

## Risk Mitigation Meeting Minutes #75

DATE: November 03, 2015

MEETING DATE: **October 08, 2015**

LOCATION: 821 Howard Street, 2<sup>nd</sup> Floor – Main Conference Room

TIME: 2:00pm

ATTENDEES: John Funghi, Albert Hoe, Eric Stassevitch, Beverly Ward, John Lackey,

COPIES TO: Attendees: Roger Nguyen, Alex Clifford, Mark Latch, Bill Byrne  
Jane Wang, Sanford Pong, Luis Zurinaga, Jeffrey Davis  
File: M544.1.5.0820

REFERENCE Program/Construction Management

SUBJECT: **Risk Management – Risk Mitigation Meeting  
Risk Mitigation Report No. 75**

### RECORD OF MEETING

ITEM #	DISCUSSION	ACTION BY DUE DATE
1 -	<b>Report on Red Risk and – (Risk rating ≥ 6)</b>	
	<p><b>Risk 222:</b> ARGUS Monitoring Software - Sharing Instrumentation for CN1252 and CN1300  <u>Discussion:</u> CN1252 submittal documentation related to the monitoring instrumentation work was completed. E. Stassevitch will check with M. Kronke, to confirm that there are no other pending issues. This item will remain open until confirmation is received. <b>Risk Rating 6</b></p> <p><b>Risk 226:</b> 4th and King Street - Potential time for planned work shutdown - Contractor not able to perform the work in the manner prescribed  <u>Discussion:</u> Currently the second phase planned work shutdown at 4<sup>th</sup> and King Streets is scheduled to take place beginning November 06 through Saturday, November 14, to coincide with the Veterans Day holiday. The Contractor will be working a 24hr work schedule. SFMTA continues to coordinate with SFMTA Operations, Planning, Traffic, and Caltrans permit. Certification of the track work installation will be done by SFMTA on Friday, November 16. <b>Risk Rating 9</b></p> <p><b>Risk 232:</b> Behind Schedule - Unable to Recover from Delay to 1300 Contract  <u>Discussion:</u> The Contractor submitted a schedule update that includes extended shifts. Contractor is working in the tunnel preparing for the invert slab placement. <b>Risk Rating 12</b></p> <p><b>Risk 233:</b> Acceptance of Shotcrete Substitution - leads to final product being inferior in performance</p>	

ITEM #	DISCUSSION	ACTION BY DUE DATE
	<p><u>Discussion:</u> SFMTA has yet to receive the submittal. The Contractor is currently proposing sacrificing the waterproofing membrane in front. The contract specifies waterproofing to counter the shotcrete application. <b>Risk Rating 9</b></p> <p><b>Risk 234:</b> Sequential Excavation Method at CTS - Contractor's propose method will induce subsidence</p> <p><u>Discussion:</u> The Sequential Excavation Method submittal was forwarded to the designer of record on July 29 and is now being reviewed. Dr. Sauer, Designer of record, requested the Contractor provide the wet stamp drawings for review.</p> <p><b>Risk Rating 7</b></p>	
2 -	<p><b>Report on Remaining Requirement Risks (Risk rating ≤ 6)</b></p>	
	<p><b>Risk 79:</b> Delay in obtaining tunnel easements (3 #) (goes to condemnation) -Costs of ROW may cost more than expected</p> <p><u>Discussion:</u> No new information was reported for this month on requirement risk.</p> <p><b>Risk Rating 1</b></p> <p><b>Risk 104:</b> CPUC approval at Grade Crossing for G0164d takes longer to negotiate / obtain than schedule allows. No new information was reported for this month on requirement risk. <b>Risk Rating 5</b></p> <p><i>Visibility of the two remaining requirement risks will continue to be present on future agendas until they have been completely mitigated.</i></p>	
3-	<p><b>Active Construction Risk</b></p>	
	<p><b>Risk 22:</b> Public complaints result in unanticipated restrictions on construction at UMS station.</p> <p><u>Discussion:</u> No restrictions have occurred. Issues have been completely mitigated with the implementation of winter walk and the upcoming winter walk 2.0 during the holiday moratorium. Other minor issues have also been addressed. <b>Risk Rating 1</b></p> <p><b>Risk 72:</b> Interface new Signaling and Train Control system to existing at Fourth and King</p> <p><u>Discussion:</u> The Irwin switches for the train control system have been received and are on site. Two switches were installed during the first phase shutdown at 4th and King Streets. The remaining work will take place during the planned second phase shutdown, currently scheduled for Monday, November 9<sup>th</sup>. <b>Risk Rating 5</b></p> <p><b>Risk 100</b> Procurement of long lead items delays work. (fans, rails and special track work, TPSS, Escalators, elevators, TBM)</p> <p><u>Discussion:</u> Sanford Pong along with Charles Drane (Motive Power Superintendent) will travel to Enoch, Utah on 10/19, to witness the FAT (factory acceptance testing) for the traction power AC 12kV switchgear, The factory testing will take place from 10/20-10/22. <b>Risk Rating 2</b></p> <p><b>Risk 196:</b> The process of acquiring station licenses: acquisition/condemnation could significantly delay schedule and cost more than that presently planned.</p> <p><u>Discussion:</u> SFMTA must pay the property owner of 19 Stockton Street the total court awarded cost of \$355,000. This cost will be covered by the Program's contingency dollars. SFMTA Board approved the negotiated cost. This risk was thoroughly vetted by the Committee and mitigation strategies were implemented. By unanimous decision, the Committee has voted to retire this risk. For a complete history of the</p>	

ITEM #	DISCUSSION	ACTION BY DUE DATE
	<p>monthly status of the risk, refer to the Risk Mitigation Status sheet #196. <b>This risk will be retired Risk Rating 0</b></p> <p><b>Risk 204:</b> Relocation of AT&amp;T Vault and other utilities delays Work south of Bryant  <u>Discussion:</u> AT&amp;T cutover crew has not started work yet. The utility crew is awaiting receipt of the splicers. AT&amp;T has until April 2016 to put everything in. The Committee recommended SFMTA get a written commitment from AT&amp;T to finish work on time.  <b>Risk Rating 3</b></p> <p><b>Risk 205:</b> Prolong period of CMod's creates additional cost/causes bad blood between Resident Engineer and Contractor  <u>Discussion:</u> The Program has processed contract 1300 modifications number 9 and 10. <b>Risk Rating 3</b></p> <p><b>Risk 211:</b> Differing site conditions encountered during ground freezing of Cross Passage results in increased costs  <u>Discussion:</u> SFMTA has yet to be received the requested root cause analysis for the ground loss at CP5. The Non Conformance Report (NCR) is a contract closeout obligation. This risk was thoroughly vetted by the Committee and mitigation strategies were implemented. By unanimous decision, the Committee has voted to retire this risk. For a complete history of the monthly status of the risk, refer to the Risk Mitigation Status sheet #211. <b>This risk will be retired Risk Rating 0</b></p> <p><b>Risk 216:</b> Olivet building potential construction impact  <u>Discussion:</u> Currently the Developer is performing demolition work. The RE is working with the Developer on coordination issue still needing to take place.  <b>Risk Rating 2</b></p> <p><b>Risk 237:</b> Non-Conforming work is not identified by TPC's Quality Control Program  <u>Discussion:</u> TPC QCP implementation has made significant improvements. CNCR's are being initiated usually with the 24hr requirement. <b>Risk rating 5</b></p> <p><b>Risk 238:</b> Quality Program is ineffective in processing the nonconformance items causing schedule impacts  <u>Discussion:</u> A additional mitigation strategy was added to the risk status sheet, (to provide greater clarity in the log of what CNCR are open). TPC QC and SFMTA QCP are having bi weekly meetings to address issues to avoid impacts.  <b>Risk rating 6</b></p> <p><b>Risk 240:</b> Unresolved Assignment of Schedule Delay Responsibility (may lead to increase cost for the Program)  <u>Discussion:</u> The Contractor may decide not to submit a recovery schedule. The Program needs to document that TPC is not performing in accordance with the contract agreement. A comprehensive review of all the risk was conducted. Assessment of the risk was done and values were assigned.  <b>Recommended risk rating 8 (2, 4, 4)</b></p> <ul style="list-style-type: none"> <li>a. Probability (2), &lt;&gt; 10-50%</li> <li>b. Cost impact (4), &lt;&gt; \$3M - \$10M</li> <li>c. Schedule impacts (4), &lt;&gt; 6 - 12 Months</li> </ul>	



ITEM #	DISCUSSION	ACTION BY DUE DATE
	<p><b>Risk 241: Potential Winter Impacts (Preparation for El Niño)</b>  <u>Discussion:</u> The Program should make sure there are large capacity pumps on standby, in case they are needed. A comprehensive review of all the risk was conducted. Assessment of the risk was done and values were assigned.  <b>Recommended risk rating 6 (3, 2, 2)</b></p> <ul style="list-style-type: none"> <li>a. Probability (3), &gt;50%</li> <li>b. Cost impact (2), &lt;&gt;\$250K - \$1M</li> <li>c. Schedule impacts (2), &lt;&gt; 1 - 3 Months</li> </ul> <p><b>Risk 242: Request received during the super bowl (February 2016) - could potentially impact the schedule for 2 - 3 weeks.</b>  <u>Discussion:</u> Any request made by the super bowl committee, will be made through the Mayor Office. It will be the Mayor Office responsibility to mitigate the request.  <b>Recommended risk rating 2 (1, 2, 2)</b></p> <ul style="list-style-type: none"> <li>a. Probability (1), &lt; 10%</li> <li>b. Cost impact (2), &lt;&gt;\$250K - \$1M</li> <li>c. Schedule impacts (2), &lt;&gt; 1 - 3 Months</li> </ul>	
	<b>OTHER BUSINESS:</b>	
	No New Risk was added to Risk Register this month.	

**ACTION ITEMS –**

ITEM #	MTG DATE	DESCRIPTION	BIC	DUE DATE	STATUS
4	12/13/12	Risk 72 – 4 <sup>th</sup> & King (SSWP)	S. Pong C. Morganson	11/05/15	CLOSED
3	05/07/15	Risk 72 – 4 <sup>th</sup> & King - Develop a test plan checklist for recertifying	S. Pong	11/05/15	Open
3	05/07/15	Risk 72 – 4 <sup>th</sup> & King - TPC needs to fill the position of a system integrator	TPC	11/05/15	CLOSED

Meeting adjourned at 3:35pm

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

Signed:   [initials of preparer & reviewer] Date: 11/5/15 [Date review completed].

