to Cargo Preference requirement.

February 2013 Meeting:

1. It has appeared that MARAD initial ruling is that the TBM must be shipped 50% American vessel, the 1st TBM is planned to be shipped by non-American vessel, expected to ship early march - the 2nd TBM ship date has not yet been confirmed.
2. Contractor has engaged legal advice this issue.

March 2013:

1. 50% of each TBM will be shipped via U.S. flagged carriers
2. Assess Stations and Systems contract following contract 1300 NTP

September 2013:

1. This is a contractor risk, no effect on program.
2. MARAD issued finding of non-compliance to Robbins

October 2013:

1. MARAD are evaluating possible penalties for Robbins
2. Letter sent to BIH September 17, 2013 encouraging future shipments to be transported via United States flagged vessels



**Risk Mitigation Status****Risk Reference: 203**

Risk	Mitigation Strategy
Headwalls interface delay 1300 Contractor	1. Meet and develop recovery schedule 2. CM to review possible Adjustment to 1300 interface 3. Ensure contractor is notified (via letter) of their obligations under the contract

**Initial Assessment:** 3, 2, 8**Risk Owner:** M. Benson**Current Assessment:** Risk Rating 8 – Construction Risk**Status Log:**

December Meeting 2012:

1. Identified Risk and refined risk statement together with development of mitigation strategies.

January 2013:

1. Delay has already begun, roughly six weeks behind schedule.
2. Meeting with BIH will take place to discuss a recovery schedule.

February 2013 Meeting:

1. BIH and their sub CJN JV have re-sequenced the headwall work at Union Square so the completion date is now back on schedule with the CN 1300 milestone interface date with the CN 1252 headwall completion.

March 2013:

1. Contractor has experienced delay installing the first 4 secant piles.
2. Work has been re-sequenced, and BIH are working 2 shifts (5days per week) and a single shift Saturday.
3. Contractor is back on schedule.

April 2013:

1. Contractor is currently working 2 shifts, 6days per week and bringing additional plant to site.
2. Contractor is preparing a revised recovery schedule.
3. The current projected completion date for the headwalls is October 3<sup>rd</sup> (assumed production of 2 ½ piles per week)
4. A letter is to be prepared and sent to BIH summarizing the history of events contributing to the current delay, reaffirming the applicable liquidated damages under the contract and placing BIH on notice that additional resources and improved planning is required to address this delay.

May 2013:

1. The contractor has re-sequenced the work with a new forecast completion date of August 15<sup>th</sup> (south headwall) and September 25<sup>th</sup> (north headwall).
2. 1300 Contractor has access 90 days following NTP (approximately September 7<sup>th</sup> – subject to NTP date).
3. Tutor preliminary schedule indicates that current completion dates should not impact the 1300 contractor.

**Risk Mitigation Status**

**Risk Reference: 203**

June 2013:

1. Contract 1300 requirements (assuming NTP June 14<sup>th</sup> 2013 compared to Contract 1252 May Preliminary Schedule completion dates;

	<b>CN1300 Requirement</b>	<b>1252 May Update Activities</b>	<b>1252 May Finish</b>	<b>Variance</b>		<b>Notes</b>
Assumed NTP	<b>14-Jun-13</b>					
YBM Headwalls Complete (NTP+45CD)	<u>29-Jul-13</u>	YBM				
		Jet Grout Complete	12-Jul-13	17	CD	
		AWSS & Restoration Complete	2-Aug-13	(4)	CD	timing may improve with recovery schedule
UMS Headwalls Complete (NTP+90CD)	<u>12-Sep-13</u>	UMS				
		South Headwall Complete	21-Aug-13	22	CD	
		North Headwall Complete	23-Sep-13	(11)	CD	Finish date has 41 days of float in the 1252 schedule

2. Letter received from 1252 Contractor confirming their commitment to accelerated efforts by bringing on additional equipment and working double shifts, a recovery schedule will be provided to the CM team for review.
3. CSP Contract Administrator will draft the 1300 NTP letter on June 17, 2013.

July 2013:

1. NTP issued to 1300 Contractor Tutor Perini Corporation June 17<sup>th</sup>, 2013
2. Revisit following receipt of baseline schedule from Tutor (expected by July 17<sup>th</sup>).

October 2013:

1. Stockton street restoration is due to be complete 10/23. This will not affect TPC work.

**Risk Mitigation Status****Risk Reference: 204**

Risk	Mitigation Strategy
Relocation of AT&T Vault and other utilities delays Work south of Bryant	<ol style="list-style-type: none"> <li>1. Continue negotiations/ coordination with utility owners.</li> <li>2. Contract 1300 is required to coordinate with utility companies for relocations</li> <li>3. SWAT team established to address utilities south of Bryant Street</li> <li>4. Initiate utility coordination meetings</li> </ol>

**Initial Assessment:** 2, 2, 4**Current Assessment:** Risk Rating 6 – Construction Risk**Risk Owner:** R. Redmond /M. Benson**Status Log:**

December 2012:

1. Identified Risk and refined risk statement together with development of mitigation strategies.

January 2013:

1. Need to setup a meeting with AT&T and a representative from the Design side to walk them through what will be done in the 1300 contract.

February 2013:

1. Risk description refined.
2. AT&T were made aware of the potential need for relocation of the vault and duct bank in November 2012.
3. A meeting has been arranged between CSP and AT&T for Tuesday 2/19/13 to follow up on the November meeting and confirm that the vault and duct bank will need to be relocated.
4. Relocation of the vault has been included in the D&B element of the 1300 contract and is the responsibility of the contractor.
5. The 1300 contract requires the contractor to allow 12 months for AT&T to cut over new services from the existing duct bank into a new duct bank proposed within the eastern sidewalk of 4<sup>th</sup> Street between Bryant and Brannan Streets.

March 2013:

1. Increase scope of this risk to include other utilities; Level 3, PG&E, MRY, ASB, SFWD, SFDT, Comcast.
2. Contractual execution of the trench installation to be discussed.
3. AT&T have not been contacted during 1300 bid.
4. It was discussed that the schedule impact of this risk rating should be increased to 4 (6-12 months), this increased the risk rating to 6

April 2013:

1. Utility relocations may require a joint trench under the Contract 1300 design build scope.
2. If a joint trench is required under the contract the 1300 contractor would manage the implementation of the joint trench, SFMTA would manage the Form B process for reimbursement of the joint trench costs.
3. Mitigation strategy added that the 1300 contractor is required to coordinate with private utility companies.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 204</b>
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4. A SWAT team has been established comprising DP-3 and the Design Oversight manager who are meeting weekly to address utilities south of Bryant. DP3 are preparing Notice of Intent letters for utilities to relocate.

May 2013:

1. Final Notice of Intent letters were sent to private utilities Friday 5/3/13.
2. Final Notice of Intent letters will be sent to AT&T and PG&E the week commencing 5/6/13.

July 2013:

1. Revisit following Tutor baseline submittal.
2. It is noted that the Tutor schedule submitted 5 days following bid closure allowed a 12 month period to cutover to the new AT&T duct but did not appear to allow adequate time for construction of the AT&T duct along 4<sup>th</sup> Street.
3. Utility coordination meeting will be held to ensure the contract requirements are understood by the contractor.

October 2013:

1. DP-3 Tech memo being finalized
2. Relocation design and construction schedule to be developed

<b>Risk Mitigation Status</b>
<b>Risk Reference: 205</b>

Risk		Mitigation Strategy
Prolong period of CMod's creates additional cost/causes bad blood between Resident Engineer and Contractor	<ul style="list-style-type: none"> <li>√</li> <li>√</li> </ul>	<ul style="list-style-type: none"> <li>1. Cmod Task Force - 5 Areas of Improvement identified</li> <li>2. Implement areas of improvement</li> <li>3. Increase Delegation of Authority</li> </ul>

**Initial Assessment:** 1, 1, 3

**Risk Owner:** E. Stassevitch/R. Redmond

**Current Assessment:** Risk Rating 3 – Construction Risk

**Status Log:**

December Meeting 2012:

- 1. Identified Risk and refined risk statement together with development of mitigation strategies.

January 2013:

- 1. CMod Task force continues to demonstrate the process is working.
- 2. Task force process has slowed down submission of changes from Contractor

February 2013 Meeting:

- 1. Initial risk rating established
- 2. CMod task force improvements are working
- 3. The combined 1300 contract has effectively resulted in a \$5m Board threshold for the entire 1300 contract (previously \$5m threshold for each of the 4 contracts) – Central Subway to investigate increasing the CMod authority above \$5m.

March 2013:

- 1. Process to increase delegation of authority to be discussed

April 2013:

- 1. Risk owner changed from M. Benson to R. Redmond
- 2. A formal recommendation to increase the delegation of authority will be prepared and presented to the CMB on 4/17.
- 3. A detailed White Paper will be developed for the Project Director outlining the rationale for increasing the delegation of authority.

May 2013:

- 1. A request to the SFMTA board to increase the Director of Transportation authority to approve changes orders of up to \$5 million for each of the Contract 1300 packages (a total of \$20 million) has been included in the calendar item requesting the SFMTA board to award Contract 1300.
- 2. The target SFMTA board meeting for this calendar item is May 21<sup>st</sup> 2013.

October 2013:

- 1. SFMTA board approved increase in Directors authority with award of Contract 1300 in May 2013.

**Risk Mitigation Status****Risk Reference: 206**

Risk		Mitigation Strategy
Delay in Decision on Retrieval Shaft	<ul style="list-style-type: none"> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> </ul>	<ul style="list-style-type: none"> <li>1. Establish Task Force to focus on issues</li> <li>2. Meet Regularly and Act promptly on issues</li> <li>3. Keep Decision makers informed</li> <li>4. Keep Community Informed</li> <li>5. Keep Stakeholders informed</li> </ul>

**Initial Assessment:** 4, 2, 9**Risk Owner:** R. Redmond/ Mark Benson**Current Assessment:** Risk Rating 8 – Construction Risk**Status Log:**

February 2013 Meeting:

1. The last decision would be to abandon the TBM in the ground and pay the contractor his salvage value for the TBM. This decision could be made a few months from now.

March 2013:

1. Ross Edwards is heading up the design development
2. Central Subway and BIH are meeting weekly
3. Community outreach is ongoing
4. FTA and CCSF funding partners are being kept informed
5. Cost estimate received from contractor \$10.6m net compared to engineers estimate of \$1.8m.
6. PCC needs to be negotiated by April 1<sup>st</sup> 2013 to avoid delay.
7. BIH have advised that additional work would result in a 14day delay  
Recommend reducing this risk rating to - 8 (3, 4, 1) (reduce schedule impact)
  - a. Current probability (3), >50%, maintain probability rating
  - b. Current cost impact (4), \$3m - \$10m, maintain cost impact based on estimate
  - c. Current schedule impacts (2), 1 – 3 months, reduce schedule impact to (1) < 1 month.
8. Risk rating reduced to 8

April 2013:

1. Decision has been made to retrieve the TBMs from the Pagoda site.
2. Recommend retiring this risk.
3. This risk was retired by unanimous consent of the Risk Assessment Committee on 4/11/13.

