

**Memorandum**

CS Memorandum No. 1273

**To:** Distribution  
**From:** Susan MacKenzie, Document Control Manager *SMK*  
**Date:** October 30, 2012  
**Reference:** Project No. M544.1, Contract No. CS-149  
Task No. 1-4, Risk Management  
**Subject:** **Risk Mitigation Report No. 38**

Attached please find Risk Mitigation Report No. 38 for meeting held on October 18, 2012. Please click on the "Bookmark" tab on the left side of Adobe file to navigate to report sections.

Attachments:  
Risk Mitigation Report No. 38 with attachments

Cc: James Sampson, STV (w/attachments) [james.sampson@stvinc.com](mailto:james.sampson@stvinc.com)  
David Kuehn, STV (w/attachments) [david.kuehn@stvinc.com](mailto:david.kuehn@stvinc.com)  
Luis Zurinaga, SFCTA (w/attachments) [luis.zurinaga@sfcta.org](mailto:luis.zurinaga@sfcta.org)  
Matt Lee, SFCTA ([matt@sfcta.org](mailto:matt@sfcta.org))  
Jane Wang, SFMTA (w/attachments)  
Mark Latch, CSP (w/attachments)  
Quon Chin, CSP (w/attachments)  
Carlos Campillo, CSP (w/attachments)  
Chuck Morganson, HNTB/B&C (w/attachments)  
Aileen Read, CSDG (w/attachments)  
CS File No. M544.1.5.0820

**Distribution:**

Brad Lebovitz, STV [bradley.lebovitz@stvinc.com](mailto:bradley.lebovitz@stvinc.com)  
John Funghi, SFMTA  
Albert Hoe, SFMTA  
Arthur Wong, SFMTA  
Richard Redmond, CSP  
Ross Edwards, CSP  
Eric Stassevitch, CSP  
Mark Benson, CSP  
Alex Clifford, CSP  
Beverly Ward, CSP

## Risk Mitigation Meeting Minutes #38

DATE: October 19, 2012  
 MEETING DATE: **October 18, 2012**  
 LOCATION: 821 Howard Street, 2<sup>nd</sup> Floor – Main Conference Room  
 TIME: 2:00pm  
 ATTENDEES: John Funghi, Albert Hoe, Arthur Wong, Ross Edwards, Richard Redmond, Mark Benson, Eric Stassevitch, Alex Clifford, Beverly Ward, Brad Lebovitz  
 COPIES TO: Attendees: Mark Latch, Jane Wang, Quon Chin, Carlos Campillo, Chuck Morganson, Aileen Read, James Sampson, David Kuehn, Luis Zurinaga, Matt Lee  
 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. 38**

### RECORD OF MEETING

ITEM #	DISCUSSION	ACTION BY DUE DATE
1 -	<b>Report on Red Risk and – (Risk rating ≥ 6)</b>	
	<p><b>Risk 91:</b> Obtain prompt approval of FTA Full Funding Grant Agreement (FFGA)  <u>Discussion:</u> The physical signing ceremonial of the Grant took place on October 11<sup>th</sup>. A new risk will be created related to tracking the receipt of \$85M in grant funds. Risk Rating 0, 0, 0. <b>This risk will be retired</b></p> <p><b>Risk 60:</b> Utility companies do not complete relocations in timely manner. (UTY1 and UTY 2)  <u>Discussion:</u> AT&amp;T is still on schedule to finish by the Moratorium. There may be a couple of building cutovers during the Moratorium they need to coordinate. SF Water Department connection still needs to be made at Macy’s men’s store and the backflow preventer to complete. None should impact current construction efforts. Risk rating probability has been lowered to a 2. Risk Rating 2, 1, 4</p>	
2 -	<b>Report on Requirement &amp; Design Risks (Risk rating ≤ 6)</b>	
	A list of Requirement Risks and Design Risks with a rating below 6 which are actively been tracked were included on the agenda for information, but were not discussed at this meeting, however an updated Risk Mitigation Status report is included with these meeting minutes. Risks which were discussed are listed below:	