## Meeting Agenda

**Project No. M544.1, Contract No. CS-149**  
**Program/Construction Management**  
**Risk Mitigation Management Meeting No. 75**  
**October 08, 2015**

**2:00pm– 4:00pm**

Central Subway Project Office  
 821 Howard St. 2<sup>nd</sup> Floor  
 Main Conference Room

**Attendees:**

William Byrne		Mark Latch		Beverly Ward	
John Funghi		Roger Nguyen		Luis Zurinaga	
Albert Hoe		Eric Stassevitch			

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

- Construction Risks (**222**, 226, **232**, 233, 234)

**2. Remaining Requirement and Design Risks**

- Requirement Risks (79, 104)

**3. Active Risks**

- Construction Risks (22, 72, 100, 196, 204, 205, 211, 216, 237, 238)

**4. New Risk – Risk Mitigation/Assessment**

- **240**: Unresolved Assignment of Schedule Delay Responsibility
- **241**: Potential Winter Impacts (Preparation for El Niño)
- **242**: Request received during the super bowl event (February 2016) - could potentially impact the schedule for 2 - 3 weeks






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



## Meeting Attendance Sheet

**Project No. M544.1, Contract No. CS-149**  
**Program/Construction Management**  
**Risk Management Meeting No. 75**  
 October 8, 2015  
 2:00 p.m. – 4:00 p.m.  
 Central Subway Project Office  
 821 Howard Street, 2<sup>nd</sup> Floor  
 Main Conference Room

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

NAME	AFFILIATION	PHONE	E-MAIL (for minutes)	INITIALS
Bill Byrne	DEA/PMOC	720-225-4669	<a href="mailto:BByrne@deainc.com">BByrne@deainc.com</a>	
Jeffrey Davis	FTA	415-744-2594	<a href="mailto:Jeffrey.s.davis@dot.gov">Jeffrey.s.davis@dot.gov</a>	
John Funghi	SFMTA	415-701-4299	<a href="mailto:John.funghi@sfmta.com">John.funghi@sfmta.com</a>	
Albert Hoe	SFMTA	415-701-4289	<a href="mailto:Albert.hoe@sfmta.com">Albert.hoe@sfmta.com</a>	
John Lackey	DEA/PMOC	503-499-0596	<a href="mailto:jal@deainc.com">jal@deainc.com</a>	
Mark Latch	CSP	415-701-5294	<a href="mailto:Mark.latch@sfmta.com">Mark.latch@sfmta.com</a>	
Roger Nguyen	SFMTA	415-701-4312	<a href="mailto:Roger.Nguyen@sfmta.com">Roger.Nguyen@sfmta.com</a>	
Eric Stassevitch	CSP	415-660-5407	<a href="mailto:Eric.stassevitch@sfmta.com">Eric.stassevitch@sfmta.com</a>	
Beverly Ward	CSP	415-701-5291	<a href="mailto:Beverly.ward@sfmta.com">Beverly.ward@sfmta.com</a>	
Lyn Wylder	DEA/PMOC	503-499-0273	<a href="mailto:cdw@deainc.com">cdw@deainc.com</a>	
Luis Zurinaga	SFCTA	415-716-6956	<a href="mailto:luis@sfcta.org">luis@sfcta.org</a>	

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

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

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

September 2011:

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

October 2013:

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

October 2015:

1. The Contractor's work has not been restricted in this area. Minor issues have been addressed.
2. The Program will implement Winter Walk 2.0 to commence during the 2015 holiday moratorium.

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

<b>Risk</b>	<b>Mitigation Strategy</b>
Interface new Signaling and Train Control system to existing at Fourth and King	<ol style="list-style-type: none"> <li>1. New system will be connected in parallel with existing system until the new system has been tested and safety certified for operation.</li> </ol>

**Initial Assessment:** 2, 3, 5

**Risk Owner:** S. Pong

**Current Assessment:** Risk Rating 5 – Design Risk

**Status Log:**

October 2011 Meeting:

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

November 2011:

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

January 2012 Meeting:

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

February 2012:

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

September 2012 Meeting:

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

October 2012 Meeting:

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

November 2012 Meeting:

1. Technical specifications now approved.



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

<b>Risk</b>	<b>Mitigation Strategy</b>
Interface new Signaling and Train Control system to existing at Fourth and King	<ol style="list-style-type: none"> <li>1. New system will be connected in parallel with existing system until the new system has been tested and safety certified for operation.</li> </ol>

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

December 2012 Meeting:

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

July 2013 Meeting:

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

October 2014:

1. Review of the designs constructability needs additional evaluation.
2. A swat team to include Program Management, RE and ARE will be created to address the interface issues between trackwork, signaling and train control system.

February 2015:

1. S. Pong to setup a meeting with the Designer (HNTB) to respond to outstanding questions related to signal and train control.

March 2015:

1. The meeting with HNTB (DP3) has yet to take place. S. Pong is still working on coordination.

April 2015:

1. Meeting took place between SFMTA and HNTB (DP3). A solution is still pending. The Designer needs to demonstrate their signaling phasing design similar to the track design.

May 2015:

1. The Contractor will submit a master plan to address the question of how they plan to recertify the 4th and Street intersection for revenue service.
2. TPC needs to fill the liaisons positions of a System Integrator.

June 2015:

1. SFMTA received contractor's master workplan on 5/18 and is under review.

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

Risk	Mitigation Strategy
Interface new Signaling and Train Control system to existing at Fourth and King	<ol style="list-style-type: none"> <li>1. New system will be connected in parallel with existing system until the new system has been tested and safety certified for operation.</li> </ol>

July 2015:

1. Approval of the H&K track switch machine submittal has been rescinded. See SFMTA Ltr 0765, dated June 17, 2015.
2. SFMTA has offered an alternative, to use the enhanced Irwin switch for train control. PCC 060 was issued to the Contractor to obtain a price quote to procure four track switches.

August 2015:

1. Revised PCC 060 was issued to the contractor for the enhanced Irwin switch for 4<sup>th</sup> and King and Bluxome intersections, modifications of the switch machine from gauge side to field side, and modifications of the train signal controller and cabinet to accommodate the new Irwin switch machines.
2. The overall shutdown has been reduced to three to minimize the signal work and to defer the actual signal work to the last shutdown after the civil work is completed.

September 2015:

1. Irwin switches for train control system been procured. The Current 4th and King Street, phase 1 and 2 work will not include work to Installation of the train control system; will take place during the third occurrence of the 4<sup>th</sup> and King planned shutdown.

October 2015:

1. Irwin switches for the train control systems have been received and housed on site. Two of the switches were installed during phase 1 of the shutdowns.
2. The next plan work is schedule to take place on Monday, November 9<sup>th</sup>.

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

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

**Initial Assessment:** 2, 2, 2**Risk Owner:** E. Stassevitch**Current Assessment:** Risk Rating 2 – Construction Risk**Status Log:**

February 2012:

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

May 2013:

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

July 2013:

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

October 2015:

1. Long Lead items are in Baseline schedule, and being monitored.
2. Need to verify status of TPSS, Escalators and Elevators.
3. Track work items currently in storage in nearby yards.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 196</b>

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 (Bulgari) (same property manager)
    - 216 Stockton (Dior)
    - 39 Stockton (Disney)
    - 19 Stockton (Armani) – unresponsive owner
    - 250 Fourth Street (Olivet University)
5. Targeting Board of Supervisors 10/23/12
  - a. remaining Notice of Intent to Appraise mailed 8/30/12
  - b. finalize list of condemnation properties by 9/14/12
  - c. remaining appraisals to be completed by 9/20/12
  - d. meeting with board clerk 9/21/12
  - e. government code offer letters to be sent by 9/27/12

November 2012 Meeting:

1. To date;
  - a. 11/27 required station licenses have been signed by the respective property owners.
  - b. 4/27 have reached verbal agreement or final drafts have been sent to the owner to sign.
  - c. 12/27 Station licenses remain outstanding, 3 of which are being negotiated with the a single property owner (Macy's) and are expected to reach agreement.
2. 9/27 Remaining station licenses + 2 remaining tunnel easements (Central Subway has possession of the two tunnel easements) have been calendared for the December 11<sup>th</sup> Board of Supervisors Hearing.
  - a. Central Subway project team and the City Attorney's office submitted draft Resolutions of Necessity to the Clerk of the Boards office November 5<sup>th</sup>.
  - b. The Central Subway Project team continues to negotiate with the property owners.

<b>Risk Mitigation Status</b>	
<b>Risk Reference: 196</b>	
<b>Risk</b>	<b>Mitigation Strategy</b>
The process of acquiring station licenses: acquisition/condemnation could significantly delay schedule and cost more than that presently planned.	<ol style="list-style-type: none"> <li>1. Continue to negotiate with building owners</li> <li>2. Required Notices and Appraisals to be completed</li> <li>3. Commence condemnation process with City Attorneys</li> </ol>

- c. The required access for compensation grouting and building monitoring is expected approximately May 10<sup>th</sup> 2013 should this need to be obtained through the eminent domain process.