**Risk Mitigation Status****Risk Reference: 207**

Risk	Mitigation Strategy
Implementing Pagoda Option for Retrieval Shaft – costs and time associated with additional real estate and environmental requirements	1. Obtain clear understanding of current status of property 2. Meet with Owner and determine best options for SFMTA needs. 3. Establish Special Use District to retain existing development rights, in addition to new land use entitlements. 4. Obtain Appraisal 5. Identify Funding 6. Confirm hazardous abatement

**Initial Assessment:** 4, 2, 9**Current Assessment:** Risk Rating 0 – Construction Risk**Risk Owner:** R. Edwards**Status Log:**

February 2013 meeting:

1. Pagoda lease signed 2/13/13.
2. The risk management meeting attendant's agreed to broaden the risk description include requirements other than 'delay in obtaining Property'.

March 2013:

1. Separate contracts will be issued to complete additional noise and vibration studies to satisfy National Environmental Policy Act (NEPA) requirement and will be submitted to the FTA for evaluation.
2. Hazardous material abatement is not expected to be required. The status of hazardous material abatement under PCC 10 is to be confirmed.

April 2013:

1. Risk Owner changed from J. Funghi to R. Edwards
2. The lease for the use of the Pagoda site has been signed
3. New information has been received regarding the presence of hazardous material at the Pagoda site and will be included in PCC-10 and master schedule.
4. Risk description will not expanded as this risk is limited to obtaining the property

May 2013:

1. The Owner has until May to back out of the lease.
2. Maintain this risk rating.
3. NEPA clearance still remains open.

June 2013:

1. SFMTA took possession of the site and commenced the lease of the Pagoda on June 10<sup>th</sup> 2013
2. The first lease payment and security deposit was paid to the owner 6/7/13.
3. This risk was retired by unanimous consent by the Risk Assessment Committee on 06/13/13.

**Risk Mitigation Status****Risk Reference: 208**

Risk		Mitigation Strategy
Additional cost to retrieve TBMs at the Pagoda Theatre site exceeds current budget	✓ ✓ ✓ ✓ ✓ ✓	1. Develop Scope with designers currently under contract 2. Agree to alignment and details of new shaft location 3. Issue PCC to Contractor 4. Initial site works and borings if necessary 5. Obtain appropriate permits 6. Investigate alternate procurement methods

**Initial Assessment:** 3, 2, 8**Risk Owner:** R. Redmond/M. Benson**Current Assessment:** Risk Rating 8 – Construction Risk**Status Log:**

February 2013 Meeting:

1. This is in the works, PCC 10 has been issued, a rough order of magnitude estimate has been established, BIH has been given a not to exceed of \$ 50,000 to do Pagoda demolition drawings, SFMTA is negotiating with Pagoda Owner for use of the site.

March 2013:

1. Demolition drawings have been submitted to DBI for review.
2. If resolution of costs associated with the Pagoda option is not achieved, the TBMs will be buried to maintain budget requirements

April 2013:

1. Contractors cost estimate currently at \$10.4m net compared to engineers estimate of \$5.6m
2. Agreement has not been reached on PCC-10.
3. Current schedule has the retrieval shaft finishing just in time for arrival of the TBMs in North Beach.
4. Recommend adding an additional mitigation item 6. – investigate alternate procurement methods and strategies.
  - a. Option 1 – agree PCC-10 with contractor – Central Subway and BIH are preparing a joint paper summarizing the areas where agreement has not been reached on the PCC-10 estimates
  - b. Option 2 – utilize a separate design contract and procure via design, bid, build
  - c. Option 3 – bid demolition of the Pagoda theatre as a separate package
5. Central Subway are meeting with BIH 4/12/13 to discuss the joint paper prior to elevating for review by management
6. Recommend maintaining this risk rating.

May 2013:

1. Contract 1277 for the demolition of the Pagoda Theatre site was advertised Saturday 5/4/13.
2. The Central Subway BIH joint paper is still being developed.
3. Current cost issue between SFMTA and Contractor are close to being resolved.

June 2013:

1. PCC-10 is still being negotiated; further details will be provided next meeting.
2. Cutter soil mixing is being proposed to construct the retrieval shaft in lieu of tangent piles (ROM approx. \$600k less than tangent piles).
3. Contract 1277 for demolition of the Pagoda theatre is to be awarded 6/19/13.



<b>Risk Mitigation Status</b>
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<b>Risk Reference: 208</b>
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4. PCC 10 should be closed by June 14, or during the week commencing 6/17/13.
5. Overall budget will be maintained.

July 2013

1. Final negotiations have not yet concluded. Currently still on Budget

October 2013:

1. Budget to be increased \$500,000 through CPT 690 being presented to the November 5<sup>th</sup>, 2013 SFMTA Board meeting

**Risk Mitigation Status****Risk Reference: 209**

Risk	Mitigation Strategy
Implementing Pagoda Option - Obtaining Environmental Clearance	1. Engage Planning Dept. to outline required actions 2. Develop necessary CEQA documents in concert with Planning Dept. 3. Meet with FTA and determine NEPA and SHPO requirements

**Initial Assessment:** 1, 1, 3**Current Assessment:** Risk Rating 3 – Construction Risk**Risk Owner:** R. Edwards**Status Log:**

## February 2013 Meeting:

1. Central Subway has engaged SF Planning and outlined the required actions.
2. CEQA Documents are under review, feedback is expected by the end of February 2013.
3. NEPA feedback is expected March 2013.
4. Updated Area of Potential Effects (APE) to be sent to SHPO week commencing 2/18/13

## March 2013:

1. CEQA clearance has been received
2. Separate contracts will be issued to complete additional noise and vibration studies to satisfy National Environmental Policy Act (NEPA) requirement and will be submitted to the FTA for evaluation.

## April 2013:

1. Technical Memo for Archaeological Monitoring, Testing, and Treatment plan for the Pagoda Option sent to SHPO and the FTA 2/19/13 (incorporating Area of Potential Affects).
2. Correction to March 2013 report. Item 2 has been carried over from risk 207.
3. Contracts have been issued for completion of noise and vibration studies which are expected to be completed by the end of April.
4. NEPA feedback is expected by the end of April.

## May 2013

1. NEPA clearance received from FTA – May 10<sup>th</sup>.

## July 2013

1. Environmental Clearance obtained and contract awarded.
2. Risk to be retired
3. This risk was retired by unanimous consent by the Risk Assessment Committee on 07/09/13.

**Risk Mitigation Status****Risk Reference: 210**

Risk	Mitigation Strategy
Mission Bay Loop Grant – Needs to be built to allow for train turnarounds (June 2013)	1. Identify and track major MBL completion milestones <ul style="list-style-type: none"> <li>- Grant funding</li> <li>- Design</li> <li>- Construction</li> <li>- Testing</li> <li>- Use of MBL before CS startup training (N-Line or supplemental T-line revenue service)</li> </ul>

**Initial Assessment:** 1, 1, 4**Current Assessment:** Risk Rating 4 – Construction Risk**Risk Owner:** L. Ames**Status Log:**

February 2013 Meeting:

1. Central Subway are awaiting a decision on grant funding from the FTA
2. Construction is not required to be completed until train operation.

April 2013:

1. Recommend expanding the risk mitigation strategy to include tracking the major MBL completion milestones against the Central Subway startup and testing activity dates
2. TIGER grant funding is expected in the summer of 2013
3. PTMISEA funds are expected in the fall of 2013
4. Major milestone dates have been requested from Lucien Bergurt (SFMTA MBL Project Manager)

May 2013:

1. Major Milestones:
  - a. Design – July 2013 – October 2013 (to 95% complete)
  - b. Construction – NTP May 2014 – October 2014 (substantial completion)

October 2013:

1. Funding – Tiger Grant received and funds are being booked
2. Design – 65% final design package being reviewed and updated
3. Contract procurement (Bid & Award) – February to June 2014
4. Construction – NTP June 2014 – October 2014 (substantial completion)
5. Testing – December 2014
6. Existing T – Line revenue service use of loop as needed – December 2015

**Risk Mitigation Status**

**Risk Reference: 211**

<b>Risk</b>	<b>Mitigation Strategy</b>
Differing site conditions encountered during ground freezing of Cross Passage results in increased costs.	1. Contractor has submitted a 'no cost, no schedule' PCC for ground freezing 2. Need early review of work plan, and identification of entity that will perform the work

**Initial Assessment:** 2 (1, 2, 2)

**Current Assessment:** Risk Rating 2 - Construction Risk

**Risk Owner:** R. Redmond

**Status Log:**

February 2013:

1. Identified as a potential risk
2. Majority of risk is carried by the 1252 Contractor

March 2013:

1. Discuss and confirm risk description, mitigations and owner
2. Contractor has submitted a no cost, no schedule PCC for ground freezing.
3. **Recommended risk rating 2 (1, 2, 1)**
  - a. Probability (1), <50%, differing ground conditions are considered unlikely
  - b. Cost impact (2), \$250k to \$1m, additional costs would be limited to additional ground freezing work
  - c. Schedule impacts (1), <1 month, impact of additional work (if required) is expected to be minor

May 2013:

1. Risk heading revised to include clarification "during ground freezing".

October 2013:

1. Additional mitigation strategy added – Early review of work plan, and identification of entity that will perform the work.

**Risk Mitigation Status****Risk Reference: 212**

Risk		Mitigation Strategy
UMS Inclined piles – 8” clearance between piles and tunnel results in damage or safety issues within the tunnel	√	<ol style="list-style-type: none"> <li>1. Establish 1252 and 1300 contract requirements to construct within acceptable tolerances</li> <li>2. Workshop to be held with BIH to discuss hold points during construction</li> </ol>

**Initial Assessment:** 4 (1, 5, 3)**Current Assessment:** Risk Rating 4 - Construction Risk**Risk Owner:** R. Redmond**Status Log:**

February 2013:

1. Identified as a potential risk

March 2013:

1. Discuss and confirm risk description, mitigation strategy and initial risk rating.
2. Workshops are to be held with BIH to increase their understanding of the interfaces with the 1300 contract.
3. Issues to be addressed will be identified and piling hold points will be discussed.
4. Tunnel construction tolerance is 4” from bulls eye, 8” clearance is in addition to the 4” tunnel tolerance.
5. **Recommended risk rating 4 (1, 5, 3)**
  - a. Probability (1), <10%, considered possible but unlikely
  - b. Cost impact (5), > \$10m, significant costs expected if tunnel collapse occurred
  - c. Schedule impacts (3), 3 - 6 months, significant schedule impacts if tunnel collapse occurred

April 2013:

1. Hold points in 1300 Contract have been identified.
2. Workshops are to be held between BIH and the 1300 Contractor to address interfaces between the contracts.

