

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 Segment
Monitoring Report, Part I – May 2007

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LIST OF ACRONYMS

APS	Auxiliary Power Supply
BCE	Baseline Cost Estimate
BFMP	Bus Fleet Management Plan
BHT	Beacon Hill Tunnel
BNSF	Burlington Northern Santa Fe
CCB	Change Control Board
CEO	Chief Executive Officer
CNRFP	Change Notice Request for Proposal
COS	City of Seattle
CSP	Construction Safety Plan
DSTT	Downtown Seattle Transit Tunnel
EPBM	Earth Pressure Balance (tunneling) Machine
ERMP	Emergency Response Management Plan
FAI	First Article Inspection
FCC	Federal Communications Commission
FD	Final Design
FFGA	Full Funding Grant Agreement
FLS(C)	Fire Life Safety (Committee)
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FTE	Full Time Equivalent
HVAC	Heating Ventilation Air Conditioning
IDS	International District Station
IS (/AL)	Initial Segment (/Airport Link)
KC (M)	King County (Metro)
LONP	Letter of No Prejudice
LRV	Light Rail Vehicle
MOU or A	Memorandum of Understanding or Agreement
MVET	Motor Vehicle Excise Tax
NCR	Non Conformance Report
NTP	Notice to Proceed
OCIP	Owner-Controlled Insurance Plan
OCS	Overhead Cantenary System
O&M	Operations and Maintenance
OMF	Operations and Maintenance Facility
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
PSP	Pre-Revenue Operations and Start-up Plan
PSST	Pine Street Stub Tunnel
Q(P)RM	Quarterly (Progress) Review Meeting

RAM	Rail Activation Manager
RAC	Rail Activation Committee
RAP	Rail Activation Plan
RFI	Request for Information
RFMP	Rail Fleet Management Plan
ROD	Record of Decision
ROW	Right-of-Way
RTID	Regional Transportation Improvement District
SCL	Seattle City Light
SCP	Safety Certification Program
SEM	Sequential Excavation Method(ology)
SIT(P)	System Integration Test (Plan)
SM PMP	Sound Move Program Management Plan
SODO	South of Downtown
SSCP	Safety and Security Certification Plan
SSEPP	System Security and Emergency Preparedness Plan
SSOA	State Safety Oversight Agency
SSP	System Security Plan
SSMP	Safety and Security Management Plan
SSPP	System Safety Program Plan
SSPS	System Safety Program Standards
ST	Sound Transit
TBM	Tunnel Boring Machine
TCE	Temporary Construction Easement
TFR	Tukwila Freeway Route
TVM	Ticket Vending Machine
UL/U Link	University Link
VECP	Value Engineering Change Proposal
WSDOT	Washington State Department of Transportation

1. EXECUTIVE SUMMARY

A. Project Description

- **General Description:** The Initial Segment (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 Sound Transit (ST).
- **Length:** The IS includes 13.9 miles of double-tracked line.
- **No. of Stations:** The Full Funding Grant Agreement (FFGA) for the IS now includes 11 stations. 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 and Airport Link extensions. The IS also includes a Park-and-Ride facility at the southern terminal with a shuttle bus to the Airport.
- **Vehicles:** Thirty-one vehicles are being acquired to provide revenue service on the IS.
- **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 with Final Design (FD) essentially complete, excepting some systems-related elements. All major construction and systems contracts have been awarded.
- 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 Full Funding Grant Agreement. It is the PMOC's opinion that less-than-planned construction progress continues to be an increasing risk to achieving the planned revenue service date.

C. 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

- Final Design (FD):
the IS was issued in May 2002. 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 71.0% complete based on expenditures as of *April* and compared to the estimated final cost.
- Total Project % Complete:
Total Project completion for the IS is estimated to be 69.2%, based on expenditures compared to the estimated final cost as reported in the *April 2007* 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

- Quarterly Progress Review Meeting:
The next QPRM is scheduled for June 27, 2007.

D. Cost Data

Source: *April 2007* ST Project Report

(\$ in millions)	<u>FFGA Amount</u>	<u>FFGA as Amended</u>	<u>Current Cost Estimate</u>	<u>Expenditure to Date</u>
Total Project Cost	\$2,437	N/A	\$2,268	\$1,571
Total FTA Share	\$500	N/A	\$500	\$185
New Starts Share	\$500	N/A	\$465*	\$185
Local Share	\$1,937	N/A	\$1,803	\$1,386

*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 2007* Contingency Activity Report indicates that the forecast Unallocated Contingency balance is \$42.1 million, which is the same as the previous period. Therefore, the balance of the Total Contingency identified in the FFGA is \$168.6 million, including the Project Reserve or 22.7% 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 noted in previous reports, the cost forecasts provided by ST do not include a value for current and potential claims.

In the November 2006 Quarterly Review Meeting, FTA instructed ST to begin reporting summary level claims exposure as part of its budget report. ST claims exposure has not yet been included in the ST monthly progress report.

E. Technical Capacity Review

- **Link Light Rail IS Project Management Plan (PMP):** The PMP for the Link LRT IS Project remains under revision. (See Major Concerns/Issues below.) The Draft Revision 6 of the IS PMP, dated March 2, 2007, was released by Link Document Control in early March 2007, was reviewed by the PMOC, and comments were returned to ST during April 2007. *The PMOC anticipates that ST will release the next revision of the IS PMP in early June 2007.*
- **Operations Plan:** The PMOC reviewed Draft 3 of this Plan and forwarded a comment memo to ST in early June 2006. ST issued Rev. 1, dated August 11, 2006, in late August and the PMOC reviewed and provided comments in early September. ST had been indicating that the next revision of the Operations Plan would be issued by the end of April 2007, *but it has not been received as of month-end May.*
- **Maintenance Plan:** ST issued Rev. 1, dated August 11, 2006, in late August 2006 and the PMOC reviewed the Plan and provided comments in early September 2006. ST had been indicating that the next revision of the Maintenance Plan would be issued by the end of April 2007, *but it had not been received as of month-end May.*
- **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 have arisen during April and May that reflect weakness in implementation of Construction Quality.*
- **Construction Safety Manual:** Revision 1 of this Manual was issued in October 2002 and found to be acceptable.
- **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:** 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):** The PMOC received SSCP Draft D in early November 2006. The Plan was still not in the final form the PMOC had expected prior to formal review. In early December, the PMOC met with the responsible ST Manager and discussed the status of the SSCP, with the result that a slightly revised version identified as Draft Revision 0, dated December 7, 2006, and was presented for review. The PMOC reviewed this document and provided detailed edits and comments on a marked copy of the draft plan in late March 2007. An electronic copy of the PMOC comments on the SSCP was given to ST on April 3, 2007. Through the end of *May 2007*, the PMOC has not received a response from ST.
- **Rail Fleet Management Plan (RFMP):** ST issued Revision 3 of the RFMP, dated August 8, 2006. The PMOC reviewed Revision 3 and provided comments to ST in late August 2006. PMOC comments were reviewed with ST personnel in October. ST had been projecting issuance of the next RFMP revision in April 2007, and *on May 9th provided* a revision dated April 30, 2007. *The PMOC completed its review of the revised RFMP in late May and will provide a comment memo, which includes a marked copy of the plan in early June.*
- **Bus Fleet Management Plan (BFMP):** A revised BFMP dated April 2006 for ST's Regional Express was issued in May 2006 as one of the documents supporting ST's request to enter FD on the U Link Project. The PMOC completed its review of the BFMP in late July. Although finding issues to be addressed in the next update, the PMOC nevertheless found the current version acceptable for the current phase of the Project.
- **Rail Activation Plan (RAP):** In mid-November, ST provided the PMOC a copy of Draft Rev 0 of the IS RAP, dated November 13, 2006. The PMOC reviewed the draft and found it basically sound and consistent with good rail activation practice. The PMOC had some suggestions for improvement and the correction of typos, and provided comments to ST by way of a December 5, 2006 memo with an annotated copy of the draft. The RAM provided a revised RAP, reportedly incorporating the PMOC comments, in March 2007. The Rail Activation schedule is still under development and has not been provided. The PMOC will return comments on the revised RAP in *late June/early July*.
- **System Integration Test Plan (SITP):** The PMOC has been reviewing iterative drafts of the SITP since May 2006. In late October, ST advised that revisions are in process and consultant assistance may be used to finalize the Plan. In early February, ST issued a revision of the SITP addressing PMOC comments and provided a copy to the PMOC for review in March. As is the case with the RAP, the testing schedule is still under development. *As agreed in discussion with the newly hired Integration Test Manager, the PMOC returned comments on the revised SITP on an annotated copy of the plan in early May.*
- **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. As of the end of April 2007, these changes have not been incorporated in the Manual.
- **Safety and Security Management Plan (SSMP):** The ST Safety Manager provided the PMOC with a draft revision of the IS/AL SSMP in early March 2007. The PMOC informally reviewed the draft and found it deficient in several areas, with significant revision needed to make it compliant with FTA requirements. These deficiencies were discussed with ST personnel in early April and it was anticipated that a revised IS/AL SSMP would be

formally submitted for comments within several weeks. *In April*, the PMOC was informed that the revised SSMP is nearing completion and should be issued for review early in May. *The revised SSMP, dated May 2007, will be provided to the FTA and PMOC on June 4th. The PMOC will review and provide comments before the end of June.*

F. Safety

- See Attachment A.

On February 2, 2007, the project suffered its first construction fatality. The incident occurred when a fully loaded logistics train carrying two workers apparently lost or exceeded available braking capacity as it traveled downgrade towards the west tunnel portal. The worker sustaining the fatal injuries either jumped or was thrown from the train upon impact, striking a support for the spoils conveyor system. Tunnel excavation was suspended while investigations were initiated by the Washington State Department of Labor and Industry, Sound Transit and the Contractor. The initial site-based information gathering was essentially complete by week ending February 16, 2007.