April 2013:

1. Outstanding Tunnel & Station Group A licenses: (a, b and c do not have the condemnation option available at this time)
  - a. **Macy's 3 properties** – licenses for the remaining 3 properties to be sent to Macy's 4/11/13 (233 Geary, 120 Stockton, 101 Stockton)
  - b. **1013-1015 Stockton Street** – the final agreement was hand delivered to the owners representative for signature 4/10/13. Signature of the 3 owners is expected by 4/19
  - c. **3 Pagoda properties** (725 Filbert, 659 Columbus, 1717 Powell) – details and offer letters have been sent to owners
  - d. 950 Stockton Street – Central Subway continues to negotiate with the HOA and land owner while working with the City attorney to commence condemnation if agreement cannot be reached by 4/19
  - e. 216 Stockton – resolving final issues with owner (condemnation to commence 4/19 if agreement cannot be reached)
  - f. 1 Stockton and 212 Stockton – final agreement sent to owner for signature 4/9/13
  - g. 1455 Stockton Street – condemnation suit filed 4/9/13, possession estimated mid-August 2013
  - h. 19 Stockton Street – condemnation suit filed 2/13/13, possession estimated 7/6/13

July 2013:

1. 4 Licenses to be obtained by SFMTA are outstanding
  - a. 659 Columbus Ave (1252 Contract)
    - License has been verbally agreed and sent to the owner for signature (expecting signed agreement by 7/15).
    - The Program has not prepared to condemn this license.
  - b. 1455 Stockton (1252 Contract)
    - The pre-judgment possession hearing scheduled for 7/9/13 has been continued to 7/23/13. Estimated possession date is now 8/26/13.
    - The project team continues to seek resolution of the license through negotiation with BofA and the owner.
  - c. 950 Stockton (1300 Contract)
    - Condemnation action filed 7/8/13. Possession of the license is estimated to be late November 2013.
    - The project team continues to work with the Mandarin Tower Homeowners Association (HOA) and the owner to reach agreement. Currently the Project team is requesting the HOA to sign the agreement with a condition that compensation grouting work cannot proceed until agreement from the landowner is received.
  - d. 19 Stockton (1300 Contract)
    - Condemnation suit filed 2/13/13.
    - The owner has engaged trial condemnation attorneys and is challenging the City's 'right to take' this license.
    - The pre-judgment possession hearing originally scheduled for 6/7/13 and was continued by the court.
    - City attorney availability pushed pre-judgment possession hearing date to early August 2013.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 196</b>

<b>Risk</b>	<b>Mitigation Strategy</b>
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 9<sup>th</sup> 2013. If the motion for pre-judgment possession is successful, possession of the license would be obtained approximately October 11<sup>th</sup> 2013.

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	<b>4/24/2014</b>	

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

<b>Risk Mitigation Status</b>
<b>Risk Reference: 196</b>

<b>Risk</b>	<b>Mitigation Strategy</b>
The process of acquiring station licenses: acquisition/condemnation could significantly delay schedule and cost more than that presently planned.	<ol style="list-style-type: none"> <li>1. Continue to negotiate with building owners</li> <li>2. Required Notices and Appraisals to be completed</li> <li>3. Commence condemnation process with City Attorneys</li> </ol>

- 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



<b>Risk Mitigation Status</b>	
<b>Risk Reference: 196</b>	
<b>Risk</b>	<b>Mitigation Strategy</b>
The process of acquiring station licenses: acquisition/condemnation could significantly delay schedule and cost more than that presently planned.	<ol style="list-style-type: none"> <li>1. Continue to negotiate with building owners</li> <li>2. Required Notices and Appraisals to be completed</li> <li>3. Commence condemnation process with City Attorneys</li> </ol>

- 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
  - a. 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 10<sup>th</sup>.
  - b. Possession of the license has been granted through the condemnation process.
  - c. The potential cost of the license has been identified in the real estate budget contingency.

March 2014

- 1. 19 Stockton Street
  - a. The Compensation Trial has been continued until April 28<sup>th</sup>, 2014
  - b. The City Attorney's Office will request a pre-trial settlement conference with the property owner

April 2014:

- 1. 19 Stockton Street
  - a. A pre-trial settlement conference has been granted by the Courts and is scheduled for April 25.
  - b. No change to the status of this risk.

May 2014:

- 1. 19 Stockton Street
  - a. The pre-trial settlement conference was held April 25, 2014.
  - b. The project team was not able to agree terms with the property owner but will continue to work with the owner and provide further information about the locations of the instruments and the grouting program.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 196</b>

Risk	Mitigation Strategy
The process of acquiring station licenses: acquisition/condemnation could significantly delay schedule and cost more than that presently planned.	<ol style="list-style-type: none"> <li>1. Continue to negotiate with building owners</li> <li>2. Required Notices and Appraisals to be completed</li> <li>3. Commence condemnation process with City Attorneys</li> </ol>

c. The City has obtained the necessary access via condemnation, this risk relates to the cost of the license which is yet to be determined by the courts. The compensation Trial is scheduled for November 3<sup>rd</sup>, 2014.

August 2015:

1. On January 7, 2015, the court issued its Statement of Decision, awarding the property owner \$50,000 for the temporary construction license and an additional \$305,000 for temporary severance damages resulting from construction of the project. SFMTA must also pay interest on the total award of \$355,000.
2. Recommend retiring this risk at the next risk meeting.

September 2015:

1. The City Attorney's office has elected not to appeal the statement of decision made by the San Francisco courts 19 Stockton Street.
2. This risk will remain open until the final settlement paperwork is drafted.

October 2015:

1. No change in the status of this risk.
2. This risk will remain open until the final settlement paperwork is drafted.
3. SFMTA will pay the property owner of 19 Stockton Street the total court awarded cost of \$355,00, plus interest.
4. SFMTA Board has approved the negotiated cost.
5. Risk retired by unanimous consent of Risk Assessment Committee 10/08/15.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 204</b>

Risk	Mitigation Strategy
Relocation of AT&T Vault and other utilities delays Work south of Bryant	<ol style="list-style-type: none"> <li>1. Continue negotiations/ coordination with utility owners.</li> <li>2. Contract 1300 is required to coordinate with utility companies for relocations</li> <li>3. SWAT team established to address utilities south of Bryant Street</li> <li>4. Initiate utility coordination meetings</li> <li>5. Proactively schedule AT&amp;T resources</li> </ol>

**Initial Assessment:** 2, 2, 4  
**Current Assessment:** Risk Rating 3 – Construction Risk

**Risk Owner:** M. Acosta

**Status Log:**

December 2012:

1. Identified Risk and refined risk statement together with development of mitigation strategies.

January 2013:

1. Need to setup a meeting with AT&T and a representative from the Design side to walk them through what will be done in the 1300 contract.

February 2013:

1. Risk description refined.
2. AT&T were made aware of the potential need for relocation of the vault and duct bank in November 2012.
3. A meeting has been arranged between CSP and AT&T for Tuesday 2/19/13 to follow up on the November meeting and confirm that the vault and duct bank will need to be relocated.
4. Relocation of the vault has been included in the D&B element of the 1300 contract and is the responsibility of the contractor.
5. The 1300 contract requires the contractor to allow 12 months for AT&T to cut over new services from the existing duct bank into a new duct bank proposed within the eastern sidewalk of 4<sup>th</sup> Street between Bryant and Brannan Streets.

March 2013:

1. Increase scope of this risk to include other utilities; Level 3, PG&E, MRY, ASB, SFWD, SFDT, Comcast.
2. Contractual execution of the trench installation to be discussed.
3. AT&T have not been contacted during 1300 bid.
4. It was discussed that the schedule impact of this risk rating should be increased to 4 (6-12 months), this increased the risk rating to 6

April 2013:

1. Utility relocations may require a joint trench under the Contract 1300 design build scope.
2. If a joint trench is required under the contract the 1300 contractor would manage the implementation of the joint trench, SFMTA would manage the Form B process for reimbursement of the joint trench costs.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 204</b>

Risk	Mitigation Strategy
Relocation of AT&T Vault and other utilities delays Work south of Bryant	<ol style="list-style-type: none"> <li>1. Continue negotiations/ coordination with utility owners.</li> <li>2. Contract 1300 is required to coordinate with utility companies for relocations</li> <li>3. SWAT team established to address utilities south of Bryant Street</li> <li>4. Initiate utility coordination meetings</li> <li>5. Proactively schedule AT&amp;T resources</li> </ol>

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 4<sup>th</sup> Street.
3. Utility coordination meeting will be held to ensure the contract requirements are understood by the contractor.

October 2013:

1. DP-3 Tech memo being finalized
2. Relocation design and construction schedule to be developed

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 20<sup>th</sup>
2. AT&T are to be put on notice of the expected installation and cut over dates.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 204</b>

<b>Risk</b>	<b>Mitigation Strategy</b>
Relocation of AT&T Vault and other utilities delays Work south of Bryant	<ol style="list-style-type: none"> <li>1. Continue negotiations/ coordination with utility owners.</li> <li>2. Contract 1300 is required to coordinate with utility companies for relocations</li> <li>3. SWAT team established to address utilities south of Bryant Street</li> <li>4. Initiate utility coordination meetings</li> <li>5. Proactively schedule AT&amp;T resources</li> </ol>

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.

March 2014:

1. Potholing of utilities is 99% complete. Potholing work at 4th and Townsend remains.
2. Current AT&T ductbank relocation design is constructible but will include relocation of a 20' segment of 12" waterline and shifting of existing AT&T cables.
3. Tutor Perini is projected to start installation of AT&T ductbank by early April 2014 pending completion of soil profile work.

April 2014:

1. Potholing of utilities is 100% complete.
2. There seem to be enough space for a new AT&T manhole and a 36" sewer force main without having to relocate a 20' segment of 12" waterline. Shifting of existing AT&T cables is still necessary at 4<sup>th</sup>/Bryant; the project team including AT&T Engineer have finalized the workplan to safely accomplish this task.
3. Tutor Perini's subcontractor, Abbett Electric started installation of AT&T ductbank. Abbett decided to temporarily stockpile excavated soils to its yard to be re-used as backfill. Surplus materials to be off hauled pending completion of soil profiling.
4. Risk probability has been reduced to a 1.

May 2014:

1. Installation of AT&T ductbank work continues. Surplus materials to be off hauled pending completion of soil profiling.
2. Expected completion of ductbank and vault installation is July 2014.

June 2014:

1. Installation of AT&T ductbank work continues. Surplus materials to be off hauled pending completion of soil profiling.
2. Expected completion of ductbank and vault installation is September 2014.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 204</b>

Risk	Mitigation Strategy
Relocation of AT&T Vault and other utilities delays Work south of Bryant	<ol style="list-style-type: none"> <li>1. Continue negotiations/ coordination with utility owners.</li> <li>2. Contract 1300 is required to coordinate with utility companies for relocations</li> <li>3. SWAT team established to address utilities south of Bryant Street</li> <li>4. Initiate utility coordination meetings</li> <li>5. Proactively schedule AT&amp;T resources</li> </ol>

October 2014:

1. Installation of AT&T ductbank work continues. Surplus materials to be off hauled pending completion of soil profiling.
2. Expected completion of ductbank and vault installation is October 31, 2014 for the main trunk. At this time, AT&T can start cut-over process. Note that AT&T had recently requested to install six 4" conduits across Bryant Street. This request does not delay the cut-over start or extend the cut-over duration.

