

# **Monthly Monitoring Report**

**Sound Transit Capital Projects  
Central Link Light Rail Project  
University Link  
Central Puget Sound Regional Transit Authority  
dba Sound Transit**

August 2010

**Contract Number: DTFT60-09-D-00018  
Task Order Number: 2  
Project Number: DC-27-5108  
Work Order Number: 1  
OP 1, OP 25**

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## **EXECUTIVE SUMMARY**

Currently in construction, the University Link (UL or U Link) Project is planned as a 3.15-mile double-tracked extension of the phased Central Link Light Rail Project that will add to the 13.9-mile Initial Segment (IS) and the 1.7-mile Airport Link (AL or combined IS/AL) operating segments. The entire U Link alignment is below grade in bored twin tunnels with excavated and cut-and-cover stations. The alignment extends in a northerly direction from the Pine Street Stub Tunnel (PSST), traveling beneath the Capitol Hill neighborhood of Seattle and the Lake Washington Ship Canal, to its terminus located near Husky Stadium on the University of Washington (UW) campus. The Project includes two underground stations – the UW Station at the northern terminus of the alignment and an intermediate station in the Capitol Hill District of Seattle. An additional 27 light rail vehicles are planned for acquisition to support the demand derived from the U Link Extension and revenue service system-wide. Trackwork, tools, and equipment will be added to the yards and shops, originally constructed as part of the IS/AL Project, in order to accommodate the increased fleet size. The 2007 New Starts Report forecasts patronage of 40,200 daily boardings for the U Link section of the alignment alone, as well as an increase of 70,000 for the system related to the U Link, for a total system patronage of 114,000 in operating year 2030.

At this time it is the PMOC's opinion that the contingency values for the U Link Project are adequate and the Project can be completed within the current budget and schedule, as established in the FFGA. Based on its observations, representations of ST staff and other evidence, it is the PMOC's opinion that ST's Quality, Safety and Security programs are in place and generally functioning in a manner supportive of efficient project execution. Exceptions noted in these areas are being addressed in coordination with FTA and ST.

## 1. GRANTEE TECHNICAL CAPACITY AND CAPABILITY

- a. Technical Capacity/Capability.** The FTA issued the Full Funding Grant Agreement (FFGA) in January 2009, finding that Sound Transit (ST) met the requirements for demonstrating adequate technical capability and capacity, subject to conditions in the FFGA. The finding was conditioned on the continuing development and maintenance of the ST organization, Project Management Plan (PMP) and staffing plans. ST has since re-organized its internal structure to consolidate its capital projects under a single control structure. Beginning with its December 5, 2005 letter approving entry into Preliminary Engineering, FTA has requested that ST prepare calendarized staffing plans for its inventory of capital projects in a manner that can demonstrate its plan to maintain technical capability and capacity in support of its federally funded projects. During May 2010 ST delivered a draft revision of its U Link PMP and in June 2010 it delivered a draft of its comprehensive Staffing Plan and during July, ST provided draft organization charts for two of its evolving project enhancing the potential acceptability of the draft submittal. The FTA and PMOC's review of the text portion of the draft document supports its acceptability. Demonstration of ST's ability to effectively maintain and report against its staffing program is critical to the ultimate acceptability of the PMP, providing evidence of the Agency's ability to sustain technical capability and capacity.
- b. Project Controls.** ST has developed policies, procedures, and infrastructure that provide the capability to perform the document and project controls function related to the physical construction. ST has not fully implemented policies or procedures as necessary to support internal controls relating to staff resource planning, management and reporting. It is the PMOC's opinion that improvement with respect to ST's internal and consultant staff planning, management, and reporting continue as unresolved issues. The FTA has taken an active role with ST's executive management to address its related concerns and progress is becoming evident. *ST's ability to effectively collate and analyze and incrementally report staff resource utilization data, to include actionable narrative explanations of plan versus actual status will mark a major accomplishment in strengthening ST's internal management controls.*
- c. Compliance.** At this point in the progression of the Project the Safety, Quality and Security functions are generally operating as planned. With respect to FTA's December 2006 letter authorizing Final Design for the U Link Project, the quality of the U240 and U250 station facilities design deliverables was in question. ST's Quality organization performed a surveillance on one-of-the-two station concrete and finishes contracts and made several material observations in April 2010. The ST Quality organization management has worked with Design and Construction Management staff to address and resolve the issues observed during the surveillance. It is the PMOC's opinion that all open surveillance issues must be resolved prior to establishing the Maximum Allowable Construction Cost (MACC) for the U250 contract. *During August 2010, ST's Quality Management closed out the surveillance findings on the U250 documents and is developing its action plan for the U240 design deliverables.*

