FEDERAL TRANSIT ADMINISTRATION

PROJECT MANAGEMENT OVERSIGHT PROGRAM

Contract No.: DTFT60-04-D-00010
Project No.: DC-27-5001, CLIN 0003, PG 12
Task Order No. 5 – Sound Transit Capital Projects

Grantee: Central Puget Sound Regional Transit Authority
D.b.a. Sound Transit

Central Link Light Rail Project
Initial
and
Airport Segments
Monitoring Report, Part I – May 2008

STV Incorporated
225 Park Avenue South
New York, NY 10003

TABLE OF CONTENTS

LIST OF ACRONYMS

AL	Airport Link
APS	Auxiliary Power Supply
BCE	Baseline Cost Estimate
BDA	Bi-Directional Amplifiers
BFMP	Bus Fleet Management Plan
BHT(S)	Beacon Hill Tunnels (Stations)
CAP	Corrective Action Plan
CCB	Change Control Board
CEO	Chief Executive Officer
CM	Construction Management
CNRFP	Change Notice Request for Proposal
CO	Change Order
COS	City of Seattle
CP	Critical Path
CSM	Construction Safety Manual
CSSM	Construction Safety and Security Manual
CSP	Construction Safety Plan
CSSQ	Chief, Safety, Security, and Quality Assurance Officer
DSTT	Downtown Seattle Transit Tunnel
EPBM	Earth Pressure Balance (tunneling) Machine
ERMP	Emergency Response Management Plan
FD	Final Design
FFGA	Full Funding Grant Agreement
FLS(C)	Fire Life Safety (Committee)
FTA	Federal Transit Administration
FTE	Full Time Equivalent
HVAC	Heating Ventilation Air Conditioning
IDS	International District Station
IS (/AL)	Initial Segment (/Airport Link)
ITM	Integration Test Manager
KC (M)	King County (Metro)
LONP	Letter of No Prejudice
LRV	Light Rail Vehicle
MOU or A	Memorandum of Understanding or Agreement
MP	Maintenance Plan
NB	Northbound
NCR	Non Conformance Report
NTP	Notice to Proceed
OCC	Operation Control Center
OCIP	Owner-Controlled Insurance Plan
OCS	Overhead Catenary System
O&M	Operations and Maintenance
OMF	Operations and Maintenance Facility
OP	Operations Plan
OSHA	Occupational Safety and Health Administration

PE	Preliminary Engineering
PLC	Programmable Logic Controller
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
POS	Port of Seattle
PRO	Pre-Revenue Operations
PSP	Pre-Revenue Operations and Start-up Plan
PSST	Pine Street Stub Tunnel
QAM	Quality Assurance Manager
QA/QC	Quality Assurance/Quality Control
Q(P)RM	Quarterly (Progress) Review Meeting
RAM	Rail Activation Manager
RAC	Rail Activation Committee
RAP	Rail Activation Plan
RCA	Root Cause Analysis
RE	Resident Engineer
RFI	Request for Information
RFMP	Rail Fleet Management Plan
RMS	Re-baselined Master Schedule
ROD	Record of Decision
ROW	Right-of-Way
RTID	Regional Transportation Improvement District
SB	Southbound
SCL	Seattle City Light
SCP	Safety Certification Program
SFD	Seattle Fire Department
SITM	System Integration Test Manager
SIT(P)	System Integration Test[ing] (Plan)
SODO	South of Downtown
SOP	Standard Operating Procedure
SPD	Seattle Police Department
SSCP	Safety and Security Certification Plan
SSEPP	System Security and Emergency Preparedness Plan
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
SSP	System Security Plan
SSPP	System Safety Program Plan
SSPS	System Safety Program Standards
SSQA	Safety Security and QA
ST	Sound Transit
TBM	Tunnel Boring Machine
TCE	Temporary Construction Easement
T/PCO	Temporary/Permanent Certificate of Occupancy
TFR	Tukwila Freeway Route
TPSS	Traction Powered Sub-Station
TVM	Ticket Vending Machine
UAC	Unallocated Contingency

UL/U-Link	University Link
VECP	Value Engineering Change Proposal
VMS	Variable Message Signs
WD	Work Directive
WSDOT	Washington State Department of Transportation

FOREWORD

The Federal Transit Administration (FTA) and Sound Transit (ST) are working toward and anticipate that the Airport Link (AL) Project Scope will be added to the Scope of the current Full Funding Grant Agreement (FFGA) that covers the Initial Segment (IS) Project Scope. The FTA has instructed the Project Management Oversight Contractor (PMOC) to include coverage of the AL Project in this Report.

1. EXECUTIVE SUMMARY

A. Project Description

- **General Description:** The IS of the Central Link Light Rail Project is a light rail line that will operate between the north end of the Downtown Seattle Transit Tunnel (DSTT) and the intersection of South 154th Street and State Route 518, connecting the cities of Seattle, Tukwila and SeaTac. The IS alignment includes tunnel, elevated and at-grade operations and is being constructed by ST.

  The AL is an extension of the IS south of the intersection of South 154th Street and State Route 518 to SeaTac Airport. The AL alignment includes elevated and at-grade trackway and is being constructed by ST in conjunction with the Port of Seattle (POS).

- **Length:** The IS includes 13.9 miles of double-tracked line. The AL scope includes 1.7 miles of double-tracked line.

- **No. of Stations:** The FFGA for the IS now includes 11 stations as well as one station being added for the AL. Two additional station locations (Royal Brougham/Stadium and Boeing Access Road) were identified in the environmental documents and deferred for budgetary consideration at the time the FFGA was processed. Construction of the foundation for the Royal Brougham/Stadium Station is included in the FFGA. ST has authorized the use of local funds for construction of the platforms, canopy and other items needed to make the Royal Brougham/Stadium Station fully operational when ST begins revenue operations on the IS.

- **Additional Facilities:** The IS includes an Operations and Maintenance (O&M) Facility three miles south of its northern terminal that can be expanded to accommodate vehicles for the University Link (UL) and AL extensions. The IS also includes a Park-and-Ride Facility at the southern terminal with a temporary shuttle bus to the Airport. The AL scope includes a pedestrian bridge across International Boulevard with a plaza to facilitate passenger access.

- **Vehicles:** Thirty-one vehicles are being acquired to provide revenue service on the IS, with an additional four vehicles included in the AL scope.

- **Ridership Forecast:** Ridership on the IS is forecast in the 2004 New Starts Report at 42,500 daily boardings in 2020.

B. Project Status

- The Project is in the Construction phase for both the IS and the AL.

- The IS is progressing on schedule (October 2003 FFGA Baseline Schedule) with respect to the revenue service date, within budget and in general accordance with approved plans,

specifications and terms of the FFGA. ST reports that the AL is progressing on schedule with respect to its revenue operations date of December 31, 2009. It is the PMOC's opinion that less-than-planned construction progress and technical issues with respect to the Communications Systems element are risks to achieving the planned revenue service date for the IS Project as well as the AL extension.

C. IS Schedule

- Preliminary Engineering (PE): Entry into PE for the entire Central Link Project was approved in August 1997. PE for the current scope of the IS was completed in August 2002.
- Record of Decision (ROD): The ROD for the entire Central Link Project was issued in January 2000. An amended ROD for the IS was issued in May 2002.
- Final Design (FD): Entry into FD for the IS was approved in August 2002. FD for the construction elements was completed in April 2004.
- FFGA Executed: The FFGA for the IS was executed in October 2003.
- Construction: Groundbreaking for the first construction contracts occurred in November 2003. Construction activities for the IS, including construction services, third-party activity, vehicles, right-of-way and construction costs, were approximately *85.1*% complete based on expenditures as of *April* 2008 and compared to the estimated final cost.
- Total Project % Complete: Total Project completion for the IS is estimated to be *81.9*%, based on expenditures compared to the estimated final cost as reported in the *April* 2008 Agency Progress Report.
- Revenue Operations Date**:**

	FFGA ROD	FFGA as Amended	Forecast		Actual
			Grantee	PMOC	
Initial Segment	07/03/09	N/A	07/03/09	TBD	N/A
Airport Link	N/A	N/A	12/31/09	TBD	N/A

- Quarterly Progress Review Meeting: The next Quarterly Progress Review Meeting (QPRM) is scheduled for July 30, 2008.

D. IS Cost Data

Source: *April* 2008 ST Project Report.

($ in millions)	FFGA Amount	FFGA as Amended	Current Cost Estimate	Expenditure to Date
Total Project Cost	$2,437	N/A	$*2,297*	$*1,882*
Total FTA Share	$500	N/A	$500	$185
New Starts Share	$500	N/A	$*471**	$185
Local Share	$1,937	N/A	$*1,826*	$*1,697*

*20.5% of estimated final cost

Contingency: The Contingency identified in the FFGA consists of $47.7 million in Unallocated Construction Contingency and $128.3 million in Project Reserve, totaling $176.0 million, or 9.3% of the Baseline Cost Estimate (BCE), less Contingency. ST's *April* 2008 Contingency Activity Report indicates that the forecast Unallocated Contingency balance is $19.0 million, no change from the previous month. The PMOC continues to expect that additional contingency reductions related to construction claims settlements will occur in the coming months that will further decrease the Unallocated Contingency. The balance of the Total Contingency identified in the FFGA is $147.3 million including the Project Reserve, or *35.5%* of the remaining forecast funds to be expended. It is the opinion of the PMOC that the contingencies for the IS including the Project Reserve are adequate for the current status of the Project, although it should be anticipated that all of the Unallocated Contingency and a portion of the Project Reserve will be expended prior to completion of the Project, leaving the *remainder* of the Project Reserve available for any unanticipated increases. As noted in previous reports, the cost forecasts provided by ST do not include the full forecast value for current and potential claims.

E. Technical Capacity Review

The PMOC is in the process of reviewing planning documents for their applicability to the AL Project. Current status relative to the AL Project is addressed where known.