On April 2, 2007, an injury was sustained during the erection of steel beams at McClellan Station, which is a part of Contract 710. According to available reports, one worker was injured in a fall during steel erection. A report of this incident was posted on Sound Transit's Live Link dated April 13, 2007. This report has an incident description from the Contractor, calculations related to the failed welds produced by a Professional Engineer who works for the Contractor and a description of the incident from the ST safety personnel. As the investigation of this incident was continuing at the end of *May*, the PMOC will report further developments, as ST makes them available.

FTA has instructed ST to develop a compliant SSMP prior to submitting any additional funding applications under the IS FFGA.

G. Major Issues/Problems

- The lack of an FTA-approved PMP for the Link IS Project continues to limit the ability of the PMOC to effectively monitor the status of ST's technical capability and capacity relative to the Link IS Project. The PMOC received a third version of the draft IS PMP on March 2, 2007, which was reviewed, and informal review comments were returned to ST during the month. The PMOC's review observations indicate that additional effort is required to clarify the ST/Link organization. *The FTA has instructed ST to develop a compliant PMP and SSMP prior to submitting any additional funding applications under the IS FFGA. (See above section F. Safety, and Section 3.C. Project Management.)*
- Slower-than-planned progress on the Beacon Hill Tunnels and Stations (most critical) and Rainier Valley sections of the Project have increased the concurrency and shifted priority of activities in proximity to the Project critical path, thereby increasing the potential for delay. This phenomenon is adding to the complexity of coordination requirements for the interfaces between facilities construction and systems installation activities. This situation is not unusual in the implementation of complex facilities, but efficiency in the prosecution of the work continues to suffer. In general, the PMOC continues to be concerned with the

continued delay-driven concurrency of systemwide equipment installation, integration and test activities. On a positive note, ST formally adopted a “Rebaselined Schedule (RMS)” in January 2007 by action of the Change Control Board (CCB). The PMOC’s review of the schedule indicates that it is an improvement; however, as recognized by ST, additional activity detail and logic is necessary to make the schedule fully effective. Link Project Controls indicates that it continues to work with the facilities and systems contractors to develop additional detail. The PMOC believes that ST has structured the revised schedule in a manner that maintains additional sequestered float at contract interface points and embedded in the final pre-revenue activities, however, this float is apparently being further eroded. In the PMOC’s opinion, it remains essential that the facilities/systems interfaces and systems integration and test be defined in further detail.

- The lack of an approved SSMP and changes in ST’s Safety and Security organizational structure raised serious questions as to ST’s commitment to and plans for the implementation of the Safety and Security function(s). The PMOC has strongly urged ST to, as soon as possible, revise the SSMP to bring it into compliance with FTA requirements and to finalize its reorganization in a manner that provides a strong, independent Safety (or Safety and Security) Department that can provide the needed degree of independent oversight of both capital projects and ST Operations. Some progress appears to have been made with the formation of an executive-level Safety Oversight Committee that is jointly chaired by the Executive Director for Link Light Rail and the Executive Director for Operations, Projects and Corporate Services. The Committee originally met in January and, *after canceling the February meeting, held meetings in March and April 2007. The May meeting, however, was cancelled and not rescheduled. The PMOC believes that these meetings are important for both real and symbolic reasons, and that cancelled meetings should be rescheduled within one week so that this Committee meets every month of the year and schedules special additional meetings if Safety concerns warrant them.* This Committee, along with the CEO, was actively evaluating alternative organizational structures for management of Safety and Security, and possibly Quality Assurance functions within Sound Transit. In March, ST indicated that it had decided on a reorganization model that would place Safety, Security, and QA under a Director-level position that reports directly to the CEO. ST is actively recruiting to staff this Executive-level position at the time of this report. The PMOC believes this is a large step in the right direction and urges that this new position be filled as soon as possible with a properly qualified candidate. *The PMOC recommends that an interim Manager of ST Safety and Security be appointed immediately to provide this crucial Safety oversight function during the recruitment of a permanent qualified Manager.*

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: Stephanie Weber 401 Second Ave., South Suite 300 Seattle, WA 98104 sheckr@wsdot.wa.gov (206) 464 1286
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)?	N	FTA Circulars and Guidance state that as part of the PMP, a Safety and Security Management Plan (SSMP) must be developed in compliance with FTA requirements. ST has not yet

		produced an acceptable SSMP for the IS.
Do the grantee's PMP and associated Safety Program include an appropriate safety policy adopted by its top management?	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 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	This should be incorporated into the SSMP.
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 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 Link IS PMP is out of date and requires revision. FTA has indicated that an acceptable PMP for the IS will be an element of ST's demonstration of "technical capability and capacity" relative to FTA granting authorization for entry into FD for the University Link Project. The PMOC received a <i>Third</i> version of the 'Preliminary Release' of the IS PMP dated March 2, 2007 and returned informal review comments to ST. <i>ST plans release of the next revision in early June 2007.</i>	R
2	29-2 08/05	RFMP Update	RFMP requires update to reflect current operating assumptions	Y	Y	N	The PMOC has performed iterative reviews of the document and provided comments with the most recent provided in August 2006 and discussed with ST personnel in early October. <i>ST issued a RFMP revision dated April 30, 2007, on May 9. The PMOC completed its review in late May and will provide its comments to ST in early June.</i>	R
3	32-1 12/06	SSMP Update	SSMP is four years old and does not comply with FTA requirements.	Y	Y	N	Since mid-2005, the PMOC has been urging ST to revise the SSMP and bring it into compliance with FTA	

			The activities and management responsibility for IS Safety and Security elements during construction are unidentified.				requirements for management of Safety and Security during the construction phase of the Project. To date, ST has not produced an acceptable SSMP. A revised draft SSMP was received in March 2007 and found to be deficient. ST <i>will</i> issue a revision of the SSMP, <i>dated May 2007, on June 4th.</i>	
4	33-2 12/06	Project Safety	ST has eliminated the position of Director of Safety and Security and disbursed the subordinate personnel. There is no longer anyone with properly structured independent oversight of IS Project Safety.	N	N	N	ST-announced reorganization is yet to be finalized in an acceptable PMP or SSMP. Evidence-to-date indicates that Safety oversight is being diluted. This is inconsistent with the Agency's policy statement and raises concern over Safety and Security during construction, as well as mitigation of potential hazards and threats to the constructed system. ST has announced additional organizational changes affecting Safety.	

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 2007**

	Lifetime Budget	Commitment to Date	Incurred to Date (1)	Forecasts and Trends	Estimated Final Cost (EFC)	Budget vs. EFC
Initial Segment						
ADMINISTRATION	\$214,780,000	\$133,990,503	\$131,644,531	\$80,063,256	\$214,053,759	\$726,241
PRELIMINARY ENGINEERING	\$33,356,546	\$33,289,466	\$33,254,176	\$20,729	\$33,310,195	\$46,352
FINAL DESIGN	\$147,166,724	\$145,191,258	\$139,152,859	\$1,607,323	\$146,798,581	\$368,143
CONSTRUCTION SERVICES	\$90,037,274	\$85,371,078	\$65,554,366	\$5,325,570	\$90,696,648	\$(659,374)
3rd PARTY AGREEMENTS	\$60,264,010	\$58,740,276	\$48,393,410	\$1,144,360	\$59,884,636	\$379,374
CONSTRUCTION	\$1,174,572,446	\$1,026,498,657	\$792,870,480	\$118,332,711	\$1,144,831,368	\$29,741,078
VEHICLES	\$132,307,000	\$128,316,381	\$62,773,333	\$3,482,413	\$131,798,794	\$508,206
ROW	\$217,516,000	\$202,462,255	\$196,310,737	\$5,933,995	\$208,396,250	\$9,119,750
Capital Total	\$2,070,000,000	\$1,813,859,875	\$1,469,953,892	\$215,910,357	\$2,029,770,231	\$40,229,769
Project Reserve	\$128,300,000	\$0	\$0	\$0	\$0	\$128,300,000
Financing ⁽²⁾	\$201,800,000	\$201,800,000	\$81,082,860	\$0	\$201,800,000	\$0
Transit Art	\$10,700,000	\$8,906,220	\$3,608,614	\$1,793,780	\$10,700,000	\$0
DSTT Debt Service ⁽³⁾	\$26,100,000	\$26,100,000	\$15,945,204	\$0	\$26,100,000	\$0
Project Total ⁽⁴⁾	\$2,436,900,000	\$2,050,666,095	\$1,570,590,570	\$217,704,137	\$2,268,370,231	\$168,529,769

Note: The current estimated final cost (EFC) for the capital project is \$2.268B, approximately \$168.5M less than than the baseline budget. The EFC this period is approximately the same as last reporting period.

(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 2007 Contingency Activity Report* indicates that the forecast Unallocated Contingency balance is \$42.1 million, the same figure reported during the previous period. Therefore, the balance of the Total Contingency identified in the FFGA is \$170.4 million, including the Project Reserve or 23.0% 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 portion of the Project Reserve. As noted in previous reports, the cost forecasts provided by ST do not include a value for current and potential claims. In the Quarterly Review Meeting on November 15, 2006, FTA requested that ST include a forecast of potential claims exposure in future monthly cost reports. ST has yet to adequately address this request.