ITEM #	DISCUSSION	ACTION BY DUE DATE
	<p><b>Risk 74:</b> Insufficient time in schedule for testing and commissioning S&amp;C  <u>Discussion</u> This is a candidate for retirement. A copy of the exhibit of the combined contract schedule will be brought back to the next meeting showing the amount of time for commissioning and testing. Risk Rating 2, 3, 5</p> <p><b>Risk 83:</b> Cost of vehicles may be more than estimated due to sole source and small order  <u>Discussion:</u> Currently we are caring \$4.8M in our budget and there is the possibility that now market cost could be as much as \$6.5M. This information has yet to be validated. Still a lot of questions and a need to secure more information on cost. This item will be revisited at the next meeting. There is a need for a larger order and time for procuring the vehicles requires the procurement of existing Breda LRV's. Probability and cost has been raised for this risk. Risk Rating 4, 4, 16</p> <p><b>Risk 72:</b> Interface new Signaling and Train Control system to existing at Fourth and King  <u>Discussion:</u> New systems will be connected in parallel with the existing old one. The new plan was sent in a letter to John Haley to get his concurrence on signaling and train control. A request will be made to have the Designer come in to explain their signaling logic plan, demonstrating the design has taken into account the existing connecting to the new controls. Risk Rating 2, 2, 5</p> <p><b>Risk PR73:</b> Delays or complications of design &amp; construction by others – SF Dept. Of Technology, 3rd party utilities  <u>Discussion:</u> Need to follow up with DTIS. They have verbally concurred they can do the work but nothing has been received in writing. An agreement will need to be established between them and SFMTA. Risk Rating 2, 1, 2</p> <p><b>Risk PR75:</b> 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  <u>Discussion:</u> We have the work window confirmed. This risk will be <b>closed</b> and a new risk will be open relating to the Signaling and Train Control System work. Risk Rating 0, 0, 0. <b>This risk will be retired</b></p> <p><b>Risk D:</b> Air replenishment system for Tunnels  <u>Discussion:</u> The ARS design is complete and is in the final design drawings. Risk Rating 0, 0, 0. <b>This risk will be retired</b></p>	<p>C. Campillo</p> <p>R. Edwards</p>
3-	<b>Report on Market and Construction Risks (Risk rating ≤ 6)</b>	
	<p><b>Risk 38:</b> Tiebacks in Stockton Street miss located (in path of walls and would have to be dug out within 20ft of surface level)  <u>Discussion:</u> R. Edwards will look into putting an allowance for different site conditions in the bid item sheet for removal of the tiebacks only. Risk Rating 2, 2, 3</p> <p><b>Risk 52:</b> Unacceptable settlement and impact on major utilities at CTS. (OLD sewers and others within 20ft space between top of cavern and street level)  <u>Discussion:</u> Closeout with SFPUC is being done with each station separately. Risk Rating 3, 2, 6</p> <p><b>Risk 110:</b> Unanticipated poor weather delays work. Delay could be extended by</p>	

ITEM #	DISCUSSION	ACTION BY DUE DATE
	Holiday Moratorium period. <u>Discussion:</u> This risk has been mitigated. Risk Rating 0, 0, 0. <b>This risk will be retired</b>	
4-	<b>Primary Mitigations -</b> E. Stassevitch presented a preview of the Primary Mitigation Summary Report - Mitigation Cost Calculations in the meeting which will demonstrate the approach of the proposed savings for the station design changes. The Final Summary Report is forthcoming to the PMOC next week.	
5-	<b>New Construction Risks</b> 1. Related to Signaling and Train Control system (Risk #72) - How the train switch is going to be constructed without impact.	

**ACTION ITEMS -**

ITEM #	MTG DATE	Task #	DESCRIPTION	BIC	DUE DATE	STATUS
5	01/12/12		<b>Risk 104</b> – Identify the 5 elements required by the CPUC	C. Campillo	10/11/12	Closed
2	05/23/12		<b>Risk T</b> – Request for variance to SFFD	R. Edwards	10/11/12	Closed
3	05/23/12		<b>Primary Mitigations</b> – Final Summary Report	E. Stassevitch	10/11/12	Closed
2	09/13/12		<b>Risk PR 73</b> – Status of the MOU memo	R. Edwards	10/11/12	Open
2	10/18/12		<b>Risk 72</b> – Demonstration from the Designer/Risk Owner of signaling logic plan	C. Campillo	11/08/12	Open

Meeting adjourned at 3:50pm

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: 10/08/12 [Date review completed.]