- **Link Light Rail IS and *AL* Project Management Plans (PMP):** FTA has found the PMP for the Link LRT IS Project conditionally acceptable; however, continued revision may be required. (See Major Concerns/Issues below.) The AL PMP will require an update prior to PMOC review.
- **Operations Plan (OP)**: Revision 3 of the OP dated January 30, 2008 was reviewed by the PMOC in February. The OP is written to cover operation of both the IS and the AL. The PMOC comments were provided to ST in a March 3, 2008 memorandum that included an annotated copy of Revision 3 as an attachment. *As of the end of May 2008, a revision had not been received. ST anticipates that a revision will be submitted during June.*
- **Maintenance Plan (MP):** Revision 2 of the IS/AL Maintenance Plan, now titled "Maintenance Management Plan," was issued in August 2007. The PMOC review was initiated and suspended as the document was retracted. Due to staffing/resource issues, timing of the re-submission is uncertain. As of the end of *May* 2008, a revision had not been received. *ST has not yet projected when a revision may be expected.*
- **Real Estate Acquisition Plan:** The PMOC completed its review of the current Plan for the IS and its implementation, and determined that both are acceptable.

- **Quality Assurance/Quality Control (QA/QC) Plan:** The previous PMOC received and reviewed both the Final Design Quality Plan (Revision 2, February 2004) and the Quality Assurance Program Plan (Revision 2, September 2002), and found both to be acceptable. The revised Construction Quality Plan (Revision 1, October 2004) was found to be acceptable and is under continuing review with respect to its implementation. Issues arose during April and May 2007 that reflected weakness in the implementation of Construction Quality. The PMOC has been monitoring ST's response to the observed issues.
- **Construction Safety Manual**: Revision 1 of this Manual was issued in October 2002 and found to be acceptable *for the IS and, by extension, the AL. This manual is undergoing revision into a Construction Safety and Security Manual (CSSM) for use on the UL and future projects.*
- **System Safety Program Plan (SSPP):** Revision 1 of this Plan for Link Light Rail was issued in September 2002. The PMOC has suggested that ST review this document and incorporate changes relating to evolution of the Project and design as appropriate. The PMOC encourages ST and King County Metro (KCM) to continue the development of this document on a priority basis in support of the IS and follow-on projects.
- **System Security Plan (SSP):** The revised 49 CFR Part 659 that became effective on May 1, 2005 requires that a separate System Security Plan (SSP) be developed by each rail fixed guideway operating agency. Previously, Security could be included in the agency's SSPP. The Washington State Department of Transportation (WSDOT) issued a draft revised Program Standard in mid-April and the final was issued in May 2006. The PMOC expects that the SSP will be developed and submitted to WSDOT on the same schedule as the SSPP.
- **Safety and Security Certification Plan (SSCP)**: A revision of the SSCP, identified as Revision 0 and dated September 2007, was received in mid-September. The PMOC's review found that comments made on previous versions have been substantially addressed.
- **Rail Fleet Management Plan (RFMP):** RFMP Revision 5-Final dated January 15, 2008 was included with the January 31, 2008 FFGA Application for the UL Project. The PMOC reviewed the Plan in February and found it substantively acceptable, but some data corrections are needed. These were communicated to ST in early March and the PMOC will provide formal comments as part of its UL FFGA Readiness Assessment. In its memorandum dated March 5, 2008, the PMOC found the RFMP to be acceptable; however, the PMOC also recommended that identified data-entry corrections be made by not later than July 1, 2008.
- **Bus Fleet Management Plan (BFMP):** Revision 3 of the BFMP dated January 2008 was included with the January 31, 2008 FFGA Application for the UL Project. The PMOC reviewed the BFMP revision in February and found it to be acceptable. One reference correction is needed, but it can be made as part of the next annual revision of the Plan. This was conveyed to ST in a March 5, 2008 memorandum.
- **Rail Activation Plan (RAP):** On June 26, 2007, ST issued Final Revision 0 of the RAP, which added the Rail Activation Schedule. The PMOC reviewed and returned comments on an annotated copy of the RAP. A draft of the last of the RAP's supporting plans, the Pre-revenue Operations and Start-Up Plan (PSP) dated November 29, 2007 was reviewed and informal comments were provided to the Rail Activation Manager (RAM) in February. As of the end of *May* 2008, the PSP remains under revision by ST.
- **System Integration Test Plan (SITP):** Volume 1 of the SITP, the Test Plan, was completed in June 2007. Volume 2, the Test Procedures, is complete with the last of the procedures being finalized in December 2007. Test Data Sheets to support each procedure for the

individual tests will be developed throughout the testing process. This Plan may need to be modified, or a separate Plan could be required for the AL Rail Activation. *In May 2008, the SIT Manager indicated that the existing SITP and test procedures will be revised/expanded to incorporate Systems Integration Testing for the AL extension.*

- **Link Construction Manual:** The PMOC received Revision 2, dated September 2004, and found that the Manual was acceptable, but recommended several changes for the next revision. To institutionally inform the designers of the UL Light Rail Project, the PMOC recommends that this document be revised by ST and resubmitted in light of many Lessons Learned refinements from the IS contracts that are nearing completion.
- **Safety and Security Management Plan (SSMP):** In late September, the PMOC received a copy of IS/AL SSMP Revision 1 dated 10 August 2007 and found that it is responsive to all significant comments made in the review of the previous revision. A PMOC memo that recommends FTA acceptance was issued on October 2, 2007.

F. Safety and Security

- Attachment A shows the standard FTA Safety Checklist for the Central Link Light Rail Project and it appears immediately after Section 1 of this report.
- Attachment C, which follows Attachment B at the end of Section 3 of this Report, shows a summary of the status of ST's Corrective Action Plan (CAP) to address the recommendations made in Assessment of Safety and Security Final Spot Report No. 8 (SR 8), dated September 2007. The status of Corrective Actions will be routinely updated in Appendix C, with particularly significant actions reported in this section of the Executive Summary. The Tracking Matrix has been updated to show progress through *May 31*, 2008. It reflects that *14* of the 25 Corrective Actions are now complete.
- CAP UPDATE: *One* Corrective Action *was* completed in *May, with the finalization of a Standard Operating Procedure (SOP) on the conduct of Safety briefings.* There are *11* items remaining on the CAP with all of them due to be complete on or before July 3, 2008. *This is not likely to be* achieved *because none of the* vacant Safety Security and Quality Assurance (SSQA) positions *were filled in the last three months.* As of the end of *May*, four positions still remain vacant (Rail Safety Manager, Security Officer, and two QA Specialists). Recruitment is active for three of them and the Security Officer position was scheduled to be posted in May. *Instead, that position will be taken by a temporary transfer from the Seattle Police Department (SPD) to provide Security management for SSQA while the Chief Security Officer is on active military duty beginning in July 2008.* Interviews of Rail Safety Manager candidates *will take place in early June. One internal QA Specialist candidate was interviewed in May. External posting will be made for the second QA Specialist.*

G. Major Issues/Problems

- Based on its review of the current schedule and observations of construction progress in the field, it is the PMOC's opinion that the original project float has eroded along with the probability of meeting the target date for start of revenue operations. Slower-than-planned progress on the Beacon Hill Tunnels (BHT) and stations has increased the concurrency and shifted priority of activities in proximity to the Project's Critical Path (CP), thereby increasing the likelihood of delay. Recently, the Float status has stabilized to some degree and ST is analyzing opportunities to provide early access to follow-on systems contractors.

In general however, the PMOC remains concerned with the continued delay-driven concurrency of system-wide equipment installation, integration and test activities. It remains essential that the facilities/systems interfaces and systems integration and tests continue to be defined in detail and that the Schedule is actively maintained with the civil contracts servicing the overall schedule. The PMOC has seen evidence that an enhanced scheduling effort is being pursued*; however, corresponding management action is pending.* For over *eight* months, the contractor's schedule for C710 has continued to show delays in providing access to the systems contractor of up to five months when compared with ST's Re-baselined Master Schedule. In March 2008, ST's Construction Management (CM) team and Senior Management met with the contractor to review the status of ST's "must-have dates" that tie into access for the follow-on systems contractors. ST and the contractor continue to discuss the pending turnover of the Northbound (NB) tracks to the follow-on systems contractors later this year; *however, concrete agreement regarding the turnover dates to the systems contractor has not as yet materialized.* Although schedule float inventory *has remained somewhat stable*, the PMOC remains *very* concerned that these contractor-forecast schedule delays have increased the potential for impact to the Revenue Operation Date.

- The December 2007 suspension of bus operations in the DSTT has revealed technical deficiencies with elements of the contract C803 Communications Systems. In the PMOC's opinion, it appears evident that the manifestation of additional design and Quality issues should be anticipated as the overall systems test program is initiated. From the PMOC's perspective, due to the complexity of the communications system, this situation has the potential to further erode the probability of achieving the July 2009 revenue service date. ST continues to disagree with the PMOC's view on this issue. ST believes that the experience with the technical issues associated with the controls systems in the DSTT has provided ST with opportunities to learn and understand the nature of the issues with the C803 Communication Systems. ST will utilize Lessons Learned to enhance the design and quality of the Communications Systems for the remaining portions of the project, hopefully preventing similar issues from impacting the July 2009 revenue service date. ST has yet to receive an acceptable schedule from the C803 contractor in the last *six* months. The schedule that the contractor submitted after long delays does not conform to the milestone dates in the project schedule. The PMOC is concerned by the lack of progress made by the contractor in its design and delivery of the communications equipment, coupled with the continued quality and reliability issues with equipment installed in the DSTT. Despite ST's views to the contrary, the PMOC continues to believe that these issues could adversely impact the schedule and, ultimately, system operations.

