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Risk Mitigation Meeting Minutes #55

DATE:	February 27, 2014
MEETING DATE:	**February 11, 2014**
LOCATION:	821 Howard Street, 2nd Floor – Main Conference Room
TIME:	2:00pm
ATTENDEES:	John Funghi, Albert Hoe, Richard Redmond, Roger Nguyen Eric Stassevitch, Alex Clifford, , Beverly Ward, Luis Zurinaga, Mark Latch, Bradley Lebovitz
COPIES TO:	Attendees: Jane Wang, Mark Benson, Sanford Pong, , Vivian Chow, 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. 55**

RECORD OF MEETING

ITEM #	DISCUSSION	ACTION BY DUE DATE
1 -	**Report on Red Risk and – (Risk rating ≥ 6)**	
	Risk 83: Cost of vehicles are more than estimated Discussion: Bids are expected to be received during the third week of February. **Risk Rating 8** **Risk F (CTS):** Underground obstructions at Chinatown Station Discussion: Excavation has not yet begun for the mining aspect of this risk. **Risk Rating 8** **Risk 204**: Relocation of AT&T Vault and other utilities delays Work south of Bryant Discussion: Letter sent to the utilities notifying them of the planned work schedule. AT&T needs specific information from the potholing work in order to proceed with design of new route of ductbank. **Risk Rating 6** **Risk 208**: Additional cost to retrieve TBMs at the Pagoda Theatre site exceeds current budget Discussion: 1252 Contractor submitted a DSC claiming a harder layer than anticipated encountered at the CSM walls. Review of the boring logs indicate material encountered was anticipated; DSC was rejected. **Risk Rating 6**	

ITEM #	DISCUSSION	ACTION BY DUE DATE
2 -	**Report on Remaining Requirement & Design Risks (Risk rating ≤ 6)**	
	Risk 79: Delay in obtaining tunnel easements (3 #) (goes to condemnation) - Costs of ROW may cost more than expected Discussion: This risk has been quantified and is covered in the RAMP contingency. **Risk Rating 1** **Risk 89**: 3rd Party reviews of Design documents delays completion of Final Design. Discussion: All outstanding YBM design comments have been closed. **This risk will be retired. Risk Rating 0**	
3-	**Active Construction Risks**	
	Risk 7: Potential for excessive settlement of BART tunnels - SIGNIFICANT COMPENSATION GROUT REQUIRED OVER ESTIMATE ALLOWANCES). Discussion: The TBM machines passed under the BART tunnels on February 3rd. **This risk will be retired. Risk Rating 0** **Risk 15**: Major TBM machine failure Discussion: Systematic maintenance checks are being done on the TBM machines. Need to confirm status of replacing thrust rams. **Risk Rating 2** **Risk 50**: Station contractor delayed by tunnel contractor since station contractor cannot break into the tunnels until the tunnels have been finished. Discussion: Float between tunnel completion and station contractor remains 50 plus days. Review of Tunnel and Station Contractor's schedules remains priority to monitor existing float. **Risk Rating 3** **Risk 112** Major safety event halts work Discussion: Overall Program Safety awareness needs positive reinforcement due to increased construction activities at all sites. The Safety Manager needs to establish a safety communication tree to alert the key Program staff of any incidents at any time. **Risk Rating 4** **Risk 196**: The process of acquiring station licenses: acquisition/condemnation could significantly delay schedule and cost more than that presently planned. Discussion: Station licenses acquired or in the process. Current cost and schedule impacts if any are identified and addressed with mitigation plan or covered by contingency. **Risk Rating 4** **Risk 215** DPW Excavation permit reviews delay contract works Discussion: Permits inadvertently sent directly to the 1300 Contractor. DPW notified the permits should be directed to the attention of SFMTA to be forwarded to the Contractor with conditions. **Risk Rating 2** **Risk 218**: Air replenishment system no longer required – Agency bears unnecessary cost of installation and maintenance of an air replenishment system that is no longer required Discussion: Meeting with SFFD Fire Marshall took place to discuss the change in city code. SFFD request remains that equivalency be provided. **Risk Rating 1**	

ITEM #	DISCUSSION	ACTION BY DUE DATE
	Risk 219: Clearance between tunnels and YBM slurry wall causes structural or safety issues during slurry wall installation. Discussion: Meeting held with CS Program Safety Manager, Tutor's safety team and BIH Safety Manager to identify what is required in the safety plans for each contract for establishing a communication tree for station work activities. Safety Plans need required information prior to beginning work activity. **Risk Rating 3** **Risk 220:** Compensation grouting at the Pagoda site (Retrieval Shaft)is delayed by resolution of the scope and role of the designer, and contractor. Discussion: Letter sent to the Contractor outlining their scope of work, they in turn responded with a letter claiming SFMTA is solely liable for any potential issues which might occur with the grouting plan. A response letter reiterating responsibilities and refuting Contractor's position to be sent. **Risk Rating 5** **Risk Q:** As-built drawings and construction drawings do not contain enough information to produce shop drawings without significant surveying effort delaying construction of north entrance. Discussion: No update provided. Master project schedule to be reviewed to determine if time impact can be determined. **Risk Rating 3** **Risk 222:** ARGUS Monitoring Software - Sharing Instrumentation for CN1252 and CN1300 Discussion: There appears to be a potential liability issue in sharing instrumentation data between the two Contractors. Clear responsibility needs to be established for each Contractor. **Risk Rating TBD**	
4-	**Other Business - Potential Risk**	
	No new risks were added to the risk register this month.	

ACTION ITEMS –

ITEM#	MTG DATE	Task #	DESCRIPTION	BIC	DUE DATE	STATUS
4	12/13/12		**Risk 72** – 4th & King (SSWP)	S. Pong C. Morganson	03/11/14	Open

Meeting adjourned at 4:00pm

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: BW EJS [initials of preparer & reviewer] **Date:** 27 Feb 14 [Date review completed.]