Change Orders and Potential Claims: Potential claim issues are evident on several contracts, most significantly on the C810-Maintenance Facility, C700-E3 Busway, C710-Beacon Hill Tunnels and Stations, and C735-RainierValley/MLK contracts. The monthly cost and schedule reports prepared by ST for the IS Project indicate a high volume of added scope issues, field conflicts and other design-change issues on the 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 \$170.4 million of remaining available Unallocated Contingency and Project Reserves, and that the Total Project Budget is not in jeopardy at this time. However, ST Project Controls anticipates that the allocated contingencies for the C735 and C710 contracts will be fully consumed and must be augmented with additional funding from the contingencies. Additionally, the contractual impact of the re-design of the Beacon Hill Station has yet to be fully determined. At the summary level, however, ST contends that the Project forecast and total budget remain valid. As noted above, it is the PMOC's continuing opinion that a note of caution should be exercised with regard to the current budget status until such time as the impacts from each of the major contracts are clarified along with the related potential claims issues. The PMOC is performing a quarterly update to its Project Risk Assessment and a general review of changes and claims for each of the major construction contracts. Preliminary indications from the most recent update are that the current budget, including Project Reserve, provides a reasonable level of confidence that the Project can be completed within the current budget limits.

In the November 2006 QPRM, FTA requested that ST report its forecast claims exposure at a summary level for the IS Project in its monthly management reports; however, the requested information has not been evident in subsequent reports. In the February 2007 QPRM, ST briefed the FTA on the current status of the IS claims exposure in broad terms. ST promised to keep the FTA and the PMOC informed of further claims developments as the parties work through the

negotiation process. Summary level claims information in accordance with FTA's request is yet to be incorporated into the monthly project reports.

During routine monitoring, the PMOC observed that the Sound Transit Change Order Cover Sheet appropriately has an inventory checklist that includes a provision for indicating whether or not the subject Change Order qualifies for FTA participation along with a provision for including the relevant FTA grant number. The PMOC also observed that all completed Change Orders sampled at the various site offices and all of those reviewed on the ST LIVE-LINK electronic document retrieval system were marked as eligible for FTA participation. The PMOC believes that a process is necessary to provide support for making the eligibility determination.

During December 2006 and January 2007, the PMOC conducted a summary review of ST's Change-Order documentation and in-place processes to determine responsiveness to the intent of FTA Guidelines for determining eligibility under the FFGA. As part of the process, interviews were conducted with ST's staff and CM contractors.

In summary, the PMOC's review indicates that ST's Change Order documentation does not currently comply with FTA Guidelines. Documentation that may be used in the future to determine funding eligibility under the FFGA is not included in the files reviewed. Additionally, the current procedures do not provide a process for making such a determination. Although in every Change Order reviewed, the Change Order Cover Sheet indicates that the subject Change Order qualifies for FTA funding participation; however, the Change Order supporting documentation does not provide sufficient information to confirm compliance with FTA guidelines for grant participation. Additionally, staff members interviewed appeared to be generally unfamiliar with FTA's eligibility requirements.

The results of this review were discussed with FTA and ST. The PMOC has identified the following recommendations:

- Revise ST Policies and Procedures to strengthen ST Change Order documentation requirements to support the demonstration of compliance with FTA cost sharing criteria.
- Develop and provide training to all parties involved in the CO preparation process to assure awareness of documentation requirements.
- Conduct an iterative series of QA audits and surveillances to assure that consistent Change Order documentation exists within the ST field offices and the Contracts Section consistent with procedural requirements.

The PMOC continued to discuss the FTA Change Order requirements with ST and ST has initiated efforts to improve its documentation in a manner that addresses the PMOC's observations and submitted representative Change Orders from various contracts with augmented documentation for the PMOC review during April. The PMOC will review and provide its comments in June 2007.

B. 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. Since early 2006, ST has been working to develop a revised Project Schedule that would provide improved visibility and analytical capability with respect to the civil facilities and Systems Contractor's work coordination, which better defines systems contractors' access requirements. The intent is to establish revised coordinated access plans to mitigate the impacts to the project schedule caused by late civil work completion which will include temporary, limited, shared, and partial access to facilities and line sections where possible. This should allow multiple Systems contractors in critical sections to coordinate their activities and better meet schedule milestones. The "Re-baselined" Master Schedule (RMS) incorporates the production forecast by analyzing contractor's production rates and trends from CM field staff reports. With this joint production projection, more realistic contract progress forecasts and milestone dates are presented. ST reports that it has now finalized this effort and formally adopted the RMS schedule through CCB action in January 2007. The PMOC has reviewed consecutive versions of the RMS and believes that it represents an improvement over previously presented schedules; however, further refinements are required to produce a fully logical schedule network. Also, as recognized by ST, additional detail with respect to the Systems Contractor's planned work activities would be beneficial. ST Project Controls has indicated that it is working with the contractors to further define contract interface requirements. In addition, ST has outlined the steps of integrated testing and start-up and has acknowledged that the current allocated duration of *six months* for this activity may be too *generous*. ST is therefore considering the incremental release of this time to the Project float inventory. The PMOC will continue to closely monitor this schedule development process.

With the exception of Contract C735, throughout the early months of 2007, none of the contractors have sustained improved rates of progress that would allow for recovery of lost time in the RMS. C735, however, improved their recent progress by significantly increasing the paving and rail installation production rates

Notably, due to a fatality, which occurred on the C710 site in February 2007, the TBM operation had been shut down for investigation and restarted in the 3rd week of March. The planned initial operations were implemented to be one 8-hour, two 8-hour, and then two 10-hour shifts, which deviate from the original RMS production assumption and, then three 8-hour shifts with average of 55 feet per day. *Subsequently*, the average TBM production rate improved and reached as much as 60 feet per day with 5 working days per week and 2 shifts a day *prior to completing the southbound tunnel in May*.

The continued lagging progress and delays throughout the civil contracts are driving a high degree of concurrency in the follow-on systems installation and test activities, particularly in the installation of traction-power equipment. The PMOC projects that this could potentially generate further delays due to the inefficiency created by shared and piecemeal access by the Systems contractors to the sites. The PMOC will continue to monitor the actual production rates and comment on the resultant schedule impacts. *In addition to lags in construction progress, the*

PMOC is becoming concerned that technical issues relating to the C803 Communications contract may be creating additional schedule risk.

Critical Path and Project-wide Float

The RMS projects 46 days of project-wide float as Revised Base Float. The current Critical Path, C710 Beacon Hill Station Excavation, through Beacon Hill Station West Headhouse, and then C803 Communication, indicates 49 days of project-wide (PW) float prior to the Revenue Service Date.

Critical path layout from April 2007 schedule is attached below. The layout shows that the activities from C710 Beacon Hill contract, especially TBM excavation and SEM construction, are on the critical path.

ST has indicated that the planned DSTT substantial completion is expected to be delayed by 16 days to June 18, 2007. This delay does not affect the two year closure and reopening period, it only delays the start of the bus operator training and startup.

Activity Description	Pack	Orig Dur	Planned Start	Planned Finish	2007												2008												2009											
					P	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J								
Initial Segment-Rebase Apr07 Update																																								
WLVA/TVA SEM Work	710	126	15DEC06A	31MAY07	■ WLVA/TVA SEM Work																																			
Main Shaft FRP Final Lining	710	65	01JUN07	30AUG07	■ Main Shaft FRP Final Lining																																			
BHS-Elevator/Stair Core FRP	710	50	13JUL07	21SEP07	■ BHS-Elevator/Stair Core FRP																																			
WHH-Elevator/Stair Core FRP	710	54	24SEP07	07DEC07	■ WHH-Elevator/Stair Core FRP																																			
WHH-Structural FRP	710	38	10DEC07	31JAN08	■ WHH-Structural FRP																																			
BHS/WHH/Plaza Finishes	710	454	01FEB08	04SEP08	■ BHS/WHH/Plaza Finishes																																			
BH MS #7(4) - 7(3) Substantial	710	0	05SEP08		◆ BH MS #7(4) - 7(3) Substantia																																			
Install Conduit Plaza Level	710	5	06OCT08	10OCT08	■ Install Conduit Plaza Leve																																			
Install Cable Plaza Level	710	4	13OCT08	16OCT08	■ Install Cable Plaza Level																																			
Install Plaza Level Equipment (1)	710	10	17OCT08	30OCT08	■ Install Plaza Level Equip																																			
Install Plaza Level Equipment (2)	710	6	07NOV08	14NOV08	■ Install Plaza Level Equi																																			
Phase 2 Installation Complete	710	0		14NOV08	◆ Phase 2 Installation C																																			
CPS-15th Link Preparation for	800	182	15NOV08	15MAY09	■ CPS-1																																			
Initial Segment Completion	800	0		03JUL09	◆																																			

Based on its review of the schedule information provided in ST’s report and observations relative to construction progress in the field, it is the PMOC’s opinion that given the logic structure in the RMS, the float status continues to deteriorate and the original project float has been fully consumed at this point. Supporting evidence for this opinion includes the current Beacon Hill Station finishes that are on the current Critical Path, *the duration of* which has been reduced from 15.5 months to 12.5 months without any reasoning to support its feasibility. ST hired two independent consultants to evaluate the duration of the station finishes *and their evaluation indicates that the finishes will take approximately 15 months.*

The C710 Contractor made unacceptable logic changes in its schedule, making previously non-critical work of WLVA excavation critical in an apparent attempt to further its claim of owner-caused delay after the fact. This change has been disputed by ST with a rejected submittal. In the meantime, ST is attempting to work with the Contractor in redefining this new logic so as to

mitigate the delays. The Project-wide float may be negatively impacted, if the C710 Contractor continues to focus its work on the apparently non-critical activities. The PMOC anticipates that as the facilities/systems interfaces continue to be better defined, the reported critical path status will fluctuate as the schedule continues to be restructured and sequestered float is revealed and consumed. However, the PMOC anticipates that deterioration of the float status will continue to occur.