ATTACHMENT A: SAFETY CHECKLIST - Central Link Light Rail Project Initial Segment		
Areas of Focus	**Y/N**	**Status/Comment**
State Safety Oversight Agency		
Does the State have a designated State Safety Oversight Agency (SSOA) as defined in 49 CFR Part 659?	Y	Washington State Department of Transportation, Public Transportation and Rail Division Attn: Michael Flood 401 Second Ave., South Suite 300 Seattle, WA 98104 floodm@wsdot.wa.gov (206) 464-1291
If so, does the SSOA's authority extend to pre-revenue operations?	Y	
Has the SSOA established its System Safety Program Standards (SSPS)?	Y	The SSOA has completed the updating the SSPS to reflect the new requirements of 49 CFR Part 659 that took effect on May 1, 2005 and released the revised Standard on April 29, 2006.
Has the SSOA received, reviewed and approved the grantee's System Safety Program Plan (SSPP)?	N	A revised Tacoma Link SSPP, as well as a revised SSP; complying with the new SSPS have been approved by the SSOA. The Tacoma model will be used for Central Link. The IGA calls for the Central Link IS SSPP to be drafted by KCM, be approved by ST, and be approved by the SSOA 120 days before the planned start of revenue service.
Does SSOA participate in Project Development? Participate being things such as review design documents, attend review meetings, comment on the how the safety aspects of the Project are being addressed.	Y	The SSOA representative is invited to the Quarterly Project Management Review meetings.
Has the SSOA performed a pre-revenue safety review of the grantee's project?	N	Construction is not complete.
System Safety		
Is the grantee's overall Safety Program properly documented in its Project Management Plan (PMP)?	Y	ST's IS/AL SSMP is acceptable and is properly referenced in the current version of the PMP.
Do the grantee's PMP and associated Safety Program include an appropriate safety policy adopted by its top	Y	A Safety Policy Statement appearing in an early SSMP draft was signed by the ST CEO on 8/21/03. While the SSMP was

management?		not, and still is not, fully in compliance with FTA requirements, the Safety Policy Statement is acceptable.
Do the grantee's PMP and associated Safety Program establish a specific organizational entity, and/or individual, responsible for the Safety Program?	Y	The Initial Segment Link Project Manager has overall responsibility. The day-to-day responsibility for safety activities across the project phases is not clear; they are to be described in the SSMP.
Do the grantee's PMP and associated Safety Program specify staffing requirements, procedures and authority for the safety activities?	N	Staffing requirements are being developed for the Safety and Security functions to be appended to the PMP.
Do the grantee's PMP and associated Safety Program include a formal Safety Certification Program (SCP)?	Y	Safety Certification Program Plan Revision 0 dated April 2003 has been followed for design and construction; a revised Safety and Security Certification Plan (SSCP) is being developed as part of the Rail Activation Plan.
Do the grantee's PMP and associated Safety Program include the development/use of a Safety Design Criteria Manual or equivalent documents?	Y	The Design Criteria Manual properly addresses Safety.
Has the grantee developed, and the SSOA approved, the grantee's SSPP? What is the status of this process between the grantee and SSOA?	N	See above. SSOA approval of the Central Link SSPP, and SSP, is planned for 120 days prior to the scheduled revenue service start date.
Is the grantee implementing its Safety Program as defined in the PMP? Are the safety milestones being met? (Note: this does assume that the Safety Program is properly documented in the PMP.)		PMP and SSMP are under revision.
Construction Safety		
Is the grantee's Construction Safety Program (CSP) documented in the PMP?	Y	Construction Safety Manual Revision 1 dated October 2002.
Has the grantee implemented its CSP?	Y	Degree of contractor adherence to CSP requirements is unknown due to the apparent lack of regular, formal audits.
How do the grantee's Occupational Safety and Health Administration (OSHA) statistics compare to the national average for the same type of work? If the comparison is not favorable, what actions are being taken by the grantee to improve its safety record?		ST averages are reported to be comparable to national and state averages.

Is the grantee using wrap-up insurance on this Project? Is the grantee using safety incentives/disincentives on this Project?	Y	An Owner-Controlled Insurance Program (OCIP) is in place.
Shared Track		
Does this Project have shared track?	N	
Has the Grantee coordinated with Federal Railway Administration (FRA) regarding waivers for shared track usage?	N	
Shared Corridor		
Does this Project include shared corridor? Please describe geography of shared corridor.	N	
What is the grantee doing to specifically address safety concerns in the shared corridor portion of the Project?	N/A	

2. ACTION ITEMS

PR	ITEM	IDENTIFICATION	NATURE OF PROBLEM	D	A	I	COMMENTS	STATUS
1	27-1 01/05	Link integrated organization chart	A chart is needed that shows functional integration of Agency and consultant staffs.	Y	Y	N	The PMOC received a June 2007 version of the IS PMP complete with staffing plans in July 2007. FTA has conditionally accepted the PMP based on objective performance measures. The PMOC will continue to monitor ST's performance.	R
2	29-2 08/05	RFMP Update	RFMP requires update to reflect current operating assumptions.	Y	Y	N	RFMP Revision 4, dated 7/31/07, was reviewed by the PMOC and comments were provided to ST on September 7, 2007. ST provided RFMP Revision Rev 5 – Final, dated January 15, 2008, as part of the UL FFGA submission. In a March 5, 2008 memorandum, the PMOC found RFMP Rev 5 to be acceptable, but recommended that some data corrections be made by 7/1/08.	R

Legend: PR = Priority: 1 = Most Critical; 2 = Critical; 3 = Least Critical.
Grantee Action: D = Remedial Action Developed; A = Remedial Action Approved; I = Remedial Action Implemented.
Status: R = Review Ongoing; C = Completed, No Further Review Required.

3. PMOC OBSERVATION REPORT AND CURRENT ISSUES

A. Budget and Funding

Link Light Rail
Initial Segment & Airport Link
Monthly Cost Report Summary
April 2008

Initial Segment	Lifetime Budget	Commitment to Date	Incurred to Date (1)	Forecasts and Trends	Estimated Final Cost (EFC)	Budget vs. EFC
ADMINISTRATION	$193,274,000	$169,346,146	$152,838,330	$23,793,545	$193,139,691	$134,309
PRELIMINARY ENGINEERING	$33,310,195	$33,264,909	$33,256,637	$20,729	$33,285,638	$24,557
FINAL DESIGN	$147,213,075	$146,302,522	$143,056,730	$828,756	$147,131,278	$81,797
CONSTRUCTION SERVICES	$100,317,325	$93,065,365	$84,753,992	$6,739,762	$99,805,127	$512,198
3rd PARTY AGREEMENTS	$63,414,350	$62,860,062	$58,804,831	$516,152	$63,376,214	$38,135
CONSTRUCTION	$1,191,767,805	$1,107,159,448	$994,398,132	$85,399,353	$1,192,558,801	$(790,996)
VEHICLES	$132,307,000	$131,675,921	$103,900,970	$631,079	$132,307,000	$(0)
ROW	$208,396,250	$206,677,173	$200,974,830	$1,719,077	$208,396,250	$(0)
Capital Total	**$2,070,000,000**	**$1,950,351,547**	**$1,771,984,452**	**$119,648,453**	**$2,070,000,000**	**$(0)**
Project Reserve	$128,300,000	$0	$0	$0	$0	$128,300,000
Financing (2)	$201,800,000	$201,800,000	$81,082,860	$0	$193,030,381	$8,769,619
Transit Art	$10,700,000	$10,218,489	$5,141,210	$481,511	$10,700,000	$0
DSTT Debt Service (3)	$26,100,000	$26,100,000	$23,719,395	$(2,380,605)	$23,719,395	$2,380,605
Project Total (4)	**$2,436,900,000**	**$2,188,470,036**	**$1,881,927,917**	**$117,749,359**	**$2,297,449,776**	**$139,450,224**

The current EFC is approximately $2.3B, with a projected budget surplus of approximately $139.4M. The projected surplus is down this period by approximately $13M, reflecting forecast increase to address issues relating to construction contracts.

(1) Includes encumbrances beyond actual contract commitments.
(2) Financing costs are based on an allocation of subarea bonding and related capitalized interest with paid to date and forecasts updated annually during the first quarter of each year.
(3) DSTT debt service will be incurred once the tunnel is closed per the agreement.
(4) Totals may not equal column sums due to rounding of line entries.

Contingency: Allocated contingencies are incorporated in the project budgets for the project line-items. Additionally, there is an Unallocated Contingency line-item. Further, there is a project reserve that ST considers to be another level of Contingency, but for construction only.

The Contingency identified in the FFGA consists of $47.7 million in Unallocated Construction Contingency and $128.3 million in project reserve, totaling $176.0 million, or 9.3% of the Baseline Cost Estimate (BCE), less Contingency. ST's *April* 2008 Contingency Activity Report indicates that the forecast Unallocated Contingency balance is $19.0 million, no change from the previous period. Therefore, the balance of the Total Contingency identified in the FFGA is $147.3 million, including the project reserve, or *35.5*% of the remaining forecast funds to be expended.

It is the opinion of the PMOC that the contingencies for the IS including the project reserve are adequate for the current status of the Project, although it should be anticipated that all of the Unallocated Contingency will be expended prior to completion of the project as well as a *majority* of the project reserve. As noted in previous reports, the cost forecasts provided by ST do not include the full value for current and potential claims.

Change Orders (CO) and Potential Claims: Potential claim issues are evident on several contracts, most significantly on the C710-Beacon Hill Tunnels and Stations, and the C735-RainierValley/MLK contracts. ST's weekly field and monthly cost and schedule reports indicate a significant volume of added scope issues, field conflicts and other unresolved issues on these contracts. ST personnel report that the full impacts of the changes described in the report, relative to the potential costs, are yet to be fully incorporated into the current cost forecast. It should be noted that the current IS project budget includes a combined $147.3 million of remaining available Unallocated Contingency and project reserves, and that the total project budget does not appear to be in jeopardy at this time. As noted above, the PMOC continues to concur with ST that the total budget, including project reserve, appears to be adequate for completion of the project. The PMOC anticipates, however, that all of the Unallocated Contingency *and a portion of the project reserve* will be consumed.

B. Schedule

Initial Segment Schedule Status Overview

Over time, ST has implemented improvements to its schedule-management process and is generally able to provide a more current forecast based on actual work accomplished than had historically been the case. The PMOC has reviewed consecutive versions of the RMS and believes that it represents continued improvement over previously presented schedules.