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Meeting Agenda

Project No. M544.1, Contract No. CS-149
Program/Construction Management
Risk Mitigation Management Meeting No. 55
February 11, 2014
2:00pm – 4:00pm
Central Subway Project Office
821 Howard St. 2nd 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** (F, 204, 208)
2. **Report on Remaining Requirement and Design Risks**
   - **Requirement Risks** (79)
   - **Design Risks** (**89**)
3. **Active Risks**
   - **Market Risk** (none)
   - **Construction Risks** (**7**, 15, 50, 112, 196, 215, 218, 219, 220, Q)
4. **New Risks (Assessment and mitigation strategy)**
   - ARGUS Monitoring Software - Combining Instrumentation for CN1252 & CN1300

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

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Meeting Attendance Sheet

Project No. M544.1, Contract No. CS-149
Program/Construction Management
Risk Management Meeting No. 55
February 11, 2014
2:00 p.m. – 4:00 p.m.
Central Subway Project Office
821 Howard Street, 2nd 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	Mark.Benson@sfmta.com	
Vivian Chow	SFMTA	415 701-5264	Vivian.chow.@sfmta.com	
Jeffrey Davis	FTA	415 744-2594	Jeffrey.s.davis@dot.gov	
Alex Clifford	CSP	415 701- 5275	Alex.clifford@sfmta.com	
John Funghi	SFMTA	415-701-4299	john.funghi@sfmta.com	
Albert Hoe	SFMTA	415-701-4289	albert.hoe@sfmta.com	
Mark Latch	CSP	415-701-5294	mark.latch@sfmta.com	
Brad Lebovitz	STV/PMOC	510-464-8052	Bradley.lebovitz@stvinc.com	
Richard Redmond	CSP	415-701-4288	Richard.redmond@sfmta.com	
Eric Stassevitch	CSP	415-701-4426	Eric.stassevitch@sfmta.com	
Beverly Ward	CSP	415-701-5291	Beverly.ward@sfmta.com	
Luis Zurinaga	SFCTA	415-716-6956	luis@sfcta.org	

Risk Mitigation Status
Risk Reference: 7

Risk	Mitigation Strategy
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. Requiring EPBM TBM, 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. 6. Require repair/adjustment plan. 7. Monitor movement of BART tunnels in real-time. 8. Repair/adjust as needed. 9. Included probable cost in estimate.

Initial Assessment: 1, 1.5, 2 **Risk Owner:** S. Wilson
Current Assessment: Risk Rating 0 – Construction Risk

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

Risk Mitigation Status
Risk Reference: 7

Risk	Mitigation Strategy
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. Requiring EPBM TBM, 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. 6. Require repair/adjustment plan. 7. Monitor movement of BART tunnels in real-time. 8. Repair/adjust as needed. 9. Included probable cost in estimate.

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.

December 2013:

1. SB TBM crossed under BART Thanksgiving weekend, no compensation grouting was required under the BART tunnels.
2. Risk to remain open until NB TBM BART crossing is complete

February 2014:

1. Both TBMs have cleared the BART influence zone
2. Risk retired by unanimous consent of the Risk Assessment Committee 2/11/14

Risk Mitigation Status
Risk Reference: 15

Risk		Mitigation Strategy
Major TBM machine failure		1. 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

December 2013:
1. Specification section 31 71 19
    a. One spear main bearing assembly and seals, one spare main drive gear available for replacement of the corresponding parts to be provided with <u>each</u> TBM
    b. Spares shall be identified and available for the duration of TBM excavation and be deliverable to the site within 1 week

January 2014:
1. Both TBMs have experienced thrust ram failure in the last month
    a. The Southbound TBM was stopped for approximately 2 weeks
    b. The Northbound TBM was stopped for approximately 1 week
2. The tunneling contractor is assessing options to rectify the issue which can be implemented during the regular maintenance periods for the machines. Option 1) replace seals with a different seal 2) install an additional seal
3. A summary of the ongoing maintenance on the TBMs will be provided next meeting

February 2014:
1. Daily, weekly and monthly maintenance checklists are used to inspect structural steel, shield, main drive, main bearing, rotary coupling, gear, lock, screw conveyor, erector, thrust cylinders, segment feeder hydraulic power unit, belt conveyors, crane system and hoisting devices, water circuits, hydraulic circuits, grout injection, bentonite system, additive system, secondary ventilation, primary ventilation, gas warning system, hose drums, and cable drums.
2. Daily maintenance:
    a. visual checks for cleanliness, wear or damage,
    b. functional checks for noise, fluid levels, and leaks
3. Weekly maintenance:
    a. Visual and functional checks

Risk Mitigation Status
Risk Reference: 15

Risk		Mitigation Strategy
Major TBM machine failure		1. Closely monitor condition and maintenance of the machines.

   b. Taking samples of fluids, checking torque of fastenings, confirming operation of elements
4. Monthly maintenance:
   a. Oil Analysis of main drive, erector, hydraulic power unit
   b. Check screw conveyor wall thickness
5. A status update of the replacement of failed thrust rams needs to be done.

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 **Risk Owner:** M. Benson
Current Assessment: Risk Rating 3 – Construction Risk

Status Log:

September 24, 2009 Meeting:
1. Attendees agreed that an LONP is one item that would alleviate this risk.
2. 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:
1. Constraints on CTS contractor added to specification sections Work Sequence and Contract Interface.
2. LONP was granted by FTA for construction of the launch box.

March 2013:
1. 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:
1. Discuss revising this risk description to 'break into tunnel delayed by 1252 contractor' as applicable to the 1300 contract.
2. Specification timing for tunneling equipment to be removed from UMS and YBM to be checked
3. Current 1252 cross passage completion dates and 1300 tunnel break in dates (if NTP June 20, 2013):

Contract 1252			**Contract 1300**		
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:
1. PMCM will continue to monitor the interface between the 1252 and 1300 contracts.
2. No change to report.

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.