October 2013:

1. Potential for damage and safety issues in tunnel to be discussed and defined
2. Establish task force - to create action plan that specifically guides the Program successfully thru this risk.
3. Action plan to address Cost and Schedule concerns.
4. Confirm contract requirements in 1300 about tunnel bracing.
5. Update mitigation strategy – to include current contract requirements for 1300 related to bracing and work above the tunnel.
6. Follow up with the designed on what loads can the liner support?
7. Facilitate the early cooperation of 1252 Contractor and 1300 Contractor to implement appropriate plan.
8. Work together with 1300 Contractor – to sequence the work in a manner to avoid exposure to the condition.

**Risk Mitigation Status****Risk Reference: 213**

<b>Risk</b>	<b>Mitigation Strategy</b>
Micro Piles exist within tunnel path at UMS – inaccuracies in micro-pile as-built information results in collision with piles.	1. Re-profile and realign tunnel to clear micropiles 2. Stop machine and cut out pile if slight encroachment occurs

**Initial Assessment:** 4 (2, 3, 1)**Current Assessment:** Risk Rating 4 - Construction Risk**Risk Owner:** R. Edwards**Status Log:**

February 2013:

1. Identified as a risk

March 2013:

1. The tunnel has been realigned and re-profiled
2. **Initial risk rating 3 (1, 3, 2)**
  - a. Probability (1), <10%
  - b. Cost impact (3), \$1m - \$3m
  - c. Schedule impacts (2), 1 – 3 months

October 2013:

1. No further mitigation available

**Risk Mitigation Status**

**Risk Reference: 214**

Risk	Mitigation Strategy
Micro Piles at UMS interfere with Tube-a-manchette installation (60' deep micropiles)	√ 1. Provide micro-pile as-built information to contractor 2. Ensure tube-a-manchettes are realigned to be installed clear of micro-piles

**Initial Assessment:** 1, 1, 3

**Current Assessment:** Risk Rating 3 - Construction Risk

**Risk Owner:** M. Benson

**Status Log:**

February 2013:

- 1. Identified as a risk

March 2013:

- 1. Discuss risk description, mitigation strategy and risk rating
- 2. Central Subway has responded to Contractors RFI and provided as-built information for the micropiles
- 3. Contractor will work to install tube-a-manchettes to avoid micropiles
- 4. **Recommended risk rating 3 (3, 1, 1)**
  - a. Probability (3), >50%
  - b. Cost impact (1), <\$250
  - c. Schedule impacts (1), <1 month

April 2013:

- 1. Contractor is reviewing the micropile as-built information
- 2. An additional mitigation was added to ensure the tube-a-manchettes are realigned to be installed clear of the micro-piles
  - a. A workshop will be held between the PB and BIH to resolve the required geometry to install the tube-a-manchettes clear of the micro-piles
  - b. The contractor will submit a revised installation alignment plan for the tube-a-manchette installation

May 2013:

- 1. A workshop was held between PB and BIH in April to establish the required installation geometry
- 2. The contractor will install the compensation grouting tubes using a diamond drill in the event that the micro piles cannot be avoided

July 2013:

- 1. As of Monday 7/8/13, 9 tube-a-manchettes have been installed at the Ellis Street shaft. 1 of 9 has encountered a micropile.
- 2. 1252 Contractor will install tubes as per the current plan. Additional tubes will be installed as required.
- 3. A 3-D model of the micropiles will be provided to Tutor Perini. A workshop will also be held between PB and Tutor (similar to that held with BIH) to minimize the risk of interference with 1300 compensation grouting tubes.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 214</b>
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September 2013:

1. Risk is becoming a greater concern. Additional mitigation measures need to be identified and implemented.



**Risk Mitigation Status****Risk Reference: 215**

Risk	Mitigation Strategy
DPW Excavation permit reviews delay contract works	1. Obtain a blanket excavation permit from DPW covering the area of work for 1253, 1254, 1255, 1256

**Initial Assessment:** 2 (1, 1, 1)**Current Assessment:** Risk Rating 2 - Construction Risk**Risk Owner:** A. Clifford**Status Log:**

March 2013:

1. Contract documents have been issued to DPW for review
2. Blanket application permits have been submitted for UMS and YBM
3. Meeting scheduled for 3/15/13 to discuss status of documentation review, submittal of CTS and STS general excavation permits, and DPW resourcing for review of excavation permits
4. Contract 1300 currently requires the contractor to obtain excavation permits
5. **Initial risk rating 3 (2, 1, 1)**
  - a. Probability (2), 10-50%
  - b. Cost impact (1), <\$250
  - c. Schedule impacts (1), <1 month

October 2013:

1. DPW review of project documents for excavation permit is not affecting the contract works
2. The contractor is required to obtain excavation permits as per the contract
  - a. Central Subway staff and TPC met with DPW to assist obtaining interim blanket excavation permits for all work to the end of 2013

**Risk Mitigation Status**

**Risk Reference: 216**

<b>Risk</b>	<b>Mitigation Strategy</b>
Olivet building potential construction impact	1. 1. Reach out to building owner and keep him abreast of CS construction activities.

**Initial Assessment:** 2 (1, 1, 2)  
**Current Assessment:** Risk Rating 2 - Construction Risk

**Risk Owner:** A. Clifford

**Status Log:**

May 2013:

1. Maintain communication with DPT to make sure that they aren't approving work which will affect our project.

July 2013:

1. A meeting was held with the owner and engineering consultants of the 250 Fourth Street Development.
  - a. Overview and extent of YBM station structure and construction staging was explained.
  - b. Demolition of existing Olivet University building expected early 2014
  - c. 250 Fourth Development advised that Clementina (via 5<sup>th</sup> Street) is likely to be the only access available to their site.

October 2013:

1. Discuss increasing cost impact to rating (2) \$250k to \$1m due to potential impact on building protection and compensation grouting program
2. Staff are working with the City Attorney's office, Planning, and Department of Building Inspection to confirm the Cities rights in this situation
3. Permitting status of development to be confirmed
4. TPC to submit street space permits as soon as possible
5. Communication protocol with developer to be established

**Risk Mitigation Status****Risk Reference: 217**

<b>Risk</b>	<b>Mitigation Strategy</b>
Delays or complications construction by others – SF Dept. Of Technology, 3 <sup>rd</sup> Party Utilities	1.

**Initial Assessment:** 2 (1, 1, 2)**Current Assessment:** Risk Rating 2 - Construction Risk**Risk Owner:** A. Clifford**Status Log:**

May 2013:

1. Maintain communication with DPT to make sure that they aren't approving work which will affect our project.

**Risk Mitigation Status****Risk Reference: A**

Risk	Mitigation Strategy
Timely resolution of sewer lines south of portal	<ol style="list-style-type: none"> <li>1. Develop alternatives that do not require creation of a new sewer line.</li> <li>2. Work together with SFPUC to find mutually beneficial solutions.</li> <li>3. Provide evidence of solutions developed for similar situations from existing SFMTA and /or other transit agencies.</li> <li>4. Develop detailed schedule of activities required for resolution including milestones for go - no go actions which will not impact the overall MPS.</li> <li>5. Request condition assessment of sewers from SFPUC to determine required repair of sewers under proposed track.</li> </ol>

**Initial Assessment:** 4, 1, 10**Risk Owner:** S. Pong**Current Assessment:** Risk Rating 0 – Design Risk**Status Log:**

## November 2011 Meeting:

1. An alternative analysis report dated May 27, 2011 was forwarded to SFPUC for review and comment. Three options were studied by SFMTA for handling the sewers south of the portal:

- A. Leave the sewers in place and construct offset manholes where the track is in conflict with existing manholes,
- B. Replace the existing sewers in their existing locations,
- C. Construct twin sewers.

2. The recommendation from the report was to leave the sewers in place and construct offset manholes.
3. SFPUC provided a letter stating that the recommendations of the May 27 report were unacceptable to SFPUC.
4. New information has confirmed that leaving the sewer manholes in the track way do not violate CPUC, SFPUC or SFMTA safety criteria. A new proposal has been formulated and documented in a letter currently being circulated for signature signoff to SFPUC for approval to leave sewer in place and perform condition assessment at SFPUC cost.
5. Letter is waiting for John Funghi's signature to send to SFPUC.

## December 2011 Meeting:

1. SFMTA sent letter December 13 stating that SFMTA will not relocated sewers.
2. Also requested a meeting between SFMTA & SFPUC Directors.
3. Mitigation strategy was added to request condition assessment of sewers under proposed track.

## January 2012 Meeting:

1. Meeting between PUC GM and Director of Transportation will be set up by end of month.
2. Condition assessment by SFPUC has been requested by SFMTA in December 13 letter.
3. Risk rating increased to 4, 3, 12.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: A</b>
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February 2012 Meeting:

1. SFPUC is performing a video survey of sewer lines.
2. Pre-meeting with Director of Transportation will be held prior to meeting with SFPUC. Items to be discussed with Director are:
  - a. agreement of bus bridging during sewer construction,
  - b. scope of sewer work requested by design team,
  - c. structural analysis of existing sewer lines.

April 2012 Meeting:

1. Meeting was held on February 17 between SFMTA and SFPUC to discuss the sewer lines south of the portal.
2. SFMTA presented a proposal to rebuild seven sewer chimneys at manhole locations.
3. SFMTA will provide the LRV train loading conditions to SFPUC.
4. The 30" force main was not discussed.
5. Meeting with SFPUC took place on April 12 to discuss next step on how to move forward. Additional proposal from SFPUC was presented to SFMTA to consider; make 78-inch sewer the main sewer, but run two laterals enabling them to make the house connection without taping the main line. To build two smaller 12-inch sewers on east and west side as a lateral and retrofit the existing with two options: 1) to rebuild the crown for two blocks from Bryant to Townsend, or b) slip line the 78-inch sewer.
6. SFPUC is conducting a condition assessment of the sewers along Fourth Street. The condition assessment will provide the premises of whether or not to rebuild the roof structure of the sewer. SFMTA will not pay for the changes, but would consider cost sharing.
7. A copy of the meeting minutes from the Director's meeting with track change edits from SFMTA was presented.