The Re-Baselined Master Schedule (RMS) has integrated schedules from all the contracts for the IS along with activities for System Integration and Testing and Rail Activation. The activities for individual contractor's schedules are included into the RMS for the purpose of coordination and in the case where contractors' activities do not reflect the conditions in the field; those activities are modified to bring them closer to the site conditions. Because the C710 contractor continues to submit a schedule that does not meet the time requirements of the RMS and continues to be rejected by ST, many of the critical activities of the C710 contract have been modified to reflect the current conditions as interpreted by ST. The PMOC's analysis of this update indicates that although these are steps in the right direction; however, resolution of the ongoing issues *is long overdue and is limiting the* effectiveness of the RMS as a management tool.

The PMOC continues to believe that continuing delays will likely be compounded generating further delays due to the inefficiency created by shared and piecemeal site access by the systems contractors. In addition to lags in construction progress, the PMOC continues to be concerned that technical issues relating to the C803 communications contract are creating additional schedule risk.

Airport Link Schedule Status Review

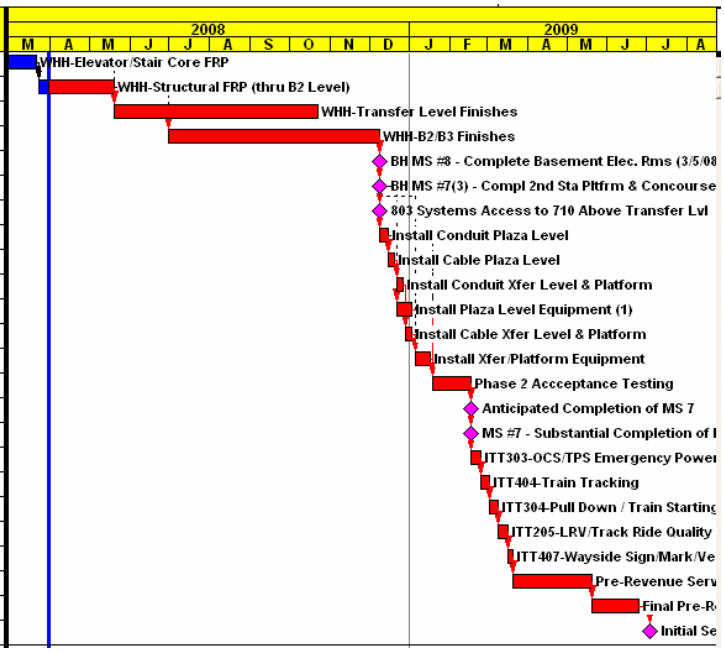
The PMOC received a P3 Schedule on the AL and has reviewed the milestone dates on the project. The Schedule indicates completion of the project on December 29, 2009. However, the Schedule does not include detailed activities for station finishes because ST has not received a formal schedule from the contractor. *Activities for Systems Integration and Testing are also*

shown in a summary format, and the activity inter-relationships do not appear to be well developed. In late February, the ST Board authorized execution of a contract amendment for the construction of the station finishes, and preparation of a more detailed schedule is now being pursued. The PMOC believes that a detailed and well-thought-out schedule needs to be developed for the AL to ensure delivery of this project in the planned timeframe. ST has assured the PMOC that following the submittal from the contractor for station fFinishes in April 2008, a detailed schedule for PMOC review *would be available* by May 2008. *However, at the time of this report, ST had not received a schedule from the contractor. PMOC is concerned that delays in the development of the schedule might impede timely execution of the station finishes contract and affect follow-on activities.*

IS Critical Path (CP) and Project-wide Float

ST's analyses of the *April* 2008 RMS update continues to forecast a potential nine days of Project-wide float. The CP for the program has remained essentially the same from the past Schedule updates and for the past few months, the Project-wide Total Float has remained steady at nine days. As can be seen in the graphic below, the current CP runs through the C710 Civil and Systems activities, followed by the System-wide Testing and Integration activities. The PMOC is concerned that the C710 contractor has continued to make changes in the critical work sequences without authorization from ST and, consequently, activities in the CP may have been incurring delays. Because of the available flexibility in the schedule, to date, these changes have not adversely impacted the overall total float available in the schedule. However, the PMOC is concerned that continued manipulation of this nature by the contractor may cause deterioration of the total float in the RMS and could potentially impact the Revenue Operation Date. On the other hand, the Schedule in ST's *April* 2008 update shows *slight slippage* on the CP by *a decrease in* the duration of "Final Pre-Revenue Service" from *43* days to *36* days because of the C710 contractor *performance issues.*

Activity Description	Orig Dur	Early Start	Early Finish
WHH-Elevator/Stair Core FRP	53	26DEC07A	21MAR08A
WHH-Structural FRP (thru B2 Level)	41	24MAR08A	19MAY08
WHH-Transfer Level Finishes	111	20MAY08	22OCT08
WHH-B2/B3 Finishes	114	01JUL08	08DEC08
BH MS #8 - Complete Basement Elec. Rms	0		08DEC08
BH MS #7(3) - Compl 2nd Sta Pltfrm & Concourse	0	09DEC08	
803 Systems Access to 710 Above Transfer Lvl	0	09DEC08	
Install Conduit Plaza Level	5	09DEC08	15DEC08
Install Cable Plaza Level	4	16DEC08	19DEC08
Install Conduit Xfer Level & Platform	5	22DEC08	26DEC08
Install Plaza Level Equipment (1)	10	22DEC08	02JAN09
Install Cable Xfer Level & Platform	5	29DEC08	02JAN09
Install Xfer/Platform Equipment	10	05JAN09	16JAN09
Phase 2 Accceptance Testing	21	19JAN09	16FEB09
Anticipated Completion of MS 7	0		16FEB09
MS #7 - Substantial Completion of Phase 2	0		16FEB09
ITT303-OCS/TPS Emergency Power Trip (ETS)	5	17FEB09	23FEB09
ITT404-Train Tracking	5	24FEB09	02MAR09
ITT304-Pull Down / Train Starting	5	03MAR09	09MAR09
ITT205-LRV/Track Ride Quality Interface	5	10MAR09	16MAR09
ITT407-Wayside Sign/Mark/Verification/Visibility	4	17MAR09	20MAR09
Pre-Revenue Service	60	21MAR09	19MAY09
Final Pre-Revenue Service	36	20MAY09	24JUN09
Initial Segment Completion (CPS-154th)	0		03JUL09



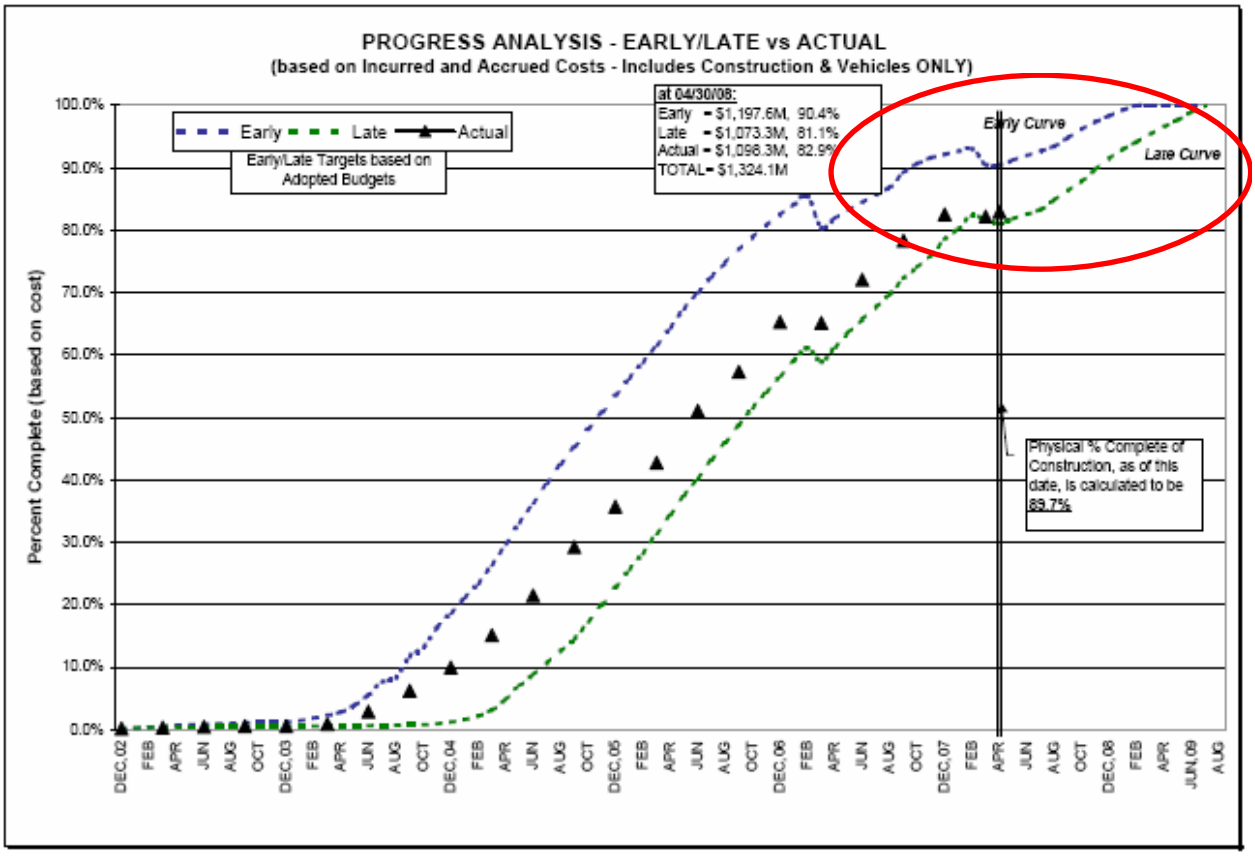
Schedule Issues

The detailed steps for project-wide systems integration and testing have been preliminarily incorporated and include point-to-point verification and drills. ST indicates that the detailed listing of devices to be tested will be further developed and included in the process of integration and testing. The PMOC has received a preliminary schedule for integration, testing, and start-up operations and ST has incorporated that information in the project schedule. ST has assured the PMOC that the development of a detailed schedule for system-wide testing and integration and start-up operations is continuing, and further detailed schedule information will be incorporated into the project schedule within the second quarter of 2008.