June 2013:

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

Nov 2013:

1. Contract 1252 milestones were delayed in October because of delays to the Northbound TBM assembly and testing.
2. Concurrent delays to the Retrieval Shaft are also having an impact to 1252 Milestones 1 & 2.
3. Future forecast trend to be developed considering progress to date, and expected progress for the remaining work and geological conditions (i.e. boring through rock)
4. Central Subway team to check that BIH recovery schedule uses reasonable assumptions based on expected progress

	CN1252 Contract Requirement**	CN1252 Oct Finish	CN1300 Requirement	1252 Oct & 1300 Variance	
YBM Headwalls Complete	N/A	20-Sep-14 A	31-Jul-13	(51)	CD
UMS Headwalls Complete	N/A	8-Nov-13	14-Sep-13	(55)	CD
CTS Tunnel Interface Complete 1252 MS 1 - Complete Cross Passages 1&2 (CTS)	10-Jun-14	9-Jul-14	9-Sep-14	62	CD
UMS Tunnel Interface Complete 1252 MS2 - Complete Cross Passages 3&4 (UMS)	13-Aug-14	29-Aug-14	26-Feb-15	181	CD
YBM Tunnel Interface Complete	N/A	30-Sep-14	26-Feb-15	149	CD
1252 Tunnel Substantial Completion	12-Apr-15	11-May-15			
Tunnel Portal Completion 1252 Tunnel Final Completion	12-May-15	8-Jun-15	24-Sep-15	108	CD

** Includes PCC10 & COR8

December 2013:

1. Analysis of expected TBM progress not yet complete
    a. (see analysis chart)
2. Await submittal of Recovery Schedule 5 from contractor

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.

January 2014:

1. No current impact at interface points.
2. The Tunnel Contractor's Recovery schedule 5 is still to be assessed against the Station contractors schedule to determine if a conflict between the two contracts is expected.
3. The recovery schedule will not be approved unless the Program believes the dates to be realistic.

February 2014:

1. CN 1252 Recovery schedule 5 (submitted 1/21/14) currently under assessment
2. The monitoring of the two contracts existing float in the schedules is ongoing.

Risk Mitigation Status
Risk Reference: 79

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 **Risk Owner:** A. Clifford
Current Assessment: Risk Rating 1 – Requirement Risk

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.

Risk Mitigation Status
Risk Reference: 79

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.

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.

Risk Mitigation Status
Risk Reference: 79

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.

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.
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

November 2013:

1. Program Director and building owner discussing path to resolution of the 790 Market easement negotiation

December 2013:

1. 790 Market St - A counter offer (for settlement) is expected from the property during December

January 2014:

1. 790 Market St - A counter offer (for settlement) from the owner is still outstanding

February 2014:

1. 790 Market St - A counter offer from the owner is still outstanding

Risk Mitigation Status
Risk Reference: 83

Risk		Mitigation Strategy
Cost of vehicles are more than estimated		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 **Risk Owner:** L. Ames
Current Assessment: Risk Rating 8 – Requirement Risk

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

Risk Mitigation Status
Risk Reference: 83

Risk		Mitigation Strategy
Cost of vehicles are more than estimated		1. Time the procurement of the vehicles to be part of the procurement of the SFMTA LRV procurement contract.

3. Risk to be reviewed next meeting, status of LRV procurement plan to be advised
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.

Risk Mitigation Status
Risk Reference: 83

Risk		Mitigation Strategy
Cost of vehicles are more than estimated		1. Time the procurement of the vehicles to be part of the procurement of the SFMTA LRV procurement contract.

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

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.

Risk Mitigation Status
Risk Reference: 83

Risk		Mitigation Strategy
Cost of vehicles are more than estimated		1. Time the procurement of the vehicles to be part of the procurement of the SFMTA LRV procurement contract.

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
   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

November 2013:

1. Await bid opening 12/10/13

December 2013:

1. Bid opening delayed until February 2014
2. Need to monitor and confirm that procurement milestones will meet Central Subway testing and commissioning timelines

January 2014:

1. Still awaiting bid opening, 18th February

February 2014:

1. Opening of bids is anticipated to be the third week in February.

Risk Mitigation Status	
Risk Reference: 89	
Risk	**Mitigation Strategy**
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 **Risk Owner:** J. Wang
Current Assessment: Risk Rating 0 – Design Risk

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 3rd 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 3rd party comment. Priority was given to 3rd 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.

Risk Mitigation Status	
Risk Reference: 89	
Risk	**Mitigation Strategy**
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.

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.

December 2013:

1. Verification of 90% comments are still being closed out.

January 2014:

1. Outstanding verification comments are still being closed out.
2. The risk owner is working with DBI to close out the remaining comments

February 2014:

1. Verification of 90% comments has been completed and closed.
2. Risk retired by unanimous consent of the Risk Assessment Committee2/11/14

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
Risk Owner: M. Benson
Current Assessment: Risk Rating 4 – Construction Risk

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.

February 2014:

1. There have been several safety incidents recently prompting the tunnel contractor to hold a full staff stand down and remind workforce to be vigilant about personal safety
2. Safety Manager to broadcast safety incidents in real time to program management
3. Monthly safety walks, Cal OSHA, and executive safety meetings continue
4. Follow up report to be given to the risk committee on the tabulation and analysis of program safety managers daily safety observations

Risk Mitigation Status
Risk Reference: 196

Risk	Mitigation Strategy
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

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 (Bvlgari) (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.
    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 11th 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 5th.
    b. The Central Subway Project team continues to negotiate with the property owners.

Risk Mitigation Status
Risk Reference: 196

Risk		Mitigation Strategy
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. The required access for compensation grouting and building monitoring is expected approximately May 10th 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.

Risk Mitigation Status
Risk Reference: 196

Risk		Mitigation Strategy
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

- Owner attorney availability pushed pre-judgment possession hearing date September 9th 2013. If the motion for pre-judgment possession is successful, possession of the license would be obtained approximately October 11th 2013.