As noted in earlier reports, the PMOC believes that additional float is sequestered in the Project schedule network. Specifically, with the detailed steps developed for the project-wide Systems Integration Testing and Start-up, ST indicates the current allocated duration, 182 days, is too *generous*, and forecasts that the most-likely duration is approximate 135 days. However, the PMOC believes that due to the aforementioned inefficiencies being created by the delay driven concurrency, this float may have already been consumed.

Schedule Issues

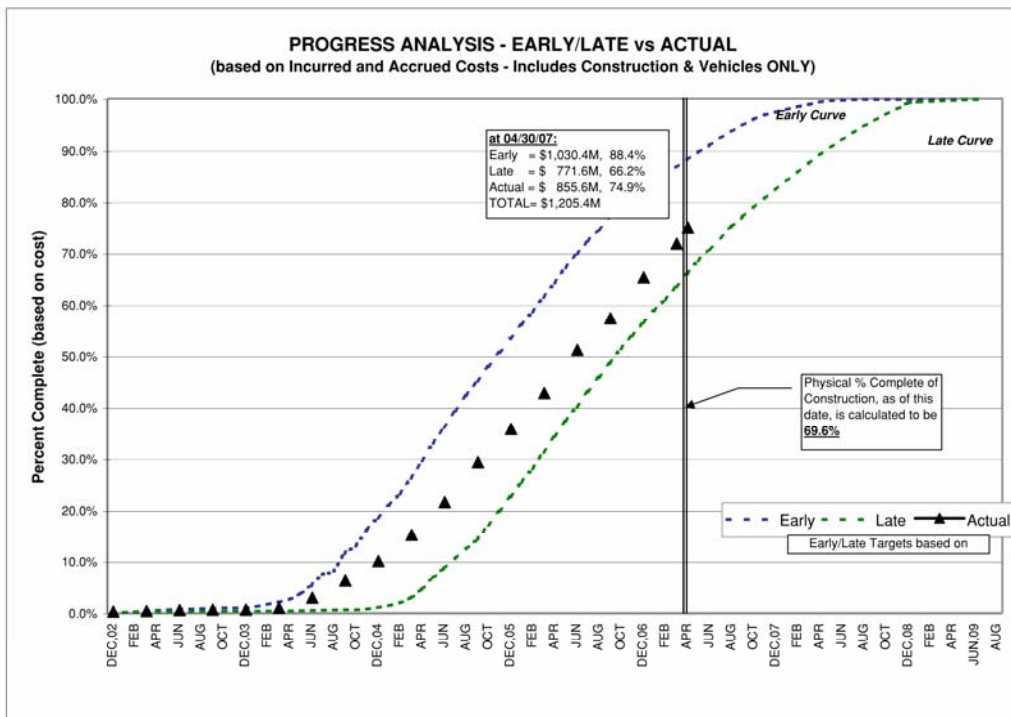
The PMOC has been reporting that it has not seen evidence that the system integration/systemwide testing and pre-revenue operations, including Safety Certification activities, are adequately defined in the Project Schedule. This remains the case although the RMS represents a significant stride forward in addressing this issue. Currently, Systems Integration and Testing for each Line Segment has been developed and logically tied. The detailed steps for Project-wide Systems Integration and Testing have been preliminarily incorporated and these include drills and point-to-point verification. 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 noted improvement in ST's schedule management function; however, continuing demands on limited resources have constrained the progression of needed enhancements. 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. The PMOC believes that the staffing requirements for the Link Project Office Controls/Scheduling activity need to address the combined requirements for appropriately qualified staff to support the IS, Airport and University Link projects. It has been the PMOC's long-standing opinion that the resource level currently in place and planned for this function is inadequate and is therefore negatively impacting ST's ability to efficiently manage the design, construction and operation of its various projects and revenue programs. ST is making progress in acquiring additional staff; however, the adequacy of the staffing levels 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 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 report needs 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. Some of this type of information was

being generated, but not for all elements. Recent reports provide some graphical information on progress, but little discussion of impacts and mitigation. The next step in the evolution of the planning and reporting efforts should feature enhancement of the planning in support of the facilities/systems installation, leading to start-up and test and the addition of narrative analyses along with discussion of Project Management's intent to focus on how the actual progress influences future plans. The Project Management and Project Controls staffs have indicated their 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, 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.



Construction/Systems:

DSTT (C510): Overall contract work is estimated to be 96% complete. Currently, the major activities for the Pine Street Stub Tunnel (PSST) have included the *completion* of restoration activities on Pine Street *except for punchlist items that are being closed out*. The vent shaft

structure construction, installation of electrical panels and cleaning of the tunnels and stations continued during the month.

Observations during PMOC site visits indicate that the DSTT rail installation is 100% complete. Concrete overlays in the tunnel are also complete and clearance tests for bus and rail vehicles continued during *May 2007*. Contracts 802, 803, and 807 continue to install conduit, wiring, and other ancillary equipment throughout the length of the project based on coordinated access to the various work areas.

The original DSTT re-opening schedule contained approximately three months of float; however, as has been reported in past PMOC reports, this time has been lost. It is the PMOC's opinion, that with some acceleration and well-coordinated Systems Contractor's activities, the planned September 2007 re-opening is still achievable, although the PMOC anticipates and ST has confirmed that the full systems testing plan will not have been completed by that time. The current plan is to complete systems testing in support of KCM bus operations training starting in June 2007, prior to the September opening of tunnel bus operations to the public. Rail systems work will continue up to the rail revenue operations date in July 2009.

Beacon Hill (C710): The sequential excavation of the Beacon Hill Station is one of several essentially concurrent critical paths in the Project Schedule. *In its current update, the slippage of Critical Path activities in the Contractor's schedule has been addressed and the date for turnover of the facility to the Communications System Contractor appears to have stabilized.* Progress on activities with logic ties to this milestone is driving some concurrency in planned systems work. In order to alleviate this situation to some degree, ST is working with the facilities and systems contractors to break down and redefine the critical interface milestones. Due to the increased paving production rates on MLK combined with suspension of TBM operations in February through mid-March 2007, elements of Contract 710 are clearly the current critical path for the IS Project. Overall, the station SEM work *was 100% complete in May* and the tunneling *was 50% complete*, with the completion of the southern tunnel bore more than six months later than originally planned. *Claims-related issues have prompted the Contractor to submit schedule updates that do not reflect the reality of the actual work status. 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. This issue also has potential to affect the planned interfaces with C802, C803 and C807 contracts.*

Ground movement at the east tunnel portal excavation had the potential to delay TBM operations and has necessitated a redesign of the temporary soil-nail shoring system as well as the concrete box structure adjacent to the soil-nail wall. However, due to the slow/suspended TBM progress this issue did not have direct effect on the project critical path. The area was instrumented and a temporary earthen berm placed at the base of the soil-nail wall to stabilize the ground. The temporary support system was enhanced during the intervening time and the berm was removed during the month in preparation for the TBM's arrival *on May 7, 2007*.

Following observations made by the PMOC on May 17, 2007, ST issued a stop-work order to the Contractor for work on the West Aerial Structure due to incomplete falsework installation over the Airport Way right-of-way and concerns about compliance with local code requirements. The

PMOC met with ST to review the as-built structure against the approved shop drawings and to discuss a recovery action to bring the structure into compliance with the approved shop drawings and local building codes. The PMOC initiated this inquiry as a result of field observations of this structure and in view of the Contractor's scheduled concrete pour on a structure that was not compliant with the approved shop drawings. This incident highlights continued observations regarding insufficient construction management oversight/inspection resources in the field and (or) failure to follow established ST construction management procedures. The PMOC will continue to monitor this and other site-specific incidents as well as ST's analysis of and response to these deficiencies.

Rainier Valley (C735): ST estimates that this contract is approaching 80% complete with work underway intermittently in all 10 reaches. Street paving continues to be the critical path activity. *The main line paving has been largely completed during May and with continuing better weather conditions intersection and property restoration work will form the bulk of the final contract paving operations.*

ST/CM's evaluation is that the current level of construction craft crews and management staff resources has shown marked improvement. *The southern 33% of Contract 735 was released to C802, C803 and C807 contractors in mid-May, slightly earlier than planned in the Rebaselined Master Schedule.* Early segment closeout procedures are continuing with the City of Seattle. Further schedule impacts related to the City inspection and closeout program will be clarified once the first segments are completed. ST, the City and Contractor continue to work in a cooperative effort to coordinate the implementation of complex and challenging phased traffic management schemes at major intersections. ST notes that these challenging traffic management environments are facilitated by prompt and coordinated construction operations that minimize detour time and public inconvenience. The City appears to be cooperating with the contractor to allow access to intersections in a timely manner as the contractor exhibits improvement in its execution of its work plans. The City, however, is working closely with ST and the contractor to improve their traffic safety measures in response to observations its staff has made of the contractor's operations throughout the MLK corridor during March 2007.

A Quality audit of the C735 operations was conducted during October with a number of findings being issued. As of the end of May, most of the findings had been closed and a smaller subset of those issues is still outstanding at the end of the month.

The lack of an approved contractor's schedule and reliable updates remains an issue of concern and will be a limiting factor relative to the effective coordination of work project-wide. ST has developed schedule scenarios that address the nature of the follow-on Traction Power Contractor's work *and has initiated this process.* Specifically, ST has developed plans for completion of the concrete paving and rail installation that relate to the tension sections into which the OCS system element is divided and negotiated milestones with incentives for the contractor upon achieving those milestones on schedule. The PMOC is encouraged by the adoption of the rebaselined schedule with milestones and incentives and will monitor its implementation in the following months.

The PMOC has noted that rail-welding operations are in progress and that the contractor continues track installation. Existing pavement demolition sub-grade preparation for the track bed, track installation and concreting operations has continued during the month with *continued* good progress noted.