The PMOC has noted improvement in ST's schedule management function; however, continuing demands on limited resources have constrained the progression of needed enhancements and this remains the case. The Link project office has added to and reorganized its scheduling staff and staffing levels have improved, although critical restructuring and enhancement efforts continue to lag the need. ST is making progress; however, the adequacy of the staffing levels from both the technical and Project Management/administrative perspectives can only be demonstrated through the timely development and dissemination of accurate and actionable management information.

As noted in earlier reports, the Link project controls staff has been publishing monthly reports that provide somewhat improved information and visibility into project status and the PMOC has commended them for this effort. However, further improvement in terms of providing quantifiable cumulative and incremental information on the primary work activities for each major project element is still needed. Specifically, the reports need to include quantifiable progress information on what was planned cumulatively and incrementally versus what was actually achieved, plus discussion of the resulting impacts or opportunities along with the quantifiable plan information for the next reporting period. The Project Management and project controls staff has indicated its commitment to further improvement in this area; however, the PMOC believes that a strong commitment on the part of Project and Agency Management, evidenced by appropriate resource application, along with management accountability is also necessary to effectively advance this capability.

The figure below shows estimated actual progress compared to the early and late-start schedule measured by incurred-plus-accrued costs for construction and vehicle contracts. The most noteworthy aspect of this chart is the gradual shift of the "actual" curve closer to the "late" curve over time. This shift demonstrates the fact that all the remaining activities in the project are getting closer to being critical and the increase in the number of critical activities has increased the risk to the Revenue Operation Date.



IS Construction/Systems:

DSTT (C510): The DSTT was opened to bus revenue operations on September 24, 2007 in accordance with the project schedule. Overall contract work is substantially complete with punchlist work in progress. Project *close-out* activities are in progress. The project continues to operate under a Temporary Occupancy Permit that is being refreshed on a monthly basis. The Final Occupancy Permit issuance is anticipated once the Safety, Security, and reliability issues raised by the City of Seattle (COS) are addressed to its satisfaction. *Follow-on contractors continue to close out punchlist items as well as conduct integrated after-hours testing of bus operations on the weekends.*

Beacon Hill (C710): In its current update, the CP activities in the contractor's schedule continue to be inconsistent with the requirements of the project schedule. The PMOC's analysis indicates that the date for turnover of the facility to the communications systems contract is *likely to* slip. The limited progress on activities with logic ties to this access milestone is driving concurrency in planned systems work. ST has continued to reject the contractor's schedule submittals, but this issue has limited ST's ability to determine a realistic completion date for this contract and the project.

Plinth concreting and rail installation operations concluded during the month in the SB tunnel and aerial guideway.

The station access shaft concrete work and concrete arch construction *in the northbound tunnel* continued during the month. By the end of *May* 2008, the contractor was progressing upward with the shaft construction by pouring the elevator shafts and upper station structure in general conformance with the ST-scheduled CP activity. *Finish work in the lower equipment room continued during the month in a manner that should allow the follow-on contractor access to this room in June 2008.*

The second *and third* cross-passage adit construction work from the SB to the NB tunnels *continued during May*. The contractor continues to work on the concourse and interior elevator raceways.

The finishes on McClellan Station continued during the month with installation of art glass, miscellaneous structural steel fireproofing, concrete work, glazing, painting, drywall, equipment room ventilation, roofing, escalator and elevator installation. Concreting of the east portal box structure is *85%* complete and continued during the month.

Although the CP activities on this contract have shown adequate progress, the contractor's schedule shows slippage due to changes in the activity inter-relationships along with the addition of new activities. ST continues to meet with the contractor's representatives to discuss the relevance of logic ties and their impact on the schedule. The PMOC notes that although there have been long-standing weekly meetings on this subject between ST and the contractor, there continues to be little progress to resolve any these major issues, further eroding the potential for schedule recovery.

Rainier Valley (C735): ST estimates that this contract is approaching substantial completion with finish work underway intermittently in all active reaches. All ten reaches are reported to be nearly complete with a combined ST and COS punchlist being finalized. Pavement grinding to correct pavement grades and smoothness started at the end of February 2008 and continued during the month of *May*. Intersection pavement cracking throughout the alignment is being investigated by ST and the contractor to determine the root cause of this phenomenon as well as a comprehensive path forward for resolution of the associated issues. The contractor has started removal and replacement of the cracked concrete. This work *continued* at the Weller Street intersection in *May*.

Station steel fabrication, finishing work, landscaping and installation of street furniture has impacted the completion schedule for the stations. Although not on the CP, the station/plaza activities have continued to slip for the past *nine* months due to this issue.

All reaches on the project have been opened to the follow-on Systems contractors. Catenary hardware installation continued in reaches 8 through 10 during the month. ST continues to work with the subcontractors to prioritize their work on site and to minimize the potential for impact to the project schedule. Nevertheless it appears that the completion of this contract will be delayed into the third quarter of 2008 at a minimum.

Three Non-Conformance Reports (NCRs) were issued by ST at the end of February 2008 related to station platform concrete horizontal and vertical tolerances being not in compliance with contract specifications. This Quality issue was identified by ST at Henderson, Othello, and Edmunds stations and has delayed the substantial completion of the C735 segment as well as potentially affecting the systems contracts and LRV testing. The contractor has not responded to all of these NCRs as of the end of *May*. Correction activities relating to some of these NCRs continued during the month.

It was noted by the PMOC that ST field reports indicate that the C735 site inspection staff were demobilized as of the end of April "…due to budget constraints…". Given that substantial completion has not been granted for any reach of the contract, open NCRs have yet to be resolved, joint inspection between ST and the COS has yet to be done to confirm that the outstanding punchlist items are complete, and taking into consideration the pending large claim being pursued by the contractor on this contract, it is the PMOC's opinion that the site inspection staff may been demobilized prematurely.

Sound Transit has indicated its disagreement with the PMOC observations and opinion. ST contends that the balance of the work as of the end of *May* includes mainly punchlist items with the most significant being the replacement of the station tactile pavers.

Other major work includes the replacement of the Walden intersection. ST has indicated the entire staff was not demobilized and one full time city inspector, supported by consultant and other ST technical staff, remains available to support the project. ST has also stated that it expects to recover costs from the contractor for the extended coverage.

The PMOC *observed that an inspector was remobilized for the contract as reported in the May 23, 2008, RE report. ST was, however, unable to produce inspector's daily reports for early May 2008 work on the contract prior to the inspector remobilization mentioned above.*

Tukwila Freeway Route (C755): Trackwork *and other miscellaneous* punchlist items remain in progress and some finish landscaping work remains throughout most of the track alignment. Work to install additional seismic tie-downs within the elevated structures continues. The PMOC is optimistic that the ST projected final contract completion date of June 30, 2008 can be achieved.

Operations and Maintenance Facility [OMF] (C810): ST issued the contractor a Notice of Substantial Completion for the OMF that was effective on November 3, 2006. ST reports that the initial punchlist included more than 2,500 items at that point, leading to the implication that Substantial Completion was issued prematurely. ST has indicated that as a result of the claim settlement agreement reached during June 2007, remaining punchlist and preparation work will be completed by either its small-works or clean-up contractors.

As of *May* 2008, the Facility is yet to be fully functional. Some of the follow-on systems contractors are still working in the facility to complete their respective work. King County Metro was scheduled to move into the OMF in the first week of April 2007; however, this was

delayed to some degree. At this point, KCM has yet to retain the planned level of staffing; therefore the level of occupancy has been limited. The shop is yet to be fully commissioned. Segmental system and integration tests started in November 2007 and were scheduled to be complete in December 2007, but will continue well into the second quarter of 2008. A permanent certificate of occupancy will not be issued until the C710 construction trailers are removed from the yard. Since some of the construction trailers belong to the C710 contractor, this certificate may not be granted until their removal.

Airport Link Construction

The AL Project consists of three major civil construction packages: C410, C420, and C430R. Following are the AL contract descriptions and current construction status of each contract:

- **C410** - C410 was added to the C755 scope of work by CO. It consists of elevated and at-grade dual track segments over SR 99 and SR 518. Substantial contract completion was granted on March 20, 2008 and final punchlist items are being resolved. ST is reviewing security at the high rail access area on the south end of the segment due to an earlier theft of copper wire in an at-grade segment.
- **C420 –** C420 is an at-grade and elevated dual track alignment south of C410 and terminating at the new Airport Station. The civil construction is approximately *76*% complete as of the ST *April* 2008 report with retaining walls and elevated structure remaining to be completed. The at-grade portion of the contract is *substantially* complete *as of* May 2008 and the elevated portion is scheduled to be complete in July 2008.
- **C430R –** C430R consists of the Airport Station foundation, concrete superstructure and installation of approximately 5,900 feet of trackwork. In February 2008, the ST Board authorized execution of an amendment to the C430R Contract for construction of the station finishes, and the International Boulevard pedestrian bridge and plaza. Award of this package in the first quarter of 2008 was required to maintain the project sSchedule. Based on project cost as shown on the ST *April* 2008 Project Report, this contract is estimated by ST to be 14% complete.

The CP for the AL project runs through the Airport Station construction and portions of the station finishes work required for the systems installation to begin. It then continues through systems integration testing and startup services, culminating in a planned Revenue Operations Date of December 31, 2009. *However, ST has not received a formal schedule from the contractor on the station finishes.*

Light Rail Vehicles: ST indicates that design remains at 99% complete and the contract overall completion is at 73% as of the end of *May* 2008. Contractor design and product submittals, with related ST reviews, are continuing. The first two cars (LRVs 101 and 102) were fully manufactured in Osaka, Japan and all subsequent cars are being assembled in Everett, WA. *Twenty-four* LRVs are at ST, with LRVs *123, 124, and 125 delivered in May*. Car shell 112A, which had been damaged in shipping, *has completed re*assembly in Japan *and has been shipped; it was still in transit at the end of May*. LRVs *127* through 135 are in various stages of assembly and testing at the Everett plant. (LRVs 132 through 135 are the four AL Vehicles.)