October 2013:

1. 950 Stockton Street
    a. Negotiation
        - Signed license received from MTOA
        - Negotiation continues with property owners
    b. Condemnation
        - Signed disclaimers of interest have been received from most owners of record who can now be dismissed from the condemnation action
        - Condemnation continues as summarized below (also see attached graphic)

File motion to court for service/summons via publication	10/11/2013	
	35	days
Court decision on service via publication (estimated date)	11/15/2013	
	5	days
Publish summons (once a week for 4 weeks)	11/20/2013	
	30	days
Publication period (court date set following 30day period)	12/20/2013	
	90	days
Pre-judgment possession hearing	3/20/2014	
	5	days
File documents with court & serve 30 day notice to owners 'notice of entry of order'	3/25/2014	
	20	days
Serve 10 day notice to owners (not an eminent domain requirement)	4/14/2014	
	10	days
Possession of license	**4/24/2014**	

2. 19 Stockton Street
    a. Pre-judgment possession hearing held 9/26/13
    Pre-judgment possession granted 10/4/13

Risk Mitigation Status
Risk Reference: 196

Risk		Mitigation Strategy
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

Possession 30days following service to owner – early November

b. Right to take hearing 11/18/13
c. Compensation Trial 3/10/14

November 2013:

1. 950 Stockton Street
    a. Signed licenses received from MTOA and basement condo owner
    b. Conference call held with Owners attorney and engineer 11/8/13. SFMTA to send a revised agreement incorporating comments discussed on the call to owner for review.
    c. City attorney's office is preparing motion for service via publication which is the next step in the condemnation process. This step is occurring 1 month later than anticipated (delays due to 19 Stockton defense preparations).
    d. Revised condemnation dates to be included in next schedule update.

December 2013:

1. 950 Stockton Street
    a. Condemnation
        - City Attorney's office continues condemnation through courts
        - Possession of license through condemnation is expected prior to contractor installation of TAMS
    b. Negotiation
        - Central Subway Staff and City Attorney's Office (CAO) continue negotiation of license with owner
        - Revised license sent to owners attorney for review 12/9/13

2. 19 Stockton Street (City has possession of license)
    a. Condemnation
        - Right to take hearing held 25/11/13, CAO filed closing brief to court 12/6/13.
        - Decision expected December 2013/Jan 2014
        - Compensation trial is still scheduled for March 2014
    b. Negotiation
        - Court ordered settlement conference held 11/14/13
        - Central Subway provided best and final offer for the license to the owner and has not received a response

January 2014:

1. 950 Stockton Street
    a. Negotiation – complete. Signed license agreements have been obtained from the 2 building owners, the homeowners association, and the basement commercial condo owner

Risk Mitigation Status
Risk Reference: 196

Risk		Mitigation Strategy
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

b. Condemnation
- City Attorney's office will file withdrawal of the condemnation action following execution of the signed agreements

2. 19 Stockton Street (City has possession of license)
   a. Condemnation
      - Right to take hearing held 25/11/13, 1/13/14 Court ruled in favor of the City.
      - Compensation trial is scheduled for March 10, 2014. Central Subway will request another settlement conference with the owner prior to the compensation trial.
   b. Negotiation
      - Central Subway has not received a response to its December 2013 offer to the Owner

February 2014:

1. 19 Stockton - Central Subway staff and the City attorney's office continue to reach out to the owner to open a settlement dialogue prior to the compensation trial scheduled for March 10th.

Risk Mitigation Status
Risk Reference: 204

Risk	Mitigation Strategy
Relocation of AT&T Vault and other utilities delays Work south of Bryant	1. Continue negotiations/ coordination with utility owners. 2. Contract 1300 is required to coordinate with utility companies for relocations 3. SWAT team established to address utilities south of Bryant Street 4. Initiate utility coordination meetings 5. Proactively schedule AT&T resources

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 4th 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.

Risk Mitigation Status
Risk Reference: 204

Risk	Mitigation Strategy
Relocation of AT&T Vault and other utilities delays Work south of Bryant	1. Continue negotiations/ coordination with utility owners. 2. Contract 1300 is required to coordinate with utility companies for relocations 3. SWAT team established to address utilities south of Bryant Street 4. Initiate utility coordination meetings 5. Proactively schedule AT&T resources

3. Mitigation strategy added that the 1300 contractor is required to coordinate with private utility companies.
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 4th 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

November 2013:

1. Coordination meetings with utility owners to occur on a regular basis, Tutor Perini are to be invited
    a. AT&T plan for resource allocation, confirmation of assets and scheduling of work is to be confirmed as AT&T have very few resources who can complete cutover work
2. SFMTA are currently working with AT&T to establish a feasible location to relocate Vault 2081
3. The importance of this work is to be discussed at the next executive partnering meeting with Tutor

December 2013:

1. Letter was sent notifying the contractor of the criticality of this work and requesting a completion schedule
2. Potential vault location has been identified with AT&T. Feasibility is being confirmed via potholing

January 2014:

1. Potholing to confirm locations of utilities to commence the week of January 20th
2. AT&T are to be put on notice of the expected installation and cut over dates.

Risk Mitigation Status
Risk Reference: 204

Risk	Mitigation Strategy
Relocation of AT&T Vault and other utilities delays Work south of Bryant	1. Continue negotiations/ coordination with utility owners. 2. Contract 1300 is required to coordinate with utility companies for relocations 3. SWAT team established to address utilities south of Bryant Street 4. Initiate utility coordination meetings 5. Proactively schedule AT&T resources

3. Proactively requesting and scheduling AT&T resources added to mitigation strategy.

February 2014:

1. Potholing of utilities has commenced.
2. At the last executive partnering meeting Tutor Perini were tasked with commencing utility coordination meetings.
3. 1/31/14 Letter (CN 1300 Misc. Letter No. 0023) a letter was sent to AT&T notifying them of key dates from Tutor Perini's baseline schedule and requesting AT&T schedule it's resources to meet Tutor Perini's dates.

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).