Tukwila Freeway Route (C755): The span-erection activity on this contract is no longer one of the near-critical activities on the Project critical path. The criticality of this activity is waning due to the lack of progress on the other contracts and the generally reliable progress on the critical aspects of the C755 work-to-date.

Progress in the installation of the pre-cast elevated segments of the guideway continued during *May*. The Contractor has *continued* the previous erection rate of approximately two-to-three spans per week *during* the month. The RE's report currently indicates that this activity is approximately sixteen weeks behind the contract schedule; however as noted above, it is not considered to be a near-critical project activity at this time.

Concrete plinth placement activity continued with approximately 28,381 feet of plinth in place at the end of *May* 2007. Plinth installation rates are slower than originally planned but currently conforms to the revised milestones 6A and 6B that have been introduced to the contract by Change Order. *The plinths were scheduled for release in May but now are scheduled for release on June 18, 2007. This is a delay from the planned turnover date and has been reviewed and coordinated with the follow-on Systems contractors. To mitigate the negative effects, the C807 contractor has slowed its work in the O&M facility to keep crews mobilized until the later turnover of the guideway.* The contractor continued rail installation activities ahead of schedule in the available areas.

Installation of balanced cantilever segments over the I-5 corridor was completed with the closure piece installation *being concreted*. Close coordination between the Contractor, ST and BNSF is ongoing with *all but the last few* of the balanced cantilever segment installation crossing the railroad right-of-way being completed during the month.

The CM's inspection staff noted a technical discrepancy in some re-enforcing steel delivered to the Airport Link Project work site. Investigations into the scope of the discrepancy and its impact to the C755 work continued during the month and the issue has been forwarded to the Material Review Board for action. *A question was raised by the PMOC regarding the quality of grout material being used under the rail pads near the International Station. ST initiated an inquiry on the suitability of the material proposed by the Contractor for this work.* Additional inspector training was implemented to emphasize the contractual and inspection requirements related to these issues.

Operations and Maintenance Facility (C810): ST issued the Contractor a notice of substantial completion for the O & M Facility on November 17, 2006, 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. Due to slow progress with punchlist work, the RE estimates that the final acceptance will not be issued until late in the second or third Quarter of 2007. From the PMOC's perspective, the coordination of systems

testing with vehicle and test-track interfaces remains to be fully addressed in the plans for completing the C810 work. ST continues to actively work the issue; however, without a current and accurate schedule for the remaining C810 work, effective coordination will be difficult. It continues to be the PMOC's opinion that remaining punchlist work is extensive and will likely extend well beyond the second quarter of 2007.

King County Metro was scheduled to move into the O&M Facility in the first week of April 2007; this has been delayed. The primary transformer for the O & M Facility failed during March, resulting in further delays in completing Contract 810 punchlist work, delay in obtaining the occupancy permit for the O&M Facility and delaying the King County Metro move-in date to June 2007. The PMOC is following the transformer forensic testing operation to monitor further erosion in the O&M Facility occupancy schedule and the cost implications related to replacing the transformer and providing a backup transformer if required. *A spare transformer was procured and installed in the O & M Facility during the month.*

The RE reports indicate that the contract contingency has been consumed and that the Contractor's claims currently under negotiation will further increase project costs. In addition, a lawsuit has been filed in King County Superior Court against ST by Kiewit Pacific, alleging "breach of contract and breach of implied duties." In the PMOC's opinion, these are clear examples of the potential project exposure that should be reported in ST's budget status reporting.

Light Rail Vehicles: ST indicates that design remains at 98% completion and the contract overall completion *increased to 31%* as of the end of *May 2007*. Contractor design and product submittals, with related ST reviews, are continuing. The first two cars (LRVs 101 and 102), which were fully manufactured in Osaka, Japan, are on property and completing static testing. Car bodies for LRVs 103 through 117 are at the U. S. final assembly plant in Everett, WA. Final assembly began in April *on LRVs 103, 104, and 105.*

A delay in delivery of the Phase III Auxiliary Power Supply (APS), coupled with communications subcontractor issues, will have a negative impact on the acceptance schedule for individual vehicles, but the ST vehicle delivery schedule continues to show that the last IS vehicle (LRV131) will be accepted on July 30, 2008, 15 days ahead of schedule. An (APS) recovery plan to mitigate FD delays called for the APS to be delivered in three phases. The Phase III production units were scheduled to begin shipping in October 2006, but were pushed back to December due to problems found with the APS housing, and then to sometime in March 2007. A Progress Meeting was held with Kinkisharyo and Oerlikon (the APS manufacturer) on February 1st and the contractors verified that progress on the final production unit continued to support the scheduled March 2007 availability for installation on vehicles. In late March ST reported that two APS units had been assembled and are undergoing testing, while a third APS enclosure is undergoing water-testing. The first production was expected to be shipped on or before April 20th, but was not. In late April, ST was advised that the manufacturer was acquired by another company (*Rheinmetall*) and that company began discussion with the car builder on the APS situation. ST is concerned that this could delay receipt of the APS until June and is now in the process of evaluating options to mitigate the delay. *The situation has worsened in May. Rheinmetall advised the car builder that costs to build the APS are double the price contracted*

by Oerlikon and it will assume no further risk. The effect of this stance is to not ship the first production APS or order material for production of additional units until all testing and the FAI is complete on the first production unit. ST estimates that this could delay shipment of the first production APS by as much as two months and delay production of the additional units. In round numbers, it appears that Rheinmetall is claiming it will lose about \$50,000 on each APS it manufactures. For the 35 cars now contracted, this totals \$1.75 million. Kinkisharyo has been trying to resolve the issue with Rheinmetall and has met with ST to discuss this. ST advised Kinkisharyo that it is contractually responsible to deliver the APS units and asked for a realistic plan and delivery schedule by June 14th. ST is also internally meeting to discuss alternatives. The Systems Engineering Manager indicated that there is currently nine months float between acceptance of the last car and ROD, so while the situation has not become critical it now appears that it will eat into the float. As discussed below, there are other vehicle issues that are causing delay and their resolution may be concurrent with the APS resolution.

The vehicle communications subcontractor had not progressed in accordance with the plan, incurring delays to design submittals and resulting in inadequate integration testing as well as lags in the development of required documentation. A teleconference involving all affected parties resulted in the subcontractor (Geofocus) agreeing to procure equipment at its own risk in order to maintain schedule. The subcontractor submitted a Qualification Test Procedure in September 2006 that was reviewed and approved by ST. The Qualification Tests on the first vehicle's communications equipment were started on February 2nd and had to be suspended due to software problems and would remain suspended until Geofocus completes its software modifications. At the end of March, the Vehicle RE reported that the Qualification Tests would be held on April 18 and 19, 2007. As of the end of April, qualification tests *were* incomplete due to needed Software retesting. The contractor *had* again become uncooperative and ST *was* to meet in early May to develop plans to address the situation. *The most recent projection is that software will be updated and preliminarily tested by Geofocus by June 11th, with retesting by ST scheduled for June 18th.*

Dynamic testing on the test track, which had been scheduled to begin in late February 2007, was slipped to mid-March, partly due to the readiness and Safety program review in January 2007. Testing will likely slip further due to Electro-Magnetic interference (EMI) problems between vehicle systems that arose in March when testing restarted. It appears that propulsion system generated EMI is interfering with the Cab Signal system frequencies. The source has been isolated to the propulsion system cables to the motors. The vehicle supplier (Kinkisharyo), cab signal supplier (US&S), and propulsion supplier (Elin) are cooperatively looking at several potential solutions to interference problems and expected resolution by the end of May. In April, a testing plan for the proposed fix was developed. Static testing would be performed in the car builder's Everett facility, followed by dynamic testing on the Test Track. Dynamic testing scheduled for April 30th was delayed due to a called one-week Safety Stand-Down (Readiness Review) in an effort to enhance coordination of testing activities. *The latest solution provided by Kinkisharyo eliminates the present EMI problem, but without providing an adequate margin of safety, i.e., at levels slightly above those currently measured, EMI could again impact cab signal integrity. Kinkisharyo and ST are continuing to investigate potential solutions, including the possibility of increasing the strength of signals received from the wayside coils to override any*

propulsion-generated signals. No target date is projected for resolution, but all parties are giving high priority to resolving the problem.

Systems: Final Design reviews are continuing on all systems elements. The concentration of effort in the DSTT has slowed the pace of design completion for Phase II of the Communications Contract. As of the end of *May 2007*, design and overall completion on the systems contracts was reported as follows:

Contract	Design Completion	Overall Completion
802 (Signals)	95%	71%
803 (Comm.)	61%	39%
807 (TES)	99%	62%

DSTT Civil/Systems Coordination

Coordination meetings with the civil and systems contractors, *particularly the Communications Contractor (P803)*, continue on a regular basis. ST continues to report that cooperation among the civil and systems contractors is good as the civil work winds down. *There have been some conflicts where contractor testing was disrupted, such as equipment blocking a bus being used for signal-sighting tests, but these are being addressed. ST reports that everything needed is in place for the scheduled 6/8/07 opening of the DSTT for bus operator training. Systems work and testing that remain can be completed in the overnight hours when buses are not operating. Signal work is essentially complete except for contractual testing, which is now in progress. The traction power system will not be ready to energize until late August, but adequate time would remain for completion of testing before the scheduled 9/24/06 DSTT opening for bus passenger service. Similarly, communications installation and testing is projected to be complete by late September, prior to opening. As indicated in previous reports, some spillover of testing until after passenger operations begin is not a significant issue since bus operations cease in the evening and leave an ample overnight window for completion of systems work and rail System Integration Testing (SIT). The Fire Control and Deluge systems have been tied together and designed to be operational from a single station Fire Control Panel. If there are problems with the SCADA system that preclude control from the OCS, a single individual can provide local fire watch as an acceptable work-around.*

C802 - Signals

Submittals for the Signal Contract continue to progress smoothly and the Contract Schedule for the design effort is close to target. Signal installation work in the DSTT is complete; some corrective work is in progress. *Interface testing between signal and SCADA began in late May and is expected to be complete in early June. Bus antenna problems in the DSTT have revealed some reading problems, but these are being addressed. As of the end of May, all antennas were reading; however, testing will continue to assure that all possible operating conditions will allow reliable signal reading.*

Substantial Completion inspection is complete and the Contractor will be notified of granting of Substantial Completion on the test track (C700) in early June. The Contractor is working on clearing punchlist items. All engineering and signal equipment manufacturing for the yard

(C810) has been completed and installation work is continuing. Switch machine installation began on MLK (C735) at the Henderson Interlocking. NCRs were issued to the contractor for failing to comply with contractual requirements for maintenance of installed equipment. The Contractor advised ST that maintenance would begin on April 30 but as of the end of May, the RE Report indicates the NCRs remain open. As indicated above, one of the avenues being evaluated with regard to the LRV EMI problem is by increasing the signal strength from the wayside loops. If this ends up being part of the solution, it will likely require rework of most, if not all, wayside signal loops at some additional cost. In May, the Contractor submitted a cost proposal for access delays to three contract areas: C510, C700, and C810.