## Meeting Agenda

**Project No. M544.1, Contract No. CS-149**  
**Program/Construction Management**  
**Risk Mitigation Management Meeting No. 38**  
**October 18, 2012**  
**2:00pm – 4:00pm**  
 Central Subway Project Office  
 821 Howard St. 2<sup>nd</sup> Floor  
 Main Conference Room

**Attendees:**

Mark Benson	David Kuehn	Art Wong	
Alex Clifford	Mark Latch	Luis Zurinaga	
Ross Edwards	Brad Lebovitz		
John Funghi	Eric Stassevitch		
Albert Hoe	Beverly Ward		

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

- **Requirement Risks** (91)
- **Design Risks** (All outstanding Design - None)
- **Market Risks** (All outstanding Market - None)
- **Construction Risks** (60)

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

- **Requirement Risks** (**74**, 79, 83, T, **104**)
- **Design Risks** (**A**, **72**, 89, 90, **PR73**, PR75, D, V)

**3. Active Risks** – New risk items to be identified

- **Market Risks**
- **Construction Risks** (**16, 38, 52, 110, 111**)

**4. Other Business** –

Note: **Bolded** numerals indicate that risk is recommended to be retired.  
**Red** numerals indicate contract documents in development.

## Meeting Attendance Sheet

**Project No. M544.1, Contract No. CS-149**  
**Program/Construction Management**  
**Risk Management Meeting No. 38**  
**October 18 2012**  
**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
Alex Clifford	CSP	415 701- 5275	<a href="mailto:Alex.clifford@sfmta.com">Alex.clifford@sfmta.com</a>	A
Ross Edwards	CSP	415-581-5165	<a href="mailto:ross.edwards@sfmta.com">ross.edwards@sfmta.com</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>	
David Kuehn	STV/PMOC	510-464-8053	<a href="mailto:david.kuehn@stvinc.com">david.kuehn@stvinc.com</a>	
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
Matt Lee	SFCTA	415 522-4813	<a href="mailto:matt@sfcta.org">matt@sfcta.org</a>	
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
Arthur Wong	SFMTA	415-701-4305	<a href="mailto:arthur.wong@sfmta.com">arthur.wong@sfmta.com</a>	AW
Luis Zurinaga	SFCTA	415-716-6956	<a href="mailto:luis@sfcta.org">luis@sfcta.org</a>	
RICHARD REDMOND	CSP	415 701 4288	RICHARD.REDMOND@SFMTA.COM	RR

central **T** subway

NAME	AFFILIATION	PHONE	E-MAIL (for minutes)	INITIALS
	<p><u>Albert Ho</u> &amp; <u>Ross Edwards</u>                      were in attendance but did                      not initial the attendance                      sheet.</p>			
		<p>(RH) (O)</p>		