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

3. Contract 1277 for demolition of the Pagoda theatre is to be awarded 6/19/13.
4. PCC 10 should be closed by June 14, or during the week commending 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 5th, 2013 SFMTA Board meeting

November 2013:

1. CPT 690 approved by the SFMTA board on November 5th.
2. Change orders for the demolition of the Pagoda Theatre are currently being negotiated with the demolition contractor

December 2013:

1. Change orders are still being assessed and negotiated with the demolition contractor

February 2014:

1. Change orders for the 1277 Contract have been budgeted under CPT 690
2. Under the 1252 contract only minor potential changes have been experienced to date
3. 1252 Contractor submitted a DSC citing layer was harder than expected. SFMTA rejected the DSC after review of boring log indicated material found was anticipated.
4. Maintain this risk rating

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)
Risk Owner: A. Clifford
Current Assessment: Risk Rating 2 - Construction Risk

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

January 2014:

1. DPW have completed their review of all documents
2. Concurrence letter from DPW, and issuance of general excavation permits expected week commencing January 13

February 2014:

1. DPW have issued general excavation permits for each of the 4 areas of work under contact 1300 (CTS, UMS, YBM, STS)
2. Central Subway will issue the permits to Tutor Perini via a letter week commencing 2/10

Risk Mitigation Status
Risk Reference: 218

Risk	Mitigation Strategy
Air replenishment system no longer required – Agency bears unnecessary cost of installation and maintenance of an air replenishment system that is no longer required.	1. Contractor to be notified to place procurement on hold 2. Central Subway to seek approval from SFFD to delete the system from the contract

Initial Assessment: 1
Current Assessment: 1

Risk Owner: A. Hoe

Status Log: test

November 2013:

1. New risk identified in light of recent changes to the San Francisco Fire code removing the requirement for air replenishment systems from high rise buildings
2. Strategy for approval to remove the system is to be discussed
3. Action on this risk needs to be taken soon.

December 2013:

1. Contractor will be put on notice to put everything on hold.
2. Information about the code change will be forwarded to the Contractor.
3. A meeting with the SF Fire Marshall to discuss the issue is pending.

January 2014:

1. Initial risk rating assessed at 1 by the Risk Assessment Committee on 1/14/14
2. Mitigation Strategy items 1 and 2 added

February 2014:

1. A letter has been sent to TPC notifying them to place the procurement of the air replenishment system on hold (Letter No. CN 1300-0072, dated 1/28/14).
2. Central Subway are meeting with SFFD 2/19 to discuss what is required (if anything) in lieu of the air replenishment system.

Risk Mitigation Status
Risk Reference: 219

Risk	Mitigation Strategy
Clearance between YBM slurry wall and constructed tunnels results in a strike causing safety or structural concerns	1. Program Safety Manager to prepare a comprehensive safety plan to address this issue 2. Program to prepare a written position/response to concerns raised regarding this issue

Initial Assessment: 3 **-** (2,2,1)
Current Assessment: 3

Risk Owner: R. Redmond/M. Benson

Status Log:

November 2013:

1. New risk identified the possibility that the clearance between the outside of the SB tunnel, to the inside of the YBM slurry wall may be as little as 3" (if construction tolerance is used for both the tunnel and the slurry wall).
2. Communication with the designer to be put on record to the effect that the Central Subway Program understands that this was coordinated between DP1 and DP2 during design.
3. A graphic is to be generated showing the clearance between the outside of the tunnel, the inside of the slurry wall, and the reinforcing detail at the corner of the headwall.
4. The mitigation strategy is to be developed.

December 2013:

1. The CM Team has requested the Contractor submit a new submittal on the slurry wall.

January 2014:

1. Initial risk rating agreed by the Risk Assessment committee 1/14/14
    a. Probability - **2** (10-50%), Cost Impact – **2** ($250k-$1m), Schedule Impact – **1** (<1 month)
2. Risk description revised to reflect that the issue pertains to the clearance between the slurry wall and the tunnel for the entire length of YBM station
3. Report back next month on the survey location for the tunnel (what tolerance has the tunnel been constructed to?)
4. Mitigation strategy updated

February 2014:

1. A meeting was held between CSP, BIH and TPC to discuss the communication protocol between surface and tunneling works.
2. BIH and TPC safety plans will be updated to ensure they include an adequate communication tree between surface and tunneling works
3. Prior to commencing work activity information is required to be included in the Safety Plan

Risk Mitigation Status
Risk Reference: 220

Risk	Mitigation Strategy
Compensation grouting at the Pagoda site is delayed by resolution of the scope and role of the designer, and contractor.	1. Direct the contractor to perform the work under the contract 2. Document (in real time – daily basis if necessary) if the contractor refuses to diligently pursue the work 3. Notify contractors bonding company if the contractor refuses to carry out the work

Initial Assessment: 5 (5,1,1)
Current Assessment: 5

Risk Owner: A. Hoe

Status Log:

November 2013:

1. Risk identified – CSDG have advised that they do not have the appropriate resources to direct the compensation grouting work for mitigation at the properties surrounding the Pagoda Theatre site
2. Mitigation strategy and risk profile t be discussed

December 2013:

1. Options to find qualified person are being explored.

January 2014:

1. Risk mitigation strategy added, initial risk assessment agreed by the Risk Assessment Committee 1/14/14
2. A letter will be issued to the contractor instructing them to perform the contract work, and that design support will be provided on an as needed basis.

February 2014:

1. A letter was issued to the contractor (letter 271, dated January 14, 2014), the contractor responded with a letter on January 20, 2014 to the effect that it accepts no liability for SFMTAs direction of the compensation grouting work.
2. Central Subway will respond to this latest letter refuting the Contractor's position.

Risk Mitigation Status
Risk Reference: 222

Risk		Mitigation Strategy
ARGUS Monitoring Software - Sharing Instrumentation for CN1252 and CN1300		1.

Initial Assessment: X (X,X,X)
Current Assessment: X

Risk Owner: R. Redmond

Status Log:

February 2014:

1. A delineation of responsibility needs to be established for each Contractor to avoid a potential liability issue.

Risk Mitigation Status
Risk Reference: F - CTS

Risk		Mitigation Strategy
Underground obstructions at Chinatown Station	√	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.

Initial Assessment: 2, 2, 8
Current Assessment: Risk Rating 8 – Construction Risk

Risk Owner: M. Benson

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.