November 2014:

1. Installation of AT&T ductbank work continues. Surplus materials to be off hauled pending completion of soil profiling.
2. Expected completion of ductbank and vault installation is November 26, 2014 for the main trunk.
3. RE sent Miscellaneous City Letter #37 to put AT&T on notice of completion of main ductbank and start of cut-over work. AT&T had requested to install six 4" conduits across Bryant Street; PCC 23 was issued to Tutor. This request does not delay the cut-over start or extend the cut-over duration.

December 2014:

1. Installation of AT&T ductbank work continues. Surplus materials to be off hauled pending completion of soil profiling.
2. Expected completion of ductbank and vault installation is January 30, 2015 for the main trunk.
3. RE sent Miscellaneous City Letter #37 to put AT&T on notice of completion of main ductbank and start of cut-over work. AT&T had requested to install six 4" conduits across Bryant Street; PCC 23 was issued to Tutor. This request does not delay the cut-over start or extend the cut-over duration. RE has not received Tutor's cost proposal

January 2015:

1. No new update from December's report out.

February 2015:

1. Provide a price for BKF Design
2. Set up meeting with PUC

March 2015:

1. Completion of the ductbank work is almost done.
2. Discussions are taking place with AT&T requesting them to meet the original cut-over date. 12months form the date which was prior to any contract changes.

**Risk Mitigation Status****Risk Reference: 204**

Risk	Mitigation Strategy
Relocation of AT&T Vault and other utilities delays Work south of Bryant	<ol style="list-style-type: none"> <li>1. Continue negotiations/ coordination with utility owners.</li> <li>2. Contract 1300 is required to coordinate with utility companies for relocations</li> <li>3. SWAT team established to address utilities south of Bryant Street</li> <li>4. Initiate utility coordination meetings</li> <li>5. Proactively schedule AT&amp;T resources</li> </ol>

## April 2015:

1. Completion of the ductbank work by April 10, 2015.
2. Discussions are taking place with AT&T requesting them to meet the original cut-over date. 12months from the date which was prior to any contract changes.

## May 2015:

1. Duct bank and vault work by the Contractor is now complete. AT&T has taken possession of the site.

## June 2015:

1. Ductbank was signed over by TPC. Substantial completion of AT&T ductbank work occurred on April 16, 2015. This is the date in which the final mandrel report was made.
2. AT&T is in the process of ordering the cable.

## July 2015:

1. All cable materials have arrived. AT&T cutover crew will mobilize as early as the week of 7/13/2015 and no later than the week of 7/20/15.

## August 2015:

1. AT&T crew completed pulling cables. Cut-over crew will mobilize within 2 weeks for splicing. AT&T's goal is to complete cutover by end of 2015.

## September 2015:

1. AT&T cutover crew has not started work yet. The utility crew is awaiting receipt of the splicers.
2. AT&T still believes they can put everything in before the end of the year.

## October 2015:

1. AT&T crew has yet to begin cutover work. The utility crew is awaiting receipt of the splicers.
2. AT&T has until April 2016 to put everything in.



<b>Risk Mitigation Status</b>
<b>Risk Reference: 205</b>

Risk		Mitigation Strategy
Prolong period of CMod's creates additional cost/causes bad blood between Resident Engineer and Contractor	√ √	1. Cmod Task Force - 5 Areas of Improvement identified 2. Implement areas of improvement 3. Increase Delegation of Authority

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

**Risk Owner:** E. Stassevitch

**Status Log:**

December Meeting 2012:

1. Identified Risk and refined risk statement together with development of mitigation strategies.

January 2013:

1. CMod Task force continues to demonstrate the process is working.
2. Task force process has slowed down submission of changes from Contractor

February 2013 Meeting:

1. Initial risk rating established
2. CMod task force improvements are working
3. The combined 1300 contract has effectively resulted in a \$5m Board threshold for the entire 1300 contract (previously \$5m threshold for each of the 4 contracts) – Central Subway to investigate increasing the CMod authority above \$5m.

March 2013:

1. Process to increase delegation of authority to be discussed

April 2013:

1. Risk owner changed from M. Benson to R. Redmond
2. A formal recommendation to increase the delegation of authority will be prepared and presented to the CMB on 4/17.
3. A detailed White Paper will be developed for the Project Director outlining the rationale for increasing the delegation of authority.

May 2013:

1. A request to the SFMTA board to increase the Director of Transportation authority to approve changes orders of up to \$5 million for each of the Contract 1300 packages (a total of \$20 million) has been included in the calendar item requesting the SFMTA board to award Contract 1300.
2. The target SFMTA board meeting for this calendar item is May 21<sup>st</sup> 2013.

October 2013:

1. SFMTA board approved increase in Directors authority with award of Contract 1300 in May 2013.

**Risk Mitigation Status****Risk Reference: 205**

Risk		Mitigation Strategy
Prolong period of CMod's creates additional cost/causes bad blood between Resident Engineer and Contractor	√ √	1. Cmod Task Force - 5 Areas of Improvement identified 2. Implement areas of improvement 3. Increase Delegation of Authority

May 2014:

1. Progress in the CMod process are continuing to be made.

July 2014:

1. Contract 1300 Partnering efforts have expanded to include the RE level, Designers, Utility companies and Department of Traffic.

December 2014:

1. No change to the status of this risk.

September 2015:

1. Executive partnering meeting on August 27, 2015 established goal to lower number of outstanding merited changes. Focused attention on completing outstanding merit evaluations, and effectively utilizing the regular weekly meeting to move changes thru the process. Program Manager and Contractor Project Manager to attend weekly change meeting to prioritize work and to meet more often if required expediting processing of changes. Progress to be monitored weekly to measure effectiveness and implement mitigations as required.

October 2015:

1. Weekly Change Management meetings are beginning to produce results; agreed to list of changes, prioritization of items to be addressed, and scheduling of change negotiations. Progress is still extremely slow in the processing of agreed to changes, but moving forward.
2. Outstanding merit determination items are being reduced.

**Risk Mitigation Status****Risk Reference: 211**

Risk	Mitigation Strategy
Differing site conditions encountered during ground freezing of Cross Passage results in increased costs	<ol style="list-style-type: none"> <li>1. Contractor has submitted a 'no cost, no schedule' PCC for ground freezing</li> <li>2. Need early review of work plan, and identification of entity that will perform the work</li> <li>3. Review Plans</li> <li>4. Monitor work at CP5 - to ensure no addl cost are incurred by Program</li> </ol>

**Initial Assessment:** 2 (1, 2, 2)**Risk Owner:** A. Clifford/ E. Stassevitch**Current Assessment:** Risk Rating 4 - Construction Risk**Status Log:**

February 2013:

1. Identified as a potential risk
2. Majority of risk is carried by the 1252 Contractor

March 2013:

1. Discuss and confirm risk description, mitigations and owner
2. Contractor has submitted a no cost, no schedule PCC for ground freezing.
3. **Recommended risk rating 2 (1, 2, 1)**
  - a. Probability (1), <50%, differing ground conditions are considered unlikely
  - b. Cost impact (2), \$250k to \$1m, additional costs would be limited to additional ground freezing work
  - c. Schedule impacts (1), <1 month, impact of additional work (if required) is expected to be minor

May 2013:

1. Risk heading revised to include clarification "during ground freezing".

October 2013:

1. Additional mitigation strategy added – Early review of work plan, and identification of entity that will perform the work.

July 2014:

1. Ground freeze pipe installation began in June, and ground condition appears to be consistent in those anticipated.

October 2014:

1. Freeze pipe installation is complete. Freeze plant has been installed and ground freeze has commenced.
2. Contractor experienced difficulty and delay installing the freeze pipes.
3. No notifications have been received for delay or differing site condition from the contractor.

**Risk Mitigation Status****Risk Reference: 211**

Risk	Mitigation Strategy
Differing site conditions encountered during ground freezing of Cross Passage results in increased costs	<ol style="list-style-type: none"> <li>1. Contractor has submitted a 'no cost, no schedule' PCC for ground freezing</li> <li>2. Need early review of work plan, and identification of entity that will perform the work</li> <li>3. Review Plans</li> <li>4. Monitor work at CP5 - to ensure no addl cost are incurred by Program</li> </ol>

**Initial Assessment:** 2 (1, 2, 2)**Risk Owner:** A. Clifford/ E. Stassevitch**Current Assessment:** Risk Rating 4 - Construction Risk

November 2014:

1. Ground freezing commenced October 8, 2014. The latest approved schedule allows 42 days for ground freezing which would have ground freezing complete November 19<sup>th</sup>, 2014.
2. The Contractor is currently forecasting completion of the ground freeze November 30<sup>th</sup> which is 26 days later than the approved August schedule update date of November 4<sup>th</sup>.
3. No notifications have been received for delay or differing site condition from the contractor.

December 2014:

1. Excavation of Cross Passage 5 is almost complete (approximately 1' of sump remaining to be excavated as at 12/15/14)
2. No notifications have been received for delay or differing site condition from the contractor.
3. Risk retired by majority consent of the Risk Assessment Committee on 12/16/14

January 2015:

1. Due to the recent ground loss at CP5 with the ground freezing resulting in surface impacts on 4th Street on December 27<sup>th</sup>, this risk will be reopened.
2. A letter will be sent to Soil Freeze reminding them that any liability concerning this matter is the responsibility of BIH.

February 2015:

1. Awaiting Root Cause analysis from Contractor.
2. Repairs of surface voids and voids in crown of tunnels repairs underway.

March 2015:

1. Still awaiting Root Cause Analysis from Contractor.
2. Cross Passage 5 has been re-excavated, initial liner and waterproofing installation is complete.
3. Final liner is expected to be complete within two weeks.
4. Letter drafted to respond to last BIHJV letter received (No. 269, dated February 4<sup>th</sup>, 2015).

May 2015:

1. Work is complete. Project was provided substantial completion on April 15<sup>th</sup>.
2. No Change in the status of this risk.
3. Still awaiting Root Cause Analysis from Contractor.