C803 - Communications

Final Design reviews for the DSTT-related radio system elements continue to proceed well. The Communications Contract had lacked information from the C510 and C710 civil contractors on equipment specifications and location. The situation improved in late 2006, initially for C510 and then for C710. Ongoing updates are still required to address changes and some information is still needed from the C710 contractor.

ST is continuing to evaluate the schedule for communications work and the possibility that more crews than the contractor (GETS) and subcontractor (Mass Electric) had planned may now be needed to address compression of scheduled activities across the Project. Discussions continue both internal to ST and with the contractor. A meeting with GETS senior executives to discuss performance issues was held in early February at ST. Weekly conference calls are now held among ST, GETS, and Mass Electric, and the contractor has added engineers and work crews to the project. The Systems Engineering Manager reported that visible progress improvement is being observed from these efforts.

The Fiber Optic backbone between the Communications Trailer at the Operations and Maintenance Facility (OMF) and Westlake has been installed, telephone ports have all been tested, CCTV is up and running in all Train Control and Communication (TCC) rooms, and Programmable Logic Controllers (PLCs) in the DSTT are communicating with central control. Cabling at the PSST was scheduled for completion in March, but has been rescheduled to begin in early April because the focus had been on cabling and terminations to support the June tunnel opening to buses. *PSST cabling is substantially complete; punchlist generation is in progress.*

Other than installation of Fiber Optic cable, communications work on C700 will wait until after all work is completed in the DSTT. Cabling for the office network in the OMF was planned to start in early April, but did not. Apparently there are some design issues that need resolution before OMF offices can be wired. *Radio System test data received in March revealed that there are several areas where the signal strength of the Radiax cables that run the length of the DSTT on the northbound and southbound sides is lower than it was in September 2005 before the DSTT was closed. In two areas, the signal strength is significantly lower than it was. The contractual requirement was to meet or exceed the prior signal strength at every measurement location. Discussions are to be held with KCM regarding the need to correct these deficiencies before Bus Operator training begins or before passenger service begins.*

C807 - Traction Power

Traction-power equipment is progressing with the substations in various stages of delivery, installation and manufacture. The critical path for traction power is the OCS system. Poles were delivered for all contracts and are stored on site. The OCS in the Test Track area is complete along with most of the Yard area.

Work in the DSTT is continuing. The TPSS was set in place at the International District Station (IDS) in March *and work through the end of May includes installation of DC feeder cables.* Utility AC feed connection was expected in March but has been delayed due to City of Seattle electrical inspection requirement. *All OCS wire has been installed in the DSTT and tensioning will begin in June. All required Traction Power installation work and testing is scheduled for completion at the end of August, but if necessary could be completed in the DSTT after the September 2007 reopening without affecting bus operations.*

On C700, the low speed unpowered and powered OCS/Vehicle SITs have been successfully completed. On C810, yard OCS installation regulation was suspended due to parts shortages and is now scheduled for completion in June. *The latest projected completion date for yard OCS is June 18, 2007.*

Due to delays in paving and subsequent rail installation along C735 MLK Way, that portion of the alignment has become critical to the traction power/OCS installation. The Rainier Beach TPSS was set on its foundation on April 12. *Catenary pole installation began along MLK in early May and OCS work is scheduled to begin on June 19, 2007.*

ST has developed an approach to address payment for the direct costs incurred due to access delays and facilitate the implementation of the new master schedule provisions. Dates have been determined for C510, C700, C735, C755 and C810 and CNRFPs have been issued. Effective dates are expected to be determined for the other contracts soon. ST is developing the independent cost estimates while they await the contractor proposals.

TVMs

ST plans to procure approximately 62 additional TVMs (56 to be installed and 6 spare units) under the existing contract. In April 2006, the ST Board approved a change order on the existing contract to acquire the TVMs and it was issued along with NTP in May 2006. The first TVMs are scheduled for delivery in December 2007.

Start-Up

The PMOC has long recommended that an independent but logically tied schedule be developed for the six months allocated for rail activation in the Master Schedule. The Rail Activation Manager (RAM) advised in September 2006 that plans were in development, with priority being given to the test track, and yard and OMF areas required for delivery, storage, maintenance, and testing of vehicles. The DSTT would then be addressed. Beginning in late 2006, regular coordination meetings on DSTT have been chaired by KCM and attended by ST. This has resulted in development of an informal schedule for the testing; training, and other needed start-up activities. While work is continuing on developing the required schedule detail, the RAM has advised the PMOC that a formal DSTT activation schedule would not be available until late March 2007, *but was issued in May 2007.* The ST Manager overseeing the DSTT opening for

bus operations has proposed the use of issues resolution teams to identify and tend to issues in various categories that must be addressed before the DSTT can be opened for bus service. The current target date for start of bus operations for testing and training is June 4, 2007. September 24, 2007 is the target date for resumption of full bus service through the DSTT. Completion of any remaining rail system work and SIT can be done at night, after bus service stops running.

Limited integration testing of the test track began again in late January. Testing was suspended again in March due to the vehicle EMI problem discussed above. It will not resume until that problem is solved and the interference eliminated, or another approved fix put in place. ST personnel projected a resumption of testing in May 2007, but that was dependent on a relatively early solution to the problem by the vehicle manufacturer and subcontractors. Vehicle testing of the proposed EMI fix was scheduled to begin on April 30th but was called off due to a one-week Safety Stand-Down. The PMOC was advised that the Safety Stand-Down was requested because of concerns over activity coordination and the content of the Operating Rule Book. *The process of review and revision of the Rulebook started in May. As of the end of May, testing has not resumed. As described earlier, it may be another two months before LRVs will be ready for testing. The ST Safety Manager expressed some concerns over the level of Safety awareness exhibited by some personnel, indicating that increased training and improved test operations procedures may be warranted. These issues will be discussed in conjunction with ST's response to the Draft Safety and Security Assessment Spot Report transmitted in May.*

A Start-Up Schedule was to be developed by the Pre-Revenue Operations & Start-up Subcommittee (PSS) of the Rail Activation Committee (RAC) and was planned for issuance as a baseline by the end of September 2006. This was to be finalized by the (RAC) and represent the minimum duration needed for integration testing, drills, operational training, pre-revenue operations, and all other start-up activities. As indicated above, the RAC is concentrating on the test track and vehicle acceptance requirements and has postponed development of the comprehensive Start-Up Schedule. The PMOC continues to strongly recommend that the Start-Up Schedule be integrated into the Master Construction Schedule as soon as possible. The RAM had been projecting that the next revision of the RAP would be issued in late February and would include the needed schedule. In our January report, we reported that it appeared that this would slip to mid-to-late March. The RAM provided a revised RAP to the PMOC in early March, but without a schedule. He indicated that the schedule was still under development and would not be available until April at the earliest. *As of the end of May, the schedule has not been received. At this point, it is no longer expected because a realistic schedule cannot be developed until questions regarding LRV availability and the additional need for training and procedures are answered.*

The RAC and its subcommittees were meeting weekly in a combined meeting and were managing required tasks for test track activation through an Action Item List. In March, the RAM decided to move the meetings to a bi-weekly schedule until such time as the level of activity warrants a return to weekly meetings.

The development of the SSCP and SITP, two of the three plans that support the RAP, is progressing 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) was

expected to accelerate in early 2007. As of the end of *May*, a draft PSP had not been provided to the PMOC. In early April, the Chair of the Pre-revenue Subcommittee gave a copy of a recently developed KCM operations and start-up plan that is thought to be adequate to serve as a model for the PSP. The PMOC will review and assess that possibility.

The PMOC reviewed and provided comments to ST on an April 2003 version of the Link Light Rail Safety Certification Program Plan. Comments were incorporated by ST and a revised IS/AL Safety and Security Certification Plan was issued in late April and commented on by the PMOC in early May 2006. A revised draft SSCP was released in August 2006, incorporating most PMOC comments, as well as additional internal ST staff comments. The PMOC next received a revision of the SSCP for review in early November (Draft D); however the plan was still not in final form and ready for formal review. The PMOC met in December with the QA Manager and agreement was reached for submission of a slightly revised Draft Revision 0 of the SSCP. This revised plan, dated December 7, 2006, was reviewed by the PMOC in March 2007. Comments and edits on an electronic copy were returned to the ST QAM on April 3, 2007. The QAM advised that the comments were addressed and a revised SSCP will be issued no later than the week of May 14, 2007. *The revised SSCP had not been received by the end of May. The QAM now advises that it will be issued before the end of June.*

The first draft version of the System Integration Test Plan (SITP) was provided to the PMOC for review in May 2006. The PMOC informally reviewed the SITP and annotated a copy with suggested edits/corrections and discussed these with the Plan's author. In late July, the PMOC again reviewed some of its comments with the SITP's author to clarify them. The PMOC was advised that the next revision of the SITP would be issued in August 2006. The Project lost the services of the Plan's author, who also served as the Chair of the System Integration Test Subcommittee of the RAC, in early August 2006. This is a critical position that the PMOC recommended be backfilled as soon as possible. The position was posted in early December 2006 and only one resume was received. ST's employment offer was accepted and the individual began work at ST on April 30th as the System Integration Manager (SIM).