February 2014:

1. This risk rating was discussed, the risk rating is to remain the same.

Risk Mitigation Status
Risk Reference: Q

As-built drawings and construction drawings do not contain enough information to produce shop drawings without significant surveying effort delaying construction of 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. 4. Allow enough time in Master Project Schedule to produce shop drawings for structural steel at USG.

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

February 2014:

1. Risk to be discussed next meeting. TPC baseline schedule to be assessed as to the adequacy of survey, and procurement of temporary support to the Union Square garage during demolition activities in this area.

Risk Register

PROJECT RISK REGISTER

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Risk Profile

Likelihood Score	Severity Score 1	2	3	4	5
5				HIGH	
4			MEDIUM		
3					
2	LOW				
1					

	Low (1)	Medium (2)	High (3)	Very High (4)	Significant (5)	Legend
Probability	< 10%	<> 10% - 50%	> 50%	<> 75% - 90%	> 90%	<3 Low
Cost Impact	< $250K	<> $250K - $1M	<> $1M - $3M	<> $3M - $10M	> $10M	3 - 9 Medium
Schedule Impact	< 1 Month	<> 1 - 3 Months	<> 3 - 6 Months	<> 6 - 12 Months	> 12 Months	>10 High

RISK RATING = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)

2

SCORE = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)

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
8	Flowing groundwater in vicinity of UMS Station could make adequate annulus grouting difficult during tunneling	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
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 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 contact language.	5/26/15 UMS1295
Track Embedded												
Track: Special												
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 UMS	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

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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
27	Loss of business results in unanticipated restrictions on construction at YBM	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
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

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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 mis located (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
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

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	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
175	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
183	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
214	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
216	General												
218	Demolition, Clearing , Earthwork												
220	Site Utilities, Utility relocations												
230	Hazmat, Contaminated Material												
234	Environmental Mitigations												
235	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
236	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
237	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
238	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
240	Site Structure incl. sound walls												
242	Auto/bus/van access ways, roads												
243	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
244	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
247	Train Control and Signals												
249	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
258	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
260	Traffic signals & Crossing Protn.												
262	Fare Collections Systems												
265	Purchase or lease of Real Estate												
266	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
273	Reloc. of Household or Business												
275	Vehicles												

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83	Cost of vehicles are more than estimated	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

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Preliminary Engineering												
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	4	1	3	35%	5	10	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
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
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	CPUC Resolution (TED-253) for extension of our at grade crossing was granted.	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		

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1					

	Low (1)	Medium (2)	High (3)	Very High (4)	Significant (5)	Legend
Probability	< 10%	<> 10% - 50%	> 50%	<> 75% - 90%	> 90%	<3 Low
Cost Impact	< $250K	<> $250K - $1M	<> $1M - $3M	<> $3M - $10M	> $10M	3 - 9 Medium
Schedule Impact	< 1 Month	<> 1 - 3 Months	<> 3 - 6 Months	<> 6 - 12 Months	> 12 Months	>10 High

RISK RATING = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)
2
SCORE = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)

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
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		
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%	2	4	DTIS MOU has been signed.	
218	Air replenishment system no longer required – Agency bears unnecessary cost of installation and maintenance of an air replenishment system that is no longer required.	1. Contractor to be notified to place procurement on hold 2. Central Subway to seek approval from SFFD to delete the system from the contract	C	1	1	1	1	10%	1	2		
219	Clearance between YBM slurry wall and constructed tunnels results in a strike causing safety or structural concerns	1. Program Safety Manager to prepare a comprehensive safety plan to address this issue 2. Program to prepare a written position/response to concerns raised regarding this issue	C	2	2	1	2	35%	3	6		
220	Compensation grouting at the Pagoda site is delayed by resolution of the scope and role of the designer, and contractor	1. Direct the contractor to perform the work under the contract 2. Document (in real time – daily basis if necessary) if the contractor refuses to diligently pursue the work 3. Notify contractors bonding company if the contractor refuses to carry out the work	C	5	1	1	1	90%	5	10		
222	ARGUS Monitoring Software - Sharing Instrumentation for CN1252 and CN1300	1	C				-	0%	-	-		

City and County of San Francisco MTA
Phase 2 - Central Subway Tunnels
Contract No. 1252

BARNARD IMPREGILO HEALY JOINT VENTURE

DAILY TBM MAINTENANCE CHECKLIST

MACHINE: SB NB RING No. START OF SHIFT: _____ Date:_____

SHIFT: DAY NIGHT RING No. START OF SHIFT: _____

		YES	NO
STRUCTURAL STEELWORK			
Entire steel structure	Check: Platforms, handrails links, travel units steel structure in general, clean		
Entiere steel structure	Visual inspection for damage or fracture: check all platforms, ladders, scafoldings and rails for safety		
SHIELD			
Steel components platfrorms, guardrails	Visual check (e.g. welds) repair of damaged components, clean if required		
Thrust cylinder, bearing, adjustement, measuring cylinder, all cylinder	Visual inspection, check of all hydraulic connections and repair damaged components, clean around outer seal if material build up is present		
Hydraulic system: Hoses lines, connection, distributors	Visual inspection: leaks, abrasion spots, repair damaged components, clean if required		
Tailskin, wire brush seals	Visual inspection (escape of grease or grout)		
MAIN DRIVE			
Drive System (M1-M5)	Check bolted connection, hose and cable connections, water circuit, cooling, grease lubrication, oil levels leaks, hoses, line, connections distributor, clean		
MAIN BEARING, PINION, PINION BEARING			
Grease pump	Check: damage, air filter, fill level pneumatic oil, lubrication cup		
General main bearing, pinion bearing	Check all filters for contamination lubrications, cooling hose connections, oil levels, condensation water		
Sealing gap, leakage chamber	Visual inspection trasparent hose, control tank		
Gear oil pump	Check bolted connections		
Gear oil circuit	Check hose connections		
Partial flow filter pump	Visual check		
Sealing system inside	Manual lubrication		
ROTARY COUPLING			
Rotary coupling seal	Visual inspection: grease lubrication sealing gap, check hoses, leakage chamber, general tightness of all connections		
GEAR			
General	Visual inspection, noise check, temperature oil level, clean if required		
LOCK			
Strip chart recorder	Check function, paper, pen, feeder		
Telephone	Check function		
Emergency telephone	Check function		
Manometers, heating	Check function		
Doors seals	Check damage, cleaning, entiere lock, cleaning, doors lubrication		
SCREW CONVEYOR			
Wear protection	Visual check		
Drive seal	Sealing gap, noise check, temperature		
General	Oil level, clean if required		
ERECTOR			
Entire erector	Function check		
Radio panel	Function check		
Steel components, guide, moving parts	Visual check, check: contamination, connections, hoses, gripper plate, lubrication points		
Ball Lock	Function Check		
Gear	Visual inspection, noise check		
Control panel, emergency stop	Function check		
Erector, erector bearing	Lubrication		
THRUST CYLINDERS			
Visual	Check for nicks or gouges		
Seals	Check for leakage at rod packing glands		
General	Clean all grout and muck from cylinders		
Tempasonic cylinders	Confirm calculated measurements are accurate		
THRUST CYLINDERS			
Visual	Check for nicks or gouges		
Seals	Check for leakage at rod packing glands		
General	Clean all grout and muck from cylinders		
Tempasonic cylinders	Confirm calculated measurements are accurate		
SEGMENT FEEDER			