A delay in delivery of the Phase III Auxiliary Power Supply (APS), coupled with Communications Subcontractor issues, had a negative impact on the acceptance schedule for individual vehicles. The issues have been satisfactorily addressed and through the end of *May, 19* APS production units have been installed on LRVs, and *two* additional units were in shipment to ST. The latest update of the LRV Conditional Acceptance Schedule shows the final LRV for the IS being conditionally accepted on November 10, 2008, and the last of the four AL LRVs being conditionally accepted on November 14, 2008. Through the end of *May,* LRVs 101 to 106 have been conditionally accepted *and LRVs 107 through 111 along with 113 through 116 have completed performance and brake testing at 45 mph operation and are in the process of "burn-in" testing. (Final testing at 55 mph will not be completed until a longer alignment is available on C755.)* Testing for operation of multiple-vehicle trains began in April and *was* completed in May *for operation of two-car trains and is continuing for longer consists.*

Systems: As of the end of *May* 2008, design and overall completion on the Systems contracts were reported as follows:

Contract	Design Completion	Overall Completion (IS)	Overall Completion (AL)
802 (Signals)	99%	*96%*	*61%*
803 (Comm.)	*79%*	53%	*0%*
807 (TES)	99%	*86%*	11%

As reported in previous reports, after months of attempting to get the C803 contractor to submit an *acceptable schedule*, ST issued a Work Directive (WD) to the C803 contractor *on March 21, specifying substantial completion of all communications system work by January 30, 2009, and acceptance of all work by March 31, 2009. At that time, the contractor had access to all sites except C710.* The WD directed the contractor to begin work in C710 areas on the access dates contained in the WD*:* Transfer Level Communications Room on June 1; the SB Tunnel and Mount Baker Communications Room on June 16; the SB platform on September 17; the NB Tunnel on November 1; and all of the other areas on December 1, 2008. *The Transfer Level Communications Room was not completed by the C710 contractor in time to turn it over to the C803 contractor by the June 1, 2008 date in the Work Directive. The RE anticipates that the room will be complete and ready for turnover to the C803 contractor by mid-June.* There had been no communications work on the AL by the C803 contractor because the contractor had not yet signed the negotiated CO. *During May, the contractor rejected the AL work order, reportedly because it did not clearly define when access to begin work would be granted. The CO will be discussed during the June partnering session, with the goal of reaching agreement by the end of the month.*

DSTT Civil/Systems Coordination: The DSTT was opened, as scheduled, on September 24, 2007. At the time of the opening, signal and power work was essentially complete except for punchlist work and some testing. Since then, the traction power work has been completed and tested. Signal work is done, but substantial completion will not be granted until all bus antenna

issues are resolved. In late April, the contractor and ST met and agreed to a plan of antenna adjustments as well as frequency diversification - an increase in the number of identification frequencies in use - to improve bus detection reliability. This will be done by the contractor as it monitors fixed and bus-mounted failure locations. The hope is to lower the detection failure rate by mid-June to one-half of what it is now - from about 0.4% non-detections to 0.2%, or 1 in 500 zone bus entries. At such a level, it is believed that Operations Control Center personnel can track buses at their next detection and manually update the system. If this rate reduction is not realized, ST will investigate alternate detection systems. *During May, the C803 contractor adjusted antenna sensitivity throughout the DSST and is now monitoring system performance. The contractor also submitted plans for changes at the International District Station end of the DSST and they are now under review by ST.*

Work is continuing at night to address all requirements for a Permanent Certificate of Occupancy. The LRV Manager was assigned to follow-up on all DSTT open items, first to get the Permanent Certificate and then to close out the systems contracts. ST has also hired a new networking consultant (Resource Solutions) to independently assess the C803's network stability and performance issues, concentrating initially on the DSTT. The consultant's proposal is to install a "Net Scout" to mirror SCADA activity and use the resultant data for software analysis. Depending on results from the data gathering, the mirroring could take as little as one week or as much as three months. *A draft report was received from the consultant during the last week of May and it is currently under review by ST. In March,* the Seattle Fire Department (SFD) renewed the Temporary Certificate of Occupancy (TCO) under which the DSTT had been operating for three weeks, until April 14, 2008. At that time, ST projected that all issues would not be cleared during the three-week period and SFD indicated that it would extend the TCO if necessary. In April, SFD extended the TCO for seven weeks, until May 29, 2008. *At that time, the schedule indicated that if all went* well, the issues would be cleared about May 23, 2008. *Last month, the PMOC reported that from* a practical perspective, these issues would likely not be cleared until the end of May or early June and another TCO extension would be needed. *Significant progress was made in May, but several work items still remain, including final installation and testing of alarms in equipment and ancillary rooms, and testing of SCADA software changes. SFD issued another 30-day TCO that will expire at the end of June. It now appears that receipt of a Permanent CO before the Temporary one expires is likely. ST has scheduled testing of all SFD requirements for June 16 to 20 and the SFD is scheduled to make its final compliance inspection on June 21.*

C802 - Signals

Signal installation work in the DSTT (C510) is complete and substantial completion for bus signaling was issued in November 2007. *As discussed above,* bus antenna reading problems in the DSTT are continuing to be monitored and individual antenna locations are adjusted when needed. Dynamic testing of the train signal system was completed in February. As indicated above, substantial completion of the entire DSTT signal system will not be granted until the issues with the bus antenna system are resolved.

C700 dynamic testing was completed in February and substantial completion has been issued for the entire test track, from Stadium Station to Airport Way. *As of the end of May, all but one punchlist item was reported as complete.*

Substantial completion for the yard signal system (C810) was granted. *C810* as-built drawings review was completed by ST in March. The contractor has indicated that all C700 and C810 punchlist items have been completed and has requested a final walk-through inspection for each segment.

All design and manufacturing activities for C710 Signal Equipment are complete. *ST has completed its review of t*he submitted contractor's Work Plan. The contractor has advised ST that C710 delays will require additional testing time and costs for the Walden Signal House (C735) because it controls a portion of C710. Moreover, it will have to be partially tested to close C735 and further re-tested for C710 close-out.

On MLK (C735), all work is complete and testing is in progress. *Coordinated systems testing with C803 for the Train-to-Wayside Communications System was completed in May. Testing of the signal system between Othello and Henderson, after installation of a fiber-optic link, was in progress at the end of May.* During testing in April, grounded rails at the Othello Interlocking (C735) prevented proper operation of track circuits, which in turn prevents operation of the interlocking and could prevent normal train movement over any portion of the interlocking. ST is investigating to find the best solution to removing grounds and preventing re-occurrence. *No progress on these issues was reported during May.*

On C755, all engineering and manufacturing is complete. In April, cabling of the 154th Street Signal House was completed and Impedance Bond installation was completed in the South 154th Street area. Cable *and wayside equipment* installation continued in the South 133rd Street area *during May.* The contractor is working on a schedule that would accommodate the operation of LRVs on C755 by the end of August 2008.

The AL signal circuit design review has been completed by ST. Access to C410 was granted in late March. Impedance Bond installation began on the AL in April. *The Airport Signal House has completed factory testing and is scheduled to be delivered by mid-June*, with storage at the OMF until site work is completed for installation.

The contractor's February 2008 revised cost proposal for access delays on C700, C810 and C510 was reviewed by ST and found suitable for the start of negotiations.

C803 - Communications

The second software process audit submitted by the contractor (GETS) was reviewed and rejected by the ST QA office. ST has determined that it is unlikely that GETS will redo this audit to address QA issues. ST has conducted two of its own audits and is still awaiting full responses on those findings. A third audit *was performed on* May 2, 2008, *and resulted in three findings and seven observations. The draft audit repot had not been released by the end of May, but the three findings were verbally described as: 1) Contractually-required Software Development Status Report, due prior to issuance of the Final Design Report, was not submitted; 2) Contractually-required Peer Review of the Software Test Plan was not held; 3) Contractually-required in-process audit of software configuration before submission of the first invoice was not*

performed until six months after submission of the invoice. It is anticipated that the formal audit report will be issued in mid- to late June and a response from GETS will be due within 30 days of the release date. Also, the final report of the Reliability Audit held in January was issued to GETS on May 20. The Reliability Audit has two findings and seven observations. The two findings are: 1) Contractually-required report of the Reliability Management Program, due with the Phase 1 Final Design Report, was not submitted; 2) Contractually-required "Completed Call Test" during factory testing was never documented in the Test Plan, Test Procedures, or the Test Report. A response is due back from the contractor on June 20, 2008.

As indicated above, the contractor is working to clear items needed for issuance of the permanent Certificate of Occupancy for the DSTT. ST has assigned additional personnel to work with the contractor and systems engineering to expedite resolution of the open items. In late March, ST reported that GETS created a 30-day work plan to resolve all Certificate of Occupancy issues in the DSTT and also reported that GETS is working cooperatively with KCM and ST on performing the work and securing the permanent Certificate. One of the critical items for the Certificate is the installation of an "alarm manager" to the system software. The contractor (GETS) has indicated that it will not have its alarm manager design ready for installation until June, and ST has asked that GETS investigate the temporary use of a less-featured off-the-shelf alarm manager to enable receipt of the Certificate and then install the fully compliant alarm manager when its design is complete. During April, performance of the alarm manager improved significantly, obviating the need for an alternate system. As indicated above, however, other SCADA performance issues persist with an average of about one failure per week, one-half of which appeared to be self-correcting. ST's consultant will monitor the SCADA performance with the mirrored system, described above, and evaluate software in an effort to identify failure causes. *As indicated above, the independent consultant's draft report was received during the last week of May and it is under review by ST.*

In March, communication design for C700, C755, and C810 was finalized in contractor/ST workshops. The latest schedule shows communication work in the OMF will not be complete until July 31, 2008. Fiber-optic cable pulling is complete at C735 stations. *Other station communications work at Columbia City Station was in progress as of the end of May.* Work began on C755, but ran into problems because of faulty conduit installation by the civil contractor. An alternate method of installing cables - pulling rather than "blowing" - through the conduits is now being used; installation continued through April *and May, and is expected to be complete during the first week of June.* No communication design will begin for the AL until the negotiated CO is signed and executed, which *is now expected to be agreed upon before the end of June. In May, ST reported that KCM has changed from the planned 700 MHz radio system frequencies, which will require a new FCC Certificate and may impact the schedule for delivery and installation of Bi-directional Amplifiers (BDAs).*

C807 - Traction Power

The Overhead Catenary System (OCS) in the *DSTT (C510),* Test Track area (C700), and the yard (C810) are complete and operational. All bays in the Shop (C810) were completed by the end of December and are operational, but there are still issues with the crane/OCS interlock that require resolution. The effort to resolve the interlock problem is delayed awaiting input from the

crane manufacturer. As of the end of *May*, ST was still attempting to get the crane installer (Washington Crane) to the site to coordinate with C807 on resolving the interlock issue.