Risk Register

PROJECT RISK REGISTER																																																																																																																																							
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Final Risk ID	Contract I.D	Muni Risk REF. I.D	Type	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	TUN	10.07.1	Guideway Tunnels	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	TUN	10.07.2	Guideway Tunnels	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	TUN	10.07.13	Guideway Tunnels	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	TUN	10.07.14	Guideway Tunnels	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. Develop contingency plan to provide bus bridge, if needed. 6. Require non-stop weekend excavation beneath BART tunnels. 7. Monitor movement of BART tunnels in real-time. 8. Repair/adjust as needed. 9. Include probable cost in estimate.	C	3	4	1	2.5	50%	7.5	15	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	TUN	10.07.15	Guideway Tunnels	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	TUN		Guideway Tunnels	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	TUN		Guideway Tunnels	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	TUN		Guideway Tunnels	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	TUN		Guideway Tunnels	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																																																																																																																								
16	TUN		Guideway Tunnels	TBM loss and / or damaged in Transit	Provide provisions for insurance for TBM in transit to jobsite	C	1	5	4	5	10%	5	9	Costs covered by Contractor's insurance.	5/20/13 TUN1095																																																																																																																								
114	TUN		Guideway Tunnel	Grout pipes for BART underpinning are too long and cannot be installed accurately from small shaft.	1. "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. 2. In addition, investigate the possibility of using the basement of the old Virgin Records Store (Block 328 Lot 002) for installation of grout pipes. 3. Investigate possibility of grouting from BART tunnel.	C	-	2	2	2	0%	-	-	Test program to be conducted by tunnel contractor. Investigation of grouting program on previous contracts to be conducted by tunnel contractor.	8/28/13 TUN1120																																																																																																																								
115	TUN		Guideway Tunnel	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.	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 contract language.	5/26/15 UMS1295																																																																																																																								
116	TUN		Guideway Tunnel	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																																																																																																																								
B	TUN		Guideway Tunnel	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









Risk Register

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<b>Environmental Mitigations</b>																																																																	
65	TUN	40.04.1	Environmental	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	MOS		Environmental	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	2	1	2	50%	5	9	Mitigated - Current exposure only to those amount above those currently identified	4/28/15 TUN1150																																																		
67	UMS		Environmental	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	2	2	2	50%	6	12	Mitigation measures to be implemented in contract documents	8/12/15 UMS1320																																																		
68	CTS		Environmental	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	2	2	2	50%	6	12	Mitigation measures to be implemented in contract documents	10/9/17 CTS1500																																																		
<b>Auto/bus/van access ways, roads</b>																																																																	
70	GEN	40.08.1	Vehicle access	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	TUN	40.08.2	Vehicle access	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																																																		
<b>Train Control and Signals</b>																																																																	
72	STS	50.01.1	Train Control and Signals	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																																																		
74	STS	50.01.1	Train Control and Signals	Insufficient time in schedule for testing and commissioning S&C	Extend duration of activity.	R	2	3	2	3	35%	5	10	This risk will be reviewed at the next risk mitigation meeting.	5/30/12 DP3C530																																																		
75	STS	50.01.1	Train Control and Signals	Signals and Comms equipment may need to be stored off site	Require contractor to store equipment offsite or at the factory until it is needed.	C	3	1	-	1	50%	2	3	Special Provisions address offsite storage.	11/6/17 STS1070																																																		
PR73	STS	50.01.1	Train Control and Signals	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.	D	2	1	1	1	35%	2	4		5/30/12 DP3C530																																																		
PR74	STS	50.01.1	Train Control and Signals	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.	D	3	1	1	1	50%	3	6	Options have been exercised to avoid impacts.	5/30/12 DP3C530																																																		
PR78	STS	50.01.1	Train Control and Signals	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		2	4		7/27/12 FDS 1940																																																		
<b>Traffic signals &amp; Crossing Protn.</b>																																																																	
76	GEN	50.05.2	Traffic Signals & Crossing Protection	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.)	Include new Landmarking/Wayfinding system requirements into stations.	D	1	2	-	1	10%	1	2	DP3 preparing proposal to implement "Landmarking/Wayfinding" system	7/27/12 FDS 1940																																																		
<b>Purchase or lease of Real Estate</b>																																																																	
79	TUN	60.01.1	ROW	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																																																		
80	MOS	60.01.2	ROW	Delay in obtaining access to Moscone station sites (goes to condemnation).	1. Assure that adequate float is contained in the Moscone schedule for condemnation. 2. Engage Owners in negotiations as soon as possible. 3. PM/CM to provide real estate specialists to facilitate.	R	1	3	3	3	10%	3	6	Continuing to negotiate cost with owner in parallel with condemnation proceedings.	7/1/12 FDS 1240																																																		
PR79	UMS		ROW	Parking Garage appraised higher than anticipated.	Provide adequate contingency for potential higher costs	M	1	2	-	1	10%	1	2		7/1/12 FDS 1240																																																		
<b>Vehicles</b>																																																																	
83	GEN	70.00.01	Vehicles	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	4	4	4	4	80%	16	32	CSP vehicles to be included in overall SFMTA vehicle procurement contract.	11/17/17 STS 1500																																																		
89	GEN	80.02.2	Final Design	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																																																		