BARNARD IMPREGILO HEALY JOINT VENTURE

DAILY TBM MAINTENANCE CHECKLIST

Entire segment feeder	Function check		
Control panel	Function check		
Entire segment feeder	Check: contamination, connecting rod, hoses, hose drum, segment support, foreign bodiesin the internal section		
Entire segment feeder	Clean if required		
Contact surfaces	Visual inspection, Teflon Wear, cleaning		
All limit switches	Function check		
HYDRAULIC POWER UNIT			
All power units on Gantry #1	Visual check, check: bolted connection, hose and pipe connection, cable connection, leak, hydraulic circuit, oil levels, clean if required		
Motors	Visual check, check leaks		
Pump	Visual check, cheak leaks, clean, clean if required		
GREASE lubrication			
EP2 #1, EP2 #2, Tailskin & HBW	Check bolted connection, hose pipe, cable connection, leaks, fill levels, damage, connections, pneumatic oil		
BELT CONVEYORS			
General, motors, gear, bearing position,carrier rollers, drive, scrapers,	Check: temperature, running noises, readjusting scrapers, belt tension, chain tension, belt guide, removing conveyed material jams at transfer points, relubrication drum bearings, cleaning		
Rip cord/E-Stop	Function check		
Belt scale	Check: calibration		
Belt scale	Visual check		
CRANE SYSTEM AND HOSTING DEVICES			
General	Visual inspection, bolted connections, lubrication, hoses, cables, guide, rollers, cables winches and chain hoists, brake, lubricate if necessary		
All hoisting devices	Function check: brake, limit switches, Visual inspection: Chain, hook block, pick up plate, clean if required		
WATER CIRCUITS			
General	Visual check of entire line system, connections, hoses, leaks, water quality		
Water filter	Check, replace if necessary		
Pressure indicator before and after filter	Clean or replace filter		
Heat exchanger	Visual inspection, cleaning if necessary		
Pumps	Visual check		
HYDRAULIC CIRCUITS			
All circuits connections pipings	Visual check, check: leaks, wear, chafe marks		
Various filters	Check		
GROUT INJECTION			
Grout tank	Lubrication, check funtionality of agitators		
All circuit connections	General visual inspection, Check leak, wear, chafe marks		
Entire system	Cleaning, visual inspection, ensure full flow through hoses and ports		
Headers in motor room	Ensure check valves are working properly		
BENTONITE SYSTEM			
General	Visual check; pumps, hoses, connections, FM's		
	Grease adgitators & moyno pumps		
ADDITIVE SYSTEM (Water)			
General	Visual check; pumps, hoses, connections, FM's		
	Grease adgitators & moyno pumps		
SECONDARY VENTILATION			
Fans	Visual check		
Air tube	Check: Throttle flap, demage		
PRIMARY VENTILATION			
General	Check Hydraulic function		
Plunger	Visual check		
GAS WARNING SYSTEM			
Sensor	Check: ready for operation and cleaning		

DAILY TBM MAINTENANCE CHECKLIST

HOSE DRUMS			
General	Visual check		
CABLE DRUM			
General	Visual check; cable & spool		

General Comments:

Signature of BIHJV Equipment Superintendent: _____

Signature TBM Mechanic: _____

Signature Robbins Supervisor: _____

City and County of San Francisco MTA
Phase 2 - Central Subway Tunnels
Contract No. 1252