**Risk Mitigation Status****Risk Reference: 211**

Risk	Mitigation Strategy
Differing site conditions encountered during ground freezing of Cross Passage results in increased costs	<ol style="list-style-type: none"> <li>1. Contractor has submitted a 'no cost, no schedule' PCC for ground freezing</li> <li>2. Need early review of work plan, and identification of entity that will perform the work</li> <li>3. Review Plans</li> <li>4. Monitor work at CP5 - to ensure no addl cost are incurred by Program</li> </ol>

**Initial Assessment:** 2 (1, 2, 2)**Risk Owner:** A. Clifford/ E. Stassevitch**Current Assessment:** Risk Rating 4 - Construction Risk

June 2015:

1. Instrumentation in the area of CP5 are stable, no further risk of ground loss.
2. Root Cause Analysis still pending.

July 2015:

1. The Contractor's Change order request remains unsubmitted for the work at CP5.

August 2015:

1. Monitoring of the CP-5 area is ongoing.
2. Root Cause Analysis is still pending.
3. No change to the status of this risk.
4. To resolve the outstanding issues, SFMTA Senior Manager has reached out to BIH's Senior Manager via phone and email. No response has been received from BIH.

September 2015:

1. The temperature of the tunnel continues to be monitored
2. SFMTA has requested BIH return to the construction site to address dripping leaks in the tunnel.
3. SFMTA has yet to be received the requested root cause analysis for the ground loss at CP5. A NCR was issued requesting the analysis to clear the issue
4. The Program will continue to hold contract retention until all issues have been resolved.

October 2015:

1. BIH have remobilized to site to commence leak repairs in the tunnel and are expected to be complete by mid-October.
2. The program continues to withhold retention until all issues are resolved.
3. The NCR issued requested the root cause analysis for the ground loss at CP5 is a contract closeout obligation.
4. Risk retired by unanimous consent of Risk Assessment Committee 10/08/15.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 216</b>

Risk	Mitigation Strategy
Olivet building potential construction impact	1. Reach out to building owner and keep him abreast of CS construction activities.

**Initial Assessment:** 2 (1, 1, 2)

**Risk Owner:** M. Vilcheck

**Current Assessment:** Risk Rating 2 - Construction Risk

**Status Log:**

May 2013:

1. Maintain communication with DPT to make sure that they aren't approving work which will affect our project.

July 2013:

1. A meeting was held with the owner and engineering consultants of the 250 Fourth Street Development.
  - a. Overview and extent of YBM station structure and construction staging was explained.
  - b. Demolition of existing Olivet University building expected early 2014
  - c. 250 Fourth Development advised that Clementina (via 5<sup>th</sup> Street) is likely to be the only access available to their site.

October 2013:

1. Discuss increasing cost impact to rating (2) \$250k to \$1m due to potential impact on building protection and compensation grouting program
2. Staff are working with the City Attorney's office, Planning, and Department of Building Inspection to confirm the Cities rights in this situation
3. Permitting status of development to be confirmed
4. TPC to submit street space permits as soon as possible
5. Communication protocol with developer to be established

November 2013:

1. 10/23/13 conference call held with developer.
  - a. The developer is preparing a pile foundation design to minimize impact on Station Structure
  - b. This will be forward to Central Subway to allow its designers to assess the impact of the design on the station
  - c. Central Subways consultant time will be reimbursed by the developer (agreement currently with developer for review)
  - d. Tutor Perini have established Phase 1 Traffic Management which occupies part of Clementina Street and the West side of 4<sup>th</sup> street

January 2014:

1. Central Subway are still waiting for the Owner of the development to return the signed cost reimbursement agreement to reimburse Central Subway staff and consultant time spent reviewing any 250 Fourth Street Development information

<b>Risk Mitigation Status</b>
<b>Risk Reference: 216</b>

Risk	Mitigation Strategy
Olivet building potential construction impact	1. Reach out to building owner and keep him abreast of CS construction activities.

June 2014:

1. Demolition Permit issued 4/21/14
2. No change to this risk rating
3. Compensation grouting bid item has been eliminated
4. Risk owner has transferred from A. Clifford to M. Vilcheck

July 2014:

1. Latest communication from developer is demolition is planned to begin ~07/15/14.

October 2014:

1. Developer has been non-responsive to requests for information. Demolition pending.
2. Suggest putting the Developer in contact with TPC, to see if an agreement could be reached. The Contractor could demo the building in exchange for use of the site as a temporary laydown area.

December 2014:

1. The building remains standing. There is no change to this risk.

January 2015:

1. The building remains standing. Attempts to contact the developer have been unsuccessful. There is no change to this risk.

April 2015:

1. A meeting to discuss coordination with the property developer for 250 4th St has been scheduled for 04/02/15.

May 2015:

1. Demolition not yet begun. Coordinating with developer regarding sidewalk design accuracy and timing of CSP/developer restoration.

June 2015:

1. Demolition not yet begun. Coordinating with developer regarding timing of sidewalk/Clementina handover.

July 2015:

1. Demolition not yet begun, but planned to begin mid-August per latest communication with developer. Coordinating regarding timing of sidewalk/Clementina handover.



<b>Risk Mitigation Status</b>
-------------------------------

<b>Risk Reference: 216</b>
----------------------------

<b>Risk</b>	<b>Mitigation Strategy</b>
Olivet building potential construction impact	1. Reach out to building owner and keep him abreast of CS construction activities.

August 2015:

1. Demolition not yet begun, but planned to begin mid-August per developer. Coordinating regarding timing of sidewalk/Clementina handover. Pending meeting with developer 08/11.

September 2015:

1. Coordination meetings between CSP and The Developer are actively taking place.
2. The Developer is requesting CSP provide a 4-foot strip at the corner of Clementina and 4<sup>th</sup> Street. Additional coordination meeting are required take place to get their construction work started. Currently the Developer cannot perform demolition work due to lack of access to the location, CSP's occupying at the sidewalk at 4<sup>th</sup> Street.

October 2015:

1. The Developer is currently is performing demolition work. The RE will continue to work with the Developer on additional coordination issue.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 222</b>

Risk	Mitigation Strategy
ARGUS Monitoring Software - Sharing Instrumentation for CN1252 and CN1300	1. Outline responsibilities for each contractor (1252 & 1300)

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

**Risk Owner:** E. Stassevitch

**Current Assessment:** Risk Rating 6 - Construction Risk

**Status Log:**

February 2014:

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

March 2014:

1. Risk has been assessed. Current risk rating is at a 6.

October 2014:

1. Contract responsibility of instrumentation sharing has been established.
2. Recommendation to retire risk.
3. A letter will be sent to the Contractor, outlining TPC's responsibility for the monitoring software. Risk will remain active until pending action is resolved.

November 2014:

1. CN1300 RFI #807 response identifies for the Contractor the areas of instrumentation required to be monitoring, instrumentation which will be removed, instrumentation installed within public property that will remain in place and instrumentation installed within public property which shall remain in place.

December 2014:

1. A letter will be sent to Tutor Perini by 12/19/14 summarizing the instruments being handed over to CN1300 from CN1252, and the dates that CN1300 work commenced in zones that were still being actively monitored under the 1252 Contract.
2. No change to the status of this risk.

May 2015:

1. Transfer of 1252 Monitoring to TPC (Contract 1300), Letter No. 347 was sent on 12/23/14. Identifying which instruments are to be transferred to TPC.
2. The next-step will be to determine how TPC is to physically receive the instrumentation information since they do not have access to the 1252 version of CM13.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 222</b>

Risk	Mitigation Strategy
ARGUS Monitoring Software - Sharing Instrumentation for CN1252 and CN1300	1. Outline responsibilities for each contractor (1252 & 1300)

June 2015:

1. Instrumentation information will be transferred to TPC by way of downloading all relevant Contract Number 1252 submittals from CM13, compiled via a CD/DVD/Flash Drive and transmit to TPC via a letter or a transmittal.
2. Document Control is in the process of downloading/compiling these nearly 200 submittals, which is expected to be wrapped up by 06/12, referencing SFMTA Letter #347.

July 2015:

1. Continuing to work on gathering all Contract 1252 related submittals for transmission to Contract 1300.

August 2015:

1. Work related to the transmission of nearly 200 submittal is almost complete. Document Control still needs to retrieve the remaining 8 submittal packages which are currently housed at the SFMTA archival facility for the tunnels contract.

September 2015:

1. Transmission of all related submittals complete.
2. Recommend this risk be retired at the next Risk meeting.

October 2015:

1. New information was received involving the possibility additional pending items are to be forwarded to the Contractor as part of the nearly 200 submittal. E. Stassevitch will inquire with M. Kroncke, to confirm what items, if anything remains outstanding.
2. This risk will remain open until confirmation is received, all documentation has been forwarded.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 226</b>

Risk	Mitigation Strategy
4th and King Street - Potential time for planned work shutdown - Contractor not able to perform the work in the manner prescribed	<ol style="list-style-type: none"> <li>1. Identify schedule of potential time for planned work shutdown</li> <li>2. Identify better traffic patterns</li> <li>3. Pursue 4th &amp; King option to achieve additional 3-6mos on the schedule</li> <li>4. Review Giants and Warriors schedule for home games</li> </ol>

**Initial Assessment:** 3, 3, 3  
**Current Assessment:** Risk Rating 9 – Construction Risk

**Risk Owner:** M. Acosta

**Status Log:**

November 2014:

1. Contractor has yet to submit a proposal for the 4th and King planned shutdown.

December 2014:

1. Contractor has yet to submit a complete proposal for the traffic system. SFMTA Operations is willing to discuss (internally) alternative shutdown periods.
2. A dedicated team needs to be establish to focus on this 8wk sequence of shutdown activity.
3. Item to be elevated for discussion at Partnering session.

January 2015:

1. Letter will be sent to the Contractor rejecting their incomplete proposal.

February 2015:

1. The RE reported the Contractor has already planned the 8-week shutdown in the schedule. However, the Contractor has yet to provide a master work plan. The RE will a send a letter to the Contractor requesting information:
  - a. Provide the status of the site specific work plans for the proposed 10-day shutdown.
  - b. Per spec sect requirement 34 11 00 3.04. Contractor is required to provide a detail of the schedule showing activities with a planned duration.
  - c. Identify the location for where the portable cross-over will go.
  - d. Provide the name (contact person) of the Contractor’s System Integration Manger.

March 2015:

1. The Contractor schedule demonstrates they are already behind in activities involving the three full weekend shutdowns.
2. A letter was sent to TPC reminding them they are required by contract to provide SFMTA their schedule 90 days in advance of the work.

April 2015:

1. In latest correspondence, TPC proposed 2 shutdowns in May 2015 (a 3 day and a 6 day shutdowns).
2. The May 2015 proposed shutdown does not meet contract requirements, including the 90 day advance notice, therefore, will be rejected.