C710 work in February set all poles between the south contract limit and the east portal of the BHT. In C735, OCS installation and testing is complete in the south section; installation is complete in the center section and punchlist work is in progress; in the north section, wire *installation is* complete *and tensioning is in progress.* The McClellan Traction Power Sub-Station (TPSS) was powered by Seattle City Light (SCL) in March. *The Othello TPSS has been completed and is ready for energizing.* On C755, south and center section OCS installation is essentially complete, *with punchlist work ongoing in the south section and tensioning being completed in the center section.* Cantilever installation is *nearly* complete in the north section and wire stringing *is in progress. The South 154th TPSS has been ready for hook-up by SCL; ST reported that the forecast date for utility power is January 2009.*

TVMs

ST procurement of 63 additional Ticket Vending Machines (TVM) (5*7* to be installed and 6 spare units) was implemented as a CO to its existing TVM contract; this was approved in April 2006 by the ST Board. A Notice to Proceed (NTP) was issued to the vendor in May 2006 with delivery scheduled to begin in December 2007. The delivery schedule has been met, with 27 TVMs delivered in December and the balance delivered in January. All contractually required spare parts have also been delivered. Contractually required training will be scheduled to occur after TVM installations are in progress.

Start-Up

The development of a detailed schedule for the System-wide Testing and Integration along with Rail Activation is in progress. ST is using this schedule to further refine the activity duration and sequences of testing activities in the project schedule. A detailed draft schedule that included activities for Rail Activation and hiring of personnel was expected by the end of March 2008. The PMOC has learned that the schedule as well as the hiring of the personnel is now delayed. Due to the availability of float, these activities are not on the CP at this juncture; however, the PMOC will continue to monitor progress on this issue because of concern over the lack of progress. There was no progress on either schedule or hiring in *May 2008.*

The development of the SSCP and SITP, two of the three plans that support the RAP, progressed well, with the PMOC reviewing and providing comments on successive drafts of each plan. Work on the third plan, the Pre-Revenue Operations & Start-up Plan (PSP) had been delayed until November 2007 when a PSP draft dated November 29, 2007 was issued. The PMOC provided comments to the Rail Activation Manager (RAM) in February and he indicated that another revision will be forthcoming in the March/April time frame. In early March, the PMOC met with the Rail Activation Manager (RAM) and the ST Operations Manager to discuss proposed content of the PSP. The RAM indicated that he would provide a proposed table of contents for PMOC review in early April and the PMOC committed to provide expedited comments. The PMOC met with the RAM and ST Operations Manager in early April and reviewed the proposed PSP Table of Contents. *ST began* drafting the document *in April. A draft was not available for review by the end of May.*

The PMOC reviewed and provided iterative comments to ST on draft versions of the IS/AL Safety and Security Certification Plan, which is an updated, SSMP-consistent, revision of the Safety Certification Program Plan that had been used on the project. The initial non-draft version of the SSCP, Revision 0 dated November 2007 and signed by the CEO, was issued by Document Control in December 2007.

The System Integration Test Manager (SITM) issued System Integration Test Plan (SITP) Volume I, dated June 26, 2007, and an in-progress copy of Volume II (Test Procedures), also dated June 26, 2007. The SITP did not contain a schedule within it because it had not yet been fully developed. Through the end of 2007, the schedule had been developed but remained in flux, primarily due to the lack of train operators and uncertainty over contract completions. That problem was resolved in January 2008 and both the testing effort and the schedule development effort improved. The SITM completed and secured approval for all 25 procedures required for the SIT Program by the end of December, but will be reviewing and refining them as the testing program progresses. Any further PMOC comments will be provided to the SITM by annotation of the documents. *The SITM reported that a decision has been made to revise the existing SITP and procedures to include the AL, rather than create a separate SITP. Given the relative scale of the AL and its projected completion date, the PMOC agrees that this is a sound approach.*

Planned night-time SIT in the DSTT did not occur at the levels anticipated in November and December due to the unavailability of train operators from KCM. This issue was resolved in January and seven SITs were completed. All SITs had been completed on C700 and C810 by the end of March, with the exception of Royal Brougham Grade Crossing, which was conducted but not successfully completed. *The open issues were corrected and the crossing was successfully re-tested in late April, and the final test report was accepted in early May.* All but two integration tests were completed in the DSTT (C510) during February. One test, Phase 1 of the Bus/Rail Interface, was conducted in March and not successfully completed. *Re-testing was conducted on weekends in late April and early May, with the result that Phase 1 of the Bus/Rail Interface was successfully completed in May.* The final test in the DSTT will be Phase 2 of the Bus/Rail Interface, which will require actual joint operation, be on weekends, and is expected to be conducted in *June.* Testing on other segments may begin shortly after it is possible to pull a train through the BHT, estimated to be June 2008.

C. Project Management

Project Management Plan: As mentioned earlier in this report, the FTA has conditionally accepted the IS PMP.

Staffing: It is the PMOC's opinion that current staffing levels are inadequate to maintain the technical capacity to efficiently and effectively carry out ST's scheduled backlog of projects. For the Initial Segment, the PMOC continues to observe stretched resources in several areas and recommended that Link Management canvas its key managers to determine if they had enough staff to safely and effectively complete, test, and start-up for revenue service in July 2009. Some specific deficiencies were identified in a meeting with the Link Executive Director. The PMOC *continues to be* concerned with ST's pre-disposition toward prematurely demobilizing staff. The

PMOC believes that project close-out functions are being negatively impacted by the premature transferring or eliminating of key personnel, field and office staff.

D. Quality

The PMOC continued to observe selected audits and reviewed the resulting findings and their implementation. The PMOC deems that in general, the Quality Assurance process was working properly as implemented during the month.

E. Safety and Security

SSMP, Organization, and Staffing: The IS SSMP is now acceptable and the PMOC will monitor its implementation. The Safety and Security Assessment Spot Report No. 8 CAP was finalized by ST, with PMOC input, and progress towards completing the CAP may be found in Appendix C to this report.

F. Environmental

ST is routinely providing status information on environmental issues in the weekly Resident Engineer's reports. ST CM staff has indicated that it will apply for extensions to its wetland construction permits due to the likelihood that the term of the permits will be exceeded by the construction activity. ST is analyzing the extent of the time extension that will be needed. Contract C755 has incurred several violations and has been notified of attendant monetary penalties. ST has made provisions for payment of the assessed penalties.

G. Areas of Concern

- Over time, the PMOC has voiced concern that ST may not be in full compliance with the tenets of FTA Guidelines regarding reporting requirements established in 49 CFR 633.27, Implementation of a Project Management Plan (d). In the June-August 2005 timeframe, the PMOC had not seen evidence that ST was producing and delivering monthly reports that fully met the tenets of FTA's Guidelines. The FTA and PMOC have engaged in discussions with ST on this issue and the PMOC is working with ST to coordinate enhancements to ST's project reporting. The PMOC's review of recent reports indicates that additional improvement is needed in the content of the reports relative to detail and narrative analysis of deviations from plan. The PMOC will continue to meet with Agency-level staff during the coming months in an effort to effect further improvements in ST's reporting.

- Slower-than-planned progress on the C710 contract and continued submittal of an unacceptable schedule from the Contractor has caused *further* deterioration in the project float inventory to the extent that the PMOC believes that the planned FFGA ROD may be in jeopardy. The PMOC continues to be concerned with the timeliness and limited visibility afforded by the information-management processes and products currently available to Link management with respect to the actual project status from a schedule perspective.

- The PMOC's Safety and Security management concerns were significantly lessened by the submissions and subsequent approvals of the IS/AL and UL SSMP and the filling, in early September, of the Chief Safety Security and Quality Assurance (SSQA) Officer position. Challenges remain, however, since several positions in the SSQA organization remain to be filled.

- ST had not received formal schedule updates from the 803 contractor for the past *eight* months and has had to issue a WD to establish access dates for the start of communications work in C710. Additionally, DSTT and SCADA issues are not being resolved in a timely fashion with the result that ST is looking into alternate approaches and installation of redundant systems. Lack of progress in satisfactorily resolving issues with installed work and lack of transparency in the progress made by the contractor in its design and delivery of the communication equipment and systems, which is close to being critical, could adversely impact the project schedule. If the contractors fail to adhere to dates in the WD issued in March, ST would be at the point where alternative approaches to the completion of all C803 work would need to be investigated.

- ST actions regarding demobilization of field CM staff prior to completion of the contract work is a concern for maintenance of project continuity, formal project close-out, and defense of ST against large claims on key contracts of the IS. It was noted by the PMOC that the C735 site-inspection staff were reportedly demobilized from the site as of the end of April. In the PMOC's opinion, this demobilization may have been premature because of the following: (1) substantial completion has not been granted for any reach of the contract; (2) the number and nature of open NCRs that have yet to be resolved; (3) the joint inspection between ST and the COS to confirm that the outstanding punchlist items are complete, and (4) the pending large claim being pursued by the contractor on this contract. Departure of CM staff also places an additional burden on the remaining ST resources that are fully engaged in other work within the agency. The departure of CM staff also denies ST the site-staff perspective in its negotiations with the contractors on Change Orders and claims. ST has indicated its disagreement with this observation. *However, ST Resident Engineer (RE) reports indicate a remobilization of one inspector during the month to cover significant activities at site.*

ATTACHMENT B: SUMMARY OF CONCERNS AND RECOMMENDATIONS

ITEM NO. KEY

1.XX Technical Capability and Capacity

2.XX Program and Project Management Plans

3.XX Project Development and Implementation

PRIORITY (PR)	GRANTEE ACTION	PMOC STATUS
1 – Most Critical	D – Remedial Action Developed	R – Review On-going
2 – Critical	A – Remedial Action Approved	C – Completed – No further review required
3 – Least Critical	I – Action Implemented	

CATEGORY OF CONCERN

S – SCOPE	B – BUDGET/COST
SC – SCHEDULE	Q – QUALITY
SS – SAFETY/SECURITY	F - FFGA
TC -TECHNICAL CAPACITY	M - MANAGEMENT

PR	ITEM NO,	IDENTIFICATION	Category	NATURE OF CONCERN	PMO RECOMMENDATION	D	A	I	STATUS
1	1	IS PMP Submittal	TC	PMP not available for IS.	Revise and submit PMP per current ST organizational structure.				Submission received in early June without required staffing information. After review and discussion, the FTA has conditionally accepted the PMP with the conditions identified in an August 10, 2007 letter to ST. The PMOC will monitor ST's response and compliance with those conditions.