BARNARD IMPREGILO HEALY JOINT VENTURE

WEEKLY TBM MAINTENANCE CHECKLIST

MACHINE: SB NB RING No. START OF SHIFT: _____ Date:_____
SHIFT: DAY NIGHT RING No. START OF SHIFT: _____

		YES	NO
DAILY INSPECTIONS			
Entire TBM	Verify all daily inspections have been completed		
SHIELD			
Entire shield area Articulation	Visual check Verify lubrication of seal		
MAIN DRIVE			
Fastening bolts and connecting bolts	Check: torque		
MAIN BEARING, PINION, PINION BEARING			
Oil circuit	Take small oil samples from each reservoir. Lube oil analysis is the primary indicator of the condition of the main bearing, main gear, and seal assemblies. Check for metal content as an inidcation gear or bearing damage. Influx of san or water may indicate seal leakage.		
ROTARY COUPLING			
Rotary coupling	Verify proper flow through foam, benonite, and wear detection ports.		
GEAR			
Gear	General visual inspection, cheak: leaks		
ADVANCE GENERAL			
Thrust Rams	Verify rams are holdiong pressure on PT's.		
COMPRESSED AIR REGULATION SYSTEM			
Supply Tank	Clean Filters		
SCREW CONVEYOR			
Gear	General vision inspection, Check: oil level, leaks		
Toothing, screw conveyor discharge gate	Clean, Confirm screw gate can close 100%		
Fastening bolts and connecting bolts	Check: tight fit, tightening torque		
ERECTOR			
Entire erector	Perform monthly crane inspection		
SEGMENT FEEDER			
Segment feeder	Cleaning, check upper/lower wear pads. Replace if needed.		
HYDRAULIC POWER UNIT			
Bolted connections	Check tight fit		
All filters	Check and replace if required		
BELT CONVEYORS			
Drum bearing pulley	Remove caking		
Conveyor belt	Check: Belt integrity		
Drive motors	Check: oil levels, cleaning		
CRANE SYSTEM AND HOSTING DEVICES			
All crane systems and hosting devices crane runway	Cleaning		
All control panels emergency stop	Function check		
Conductor	Visual check damage		
WATER/COOLING CIRCUITS			
All filters	Check: replace if required		
Cooling circuit	Check: coolant concentration		
All power units to be cooled	Check: flow		
Heat exchanger	Cleaning		
HYDRAULIC CIRCUITS			
General	Cleaning		
General	Visual Check hoses/fittings for leaks		
RING GAP FILLING (GROUT)			
Agitator drive	Check: bearing sounds/lubricate		
Grout/Accelerator Pumps	Check: function, squeeze hoses, grease tubes if necessary		
Entire system	Clean out tank. Run pigs from batch plant to TBM.		
SECONDARY VENTILATION			
Ventilators	Check: connections, junctions		
Ventilation ducts	running noise		
Motors	Visual check, cleaning if necessary		

City and County of San Francisco MTA
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WEEKLY TBM MAINTENANCE CHECKLIST

COMPRESSED AIR SYSTEM			
General	Visual inspection		
Mantinance unit	Visual check		
Ball valves, check valves	Function check		
EMERGENCY GENERATOR			
Power unit	Function check		
HOSE DRUM			
General	Cleaning if required		

General Comments:

Signature of BIHJV Equipment Superintendent:

Signature TBM Mechanic:

Signature Robbins Supervisor:

City and County of San Francisco MTA
Phase 2 - Central Subway Tunnels
Contract No. 1252

MONTHLY TBM MAINTENANCE CHECKLIST

MACHINE: SB NB RING No. START OF SHIFT: _____ Date:_____

SHIFT: DAY NIGHT RING No. START OF SHIFT: _____

MAIN DRIVE			
Cutterhead/cutting wheel-drive flange Gear Oi, hydraulic oil	Check : Tightening torque connections, cutter head flange ring Oil sample for analysis		
SCREW CONVEYOR			
Screw conveyor pipe	Check: mesurement of the wall thickness		
ERECTOR			
Gear oil, hydraulic oil	Oil sample for analysis		
HYDRAULIC POWER UNIT			
Hydraulic oil	Oil sample for analysis		
BELT CONVEYORS			
Bolted connections	Check: tight fit		
CRANE SYSTEM AND HOSTING DEVICES			
All crane system and hoisting devices	Check: cable pendant/ wire rope for wear		
RING GAP FILLING (GROUT)			
Agitator drive	Check: coupling		
COMPRESSED AIR SYSTEM			
Cooler, condensate	Check: cleaning if necessary		
Air filter	Check cleaning		

General Comments:

Signature of BIHJV Equipment Superintendent: _____

Signature TBM Mechanic: _____

Signature Robbins Supervisor: _____

central T subway

Connecting people. Connecting communities.

CS CN 1300 Misc. Letter No. 0023

Friday, January 31, 2014

AT&T
795 Folsom Street, Rm 426
San Francisco, CA 94107
Attn: Huan Huynh

Reference: Project No. M544.1, Contract No. 1300
Stations, Surface, Track and Systems

Subject: (STS) Notice of AT&T Cut-Over Start Date

Dear Mr. Huynh,

SFMTA received Tutor Perini's baseline construction schedule on January 17, 2014. The baseline schedule shows a start date of May 7, 2014 for the AT&T cut-over on 4th Street between Bryant Street and Townsend Street. Additionally, the schedule shows a cut-over duration of 12 months, which is consistent with the Contract 1300 requirement.

SFMTA is hereby notifying AT&T to schedule its crew(s) and be ready to start the cut-over work on May 7, 2014. We expect the cut-over work to be completed on or before May 6, 2015.

If you have any questions please call Mike Acosta at 415-701-5282.

Yours truly,

for Richard Redmond, P.E.
Program Manager – Project Construction
SFMTA Central Subway Project

Attachment: None

Cc: John Funghi, SFMTA
Eric Stassevitch, SFMTA
Albert Hoe, SFMTA
Jane Wang, SFMTA
Brian Kelleher, SFMTA
Michael Acosta, SFMTA
Sanford Pong, SFMTA
CS File No. M544.1.3.1300.0050.c

central T subway

Connecting people. Connecting communities.

CS CN 1300 Letter No. 0072

Tuesday, January 28, 2014

Tutor Perini Corp
530 Bush Street, Suite 302
San Francisco, California 94108
Attn: Patrick Jennings, Project Manager

Reference: Project No. M544.1, Contract No. 1300
Stations, Surface, Track and Systems

Subject: (GEN) Air Replenishment System (ARS) – Temporary Hold

Gentlemen,

Air Replenishment System (ARS) for the tunnels and stations as identified in Specification Section 22 16 01 and MP-series drawings is under review by SFMTA and SFFD. The Contractor is not to purchase or procure any equipment related to this system until further direction from SFMTA.

If you have any questions, please do not hesitate to contact me in the future.

Yours truly,

for Richard Redmond, P.E.
Program Manager – Project Construction
SFMTA Central Subway Project

Attachment: None

Cc: John Funghi, SFMTA
Eric Stassevitch, SFMTA
Albert Hoe, SFMTA
Jane Wang, SFMTA
Brian Kelleher, SFMTA
CS File No. M544.1.3.1300.0030