**Risk Mitigation Status**

Risk Reference: 226

Risk	Mitigation Strategy
4th and King Street - Potential time for planned work shutdown - Contractor not able to perform the work in the manner prescribed	1. Identify schedule of potential time for planned work shutdown 2. Identify better traffic patterns 3. Pursue 4th & King option to achieve additional 3-6mos on the schedule 4. Review Giants and Warriors schedule for home games

May 2015:

1. The Contractor's pending 4th and King Streets Master Plan should address the impact of the freeway off ramp closure, and the propose shutdown days.

June 2015:

1. Contractor's Master Work Plan for 4th and King Streets was received. A review will be done with SFMTA Operations on 05/29. After which a meeting will be scheduled with SFMTA and the Contractor to review the comments made by Operations.
2. The Program's key concerns are to ensure operability to maintain revenue service.

July 2015:

1. A meeting was held with SFMTA Operations on 07/09/15, to discuss the specific requirements of the 1st weekend shutdown
  - Need to install a temporary platform north of the double crossover on King Street.
  - The need to identify that the existing switches will operate in reverse the mode from 4th Street onto King to accommodate for the pull out of trains from MME.
  - The need to have one inspector each, located at the temporary platform and the N-Judah platform to control the single tracking between the double crossover and the N-Judah platform.
  - Also to include an identical street inspection operation at the 4th and Berry station and the channel single crossover as required to provide T-Line service on southern end.
  - A PowerPoint presentation showing the operations of N-Judah line, the T-Line pullout, and then the diesel bus service along Embarcadero station, because the T-Line will not be served from 4th and Berry to the Embarcadero station.
  - A PowerPoint slide presentation on the pedestrian movements
2. Operations requested the Contractor provided and status update twice a week and as we get closer to the Labor day shutdown a update should be provided each day.

August 2015:

1. Update to the specific requirements made by SFMTA Operations as follows:
  - The first shutdown is scheduled for Labor Day Weekend (9/4 to 9/8).
  - Conquest started installing platform on August 5<sup>th</sup> and to be completed on August 7<sup>th</sup>.
  - SFMTA Maintenance of Way (Terry Fahey's group) will conduct a trial run for this maneuver prior to Labor Day shutdown.
  - There is no update regarding the requested PowerPoint presentations
2. RE is having separate meetings with Maintenance of Way and Muni Operations once a week.

**Risk Mitigation Status****Risk Reference: 226**

<b>Risk</b>	<b>Mitigation Strategy</b>
4th and King Street - Potential time for planned work shutdown - Contractor not able to perform the work in the manner prescribed	<ol style="list-style-type: none"><li>1. Identify schedule of potential time for planned work shutdown</li><li>2. Identify better traffic patterns</li><li>3. Pursue 4th &amp; King option to achieve additional 3-6mos on the schedule</li><li>4. Review Giants and Warriors schedule for home games</li></ol>

## September 2015:

1. Night prep work was started on Wednesday 09/02/15
2. Inbound traffic will be shut down during the Labor Day weekend, beginning at 10am on Friday.
3. SFMTA held a press event today, 09/03 at 11am to notify the public of the upcoming transit temporary service interruption involving BART's Transbay tube shutdown and MTA's 4<sup>th</sup> and King Street track work affecting the normal operation of the Muni T and N lines.
4. The Contractor has completed the installation of a temporary platform to transfer passengers during the shutdown.

## October 2015:

1. Current schedule for the next shutdown will begin on Friday November 6<sup>th</sup> through Saturday, November 14.
2. Contractor's 7 day work schedule was received and approved. SFMTA is working through the logistics in coordination with Operations, Planning, Traffic and Cal Trans permit.
3. SFMTA will perform the certification on Friday, October 16.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 232</b>

Risk	Mitigation Strategy
Behind Schedule - Unable to Recover from Delay to 1300 Contract	<ol style="list-style-type: none"> <li>1. Contractor implemented Schedule Recovery</li> <li>2. Acceleration</li> <li>3. Scope Reduction</li> </ol>

**Initial Assessment:** 4, 3, 3

**Risk Owner:** E. Stassevitch

**Current Assessment:** Risk Rating 12 – Construction Risk

**Status Log:**

January 2015:

1. Contractor’s schedule update has not been submitted.

February 2015:

1. Contractor has submitted their schedule update on February 04, 2015. The update shows an approximate six month delay. A time impact analysis has not been submitted to justify this claim.
2. To pick up time, the Contractor should be put on notice that activities on the schedule which the Contractor can work two shifts, they should do so.
3. SFMTA needs to perform an in-house analysis on the schedule.

March 2015:

1. SFMTA will perform an in-house analysis of the Contractor’s time impacts submitted to validate the actual durations.
2. SFMTA will meet with the PMOC to discuss activities on the Contractor’s schedule for ways to gain recovery.

April 2015:

1. A draft analysis was done to compare the Contractor’s baseline activities against actual work which occurred in January update.
2. Additional analyses will be ran to demonstrate a side by side comparison for each delay the Contractor is claiming.
3. A standardize document will be created for reporting the Contractor’s work progress versus what is shown in the baseline schedule activity.

May 2015

1. The Program will initiate a schedule containment workshop, to better define the risk to the project, and address issues and ways to mitigate potential delays.

June 2015:

1. A schedule analysis being generated to determine the number of days the contractor is behind schedule.

July 2015:

1. Schedule analysis continues to be generated to determine precise number of days the contractor is behind
2. Partnering workshop held – mini milestones identified to increase confidence that team can attain schedule recovery.



**Risk Mitigation Status****Risk Reference: 232**

<b>Risk</b>	<b>Mitigation Strategy</b>
Behind Schedule - Unable to Recover from Delay to 1300 Contract	<ol style="list-style-type: none"><li>1. Contractor implemented Schedule Recovery</li><li>2. Acceleration</li><li>3. Scope Reduction</li></ol>

## August 2015:

1. Schedule updates are being received from the Contractor. Once all updates are received and approved, the Program can proceed with making a determination of the amount of time the Contractor is behind schedule and begin to work on ways to mitigate the delay.

## September 2015:

1. Executive Partnering meeting held August 27, 2015, established initial recovery efforts to double shift roof placement activities at UMS to recover lost time from jet grouting operations; also identify any and all work to could be performed now, and implement plan to proceed with that work. Initial ideas identified work in the tunnel. Tunnel walk thru by Contractor took place on September 2, 2015, with effected subcontractors, to develop plan for placing as much tunnel invert as possible prior to break-ins.

## October 2015:

1. Work is proceeding with the extended shifts for the roof placements; goal is to complete all but two of them by the moratorium.
2. Work in the tunnel is progressing with removal of the fan line (ducts) and preparation for invert placement. Goal is to complete all invert and rail placement by April 2016 working from North to South.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 233</b>

Risk	Mitigation Strategy
Acceptance of Shotcrete Substitution - leads to final product being inferior in performance	1. Meet and discuss with TPC's senior management what the issues are and the status for clarification.

**Initial Assessment:** 3, 3, 3  
**Current Assessment:** Risk Rating 9 -

**Risk Owner:** M. Kobler

**Status Log:**

December 2014:

1. SFMTA and TPC have a different interpretation of the contract specification language for where shotcrete may be used for the final lining of the Cross Cut, Platform and Crossover Covers at CTS in the tunnel lining.

January 2015:

1. The Program received a resubmittal of the shotcrete plan. The new submittal deletes the phrase "in lieu of". Allowing the content of the submittal to be reviewed as a mix design for shotcrete.

February 2015:

1. CSDG has been authorize to review the shotcrete resubmittal.

March 2015:

1. Receipt of the Contractor's response to SFMTA letter CS CN 1300 No. 0556 requesting the Contractor demonstrate in his submittal how the performance specifications will be met for concrete by using the shotcrete is still pending.

April 2015:

1. The Contractor has yet to respond to SFMTA's request to demonstrate performance criteria will be met.

May 2015

1. The contractor has yet to respond .

June 2015

1. Contractor has yet to submit.
2. Risk title was reevaluated for accuracy of the risk. The Risk Committee agreed the title should be changed during the June 2015 meeting.

July 2015:

1. TPC announced at the Partnering meeting they are working on the submittal demonstrating the performance requirement.

<b>Risk Mitigation Status</b>
-------------------------------

<b>Risk Reference: 233</b>
----------------------------

<b>Risk</b>	<b>Mitigation Strategy</b>
Acceptance of Shotcrete Substitution - leads to final product being inferior in performance	1. Meet and discuss with TPC's senior management what the issues are and the status for clarification.

August 2015:

1. No submittal received, TPC has informed us that they will submit two separate submittals. One for the head house and one for the underground station, crossover and cross cut. The use of shotcrete as a final lining is over a year off

September 2015:

1. Nothing submitted yet.
2. The Contractor indicated during the Partnering meeting on 08/27/15, they are working on it.

October 2015:

1. We have not received the submittal. The issue is thought to be concerning the Contractor proposing sacrificing the waterproofing membrane in front.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 234</b>

Risk	Mitigation Strategy
Sequential Excavation Method at CTS - Contractor's propose method will induce subsidence	<ol style="list-style-type: none"> <li>1. Designers concurrence on variation of options</li> <li>2. Presented four options to the Contractor for going forward</li> </ol>

**Initial Assessment:** 2, 4, 3  
**Current Assessment:** Risk Rating 7 – Construction Risk

**Risk Owner:** M. Kobler

**Status Log:**

January 2015:

1. The Program is awaiting the Contractor's SEM re-submittal. Anticipating their response to SFMTA's letter providing them with 4 options to choose from to perform the work.

February 2015:

1. No new update on this risk.

March 2015:

1. Contractor has yet to submit a response to SFMTA letter providing them with alternatives for the excavation sequences.

April 2015:

1. Contractor has not responded to SFMTA's letter with alternatives
2. The Designer of record will be contracted to review the Contractor's submittal for (scope and delivery) to determine if the proposed is viable.

May 2015:

1. The designer has proposed 4 different sequences for the contractor to evaluate. Contractor is evaluating.
2. DOR was compensated to review the SEM Geometry change and offered suggestions for TPC's evaluation.

June 2015:

1. Contractor has yet to submit.
2. Risk title was reevaluated for accuracy of the risk. The Risk Committee agreed the title should be changed during the June 2015 meeting.