As planned, ST issued a revised SITP in August 2006, containing two of three planned Volumes. ST is continuing work on the developing the third Volume, which will contain actual test procedures for each System Integration Test. The PMOC did a formal review of this version of the SITP during September and provided a comment memo in early October 2006, along with additional comments on a marked copy of the SITP. ST advised that PMOC comments on the marked copy of the draft would be incorporated and then consultant assistance may be used to address the balance of the comments and finalize the plan. The Systems Manager had projected mid-January for issuance of the next revision of the SITP, which was to incorporate PMOC comments. The revised SITP was sent to Document Control during the week of February 5th but do to an oversight, the PMOC did not receive a copy by the end of February. Copies were provided to the PMOC in early March 2007. Volume Three is still under development and a draft was not available with the submitted revision. In addition, the SIT Schedule is still under development and was not included in the submitted revision. *The PMOC reviewed the revised SITP and provided comments in early May to the SIM. The SIM advised that the process of addressing the PMOC comments is in progress. The SIM also indicated that the task of*

rewriting test procedures is underway and that a copy of the first rewrite will be provided to the PMOC for comment in early June.

In June 2006, a Test-Track SITP was drafted by Systems Engineering, based on extraction of pertinent tests from the draft IS/AL SITP. The Test-Track SITP was reviewed by QA and Safety and the Rail Activation Committee (RAC). It is still a work-in-progress, but all required tests have been identified and a schedule drafted. The draft schedule (actually a matrix of tests with planned dates) showed the first Integration test occurring in early October 2006 and then full-scale testing commencing in early November 2006 and continuing to completion in early February 2007. The start of full-scale testing was pushed back to January 9, 2007, and completion to late February. As indicated previously, the suspension of testing for the “safety stand-down,” as well as other factors, has caused slippage of the completion of Test Track integration testing. Test procedures were reviewed and modified, where required, to assure safety had been appropriately addressed. Testing restarted in late January and was targeted for mid-to-late March completion. Through the end of February, seven of 11 identified tests have been performed on C700. Of these, only two were completed without need for retest. Retesting and the performance of the four remaining tests are scheduled for completion by the end of March. The PMOC had noted, and advised the Vehicle Manager in February, that the test procedure and duration are for a signal contractor test, not for an SIT. It is the PMOC’s opinion that the procedure must be rewritten and the test rerun to confirm vehicle/signal system integration. As described earlier in this report, SIT was suspended again in March due to the vehicle EMI problem. In the absence of a Test Manager, the Vehicle Manager had taken on the task of developing a test schedule, including significant prerequisite activities for many tests. As of the end of *May*, the schedule was still in draft form and the test matrix continued to provide the only schedule information. The PMOC is hopeful that the newly hired System Integration Manager will give schedule development the high priority needed. *As indicated above, the level of uncertainty as to availability of LRVs and needed procedures will make it difficult to finalize a schedule over the next month or two.*

C. Project Management

Project Management Plan: The IS Link PMP has not been developed to date in conformance with FTA requirements, is out-of-date and not representative of the current status of the Agency organization or Project. Update to the Link IS PMP has been an issue for some time and remains a current and critical issue as the Project is transitioning from construction to systems installation, integration, test and start-up.

The current PMOC requested a PMP update to reflect the ST reorganization implemented in April 2004. FTA directed that the PMP for the IS and University Link be prepared as stand-alone documents and accepted December 2005 as the target completion date for that effort. Drafts of PMPs for the Airport and University Link projects were issued on January 13, 2006. During the February 2006 QPRM, FTA informed ST management that an acceptable update to the IS PMP is required and is a significant indicator of “technical capability and capacity” relative to approval for entry into Final Design on the University Link Project. ST committed to completing the update and publication of revised PMPs for the individual projects in March 2006. A draft revision of the U Link PMP was received on March 31, 2006, and review

comments were coordinated with ST during April. ST provided 'Preliminary Release' versions of both the U Link and IS PMPs in May 2006. cursory review by the PMOC revealed that, in its opinion, the provided staffing plans require additional detail to meet the intent of the FTA's December 2005 letter authorizing entry into PE for the U Link Project. ST issued the second version of the Preliminary Release PMP for the IS on August 21, 2006. Staffing plan documents were supplied in conjunction with the PMP. The PMOC had planned to review the document in conjunction with the U Link Final Design Readiness Assessment; however ST announced a reorganization that required revisions to the document and related staffing plans. Other plans, including the Safety and Security Management Plan and Quality Plan as examples, will also require revision in response to the reorganization.

Sound Transit's reorganization reportedly became effective on October 1, 2006. From its perspective, the reorganization was designed to result in minimal changes to the Link Light Rail Department. Link's core divisions, Construction Management, Civil Engineering, Systems Engineering, Project Development, Environmental, Community Outreach, and Project Control, are planned to remain unchanged. Again from its perspective, the Link Department's functionality will be enhanced with the addition of the Real Estate Acquisition and the Construction Safety programs. Additionally, the Department will have a more intimate relationship with the Quality function and this could also contribute to a more seamless and efficient delivery of services in support of the Light Rail Program. The Link Department will continue to coordinate closely with other departments as required. Future revisions to the Link PMPs were to reflect those organizational changes.

From the PMOC's perspective a note of caution should be exercised with respect to the reorganization until such time as it is clearly defined in a fully developed PMP that also includes fully developed staffing plans. Noting its long-standing observations relative to the adequacy of the Agency's staffing and in particular for the Link Department, the addition of a greater span of functional responsibility without the application of appropriate resources may not be in the best interests of the federally funded projects. Moreover, dispersing the Safety and Security function reduces the focus at the executive level and independence from those responsible for Project performance. This is likewise for the Quality function, in that the level of independence necessary to maintain proper checks and balances can only be assured by a direct reporting relationship outside the organization responsible for Project performance. As indicated earlier, the PMOC received Revision 6 of the IS PMP in early March and although ST has announced additional revisions to its organization, had reviewed elements of this version of the IS PMP and returned informal comments to ST. The PMOC indicated that further revisions will be required to the IS PMP prior to acceptance. The ST CEO has indicated that the Agency would reorganize the Safety, Security and Quality Assurance functions in order to institute an appropriate scheme of organizational checks and balances. *The reorganization was announced in May and, as expected, it places Safety, Security, and QA under a new managerial position that reports directly to the CEO. The title assigned to the new position is Senior Manager, Office of Safety, Security and Quality Assurance. Although announced, ST indicated that it did not actually plan to implement the reorganization until the head of the new organization is hired. Recruitment for the new position has begun and ST hopes to have it filled before the end of September.*

Staffing: The PMOC has recommended that FTA require ST to develop time-phased staffing plans for each of its overlapping projects so a consolidated plan that demonstrates the Agency's technical capacity is established. In its December 2005 letter authorizing entry into PE for the University Link Project, FTA directed that ST develop staffing plans consistent with the PMOC's recommendation.

During the May 2006 and subsequent QPRMs, and in a subsequent meeting specific to staffing issues, FTA voiced its concern with the adequacy of staff being applied to the federally funded projects. In these meetings, the FTA instructed ST to complete the development of its staffing plans and report its staffing status against plan for the projects and Agency. On August 21, 2006, ST submitted its second iteration of the "Preliminary Release" version of its PMP along with some expanded staffing information. Additionally, ST has initiated the rudimentary elements of reporting on its staff utilization in its September 2006 monthly report and improved upon that effort in the October report. The PMOC commends ST on this initial effort, however narrative analysis of plan versus actual performance is needed to demonstrate management cognizance of the status and progress. As noted earlier in this report ST has initiated a reorganization that has, to some degree, invalidated the previous and most current version of the PMP and staffing plans. The PMOC will continue to review the related modified plans and its modifying support documentation as it becomes available.

Over time, the PMOC has noted that key members of the staff are fulfilling critical roles in the field and at the Project Office level for the Initial Segment, University and Airport Link projects. The PMOC stated its concern that the current staffing level possibly may be inadequate to support proper Project administration. In September 2005, an independently commissioned 'performance audit' resulted in a published report with similar findings. ST responded to these observations by authorizing additional Schedule-staff resources. During June 2006, interviews and meetings with Link Project staff revealed that Project Office scheduling resources were having their efforts redirected to field/contract level activities. In the PMOC's opinion, this situation negatively impacted the ability of the Project office staff to focus its efforts on completing the Project Schedule update to reflect the systems installation interface changes and more detailed system integration, test and start-up planning in a timely manner. An upgrade to the Project Schedule that was originally planned for implementation in the April 2006 reporting period has only recently been developed to a usable level. Although additional improvements to ST's schedule forecasting capabilities are evident, the planned upgrade and enhancements have not been fully implemented. The PMOC believes that finalization of the enhancements to the Project Schedule is increasingly important to ST's continuing capability in support of timely decision-making during the highly work-intensive transition from facilities construction activities to systems installation, test and start-up. At the end of December 2006, ST reported that it would implement an enhanced and revised Project Schedule in January 2007; however, based on its review, the PMOC believes that additional detail relative to the SITP, Safety Certification and pre-revenue operations will be required before the Schedule could be deemed to be fully implemented.