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 : 14														5		4		3		2		1							
DATE ISSUED : 10/18/12														HIGH		MEDIUM		LOW											
Final Risk ID	Contract I.D	Muni Risk REF. I.D	Type	Risk Description	Mitigation Description	Risk Category	Probability %	Cost Impact	Schedule Impact	Calc Impact	Calc %	Risk Rating	Score	Status	Must Complete by Date														
90	GEN	80.01.3	Final Design	Multiple outside design consultants & mix of SFMTA / City could result in delays and additional costs due to complexities in design coordination	Conduct regular coordination meeting, integration meetings, interdiscipline meeting, design oversight reviews and partnering to encourage and promote a positive work environment.	D	2	2	2	2	35%	4	8	Consultant Design Manager and Design Oversight personnel are responsible for design coordination.	5/23/12 FDS 1930														
Project Management for Design and Construction																													
94	GEN	80.04.3	Project Management	Bid protests delay award and NTP for construction contracts	Strictly adhere to Procurement Best Practices and Protest Procedures.	M	1	2	2	2	10%	2	4	Mitigation measures being implemented	2/19/13 FDS 1900														
95	GEN	80.04.4	Project Management	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														
97	GEN	80.04.6	Project Management	Conflicts arising from Contractors working concurrently in the same work space results in delays and claims for additional costs (systems / civil interface)	Limit the number of contractors working in the same workspace by scheduling contracts appropriately and demobilizing contractors upon substantial completion.	C	2	3	2	3	35%	5	10	Mitigation measures being implemented	11/17/17 STS 1500														
PR82	GEN		General	Confined work spaces along alignment can impact productivity and result in significant cost and schedule impacts.	Account for cost and schedule impacts in estimate and schedule for contract packages	C	1	1	1	1	10%	1	2		11/17/17 STS 1500														
99	GEN	80.04.8	Project Management	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	GEN	80.04.9	Project Management	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.	M	1	2	2	2	10%	2	4	Not considered a project risk.	11/17/17 STS 1500														
102	GEN	80.04.11	Project Management	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														
107	GEN	80.04.12	Testing and startup	Market risk in achieving 100% bonding capacity (cost and reduction in contractors able to get bonding)	Structure construction contracts not to exceed \$250 million	M	2	5	-	3	35%	5	10	All contracts expected not to exceed \$250 million	7/27/12 FDS 1940														
T	GEN	80.04.12	Testing and startup	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	-	2	35%	4	10	SFFD agreed to the proposed plan by SFMTA	7/27/12 FDS 1940														
V	GEN		MOS & CTS Stations	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	3	2	2	2	50%	6		12/13/16 N-CTS1225															
PR37	GEN		Testing and startup	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		3	6	Cost for First and Redundant electrical services need to be included in Cost Estimate.	5/3/18 STS1080														
Insurance, permits etc																													
103	GEN	80.06.1	Permits	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	STS	80.06.2	Approvals	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	GEN	80.06.3	Testing and startup	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	GEN	80.06.4	Labor relations	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	3	3	2	3	50%	8	15		11/17/17 STS 1500														
Unallocated Contingency																													