July 2015:

1. Contractor has yet to submit.

**Risk Mitigation Status****Risk Reference: 234**

<b>Risk</b>	<b>Mitigation Strategy</b>
Sequential Excavation Method at CTS - Contractor's propose method will induce subsidence	1. Designers concurrence on variation of options 2. Presented four options to the Contractor for going forward

August 2015:

1. Contractor has yet to submit.

September 2015:

1. The Contractor has submitted the proposed method. The submittal was forwarded to the designer of record on July 29 and is now being reviewed by CSDG.

October 2015:

1. The submittal was returned revise and resubmit. The designer did not have an issue with the proposed sequences but wanted to see the stamped calculations.

**Risk Mitigation Status****Risk Reference: 237**

Risk	Mitigation Strategy
Non-Conforming work is not identified by TPC's Quality Control Program	<ol style="list-style-type: none"> <li>1. Correction Action Plan from Contractor</li> <li>2. Stand down meeting with Contractor</li> <li>3. Augmentation of Management Staff</li> <li>4. Higher Cross Check Standards</li> <li>5. QA (greater surveillances )</li> <li>6. Bring on additional personnel within the Smith-Emery organization</li> </ol>

**Initial Assessment:** 3, 2, 2**Risk Owner:** M. Latch**Current Assessment:** Construction Risk Rating 6**Status Log:**

## May 2015:

1. When Work is found to be non-conforming the Contractor generates a Contractor Non Conformance Report (CNCR). To date, the Contractor has logged 58 CNCRs. The Contractor is required to complete each Block 14 "Proposed Action(s)" of the Contractor's CNCR Form. USE-AS-IS and REPAIR dispositioned CNCRs must be approved by the Resident Engineer (RE) – the approval of the RE includes acceptance of Block 14.
2. The Contractor has been asked to resume the bi-weekly Quality Task Force Meetings (after the 5May2015 C1300 Progress Meeting) which should be the proper forum, or will result in additional meetings to assure that the Work is performed to the Contract Documents and that Work is inspected as required by the approved QCP.
3. Currently the Contractor has provided personnel as required except at CTS where the QCM is also the acting AQCM. TPC QC is in the process of adding personnel, the exact date is to TBD. . In addition, the reinforcing F & I Subcontractor has recently added a Quality Control Engineer (QCE) to assure, and sign-off on the preplacement card, that the rebar has been installed to the latest approved shop drawings or Engineer approved changes to the Design Drawings (the QCE also helps facilitate the generation of RFIs when rebar Design Drawings require clarification).
4. TPC QC has made Smith Emery (SE) Reinforced Concrete Inspectors aware Design Drawing details that have been the subject of CNCRs at YBM roof placements. Additionally, the SE Inspectors have been told to use Design Drawings and approved rebar shop drawings to inspect/accept the installation of reinforcing steel in all concrete placement.
5. TBD
6. TPC QC is now having an additional SE Inspector present to allow for an dedicated inspection of placed rebar prior to each concrete placement.

## June 2015:

1. No new information to report.
2. Risk title was reevaluated for accuracy of the risk. The Risk Committee agreed the title should be changed during the June 2015 meeting.

## July 2015:

1. Only change is Contractor has now written 72 CNCRs
2. At the 8Jul2015 C1300 Partnering Meeting, the need for this meeting was discussed and is to occur every other week.

**Risk Mitigation Status**

Risk Reference: 237

Risk	Mitigation Strategy
Non-Conforming work is not identified by TPC's Quality Control Program	1. Correction Action Plan from Contractor 2. Stand down meeting with Contractor 3. Augmentation of Management Staff 4. Higher Cross Check Standards 5. QA (greater surveillances ) 6. Bring on additional personnel within the Smith-Emery organization

3. There is now an Assistant CQM for each of the Contract Packages. The organization is somewhat in flux regarding the potential replacement of the current CQM due to health reasons.
4. No change
5. SFMTA QA completed Quality Assurance Audit 025 and Quality Assurance Surveillances 063-066 of TPC's implementation of their Contractor Quality Program (CQP).
6. No change
7. Risk title has been updated once more during the July 2015 meeting, to read "Non-Conforming work is not identified by TPC's Quality Control Program".

## August 2015:

1. TPC has assigned a new Quality Control Manager.
2. Assessment of the risk was done and values were assigned.
3. **Recommended risk rating 6 (3 2 2)**
  - a. Probability (3), >50%
  - b. Cost impact (2), <>\$250K - \$1M
  - c. Schedule impacts (2), <> 1 - 3 Months

## September 2015:

1. The corrective action reports (CAR) are being received.
2. The Contractor's Quality Control Plan submittal was resubmitted after SFMTA comments were addressed.
3. Reorganization of TPC Quality Control personnel was done; TPC has hired additional personnel.

## October 2015:

1. TPC QC is initiating CNCRs usually within the required 24 hours upon becoming cognizant (which at times is provided by RE Staff) of the non-conforming condition.
2. CNCRs with a Use-As-Is and Repair dispositions are being approved by SFMTA prior to repairs being performed or subsequent work being allowed to proceed.
3. TPC's CNCR Form, once again, and as originally approved, includes the CQM's approval of the disposition, root cause and steps to prevent recurrence.
4. Concrete Placement Cards now include provision for assuring that all open CNCRs are closed prior to concrete placement.
5. REs have generated no NCNs (RE requesting TPC to generate a CNCR) since mid-August.

<b>Risk Mitigation Status</b>
<b>Risk Reference: 238</b>

Risk	Mitigation Strategy
Quality Program is ineffective in processing the nonconformance items causing schedule impacts	<ol style="list-style-type: none"> <li>1. Review CNCR log on a biweekly basis.</li> <li>2. Greater clarity in the Log on what CNCR's are open</li> </ol>

**Initial Assessment:** 3, 2,2  
**Current Assessment:** Construction Risk Rating 6

**Risk Owner:** M. Latch

**Status Log:**

July 2015:

1. Discussion required regarding condemning the "Quality Program" VS TPC/TPC QC's inability to; accurately log and or expedite the determination of the disposition of a CNCR, provide timely suggested repair procedures, determine root cause, provide acceptable steps to prevent recurrence, correctly close or accurately update the CNCR Log .
2. TPC QC has begun using the CM13 module for Noncompliance Notices for CNCRs. This should provide for timely submittal of CNCRs and timely/accurate updates of the CNCR Log. More to follow.

August 2015:

1. Assessment of the risk was done and values were assigned.
2. **Recommended risk rating 6 (3 2 2)**
  - a. Probability (3), >50%
  - b. Cost impact (2), <>\$250K - \$1M
  - c. Schedule impacts (2), <> 1 - 3 Months

September 2015:

1. SFMTA Construction team diligently working to make sure the CNCR log is accurate and nonconformance items are being clearly addressed

October 2015:

1. As mentioned in the 6Oct2015 C1300 Progress Meeting - TPC QC has made significant progress in providing a more complete, accurate and timely CNCR Log.



**Risk Mitigation Status****Risk Reference: 240**

<b>Risk</b>	<b>Mitigation Strategy</b>
Unresolved Assignment of Schedule Delay Responsibility (may lead to increase cost for the Program)	1. Ask for TIA's 2. As Built Schedule (Program Analysis) 3. Perform a more refined analysis

**Initial Assessment:** 2, 4, 4**Current Assessment:** Risk Rating 8 – Construction Risk**Risk Owner:** E. Stassevitch**Status Log:**

October 2015:

1. Risk was assessed, risk rating was applied and mitigation strategy added.
2. SFMTA requested the Contractor to submit a recover schedule to demonstrate the method to which they intend to capture the time loss. If the Contractor elects not to produce a recovery schedule. The Program should formally document the Contractor is not adhering to the contract.

**Risk Mitigation Status****Risk Reference: 241**

Risk	Mitigation Strategy
Potential Winter Impacts (Preparation for El Niño)	<ol style="list-style-type: none"><li>1. Allowing planning for future activities during rainy days</li><li>2. Have access to standby generator and large capacity pumps.</li></ol>

**Initial Assessment:** 3, 2, 2**Current Assessment:** Risk Rating 6 – Construction Risk**Risk Owner:** E. Stassevitch**Status Log:**

October 2015:

1. Risk was assessed, risk rating was applied and mitigation strategy added.
2. The Program should make sure there are large capacity pumps on standby, in case they are needed.

**Risk Mitigation Status****Risk Reference: 242**

<b>Risk</b>	<b>Mitigation Strategy</b>
Request received during the super bowl event (February 2016) - could potentially impact the schedule for 2 - 3 weeks.	1. Work closely with the Mayor's Office

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

October 2015:

1. Risk was assessed, risk rating was applied and mitigation strategy added.
2. Any request made by the super bowl committee, will be made through the Mayor Office. It is the Mayor's Office responsibility to mitigate the request.

**Risk Register**

	A	H	I	J	K	L	M	N	O	P	Q	R	S	
1	<b>PROJECT RISK REGISTER</b>					Low (1)	Medium (2)	High (3)	Very High (4)	Significant (5)	Legend	RISK RATING = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT) SCORE = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)		
2	Central Subway Project San Francisco				Probability	< 10%	<> 10-50%	> 50%	<> 75% & 90%	>90%	<3 Low			
3	REV : 48				Cost Impact	< \$250K	<> \$250K - \$1M	<> \$1M - \$3M	<> \$3M - \$10M	>\$10M	3-9 Medium			
4	DATE ISSUED: 10/08/15				Schedule Impact	< 1 Month	<> 1 - 3 Months	<> 3-6 Months	<> 6 - 12 Months	> 12 Months	>10 High			
5	<b>Final Risk ID</b>	<b>Risk Description</b>	<b>Mitigation Description</b>	<b>Risk Category</b>	<b>Probability %</b>	<b>Cost Impact</b>	<b>Schedule Impact</b>	<b>Calc Impact</b>	<b>Calc %</b>	<b>Risk Rating</b>	<b>Score</b>	<b>Status</b>	<b>Must Complete by Date</b>	
12	Underground Tunnel													
45	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			5/26/15 UMS1295	
52	Track Embedded													
55	Track: Special													
58	MOS Station													
60	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	
63	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	
67	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	