May 2012 Meeting

1. A meeting with SFPUC was held on 4/12/12.
2. It was discussed that CS would replace the existing brick crowns, replace a force main under the proposed tracks, and protect the sewer laterals. SFPUC would study the potential for their twin sewer arrangement.
3. A senior management meeting was held on 5/18/12 to discuss scope and cost sharing.
  - a. The crown and laterals for the existing 78" sewer will be replaced and paid for by SFMTA.
  - b. The existing force main under the tracks will be replaced to the east side of the tracks. SFPUC to pay for this work.
  - c. A new 48" sewer will be installed on the east side of tracks from Bryant to Brannan. This work will be paid for by SFPUC.
  - d. A local sewer will be installed on the west side of the tracks.
  - e. Joint trench work to relocate the existing AT&T structures on the east side of the tracks will be required.
  - f. Cost estimates for the sewer work are available from DPW.
  - g. The design of the sewer work will be achieved using Design/Build contracting strategy.
4. SFPUC completed a video survey of the existing sewers south of Bryant.

June 2012 Meeting:

1. A further Senior Management meeting is required to reach agreement of the cost-sharing of the scope items listed in Item 3 of the May 2012 notes above.
2. An MOU will be drafted upon concurrence of cost sharing between the two parties.
3. Design of the sewer work will still be achieved using Design/build contracting strategy.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: A</b>
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July 2012 Meeting:

1. Sewer ECP presented to CMB on July 11.
2. Design will include two separate drawings depicting 1) Base work and 2) SFPUC Optional work as a design build.
3. SFPUC Optional work will be done at the sole cost of the PUC.

August 2012 Meeting:

1. Sewer design for 4<sup>th</sup> Street continues no impact to 1256 schedule.

September 2012 Meeting:

1. Sewer design for 4<sup>th</sup> Street expected to be complete 9/28/12

October 2012 Meeting:

1. Included as D&B element in combined contract

December 2012 Meeting:

1. Sewer line completed
2. Receipt of MOU is still pending.
3. Percentage cost may need to be revised.

January 2013 Meeting:

1. MOU has not been finalized, still pending
2. New sewer drawings are included in CN1300 drawings set

February 2013 Meeting:

1. The cost share agreement with PUC is still being finalized
2. Expected costs are in the current budget

March 2013:

1. Meeting to be held 3/20 with PUC to discuss the MOU and cost share percentages

April 2013:

1. Cost share percentages for the MOU were agreed between SFMTA and SFPUC at the meeting 3/20.
2. The draft MOU has been circulated for discussion.

May 2013:

1. Meeting to be held with PUC 5/15
2. The terms and conditions of the MOU are still to be resolved.

June 2013:

1. Meeting held with PUC 6/13/13.
2. The project team will issue responses to all SFPUC comments by 6/14/13 and continues to work with SFPUC to resolve the terms and conditions of the cost share MOU.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: A</b>
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3. PUC has committed to provide funds by the end of 2013.

July 2013

1. MOU finalized, routing for signature. R&R provision removed will be dealt with on a City Wide basis.
2. Risk Assessment Committee agreed to retire risk.
3. Risk retired by unanimous consent of Risk Assessment Committee 7/09/13.

RETIRED

**Risk Mitigation Status****Risk Reference: B**

Risk		Mitigation Strategy
Storage and testing of excavated soils from tunnel limits advance rate of tunneling.	√	<ol style="list-style-type: none"> <li>1. Provide adequate storage and handling facility to accommodate testing activity.</li> <li>2. Work with SAR to develop acceptance criteria, to minimize or eliminate testing requirements.</li> <li>3. Require the contractor to provide a detailed workplan for testing, sorting and stockpile prior to hauling.</li> </ol>

**Initial Assessment:** 3, 3, 9**Risk Owner:** S. Wilson**Current Assessment:** Risk Rating 6 – Construction Risk**Status Log:**

January 2012 Meeting:

1. The tunnel contractor is required to prepare and submit for approval preliminary workplan for handling and testing excavated materials. Contractor is attempting to obtain the use of additional Caltrans parcel between Fourth & Fifth and Harrison & Bryant to help facilitate this work and provide additional storage area.
2. The Project Team is working with Caltrans and the community to obtain a temporary lease for this parcel.
3. Added mitigation strategy to expedite testing of material.
4. Recommend to reduce this risk to 2, 3, 6.

June 2012 Meeting;

1. Obtained some of Caltrans parcel needed for muck handling. Contractor feels that enough room to handle material.
2. Approval to test soils offsite has not been approved. Some testing area is available on Caltrans site.

December 2012:

1. Launch Box - BIH have submitted a plan for handling and testing of excavated materials for the launch box excavation.
  - a. handling and testing plan has been reviewed and accepted by DPH.
  - b. soil was sampled and pre-classified during slurry wall installation.
  - c. testing regime has been agreed with DPH and the receiver of spoil (Baylands) to expedite removal.
2. Tunnel Excavation will follow a similar procedure to the launch box.
  - a. Tunneling spoil handling and testing plan is expected early 2013.
  - b. The 1252 team are seeking to transport non-classified spoil from site to be handled as if hazardous material until it's classification is confirmed by off-site testing.
  - c. Advanced tunneling spoil removal will be managed using additional haulage and off-site storage if required
3. **Recommend reduce this risk rating to 2, 1.5, 3** (reduced cost and schedule impact only)
  - a. Current probability (2), 10%-50%, maintain probability rating
  - b. Current cost impact (3), \$1m - \$3m, recommend reduce cost impact to (2), \$250k - \$1m (cost of additional haulage or storage off site)
  - c. Current schedule impacts (3), 3 – 6 months, recommend reduce schedule impact to (1), < 1 month (days or weeks to adjust haulage and storage requirements).



<b>Risk Mitigation Status</b>
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<b>Risk Reference: B</b>
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April 2013:

1. Hazardous material has been discovered in the ground at the 1252 yard preventing excavation in some areas
2. BIH had planned to create a holding pit for material excavated from the tunneling operation
3. Capacity for storage of material excavated by tunneling at the site may now have been reduced
4. BIH are preparing a revised handling and testing plan to address this issue
5. Maintain this risk rating and revisit next month following receipt of the new handling and testing plan

May 2013:

1. BIH have confirmed that material handling and storage capacity will not be reduced
2. Recommend reduce this risk rating to 3

September 2013:

1. Capacity to remove spoil will be maintained by increased haulage
2. BIH will pay to keep the disposal facility open to accommodate off-haulage if required

**Risk Mitigation Status****Risk Reference: C**

Risk	Mitigation Strategy
Air replenishment system for stations	<ol style="list-style-type: none"><li>1. Evaluate whether air replenishment system is required for stations.</li><li>2. Include costs for system, if required.</li></ol>

**Initial Assessment:** 5, 1, 5**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** R. Edwards**Status Log:**

December 2011 Meeting:

1. SFFD will require lighting and signage improvements to the station contracts to make the stations safer during an emergency response event.
2. Costs included in cost estimate.

March 2012 Meeting:

1. Air replenishment system has been included in station construction documents.
2. Recommend to retire this risk from the risk register.
3. Risk retired from risk register by unanimous consent of Risk Assessment Committee 3/8/12.

<b>Risk Mitigation Status</b>
<b>Risk Reference: D</b>

<b>Risk</b>	<b>Mitigation Strategy</b>
Air replenishment system for Tunnels	<ol style="list-style-type: none"> <li>1. Evaluate whether air replenishment system is required for Tunnels.</li> <li>2. Include costs for system, if required.</li> </ol>

**Initial Assessment:** 3, 2, 6  
**Current Assessment:** 0, 0, 0 – Design Risk  
**Risk Owner:** R. Edwards

**Status Log:**

Info from previous meetings ??????????????

November 2011 Meeting:

1. A strategy has been developed and sent to CPUC and FTA for approval.

January 2012 Meeting:

1. Comments from FTA and CPUC have been incorporated into variance.
2. Variance was submitted to SFFD on January 6, 2012 for approval.

February 2012 Meeting:

1. Tentative agreement with SFFD on the proposed variance was reached.
2. Implementation of the concept is currently in development. Proposal includes a low pressure system with fill stations located in the cross passages and tunnel portal.
3. Risk rating reduced to 2, 2, 4.

March 2012 Meeting:

1. Awaiting proposal from DP3 to incorporate agreed to Air Replenishment System concept into the construction documents.

April 2012 Meeting:

1. DP3 was authorized to proceed with design of ARS concept.

May 2012 Meeting:

1. Cross passage #5 is the planned location of the Air Replenishment System unit with pipes extending within one of the tunnels to each of the stations and portal.
2. Meetings with SFFD continue to be held to implement their requirements into the contract documents.
3. DP3 continuing to incorporate ARS into Systems contract documents.

June 2012 Meeting:

1. DP3 continuing to incorporate ARS into Systems contract documents.

August 2012 Meeting:

1. 30% design review available. Work continues on schedule.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: D</b>
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September 2012 Meeting:

1. 60% design being reviewed with SFFD 9/18/12.
2. Costs have been included in estimate.

October 2012 Meeting:

1. Design complete and incorporated into bid documents
2. Confirmation of acceptance to be obtained from SFFD
3. Candidate to retire – review next meeting
4. This risk was retired by unanimous consent of the Risk Assessment Committee on 10/18/12.

RETIRED

**Risk Mitigation Status****Risk Reference: E**

<b>Risk</b>	<b>Mitigation Strategy</b>
Underground obstructions for tunnel and retrieval shaft	<ol style="list-style-type: none"><li>1. Lower tunnel alignment 5' below the lowest expected tieback.</li><li>2. Cover costs of removal of unforeseen obstructions in unallocated contingency.</li></ol>

**Initial Assessment:** 2, 3, 5**Risk Owner:** S. Wilson**Current Assessment:** Risk Rating 5 – Construction Risk**Status Log:**

February 2012:

1. Lowered tunnel alignment 5' below the lowest expected tieback.
2. Mitigation strategy #2 "Include obstruction clause and allowance in contract documents" was not included in the Tunnel contract documents.
3. Cost of removing unforeseen obstructions will be covered by unallocated contingency.
4. Recommend to reduce this risk rating.

**Risk Mitigation Status****Risk Reference: F - UMS**

Risk	Mitigation Strategy
Underground obstructions at Union Square/Market Street station.	<ol style="list-style-type: none"> <li>1. Provide adequate allowance for differing site conditions to address unknown underground obstructions.</li> <li>2. Show field verified obstructions discovered during previous contracts on contract drawings.</li> <li>3. Make as-built drawings of structures adjacent to the work available to the contractor as reference drawings.</li> </ol>

**Initial Assessment:** 2, 2, 8**Current Assessment:** Risk Rating 8 – Construction Risk**Risk Owner:** J. Wang**Status Log:**

March 2012 Meeting:

1. Allowance for differing site conditions added as GE bid item.
2. All known underground obstructions shown on ES drawings.
3. Recommend to reduce this risk rating.