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 during the month. However, the recent realignment of organizational responsibility that apparently shifts aspects of the ST Safety program to the QA functional manager continues to be a concern to the PMOC. At this time it is not apparent to the PMOC that meaningful consideration has been given to the scope, relationships and proper level of appropriately qualified resources needed to effectively fulfill the requirements of the functions. It is increasingly important that ST develop a PMP and SSMP that clarify the roles, responsibilities, authority and reporting relationships of its functional managers.

During February an anomaly regarding the type and grade of reinforcing steel delivered to the Airport Link portion of the C755 job site is under investigation as the issue may influence the IS element of the work as well. The investigation of this issue is essentially complete with the exception of the final action by the Material Review Board.

Additional Quality Control issues have been observed during March and April relative to the appropriateness of materials and cognizance of plans and specifications on the part of the inspection staff. *Specifically, the PMOC observed that the implementation of temporary support provisions over a public Right-of-Way were not in compliance with approved plans, specifications or codes. Subsequent to the PMOC's observations, ST stopped work on the affected structure and is taking steps to address the issue. Although the specific issue is now being addressed, ST's response is clear evidence of weakness in the Construction Management/Inspection function and the PMOC recommends that ST investigate the root cause of the identified lapse.* The PMOC will follow-up on these issues and report on them in future monthly reports.

E. Safety and Security

SSMP, Organization, and Staffing: The PMOC updated Attachment A in November 2006 to reflect its concern over ST's lack of progress in producing a compliant SSMP for the construction phase of the IS project, as well as concern over organizational changes that appear to have weakened Safety oversight on the Project. Since mid-2005, the PMOC has been urging ST to revise SSMP Rev 1.1, dated October 1, 2002, to bring it into compliance with FTA requirements. Through May 2007, ST has not produced an acceptable revision. The Agency's Director of Safety and Security separated from the Agency in 2006. The January 2007 ST Organization Charts show that the Director of Safety and Security position has been eliminated and the Safety Manager is now in Operations, with no responsibility for safety oversight of the IS Project or revision of the IS or UL SSMP. In the Operations functional role, the Safety Manager has been participating in the Rail Activation Committee and related activities. The ST QA Manager had assumed the task of revising the U Link SSMP to bring it into compliance with FTA requirements at the start of FD and produced U Link SSMP Rev 0, dated December 7, 2006, which was reviewed by the PMOC in January 2007. In February, the PMOC was advised by the Deputy Executive Director, UL Project, that he would be involved in producing the next UL SSMP revision. To further confuse the issue of organizational

responsibility, and as indicated above, the PMOC was told by the Safety Manager that he had revised the IS/AL SSMP and will provide a copy in early March, and that it will incorporate comments made by the PMOC on the UL SSMP. Of further concern is that since the departure of the Agency's Director of Safety and Security and the reassignment of the senior Safety Manager to Operations, there appears to be no one left to independently audit project Safety performance. The Construction Safety Specialist, who had reported to Director of Safety and Security and independently overseen the conduct of construction safety requirements, now reports to the Deputy Executive Director, Technical Services, who has direct responsibility for IS/AL construction. To the PMOC, this appears to effectively eliminate all independent oversight of construction safety.

The PMOC notes that ST disagreed with the PMOC's perception that Safety and Security oversight had been weakened as a result of the late 2006 reorganization. From the PMOC's perspective, until ST is able to clearly articulate the allocation of functional roles and responsibilities for Safety and Security in accordance with the Federal regulations and good industry practice in an acceptable SSMP and evidence of its implementation is discernable, this concern will remain paramount. This situation has remained essentially unchanged.

In early January 2007, a condition regarding planned safety training for test-track operation raised serious concerns with the PMOC and these concerns were recounted to ST. The result was a two-week "Readiness Review" or "Safety Stand-Down" that began on January 15. Direction was given at the January 12th RAC meeting that all procedures and training requirements be reviewed. In addition, on January 15, 2007, generally in response to the PMOC's concerns, the FTA requested a priority assessment by the PMOC of all aspects of Safety and Security on the Project, as well as oversight of the Project's Safety and Security performance by ST management. This effort commenced in late January. A draft Phase 1 report on near-term actions for the test track and vehicle-testing program was provided to the FTA in February and the final Spot Report was planned for April 2007. A significant and welcome change occurred in March. The CEO proposed a reorganization of the ST Safety, Security, and Quality functions into a single division under a Director-level manager who will report directly to the CEO. Such a re-organization can provide the needed oversight and coordinated Safety and Security management that has been needed. *This reorganization was announced in May, as described above. Also, as described above, recruitment for a new Senior Manager has begun, but it may not be filled until late September. In past reports, the PMOC urged ST to pursue filling the Senior Safety, Security, and Quality position as aggressively as possible. The PMOC continues to believe that it is important to do so and suggests securing a temporary manager, through a secondary consultant if necessary, to begin developing the needs of the new department as soon as possible.* In April, ST hired a Safety professional to fill the Construction Safety Manager position that had been long vacant. The individual who filled the position was one of two consultant personnel who were retained to provide needed construction safety support. To date, that consultant position has not been filled. It is the PMOC's hope that it will be filled quickly so there will be a net gain of one construction safety professional. *The PMOC completed its Draft Spot Report assessing Safety and Security on the IS/AL Project and at the Agency in late April and provided the Draft to the FTA in early May. Comments received from the FTA were incorporated and the Draft Final report, dated May 2007, was provided to ST in mid-May. The report contains 21 Findings that lead to 21 Recommendations.*

F. Environmental

ST is routinely providing status information on environmental issues in the weekly Resident Engineer's reports. ST Construction Management 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 two formal violations and been notified of attendant monetary 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 improvements continue to be made, however additional improvement is needed in the content of the reports relative to detail and narrative analysis of deviations from plan.
- The PMOC believes that the development of a modified Schedule will enable effective coordination of the construction and systems contractors as well as facilitate the system integration and test program for the project, and that this effort is of increasing criticality to the project. This effort is in progress, but its conclusion has languished for several months. The PMOC believes that a short-term intensive effort is required to initiate full implementation of the revised schedule as the focal point and primary tool to support the efficient management of the remaining work. As noted above, ST implemented a re-baselined project schedule for the IS Project in January 2007. The PMOC further noted earlier in this report that a review of this rebaselined project schedule yielded logic flaws and inconsistencies that have since been communicated to ST staff for follow-up and revision. Further enhancement to address SITP along with other start-up activity is required.
- In working with ST staff to address FTA reporting requirements, the PMOC has become concerned with the level of staffing currently in place relative to fulfilling concurrent responsibilities on three separate projects. It is becoming crucial to the evaluation of ST's continuing technical capability and capacity that the PMPs for each of these projects include fully developed staffing plans and related budgets, and that they are issued in the near future. ST issued new versions of the PMPs along with staffing information for the IS and U Link projects in August 2006. In the PMOC's opinion, the recently announced reorganization has rendered the most recent versions of the PMPs invalid. The PMOC reviewed the information as the part of the U Link Final Design Readiness Assessment

and recommends that revised PMPs that reflect the organizational changes be issued as soon as possible.

- Slower-than-planned progress on the C710 contract is causing further deterioration in the project float inventory. 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 absence of an acceptable SSMP and recent departure of the Safety and Security Director combined with elimination of that position and disbursement of Safety and Security staff to other organizational units raises concerns because of a lack of adequate Project Safety and Security oversight. *As indicated previously, these issues along with recommendations for action that will lead to further improvement are addressed in the PMOC's Draft Spot Report that assesses Project and ST Safety and Security Practices and Management that was sent to ST in May.* Also as indicated above, improvements may be on the way with the planned Safety, Security, and Quality organizational element reporting to the CEO. *A revised SSMP is expected by June 4, 2007.*
- *Recent PMOC field observations have revealed apparent weakness in ST's Construction Management/Inspection function. The PMOC will continue to monitor ST's response to the PMOC's observations.*

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

- | | | |
|---------------------------|--------------------------------------|---|
| <i>1 – Most Critical</i> | <i>D – Remedial Action Developed</i> | <i>R – Review On-going</i> |
| <i>2 – Critical</i> | <i>A – Remedial Action Approved</i> | <i>C – Completed – No further review required</i> |
| <i>3 – Least Critical</i> | <i>I – Action Implemented</i> | |

CATEGORY OF CONCERN

- | | |
|--------------------------------------|-------------------------------|
| <u><i>S – SCOPE</i></u> | <u><i>B – BUDGET/COST</i></u> |
| <u><i>SC – SCHEDULE</i></u> | <u><i>Q – QUALITY</i></u> |
| <u><i>SS – SAFETY/SECURITY</i></u> | <u><i>F - FFQA</i></u> |
| <u><i>TC -TECHNICAL CAPACITY</i></u> | <u><i>M - MANAGEMENT</i></u> |

STATUS OF PMO CONCERNS AND RECOMMENDATIONS

Link Light Rail

<u>PR</u>	<u>ITEM NO.</u>	<u>IDENTIFICATION</u>	<u>Category</u>	<u>NATURE OF CONCERN</u>	<u>PMO RECOMMENDATION</u>	<u>D</u>	<u>A</u>	<u>I</u>	<u>STATUS</u>
1	1	IS PMP Submittal	TC	PMP not available for IS	Revise and submit PMP per current ST organizational structure				Submission received in early March and returned for revision at the end of April.
1	2	IS SSMP	SS	SSMP not available	Immediately submit revised SSMP compliant with FTA criteria				Submission received in March and informally reviewed <i>and</i> discussed with ST staff in early April. A revised SSMP is expected <i>by June 4th</i> .

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.