Risk Register

PROJECT RISK REGISTER														Risk Profile		Legend															
Central Subway Project San Francisco REV : 14 DATE ISSUED : 10/18/12														Likelihood Score	Severity Score					Probability	Low (1)	Medium (2)	High (3)	Very High (4)	Significant (5)	Legend					
														5	1	2	3	4	5	< 10%	< \$250K	< 1 Month	< 10% - 50%	< \$250K - \$1M	< 1 - 3 Months	> 50%	< 75% - 90%	> 90%	< 3 Low		
														4	1	2	3	4	5	< 10%	< \$250K	< 1 Month	< 10% - 50%	< \$250K - \$1M	< 1 - 3 Months	> 50%	< 75% - 90%	> 90%	3 - 9 Medium		
														3	1	2	3	4	5	< 10%	< \$250K	< 1 Month	< 10% - 50%	< \$250K - \$1M	< 1 - 3 Months	> 50%	< 75% - 90%	> 90%	> 10 High		
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Final Risk ID	Contract I.D	Muni Risk REF. I.D	Type	Risk Description	Mitigation Description	Risk Category	Probability %	Cost Impact	Schedule Impact	Calc Impact	Calc %	Risk Rating	Score	Status	Must Complete by Date																
111	GEN		Unallocated Contingency	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	GEN		Unallocated Contingency	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																

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

<b>Risk</b>	<b>Mitigation Strategy</b>
TBM loss and / or damaged in Transit	<ol style="list-style-type: none"><li>1. Provide provisions for insurance for TBM in transit to jobsite.</li><li>2. Include insurance costs in contract cost.</li></ol>

**Initial Assessment:** 1, 5, 5**Current Assessment:** 1, 5, 5 – 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

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

<b>Risk</b>	<b>Mitigation Strategy</b>
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:** 2, 2, 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.



**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:** 3, 2, 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.

<b>Risk Mitigation Status</b>
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<b>Risk Reference: 52</b>
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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

**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.

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

Risk	Mitigation Strategy
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:** 2, 3, 5 – Design Risk

**Risk Owner:** C. Campillo

**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.

**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:** 2, 3, 5 – 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 combine contract next meeting



<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	1. Engage Owners in negotiations as soon as possible. 2. PM/CM will provide real estate specialists to facilitate.

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

**Risk Owner:** G. Hollins

**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.

<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:** 1, 2, 2 – 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>
<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:** 1, 2, 2

**Current Assessment:** 1, 2, 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.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 90</b>

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:** 2, 2, 4 – 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

**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**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

<b>Risk Mitigation Status</b>
<b>Risk Reference: 104</b>

Risk	Mitigation Strategy
CPUC approval at Grade Crossing for G0164d takes longer to negotiate / obtain than schedule allows	<ol style="list-style-type: none"> <li>Grade Crossing approvals are not received until final CPUC inspection at the completion of construction.</li> <li>Close coordination with CPUC will continue until approval is received.</li> </ol>

**Initial Assessment:** 2, 3.5, 7  
**Current Assessment:** 2, 3, 5 – Requirement Risk

**Risk Owner:** C. Campillo

**Status Log:**

September 2011:

- Providing preview of 90% submittal to CPUC and will resolve comments/issues from PE before finalizing design documents.

January 2012 Meeting:

- 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
- 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.
- SFMTA will need to file for an extension of SX-92 at least 30 days before March 11, 2013.
- SFMTA will need to file CPUC Form G within 30 days after the completion of construction.
- Recommend to reduce this risk rating.
- Risk rating reduced to 2, 2.5, 5.

April 2012 Meeting:

- CPUC review comments are being incorporated into the 100% contract documents.

May 2012 Meeting:

No update.

July 2012 Meeting:

- 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

**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.

**Risk Mitigation Status****Risk Reference: 111**

<b>Risk</b>	<b>Mitigation Strategy</b>
Major Earthquake stops work	1. Include "Force Majeure" clause in contracts.

**Initial Assessment:** 1, 4, 4**Current Assessment:** 1, 4, 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

**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**Current Assessment:** 1, 1, 2 – Design Risk**Risk Owner:** C. Campillo**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 relocate 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 combine contract

<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:** 2, 2, 4 – 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



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

<b>Risk</b>	<b>Mitigation Strategy</b>
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:** 2, 2, 4 – 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

<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:** 3, 2, 6 – 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.

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.

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: PR73</b>

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:** 2, 1, 2  
**Current Assessment:** 2, 1, 2 – Design Risk  
**Risk Owner:** R. Edwards

**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

**Risk Mitigation Status****Risk Reference: PR75**

Risk	Mitigation Strategy
<p>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.</p>	<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.