August 2012 Meeting:

1. Steam chase pipe encountered on 1252 contract.
2. Add allowance through CMB to deal with underground obstructions /hazardous materials.

September 2012 Meeting:

1. Allowance for differing site conditions has generally not been included as a bid item; some different unit prices have been included in lieu.
2. Attendees at the meeting accepted that the risk could not be reduced or mitigated any further.

**Risk Mitigation Status****Risk Reference: F - CTS**

Risk		Mitigation Strategy
Underground obstructions at Chinatown Station	√	<ol style="list-style-type: none"> <li>1. Provide adequate allowance for differing site conditions to address unknown underground obstructions.</li> <li>2. Make as-built drawings of structures adjacent to the work available to the contractor as reference drawings.</li> </ol>

**Initial Assessment:** 2, 2, 8**Risk Owner:** M. Benson**Current Assessment:** Risk Rating 8 – Construction Risk**Status Log:**

March 2012 Meeting:

1. Allowance for differing site conditions will be added as a GE bid item.
2. Recommend to reduce the risk rating.

March 2013:

1. Allowance CTS-AL-13 included in Contract, the allowance was increased in Addendum 3 (\$250k)
2. Bid items CTS BI-5, BI-6, BI-7, BI-8 have been included to establish contractor pricing per unit area and volume in the event of differing site conditions.
3. Discuss reducing this risk rating (current cost impact (2) \$250k - \$1m), and transfer ownership of this risk to the CM team
4. Reducing this risk rating was discussed, the risk rating is to remain the same
5. There is potential for the schoolyard wall adjacent to the CTS site to clash with the slurry wall construction. Mitigations in place to address this are to be discussed next meeting.

**Risk Mitigation Status****Risk Reference: F - MOS**

Risk		Mitigation Strategy
Underground obstructions at Moscone Station.	√	1. Provide adequate allowance based on unknown buried structures encountered during utility relocation and as-built drawings from Moscone Center.
	√	2. Show previously revealed and anticipated structures on contract drawings.

**Initial Assessment:** 2, 2, 8**Risk Owner:** Q. Chin**Current Assessment** Risk Rating 8 – Construction Risk**Status Log:**

March 2012 Meeting:

1. Allowance for differing site conditions added to contract.
2. Underground obstructions encountered during CN1250 have been included onto ES drawings.

March 2013:

1. Moscone Center drawings (including tie-back drawings) have been provided as reference drawings for the 1300 contract.
2. Brick wall (discovered June 2012) field survey information has been included in the 1300 contract 'ES' drawings.
3. Allowance YBM-AL-13 (\$200k) has been included for unforeseen or differing conditions in the 1300 contract.
4. Discuss reducing this risk rating (current cost impact (2) \$250k - \$1m) and transfer ownership of this risk to CM team.



**Risk Mitigation Status****Risk Reference: G**

<b>Risk</b>	<b>Mitigation Strategy</b>
Closure on Washington Street	1. Develop primary mitigation to allow closure of Washington Street.

**Initial Assessment:** 1, 0, 0**Current Assessment:** Risk Rating 0 – Design Risk**Risk Owner:** Q. Chin**Status Log:**

September 2011:

See Risk 122 for discussion of this risk.

**Risk Mitigation Status****Risk Reference: I**

Risk	Mitigation Strategy
Union Square Garage (USG) structural concerns. Many cracks exist, no control joints obvious signs of past expansions and support work.	<ol style="list-style-type: none"><li>1. Require construction of shear walls within USG before demolition.</li><li>2. Add tie backs to existing south wall of USG.</li><li>3. Add requirements in instrumentation spec to minimize movement during demolition.</li><li>4. Add additional cost to minimize cracking of existing structure during demolition and construction of station entrance at USG.</li></ol>

**Initial Assessment:** 4, 2, 8**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** R. Edwards/J. Wang**Status Log:**

January 2012:

1. Shear walls at USG included to contract plans.
2. Tie backs at existing south wall are planned as permanent. They will require an encroachment permit from DPW.
3. Instrumentation and monitoring of garage is required in specifications along with requirements for Action Plan.
4. Recommend to reduce this risk rating.
5. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

**Risk Mitigation Status****Risk Reference: J**

Risk	Mitigation Strategy
Macy's entrance conflict with new piles.	<ol style="list-style-type: none"> <li>1. Show known obstructions on as-built drawings on contract drawings,</li> <li>2. Make as-built drawings available to contractor as reference drawings.</li> <li>3. Include allowance for differing site conditions.</li> <li>4. Recover costs for removal of Macy's entrance from Macy's if it is in conflict with station construction.</li> </ol>

**Initial Assessment:** 3, 1, 3**Current Assessment:** Risk Rating 3 – Construction Risk**Risk Owner:** J. Wang**Status Log:**

February 2012:

1. Known obstructions are shown on the ES drawings.
2. As-built Macy's drawings will be made available to the station contractor.
3. An allowance for differing site conditions has been added to the contract.

November 2012:

1. Recommend retiring, will revisit in December 2012 Risk meeting.

September 2013:

1. An open dialogue with Macy's needs to take place.
2. The Committee needs to revisit the Risk to achieve a better understanding of the risk and what mitigation strategy are being implemented..

**Risk Mitigation Status****Risk Reference: K**

<b>Risk</b>	<b>Mitigation Strategy</b>
Repairs to buildings, utilities, when the settlement limits are not exceeded during UMS construction.	<ol style="list-style-type: none"><li>1. Perform preconstruction survey of all properties.</li><li>2. Perform condition assessment of utilities prior to construction.</li><li>3. Continuously monitor utilities during construction to detect leaks.</li><li>4. Include allowance for repairs of buildings.</li><li>5. Cover costs over allowance with contingency.</li></ol>

**Initial Assessment:** 5, 2, 8**Current Assessment:** 0, 0, 0 – Construction Risk**Risk Owner:** J. Wang**Status Log:**

March 2012 Meeting:

1. Preconstruction survey of all properties included in the contract.
2. Condition assessment of utilities prior to construction included in the contract (spec 01 76 29 Protection of Property).
3. Continuously monitor utilities during construction to detect leaks included in the contract (spec 31 09 15 Structural Instrumentation & Monitoring).
4. Allowance for repairs of buildings included in spec 01 20 00, 1.04.B.4.a. Allowance Item 4.
5. Recommend to reduce the risk rating.
6. Risk rating not changed.

April 2012 Meeting:

1. Documentation of allowance for repair of buildings was requested.

May 2012 Meeting:

1. Verification of allowance was provided.
2. Recommend to retire this risk from the Risk Register.
3. This risk was retired by unanimous consent of the Risk Assessment Committee on 5/24/12.

**Risk Mitigation Status**

**Risk Reference: L**

<b>Risk</b>	<b>Mitigation Strategy</b>
BART delays to Apple entrance	1. Negotiate agreement with BART for use of Apple entrance for UMS station.

**Initial Assessment:** 3, 2, 6

**Risk Owner:** J. Wang

**Current Assessment:** 0, 0, 0 – Requirement Risk (Retired)

**Status Log:**

January 2012 Meeting:

1. An agreement with BART is pending whereby SFMTA obtains ownership of Apple entrance in return for acceptance of maintenance at the UMS/Powell Station connection.
2. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

RETIRED

**Risk Mitigation Status****Risk Reference: M**

<b>Risk</b>	<b>Mitigation Strategy</b>
Haul routes longer than planned for MOS station (current estimate hauls to Fremont)	Include cost for 100 mile round trip haul to disposal site in Cost Estimate.

**Initial Assessment:** 1, 0, 0**Current Assessment:** 0, 0, 0 – Design Risk (Retired)**Risk Owner:** Q. Chin**Status Log:**

March 2012 Meeting:

1. Current Cost Estimate contains cost for 100 mile round trip haul to disposal site.
2. Recommend to retire this risk from the risk register.
3. Risk retired from risk register by unanimous consent of Risk Assessment Committee on 3/8/12

RETIRED

**Risk Mitigation Status****Risk Reference: N**

<b>Risk</b>	<b>Mitigation Strategy</b>
Haul routes longer than planned for UMS station.	Include cost for 100 mile round trip haul to disposal site in Cost Estimate.

**Initial Assessment:** 1, 2, 2**Current Assessment:** 0, 0, 0 – Construction Risk (Retired)**Risk Owner:** J. Wang**Status Log:**

January 2012 Meeting:

1. Current Cost Estimate contains cost for 100 mile round trip haul to disposal site.
2. Recommend to retire this risk from the risk register.
3. Risk retired by unanimous consent of Risk Assessment Committee 1/12/12.

RETIRED

**Risk Mitigation Status****Risk Reference: P**

Risk	Mitigation Strategy
Review of plans for Union Square Garage by DBI trigger major changes/upgrades to the garage and/or delay the final design deliverable.	<ol style="list-style-type: none"> <li>1. Work with DBI to define the process for their approval.</li> <li>2. Perform a Pre-Application Review of the design with DBI to flesh out any discrepancy in design requirement interpretation by DBI vs. Designer.</li> </ol>

**Initial Assessment:** 3, 4, 12**Current Assessment:** 0, 0, 0 – Design Risk**Risk Owner:** J. Wang**Status Log:**

## January 2012 Meeting:

1. Meeting was held with DBI on 12/15/11 to brief them on the project and describe the basis of design
2. DBI indicated that two permits would be required; one for the modifications to the USG and one for the connection structure at UMS station.
3. Risk reduced to 1, 4, 4.

## March 2012 Meeting:

1. 100% Final Design contract documents will be sent to DBI for their review.

## May 2012 Meeting:

1. 100% Final Design contract documents were sent to DBI for their review on May 7.
2. Mitigation strategy 2 was not implemented.

## June 2012 Meeting:

1. Program awaiting review comments from DBI.

## July 2012 Meeting:

1. DBI submitted Mechanical Plan Checker's comments, which are under review by the design team.
2. Design team will meet with DBI Electrical Plan Checker on July 11, 2012.
3. The structural and architectural comments from DBI are still outstanding. Anticipate them late July/early August 2012.

## August 2012 Meeting:

1. DBI completed review of UMS plans and specifications.
2. All comments were addressed in the contract addendum.
3. DBI did not have any comments on the structural design.
4. Recommend retirement of this risk.
5. This risk was retired by unanimous consent of the Risk Assessment Committee on 8/09/12.