Legend: PR = Priority: 1 = Most Critical; 2 = Critical; 3 = Least Critical
Grantee Action: D = Remedial Action Developed; A = Remedial Action Approved; I = Remedial Action Implemented.
PMO Contractor Status: R = Review Ongoing; C = Completed, No Further Review Required.

APPENDIX C

Status of the Planned Actions in Sound Transit's Corrective Action Plan (CAP) to Address the Recommendations in Final Spot Report No. 8, Assessment of Safety and Security, dated September 2007

Spot Report No. 8 (SR 8) made 21 separate recommendations. One of those, Recommendation 20, was for ST to make a priority effort to complete four open Corrective Actions from ST's 2005 Construction Security CAP, which addressed recommendations made in the September 2005 Spot Report No. 5, Review of the Security Plan for the Downtown Seattle Transit Tunnel during Construction. Those four recommendations were added to ST's CAP for SR 8, bringing the total number of recommendations being responded to by the CAP to 25. The CAP Corrective Actions are numbered 1 to 25. Numbers 1 to 21 correspond to the recommendation numbers in SR 8. ST numbers 22 to 25 result from responding to SR 8 Recommendation 20. Therefore, at the outset there were 25 Corrective Actions in the ST CAP, with Recommendation 20 fully satisfied and closed at CAP issuance. More than half of the Corrective Actions to satisfy an SR Recommendation contained more than one identified and numbered action to fully close-out the recommendation. Some have as many as five actions. As a result, there were 54 separately identified actions that could be tracked.

Corrective Action 4 was completed in May with the completion of SOP CS11 on conducting safety briefings. In summary, as of the end of *May* 2008, *14* of the 25 Corrective Actions have been fully completed, thereby satisfying Spot Report No. 8 Recommendations 2, 3, *4*, 5, 6, 8, 10, 11, 13, 14, 18, 20, 22 and 24.

The SR 8 CAP Status Report matrix that follows shows summary wording of recommendations, Corrective Actions planned, proposed or actual completion dates, and comments. It also shows any recommendation with all Corrective Actions completed during this month with a gray background. The completed corrective action will then be dropped from subsequent reports.

SR 8 CAP STATUS REPORT

(Status as of the end of ***May 2008***)

ST No	SR 8 Recommendation	Corrective Actions Planned	Comp Date	Comments
1	Improve the Safety and Security culture at ST, including better Project oversight of contractor performance and Agency oversight of Project Safety and Security performance.	1. Develop Safety and Security training modules. 2. Safety and Security expectations to contractors. 3. SSQA to develop S&S SOPs and audit program. 4. Update 2002 CSM into expanded CSSM for UL. 5. CM teams to hold Safety meetings and share LLs. .	1. 9/30/07**A** 2. *5/30/08**A*** 3. 9/30/07**A** 4. 6/30/08 5. 3/31/08**A**	1. **Completed**; improvement ongoing. 2. ***Completed**; will use for UL and future projects*. 3. **Completed**; SSQA tasked - action ongoing. 4. Draft CSSM under review. 5. **Completed**; SSQA to monitor.
4	SOP should be developed for safety briefings, including how they are to be prepared, who is to deliver them, and how they are to be delivered.	1. ST will develop a SOP and train proposed personnel. 2. Standardized briefings and topic will be developed.	1. *5/30/08A* 2. 9/30/07**A**	1. ***Completed**; SOP CS11 included in updated procedures*. 2. **Completed**; topic addition ongoing.
7	Security activities and risks identified in the Start-up Service Security Plan, or elsewhere, should be on the RAC Action Item Log and be tracked to resolution.	1. Security Items will be added to RAC oversight. 2. SSQA will update the Start-Up Security Plan.	1. 8/31/07**A** 2. *6/30/08*	1. **Completed**; update and tracking ongoing. 2. *Draft presented to ESSOC, RAC and joint ST/KCM Executive Committee; will be finalized in June after ST Board approval of Sheriff and Security Services contracts.*
9	The Planned new safety and security organization should be adequately staffed as soon as possible. If staff cannot be recruited, ST should use seconded consultant personnel while recruiting continues.	1. Staffing plan will be developed and submitted to PMOC 90 days after appointment of SSQA Chief. 2. ST will secure consultant personnel, if necessary.	1. 3/31/08**A** 2. 6/30/08	1. **Completed**; Final approval of staffing level includes 18 total ST positions, 4 consultant positions and 2 contracted parties. 2. One consultant safety professional retained; others will be, if needed. (Item will remain open until SSQA is fully staffed.)
12	Review all Contractor Construction Safety (and security) Plans to verify compliance with contractual requirements	SSQA will review plans to verify compliance and monitor the needed mitigation of any deficiencies.	*6/30/08*	Review is in progress. *Summary report expected by 5/31/08, and remediation of any found deficiencies completed by 6/30/08.*
15	Hazard Analyses and Threat and Vulnerability Assessments should be performed by ST before temporary occupancy of facilities or sites that have not been fully tested and safety and security certified.	1. SOP to be developed to require Operational Hazard Analysis and TVA to be conducted, and needed mitigations accomplished, before temporary occupancy of any facilities or site that has not been fully safety and security certified. 2. An Inspection checklist will be developed for use on all facilities and sites during the substantial completion walk-through, or for proposed temporary occupancy, to verify adequate addressing of Safety and Security prior to turn over to Systems contractors	*1. 6/30/08* 2. 3/31/08**A**	1. TVA completed and HA is in progress. *Hazard Analysis Checklist and report to be completed by 6/30/08.* 2**. Completed**; Checklists completed in March 2008.

		of acceptance by ST.		

ST No	SR 8 Recommendation	Corrective Actions Planned	Comp Date	Comments
16	Formal hazard analyses (in addition to standard Job Hazard Analyses) should be done prior to contractors beginning work in potentially hazardous areas, and any unacceptable hazards should be resolved prior to allowing work.	1. In the short term, safety staff will review upcoming work and determine if additional hazard analyses are needed. 2. SOP to be developed and personnel trained to identify conditions when hazard analyses over and above the contractually required JHA should be performed.	1. 10/31/07**A** *2. 6/30/08*	1. **Completed**; reviews are ongoing. *2. Draft SOP complete and under review.*
17	Identify system security needs at ST and on the IS/AL project and retain sufficient staff to meet those needs.	1. CSM and Safety Officer will assess IS/AL security needs and make recommendations to the LINK PD and the CSSQAO. 2. SSQA to develop procedures for formal security needs assessments for future projects. 3. SSQA will provide required oversight of compliance with security requirements specified in SSMP. 4. SSMP will require TVAs during design of UL and future projects.	1. 9/30/07 **A** 2. *6/30/08* 3. 10/31/08**A** 4. 2/29/08**A**	1. **Completed**; consultant staff added. 2. *Draft SOP to be completed by 6/30/08.* 3. **Completed**; ongoing, SOP will improve. 4**. Completed**; in SSMP requirements.
19	ST should review and revise agency and IS/AL document control procedures to assure proper preparation, control, signatories, dating, and filing; IS/AL files should be audited to assess completeness of filed documents.	1. ST QA (now SSQA) will conduct an audit of Link document Control in Office and in Field. 2. A corrective action plan will be developed if needed for IS/AL document control and procedures will be reviewed and revised, as needed.	1. *6/30/08* 2. *6/30/08*	1. *Audit to be performed in June 2008 and audit report to be issued by 6/30/08.* 2. *CAP, if needed, and procedure revisions, if needed, will be completed by the end of June 2008.*

ST No	SR 8 Recommendation	Corrective Actions Planned	Comp Date	Comments
21	The Link ED should immediately confirm all temporary structures have been installed in accordance with shop drawings approved in accordance with contractual requirements; CM inspection staff responsibilities for verifying installation conformance with approved design should be reinforced; an independent Registered Professional structural Engineer, either ST employee or retained consultant, should regularly audit both temporary and permanent structure integrity and the review and approval of structural submissions.	1. The Link ED will issue a memorandum to all CMs and REs reinforcing the existing requirements for temporary structures; ST will require a full review of all standing and future temporary structure submissions by Engineer of Record; contractors will continue to provide work plans, including hold points, for temporary structures; ST oversight inspections will be held by qualified CM team members and supplemented, as needed, by agency or outside professionals. 2. Link construction personnel and Link QA will verify all temporary structures have been constructed in accordance with approved drawings and contract requirements. 3. A summary of verification findings will be produced for all standing temporary structures and procedures for verification of future temporary structure integrity will be developed.	1. 8/1/07**A** 2. 8/1/07**A** 3. 6/30/08	1. Completed; Link Ed reported work done. 2. Completed: work reported as done. 3. Verification Findings not yet completed; procedures to be developed.
23	ST Security Design Criteria should be revised to require an integrated approach to providing construction and revenue service security in sensitive areas.	Additional security direction in the Design Criteria will be provided.	6/30/08	SSQA working with UL Design team to update the criteria.
25	ST should develop SOPs detailing the required oversight of security design, training, education, and contractual security services.	A draft plan and some draft procedures and SOPs were developed by the CSO. These will be refined and extended by SSQA into final procedures.	*7/31/08*	*List of needed security SOPs has been finalized. Plan is to complete 4 SOPs per month, beginning in June. Item will remain open until first SOPs are approved.*