**Risk Register**

	A	H	I	J	K	L	M	N	O	P	Q	R	S
1	<b>PROJECT RISK REGISTER</b>					Low (1)	Medium (2)	High (3)	Very High (4)	Significant (5)	Legend	RISK RATING = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT) 2 SCORE = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)	
2	Central Subway Project San Francisco				Probability	< 10%	<> 10-50%	> 50%	<> 75% & 90%	>90%	<3 Low		
3	REV : 48				Cost Impact	< \$250K	<> \$250K - \$1M	<> \$1M - \$3M	<> \$3M - \$10M	>\$10M	3-9 Medium		
4	DATE ISSUED: 10/08/15				Schedule Impact	< 1 Month	<> 1 - 3 Months	<> 3-6 Months	<> 6 - 12 Months	> 12 Months	>10 High		
5	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
98	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
99	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
107	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
108	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
111	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
112	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

**Risk Register**

	A	H	I	J	K	L	M	N	O	P	Q	R	S
1	<b>PROJECT RISK REGISTER</b>					Low (1)	Medium (2)	High (3)	Very High (4)	Significant (5)	Legend	RISK RATING = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT) 2 SCORE = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)	
2	Central Subway Project San Francisco				Probability	< 10%	<> 10-50%	> 50%	<> 75% & 90%	>90%	<3 Low		
3	REV : 48				Cost Impact	< \$250K	<> \$250K - \$1M	<> \$1M - \$3M	<> \$3M - \$10M	>\$10M	3-9 Medium		
4	DATE ISSUED: 10/08/15				Schedule Impact	< 1 Month	<> 1 - 3 Months	<> 3-6 Months	<> 6 - 12 Months	> 12 Months	>10 High		
5	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
113	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
160	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
161	CTS Station												
163	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

**Risk Register**

	A	H	I	J	K	L	M	N	O	P	Q	R	S
1	<b>PROJECT RISK REGISTER</b>					Low (1)	Medium (2)	High (3)	Very High (4)	Significant (5)	Legend	RISK RATING = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT) SCORE = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)	
2	Central Subway Project San Francisco				Probability	< 10%	<> 10-50%	> 50%	<> 75% & 90%	>90%	<3 Low		
3	REV : 48				Cost Impact	< \$250K	<> \$250K - \$1M	<> \$1M - \$3M	<> \$3M - \$10M	>\$10M	3-9 Medium		
4	DATE ISSUED: 10/08/15				Schedule Impact	< 1 Month	<> 1 - 3 Months	<> 3-6 Months	<> 6 - 12 Months	> 12 Months	>10 High		
5	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
167	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
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. 8. Need to identify the new SFPUC contact	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												

**Risk Register**

	A	H	I	J	K	L	M	N	O	P	Q	R	S
1	<b>PROJECT RISK REGISTER</b>					Low (1)	Medium (2)	High (3)	Very High (4)	Significant (5)	Legend		
2	Central Subway Project San Francisco				Probability	< 10%	<> 10-50%	> 50%	<> 75% & 90%	>90%	<3 Low	RISK RATING = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)	
3	REV : 48				Cost Impact	< \$250K	<> \$250K - \$1M	<> \$1M - \$3M	<> \$3M - \$10M	>\$10M	3-9 Medium	2	
4	DATE ISSUED: 10/08/15				Schedule Impact	< 1 Month	<> 1 - 3 Months	<> 3-6 Months	<> 6 - 12 Months	> 12 Months	>10 High	SCORE = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)	
5	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
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												
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												
278	Preliminary Engineering												
291	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
297	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
299	100	Procurement of long lead items delays work. (fans, rails and special track work, TPSS, Escalators, elevators, TBM)	1. Include schedule milestones for procurement of and substantial payment for stored long lead items in contract to encourage early procurement. 2. Monitor procurement of critical items.	C	1	2	2	2	10%	2	4	Not considered a project risk.	11/17/17 STS 1500



**Risk Register**

	A	H	I	J	K	L	M	N	O	P	Q	R	S	
1	<b>PROJECT RISK REGISTER</b>					Low (1)	Medium (2)	High (3)	Very High (4)	Significant (5)	Legend	RISK RATING = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT) SCORE = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)		
2	Central Subway Project San Francisco				Probability	< 10%	<> 10-50%	> 50%	<> 75% & 90%	>90%	<3 Low			
3	REV : 48				Cost Impact	< \$250K	<> \$250K - \$1M	<> \$1M - \$3M	<> \$3M - \$10M	>\$10M	3-9 Medium			
4	DATE ISSUED: 10/08/15				Schedule Impact	< 1 Month	<> 1 - 3 Months	<> 3-6 Months	<> 6 - 12 Months	> 12 Months	>10 High			
5	<b>Final Risk ID</b>	<b>Risk Description</b>	<b>Mitigation Description</b>	<b>Risk Category</b>	<b>Probability %</b>	<b>Cost Impact</b>	<b>Schedule Impact</b>	<b>Calc Impact</b>	<b>Calc %</b>	<b>Risk Rating</b>	<b>Score</b>	<b>Status</b>	<b>Must Complete by Date</b>	
305	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	
306	Insurance, permits etc.													
307	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	
308	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	
309	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	
310	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	
312	Unallocated Contingency													
317	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	
318	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	
329	204	AT&T Vault - New Sewer Work south of Bryant	1. Continue negotiations/coordination with utility owners. 2. Schedule analysis to confirm coordination	C	1	2	4	3	10%	3	6			
330	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			
339	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			
341	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			

**Risk Register**

	A	H	I	J	K	L	M	N	O	P	Q	R	S
1	<b>PROJECT RISK REGISTER</b>					Low (1)	Medium (2)	High (3)	Very High (4)	Significant (5)	Legend	RISK RATING = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT) 2 SCORE = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)	
2	Central Subway Project San Francisco				Probability	< 10%	<> 10-50%	> 50%	<> 75% & 90%	>90%	<3 Low		
3	REV : 48				Cost Impact	< \$250K	<> \$250K - \$1M	<> \$1M - \$3M	<> \$3M - \$10M	>\$10M	3-9 Medium		
4	DATE ISSUED: 10/08/15				Schedule Impact	< 1 Month	<> 1 - 3 Months	<> 3-6 Months	<> 6 - 12 Months	> 12 Months	>10 High		
5	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
342	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.	
347	222	ARGUS Monitoring Software - Sharing Instrumentation for CN1252 and CN1300	1. Outline responsibilities for each contractor (1252 & 1300)	C	3	3	1	2	50%	6	12		
348	223	Contamination during dewatering (CTS)	1. Review contract requirements .	C	2	3	1	2	35%	4	8		
349	224	CTS AWSS/Ductbank Interface - AWSS system is old and requires replacement	1. Look at alternatives to address 2. Turn off system while CSP work is being done, and then turn on later (find a bypass).	C	5	1	2	2	90%	8	15		
351	226	4th and King Street - Potential time for planned work shutdown - Contractor not able to perform the work in the manner prescribed	1. Identify schedule of potential time for planned work shutdown 2. Identify better traffic patterns 3. Pursue 4th & King option to achieve additional 3-6mos on the schedule 4. Review Giants and Warriors schedule for home games	C	3	3	3	3	50%	9	18		
352	227	LRV Training - having enough trained operators (surplus)	1. Ramp up trained operators a year ahead of time 2. Ensure testing is finished 3. Completion of work at storage track location (Bryant & King)	C	1	2	1	2	10%	2	3		
353	228	Muni union workers - barn signup (preferred runs)	1. Try to get six months advance notice for annual in addition to barn sign up.	C	1	1	1	1	10%	1	2		
354	229	Pre Revenue Testing		C									
355	230	Post Revenue Testing		C									
357	232	Behind Schedule - Unable to Recover from Delay to 1300 Contract	1. Schedule analysis of number of days behind 2.	C	4	3	3	3	80%	12	24		
358	233	Shotcrete Substitution - Final Finish Concrete Lining is Inferior	1. Meet and discuss with TPC's senior management what the issues are and the status for clarification.	C	3	3	3	3	50%	9	18		
359	234	Sequential Excavation Method at CTS - Contractor's propose method will induce subsidence	1. Designers concurrence on variation of options 2. Presented four options to the Contractor for going forward	C	2	4	3	4	35%	7	14		
360	235	Sewer work running up and down Stockton Street		C	1	3	1	2	10%	2	4		

**Risk Register**

	A	H	I	J	K	L	M	N	O	P	Q	R	S
1	<b>PROJECT RISK REGISTER</b>					Low (1)	Medium (2)	High (3)	Very High (4)	Significant (5)	Legend	RISK RATING = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT) SCORE = PROBABILITY X (COST IMPACT + SCHEDULE IMPACT)	
2	Central Subway Project San Francisco				Probability	< 10%	<> 10-50%	> 50%	<> 75% & 90%	>90%	<3 Low		
3	REV : 48				Cost Impact	< \$250K	<> \$250K - \$1M	<> \$1M - \$3M	<> \$3M - \$10M	>\$10M	3-9 Medium		
4	DATE ISSUED: 10/08/15				Schedule Impact	< 1 Month	<> 1 - 3 Months	<> 3-6 Months	<> 6 - 12 Months	> 12 Months	>10 High		
5	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
362	237	Non-Conforming work is not identified by TPC's Quality Control Program	1. Correction Action Plan from Contractor 2. Stand down Meeting with Contractor 3. Augmentation of Management Staff 4. Higher Cross Standards 5. QA (greater surveillances ) 6. Bring on additional personnel within the Smith-Emery organization	C	2	3	2	3	35%	5	10		
363	238	Quality Program is ineffective in processing the nonconformance items causing schedule impacts	1. Review the CNCR log on a biweekly basis at the joint TPC /SFMTA meeting. 2. Greater Clairity in the Log on what CNCR's are open	C	3	2	2	2	50%	6	12		
364	239	Revenue Service Delay		C				-	0%	-	-		
365	240	Unresolved Assignment of Schedule Delay Responsibility (may lead to increase cost)	1. Ask the Contractor for TIA's 2. As built schedule (Program analysis) 3. Perform a more refined analysis	C	2	4	4	4	35%	8	16		
366	241	Potential Winter Impacts (Preparation for El Niño)	1. Allowing planning for future activities during rainy days 2. Have a large capacity pump on standby	C	3	2	2	2	50%	6	12		
367	242	Request received during the super bowl event (February 2016) - could potentially impact the schedule for 2 - 3 weeks.	1. Work closely with the Mayor's Office	C	1	2	1	2	10%	2	3		