**Risk Mitigation Status****Risk Reference: Q**

<b>Risk</b>	<b>Mitigation Strategy</b>
As-built drawings and construction drawings do not contain enough information to produce shop drawings without significant surveying effort delaying construction of north entrance.	<ol style="list-style-type: none"><li>1. Investigate if electronic files of design can be given to the contractor.</li><li>2. Clearly define shop drawing criteria in the technical specifications.</li><li>3. Make as-built drawings available as reference drawings to the contractor.</li><li>4. Allow enough time in Master Project Schedule to produce shop drawings for structural steel at USG.</li></ol>

**Initial Assessment:** 1, 1, 3**Current Assessment:** Risk Rating 3 – Construction Risk**Risk Owner:** M.Benson**Status Log:**

March 2012:

1. Specification 05 12 00 Structural Steel requires contractor to produce accurate shop drawings stamped by a Registered Engineer.

March 2013:

1. Only 1 month has been allowed in the master schedule for design, submittals, and approvals.
2. CM have discussed the north entrance construction schedule with the program scheduler, construction of the north entrance is not on the critical path.
3. The risk owner has been changed to Mark Benson

<b>Risk Mitigation Status</b>
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<b>Risk Reference: R</b>
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Risk	Mitigation Strategy
Delay of Tunnel Contract NTP.	Work with contractor and City Attorney to resolve outstanding issues.

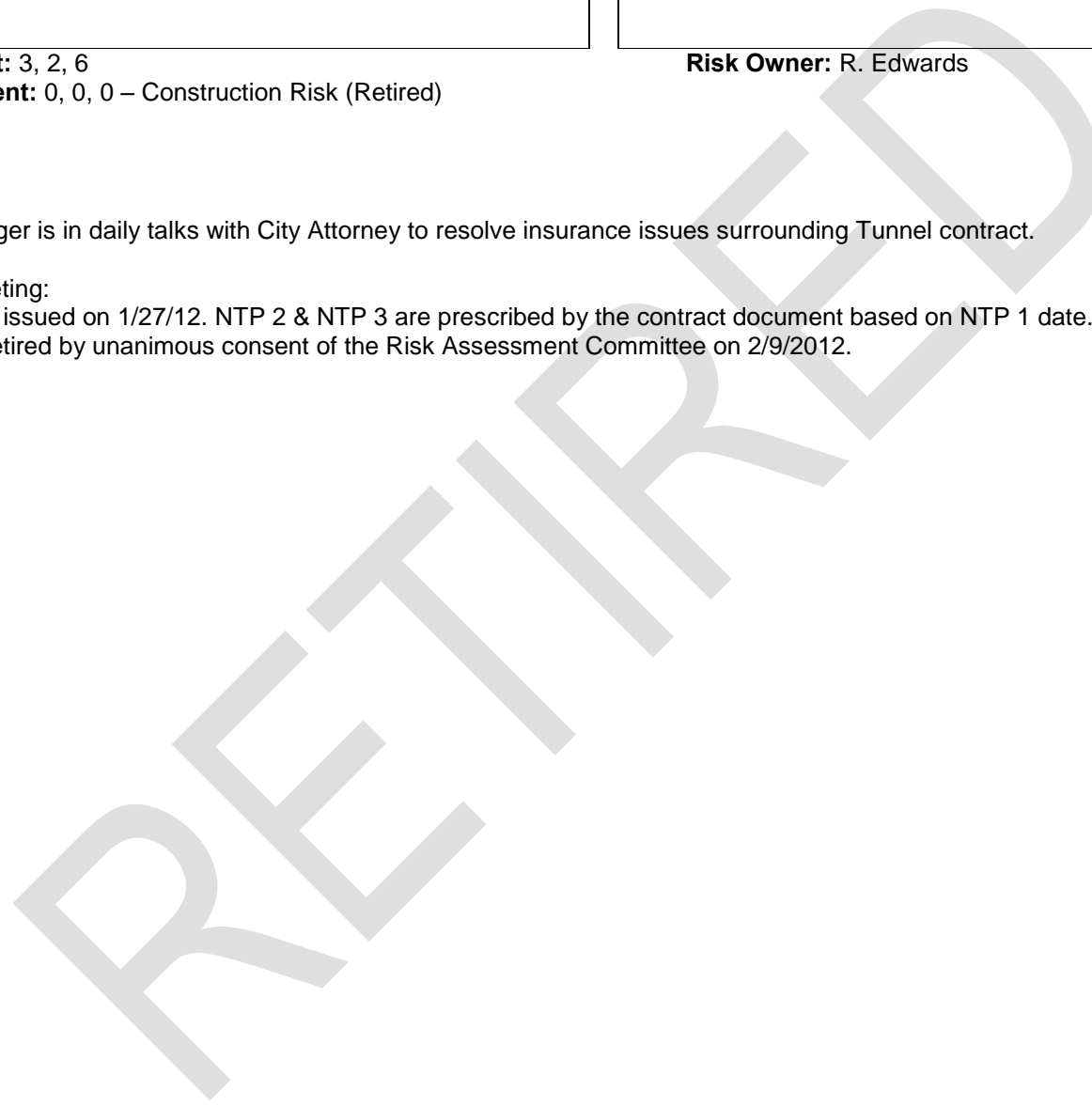
**Initial Assessment:** 3, 2, 6  
**Current Assessment:** 0, 0, 0 – Construction Risk (Retired)

**Risk Owner:** R. Edwards

**Status Log:**

December 2011:  
Program Manager is in daily talks with City Attorney to resolve insurance issues surrounding Tunnel contract.

- February 2012 Meeting:
1. NTP 1 was issued on 1/27/12. NTP 2 & NTP 3 are prescribed by the contract document based on NTP 1 date.
  2. Risk was retired by unanimous consent of the Risk Assessment Committee on 2/9/2012.



**Risk Mitigation Status****Risk Reference: R**

<b>Risk</b>	<b>Mitigation Strategy</b>
Delay of Tunnel Contract NTP.	Work with contractor and City Attorney to resolve outstanding issues.

**Initial Assessment:** 3, 2, 6**Current Assessment:** 0, 2, 0 – Construction Risk (Retired)**Risk Owner:** R. Edwards**Status Log:**

December 2011:

Program Manager is in daily talks with City Attorney to resolve insurance issues surrounding Tunnel contract.

February 2012 Meeting:

1. NTP 1 was issued on 1/27/12. NTP 2 & NTP 3 are prescribed by the contract document based on NTP 1 date.
2. Risk was retired by unanimous consent of the Risk Assessment Committee on 2/9/2012.

RETIRED

<b>Risk Mitigation Status</b>
<b>Risk Reference: S</b>

<b>Risk</b>	<b>Mitigation Strategy</b>
Delay of station design submittals.	1. Work with designers, cost estimator and scheduler to complete design.

**Initial Assessment:** 3, 1, 3  
**Current Assessment:** 0, 0, 0 – Design Risk (Retired)

**Risk Owner:** R. Edwards

**Status Log:**

December 2011:

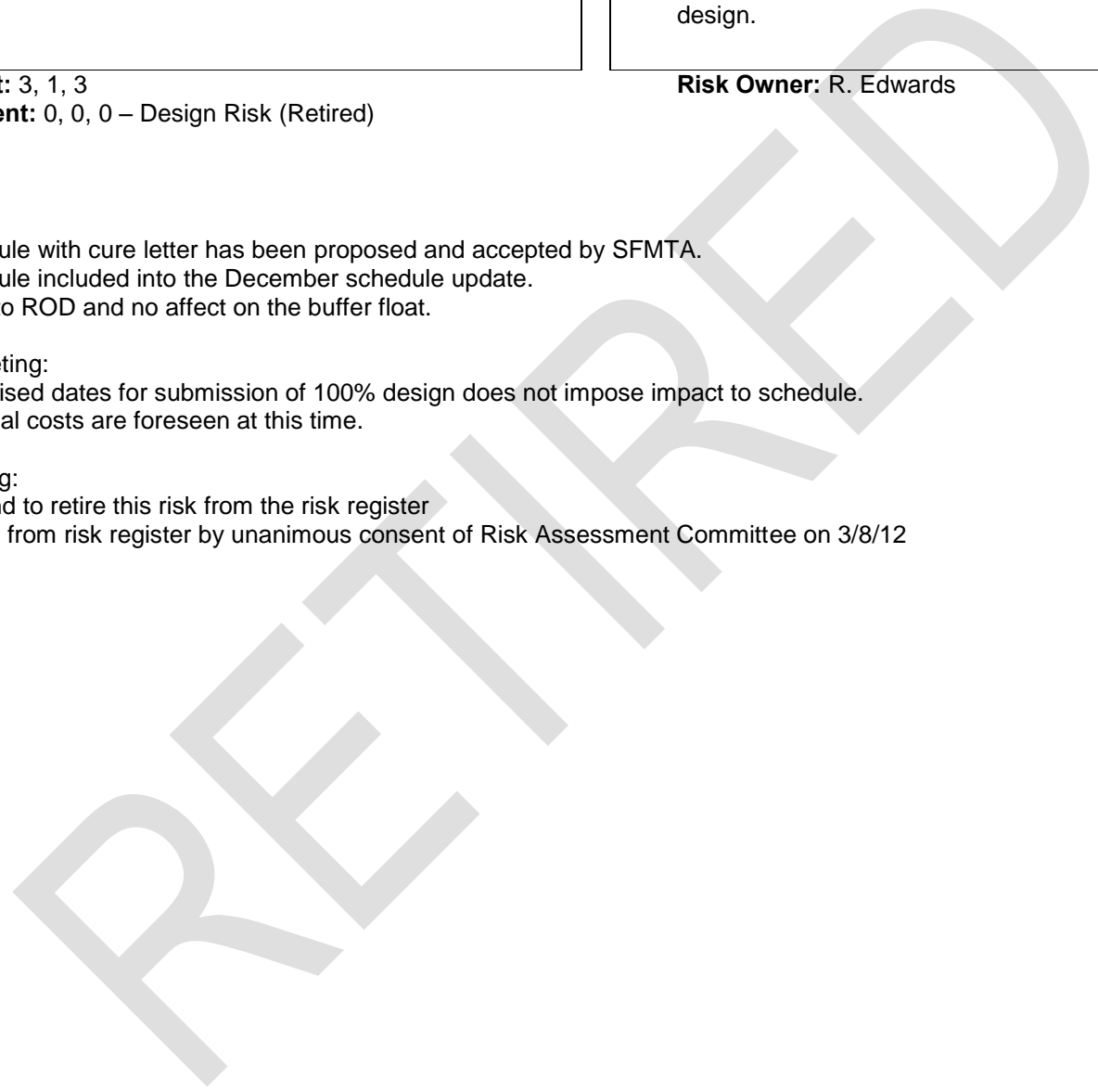
- 1. New schedule with cure letter has been proposed and accepted by SFMTA.
- 2. New schedule included into the December schedule update.
- 3. No impact to ROD and no affect on the buffer float.

February 2012 Meeting:

- 1. Current revised dates for submission of 100% design does not impose impact to schedule.
- 2. No additional costs are foreseen at this time.

March 2012 Meeting:

- 1. Recommend to retire this risk from the risk register
- 2. Risk retired from risk register by unanimous consent of Risk Assessment Committee on 3/8/12



<b>Risk Mitigation Status</b>
<b>Risk Reference: T</b>

Risk	Mitigation Strategy
Delay to final design submittal due to delay of emergency ventilation approval by SFFD.	<ol style="list-style-type: none"> <li>1. Work with SFFD to develop a plan acceptable to each party.</li> <li>2. Incorporate SFFD comments into the construction documents.</li> </ol>

**Initial Assessment:** 2, 2, 4  
**Current Assessment:** Risk Rating 5 – Requirement Risk

**Risk Owner:** R. Edwards

**Status Log:**

- December 2011:
1. A meeting was held on 12/15/11 with SFFD and SFMTA to discuss emergency ventilation. SFFD agreed to the proposed plan by SFMTA as long as additional signage and lighting were provided in the stations to increase the safety of emergency responders in event of an emergency.
- March 2012 Meeting:
1. Required emergency ventilation requirements will be incorporated into the construction documents.
  2. Recommend to retire this risk from the risk register.
  3. This risk is not retired. Final approval by SFFD on 100% construction documents still needed.
- May 2012 Meeting:
1. SFFD requirements are being implemented in the construction documents.
  2. A variance for the under stair requirement will be sought from SFFD.
- June 2012 Meeting:
1. SFFD has conditionally approved the 3-fan configuration in the stations.
  2. SFFD has conditionally approved the CFD analysis for each station based on the approval of one-hour tenability using illuminated platform edge, and access/egress route signage/demarcation.
  3. Final approval by SFFD will occur during the DBI pre-application review for each station.
- September 2012 Meeting:
1. SES review comments addressed, revised report submitted.
- October 2012 Meeting:
1. Follow up required with SES to close out remaining comments and confirm concurrence
- November 2012 Meeting:
1. Central Subway continue to work with SFFD to close out the remaining comments
- December 2012 Meeting:
1. Comments received by SFFD, submittal will be revised.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: T</b>
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January 2013:

1. SES will be forwarded to Fire Life Safety Committee for approval.

February 2013 Meeting:

1. The Tunnel Ventilation SES resubmittal was sent for verification 1/18/13 (verification is expected early March 2013).

March 2013:

1. No new update to this risk.

April 2013:

2. A conference call was held between HNTB and SFFD on 3/21/13 to review open comments.
3. SFFD were satisfied with the responses given.
4. HNTB are preparing a revised Tech Memo for verification prior to formal submission.

May 2013:

1. Concurrence was received from SFFD for the revision 2 of the SES technical memo
2. The tech memo will be routed internally for signature prior to sending to FLSC (Fire Life Safety Committee) for signoff.
3. The completed and signed tech memo is expected to be completed and signed by the FLSC by the end of May 2013.

July 2013:

1. SES report has been approved by SFFD, being routed internally for signature.
2. Review comments to be addressed prior to retirement of risk,

**Risk Mitigation Status****Risk Reference: U**

<b>Risk</b>	<b>Mitigation Strategy</b>
Proximity at junction of head house boundary wall and school play ground may result in relocation of school yard during wall construction	Modify project configuration to eliminate any encroachment, or relocation, of the school play area.

**Initial Assessment:** 1, 1, 1**Current Assessment:** Risk Rating 1 – Construction Risk**Risk Owner:** M. Benson**Status Log:**

January 2012 Meeting:

1. Station wall shifted away from adjacent property to avoid potential conflict with school yard.
2. Risk 55 (Requirement Risk) retired by unanimous consent of Risk Assessment Committee 1/12/12.
3. New risk was created to track risk associated with potential conflict with toe of retaining wall during construction of slurry wall.

<b>Risk Mitigation Status</b>
<b>Risk Reference: V</b>

Risk	Mitigation Strategy
Incorporation of revised Planning Zoning/ development criteria for Moscone Station TOD impact MOS and CTS construction contract.	<ol style="list-style-type: none"> <li>1. Participate and provide input of CSP constraints to SFMTA Real Estate during process of initial task to define best use.</li> <li>2. Integrate work with SFMTA Real Estate into CSP</li> </ol>

**Initial Assessment:** 3, 2, 6  
**Current Assessment:** Risk Rating 3 – Design Risk

**Risk Owner:** R. Edwards

**Status Log:**

March 2012 Meeting:

1. SFMTA entered into agreement with development firm to maximize use of existing SFMTA real estate inventory.
2. Initial task is to develop proposed best use for the top three properties of which two of the properties are CTS and MOS headhouse locations.
3. Need to identify Program contact person to stay in touch and provide input of CSP constraints to SFMTA Real Estate.

May 2012 Meeting:

1. The Planning Department has included development criteria in the recently approved Conditional Use Permit.  
**4/10/13 Note:** Central Subway received an email from Scott Sanchez of SF Planning on 9/11/12 confirming that a Conditional Use Authorization is not required as the Planning Code Section 228(c) was recently amended (Ordinance No. 173-12, effective 9/1/12) to exempt service stations on Primary Transit Streets or Citywide Pedestrian Network Streets (as designated in the General Plan) from the conversion requirements of Section 228.

June 2012 Meeting:

No status update.

August 2012 Meeting:

1. **MOS TOD** – set-aside TOD zone complied to & is based on current zoning criteria. SF Planning has plans to up-size the zoning in SOMA/Central Corridor. Potential conflict and discord with SF Planning on the IFB documents. FD has been completed.
2. **CTS TOD** – set-aside TOD zone or absence of TOD cleared SF Planning environmental (& historical) review & MMRP mitigation. ~~Next step is obtaining Conditional Use Authorization thru Sept 6, 2012 Commission contract with incorporation of Planning Dept recommendations.~~ Note: Obtaining the Conditional Use Authorization and incorporating the Planning Departments recommendations is not related to this risk

September 2012 Meeting:

1. Conditional Use permit received for CTS.

October 2012 Meeting:

1. Status of communication to SFMTA Real Estate to be provided next meeting



<b>Risk Mitigation Status</b>
<b>Risk Reference: V</b>

November 2012 Meeting:

1. Chinatown Station is compliant with current building codes and zoning requirements in effect. SFMTA Real Estate has a separate project outside of Central Subway to specifically address transit oriented development (TOD) at the site. Central Subway is not directly involved or has ability for involvement on the TOD scope. There have been no requests received from SFMTA Real Estate in relation to changing the CTS design. Note that the design is complete, and contract is out to bid as Contract 1300.
2. Yerba Buena / Moscone Station is compliant with current building codes and zoning requirements in effect. and does not preclude future TOD in accordance to present zoning CSP received a letter from SF Planning on May 4<sup>th</sup> 2012 stating the YBM design is in general conformance with the City's General Plan. In the same letter, SF Planning raised concerns in relation to the development potential of the site in relation to 1) future zoning criteria 2) development over the YBM headhouse portion of the site. Central Subway is circulating a response to this letter.
3. SFMTA Real Estate has a separate project outside of Central Subway to specifically address TOD on the site. Central Subway is not directly involved or has the ability for involvement on the TOD scope. There have been no requests received from SFMTA Real Estate in relation to changing the YBM design.
4. Note: a correction has been made to the August update.

December 2012:

1. SFMTA has not requested a change in design, however they could make a request up into the time we pour the invert slab with the actual column base rebar.

January 2013:

1. No additional request to report from SFMTA.

February 2013 Meeting:

1. Central Subway are circulating a response letter to SF Planning letter of May 4<sup>th</sup> 2012.

March 2013 Meeting:

1. No new update to this risk.

April 2013:

1. Final design documents for YBM are being routed for approval through the SF Planning department.
2. The response to the SF Planning letter of May 4<sup>th</sup> 2012 is still outstanding.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: V</b>
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May 2013:

1. CTS:
  - a) Agency has additional funds from Funding Source:- Environmental Mitigation for Open Space
  - b) Gensler Architects to come up with proposals to perform some minor modification to the **surface** portion of Chinatown Station. Community meeting will be held in late May or June to present options. Community feedback will determine how to proceed with surface build-out of CTS.
2. MOS:
  - a) Funding source has not yet been established for MOS. Central Corridor plan is in the EIR development stage.

June 2013:

1. CTS:
  - a) Funding source has been established for CTS. The Agency has initiated a conceptual design effort to build out the balance of the property at the CTS location.
  - b) Design will be given to the 1300 Contractor to request a design build cost. Estimated cost is \$9-12M
2. MOS:
  - a) SF Planning has determined there is no issue for YBM.
3. Risk cost impact has been reduced to a 1. Overall Risk assessment rating is currently at a 3.

July 2013

1. Nothing new to report, No change in rating.

July 2013

1. No cost or schedule impact, funding from outside sources.

**Risk Mitigation Status****Risk Reference: PR1**

<b>Risk</b>	<b>Mitigation Strategy</b>
Actual TBM production rate may be slower than forecasted.	1. Assign significant liquidated damages for not meeting specific schedule dates.

**Initial Assessment:** 1, 3, 2**Risk Owner:** M. Benson**Current Assessment:** Risk Rating 2 – Construction Risk**Status Log:**

May 2013:

1. The 1252 contract includes liquidated damages for late completion of cross passages 1,2,3, and 4.
2. The current work schedule involves 2 x 10 hours shifts, 5 days per week with Saturday maintenance.
3. Discuss revising mitigation strategy to include acceleration, additional shifts in lieu of liquidated damages.

**Risk Mitigation Status****Risk Reference: PR37**

Risk	Mitigation Strategy
Temporary construction power and ability to provide permanent power feed - PGE ability to provide power requirements to the program together with their other commitment	1. Identify temporary power requirements for station construction. 2. Investigate the timing of the permanent feed.

**Initial Assessment:** 1, 2, 3**Risk Owner:** A. Hoe / S. Pong**Current Assessment:** Risk Rating 3 – Construction Risk**Status Log:**

March 2013:

1. 1300 Contractor is responsible for temporary construction power
2. Permanent power applications have been submitted to PG&E
3. The PG&E Permanent power supply activities and any additional information required from Central Subway need to be established and included in the project Master Schedule.

June 2013:

1. Risk owner changed from Q. Chin to A. Hoe/S.Pong.
2. Meeting held with PG&E 6/11/13 to commence planning and coordination of streetlight connections.
3. Temporary power requirements will be facilitated through ongoing coordination meetings with PG&E and the 1300 contractor.
4. This risk applies to permanent power only.
5. PG&E has a scheme for permanent power feed. Full design is still in progress.
6. PG&E to provide costs for permanent supply.

**Risk Mitigation Status****Risk Reference: PR73**

Risk	Mitigation Strategy
Delays or complications of design & construction by others – SF Dept. Of Technology, 3rd party utilities	Early engagement and coordination for agreements and plan development to avoid construction delays.

**Initial Assessment:** 1, 1, 2**Risk Owner:** R. Edwards**Current Assessment:** Risk Rating 0 – Design Risk**Status Log:**

March 2012 Meeting:

1. Project team continues to coordinate with 3<sup>rd</sup> party utility agencies (AT&T, PG&E, SFDT) to complete construction and cutover of facilities designed under CN1250 & CN1251.

May 2012 Meeting:

1. Met with SFDT to confirm the scope of work that they will perform for the Systems contract.

June 2012 Meeting:

1. Agreements on scope of work with SFDT are being sought.

August 2012 Meeting:

1. MOU written to DTIS to define scope. Awaiting concurrence. SFFD reviewing 90-100% design no comments received to date.

September 2012 Meeting:

1. Central subway following up DTIS

October 2012 Meeting:

1. Follow up with DTIS still required, verbal concurrence received
2. 3<sup>rd</sup> Party Utilities
  - a. 1300 Utility relocations – status to be advised next meeting
  - b. 1256 utility relocations – confirmation and schedule required – follow up next meeting

November 2012 Meeting:

1. Follow up with DTIS still required
2. 3<sup>rd</sup> Party Utility
  - a. 1300 Utility relocations – High level timeframes to be obtained from utility owners
3. 1256 Utility relocations
  - a. Confirmation and schedule to be sought from affected utilities.
  - b. AT&T to advise high level time frames should relocation of the duct bank (east side of 4<sup>th</sup> street, south of Bryant) be required.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: PR73</b>
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December 2012:

1. Follow up with DTIS still required??? Ross
2. 3<sup>rd</sup> Party Utility
  - a. 1300 Utility relocations – High level timeframes still to be obtained from utility owners
3. 1256 Utility relocations
  - a. Notice of Intent letters sent to utility owners
4. An MOU agreement between SFMTA and DTIS is still pending.
5. AT&T work on south of Market Street

January 2013:

1. No new updates, MOU agreement is still pending.

February 2013 Meeting:

1. STS 3<sup>rd</sup> Party private utility relocation scope and schedule has not yet been completed and coordination with utility agencies is ongoing.
2. Where scope and timing has been established, the details have been included in the 1300 contract.
3. Other mitigations have been included in the 1300 contract in anticipation of agreement with 3<sup>rd</sup> party utilities.
4. The status of the MOU with DTIS will be advised next meeting.

March 2013:

1. STS 3<sup>rd</sup> Party Utility coordination is ongoing
2. DTIS MOU is agreed, a signed version needs to be obtained from DTIS.

April 2013:

1. Central Subway are still working to obtain a signed version from DTIS

May 2013:

1. DTIS scope concurrence letter signed 4/19/13
2. Recommend creating a new construction risk to coordinate DT's work once contract 1300 schedule has been established.
3. Recommend retiring this risk.

June 2013:

1. DTIS MOU agreement has been signed.
2. Design Risk will be closed and will be re-established as a Construction risk. New risk owner will be Albert Hoe.
3. This risk was retired by unanimous consent by the Risk Assessment Committee on 06/13/13.

**Risk Mitigation Status****Risk Reference: PR74**

Risk	Mitigation Strategy
Incomplete design by City staff – not prioritized to complete 1256 work on time	Monitor development of design and recommend exercise of contract options to supplement City staff.

**Initial Assessment:** 3, 1, 3**Current Assessment:** 0, 0, 0 – Design Risk**Risk Owner:** R. Edwards**Status Log:**

January 2012:

- Options have been exercised to avoid impacts.

March 2012 Meeting:

- Options continue to be exercised in DP3 contract based on a list of work that will not be completed by City staff.

May 2012 Meeting:

- Option for structural support has been executed.

June 2012 Meeting:

- All City work will be done prior to “Issue for Bid” date.

December 2012 Meeting:

- All Mitigation efforts have been addressed.
- This risk was retired by unanimous consent of the Risk Assessment Committee on 12/13/12.

**Risk Mitigation Status****Risk Reference: PR75**

Risk	Mitigation Strategy
Limited work windows for the at-grade track construction (at all surface segment street crossings and especially at 4th and King) could extend the schedule and increase labor costs.	<ol style="list-style-type: none"> <li>1. Initiate 1256 traffic study including construction staging to evaluate 1256 impacts and project area wide impacts during construction.</li> <li>2. Also evaluate temporary and permanent impacts to businesses along 4th street.</li> <li>3. Develop public outreach strategy.</li> <li>4. Developed detailed workplan to demonstrate work can be accomplished with predefined constraint</li> </ol>

**Initial Assessment:** 3, 1, 3**Current Assessment:** 0, 0, 0 – Design Risk**Risk Owner:** R. Edwards**Status Log:**

January 2012 Meeting:

1. Detailed work plan to be present to CMB on early Feb 2012.

May 2012 Meeting:

1. Discussions with Muni Operations and SFMTA Traffic Engineering ongoing.
2. Presentation of the proposed construction workplan was made to CMB by DP3 on 3/21/12.
3. Systems contract will contain construction sequencing plans that will show the construction workplan worked out with the stakeholders.

June 2012 Meeting:

1. Suggested construction staging plans are being developed for incorporation into contract documents to transfer cost and schedule risks to the contractor.
2. Specification is being developed in Division 34 to specify the work at Fourth & King.

August 2012 Meeting:

1. Approval of 6 weekend work windows for 4<sup>th</sup> / King by Operations group. Schedule to be developed.
2. Need to define constraints regarding weekend closures, impact of signaling certification requirements associated with track installation.
3. Focus workshops to incorporate constraints into schedule for 4<sup>th</sup> & King interface. Constraints to be written into Division 1 specification & technical specification if resignalling is required.

September 2012 Meeting:

1. Targeting completion of schedule, constraints, and certification requirements by mid-October for inclusion in bid documents.

October 2012 Meeting:

1. Schedule, constraints, and certification requirements have been included in bid documents – confirmation being sought from Operations
2. Outreach update to be provided next meeting
3. Candidate to retire – review next meeting
4. This risk was retired by unanimous consent of the Risk Assessment Committee on 10/18/12.



<b>Risk Mitigation Status</b>
<b>Risk Reference: PR78</b>

Risk	Mitigation Strategy
Delays or complication by other SFMTA projects delays CSP: radio, fare collection, C3/TMC, ATCS	1. Monitor other projects' developments and develop contingency plans as needed to avoid 1256 delay of revenue service.

**Initial Assessment:** 1, 1, 2  
**Current Assessment:** Risk Rating 2 – Construction Risk  
**Risk Owner:** R. Redmond

**Status Log:**

May 2012 Meeting:

1. Thales is expected to provide the CSP advanced train control system under a sole source contract requiring FTA approval.
2. An RFP has been prepared for Thales services, equipment and contract preparation
3. Thales will review the CSP Project specifications, drawings and related documents
4. Thales will provide commentary and revise CSP design documents
5. Thales will list proprietary software, hardware, systems, equipment and components including a Bill of Materials
6. Thales will submit a cost proposal as part of the RFP.
7. Thales will assist in Contract Preparation
8. SFMTA Radio Project has been delayed. Equipment requirements from this project may be needed for the Systems contract. Fiber backbone upgrades in Market Street subway may be needed for implementation of Systems contract.
9. Capacity on the existing backbone within the Muni Metro tunnel will become available. CSP to investigate if this new capacity can be utilized for the project.
10. SFDT has suggested that a route to TMC at 1455 Market is available through existing ductbanks within the city streets.
11. The schedule for completion the C3 project at the TMC has it completed several years in advance of the time that CSP will need to tie into the TMC.

June 2012 Meeting:

1. Design has been completed with SFMTA projects integrated into contract documents.
2. Recommend to retire this risk and open new construction risk on this subject.

July 2013:

1. This risk has been re-adjusted to a construction risk. Risk owner was changed from C. Campillo to R. Redmond.

**Risk Mitigation Status****Risk Reference: PR79**

<b>Risk</b>	<b>Mitigation Strategy</b>
Parking Garage appraised higher than anticipated.	1. Provide adequate contingency for potential higher costs

**Initial Assessment:** 1, 1, 1**Current Assessment:** 0, 0, 0 – Market Risk**Risk Owner:** R. Edwards**Status Log:**

June 2012 Meeting:

1. An independent review of parking garage appraisal is being conducted by Walker.

November 2012 Meeting:

1. Walker Parking have developed an operational plan for the parking garage during and after construction.
2. David Tattersall has completed a fair market value appraisal of the acquisition and impact on the garage during construction.
3. The appraisal has been forwarded to the FTA seeking concurrence.
4. The appraised value of the UMS Garage acquisition is significantly below the RAMP allowance
5. Recommend this risk be retired
6. This risk was retired by unanimous consent of the Risk Assessment Committee on 11/08/12.

**Risk Mitigation Status**

**Risk Reference: PR80**

Risk	Mitigation Strategy
ROW costs higher than anticipated.	1. Provide adequate contingency for potential higher costs

**Initial Assessment:** 1, 2, 2

**Current Assessment:** Risk Rating 2 – Market Risk

**Risk Owner:** A. Wong

**Status Log:**

January 2012:

October 2013:

1. Recommend retirement of this risk as ROW costs are included in Risks 79, and 196.

**Risk Mitigation Status****Risk Reference: PR82**

Risk	Mitigation Strategy
Confined work spaces along alignment can impact productivity and result in significant cost and schedule impacts.	1. Account for cost and schedule impacts in estimate and schedule for contract packages

**Initial Assessment:** 1, 2, 2**Current Assessment:** Risk Rating 0 – Construction Risk**Risk Owner:** R. Redmond/M. Benson**Status Log:**

June 2013:

1. The schedule accounted for the impact on productivity by assuming 6 day working weeks, and multiple shifts, and multiple machines where appropriate.
2. The estimate for the work was based on the assumptions in the estimate schedule.
3. Review following the contractors baseline schedule submittal.
4. Cost and schedule risks now reside with Contractor
5. This risk was retired by unanimous consent by the Risk Assessment Committee on 06/13/13.