## 2. PROJECT SCOPE

### a. Project Status.

The U Link Project is in the Construction Phase and is progressing in general accordance with the Project Schedule while maintaining a healthy inventory of schedule contingency. Additionally, the current cost forecast reflects the maintenance of a substantial level of budget contingency. It is the PMOC's current opinion that the U Link Project can be completed within the FFGA budget and schedule. Issues of note are as follows:

- **Design/Construction Documents.** All of the U Link Project contract design packages for the facilities construction were reported as being complete in July 2009. The remaining packages for the systems elements of the Project were reported as being essentially complete as of January 2010, although the bid cycle will not begin for several years. This will allow for coordination of changes that are likely to occur during construction and as a result of the change in delivery scheme from Design-Bid-Build to Construction Manager/General Contractor (CM/GC) for the two station concrete and finishes contracts.

ST informed the PMOC of its intent to restructure the systems equipment contracts in February 2009. ST believes that there are technical advantages that can be gained by delaying finalization of the design/equipment and software requirements details. In June 2010 ST passed changes to the Contract Unit Descriptions for the Systems contract through its Change Control Board. The current configuration is:

- U830 Traction Electrification, Signals and Track
- U835 EMI & Vibration Monitoring and Wheel Flat Detection Systems
- U840 Communications *and SCADA*
- *U850 Emergency Ventilation Control System*
- *U860 U Link Systems Network*

*During August 2010 the PMOC and FTA have met and discussed the implications of disaggregating the elements of the Systems elements of the Project. It is the PMOC's position that while the contracting scheme is feasible, there is inherent risk. It is the PMOC's opinion that through the restructuring, ST is accruing risk and an expanded responsibility for system interoperability, integrity and reliability. This risk must be offset through diligent planning, focused management and timely application of appropriately qualified technical resources. ST's U Link Project team has indicated that it is aware of the PMOC's observations and will take them into consideration as its planning evolves.*

- **Design Quality Review.** The FTA and the PMOC are reviewing the status of the Design Quality process with respect to the station concrete and finishes contracts. ST's Quality organization completed its assessment of the U250 UW Station Construction and Finishes documents in April 2010. Several material observations were documented and actions recommended. As the documents have been used as part of the in-progress solicitation for the CM/GC procurement of this scope, it is the PMOC's opinion that

actions to mitigate the condition must be taken prior to establishing the Maximum Allowable Construction Cost (MACC) under the contract. *ST has indicated that all of the surveillance observations have been addressed and closed for Contract U250. Review of the U240 design documents is planned for completion prior to issuance of the solicitation.*

- **Potential Scope Change – UW Pedestrian Crossing.** UW, City of Seattle (COS), Washington State Department of Transportation (WSDOT) and ST are considering a change in the configuration of the provisions for the flow of pedestrian traffic at the UW Station. Currently, the design includes a pedestrian bridge over Montlake Blvd. connecting with the Burke-Gilman trail. The change under consideration (the Rainier Vista Project) would include lowering the Pacific Place access road which services the “Triangle” parking garage, as well as creating a grade-consistent earthen bridge over the access road. Beginning in May 2010 another alternative that includes implementing an additional at-grade pedestrian crossing of Montlake Boulevard is under consideration as well; however, funding for these changes has not been identified to date. The University is reviewing potential funding sources to support implementation of this design option. FTA has met with the stakeholders to discuss potential issues related to this change, including construction coordination, traffic management during and after construction, and pedestrian safety. FTA and the PMOC believe that these issues must be fully explored with respect to the environmental approvals prior to implementation. It should be noted that construction is continuing *through August 2010* under a “no change” assumption.
- b. **Third Party Agreements.** All top level Third Party agreements for the Project are in place, with subordinate individual permit applications being processed in a manner supporting the contract schedule. Interfaces with UW, WSDOT and COS are all well established and good communications and cooperation are evident. Incorporation of the Rainier Vista Project may drive the need to modify the construction agreements with UW, COS and WSDOT.
- c. **Contract Packages.** The three heavy civil contract packages relating to the tunnel excavation and construction have been bid and awarded under a Design-Bid-Build project delivery scheme. Construction under these contracts is progressing within the tenets of the Project Schedule.

Although the designs have been reported to be complete since July 2009, ST is in the process of procuring the station construction for the UW and Capitol Hill stations under separate contracts employing a CM/GC protocol.

As noted above, the systems equipment design and installation scope has been reconfigured to combine the traction power, signals and trackwork elements into a single contract, leaving the *Communications and SCADA, and Emergency Ventilation Control and the System Network elements all as separate contract units.* Additionally, the scope addressing the monitoring requirements established in the agreements with UW is now a stand-alone contract, being procured under a Design, Build, Operate and Maintain scheme. *A portion of these changes were processed through ST’s CCB during June 2010 and the remainder is planned for processing in September 2010.*

- d. **Vehicles.** Twenty-seven light rail vehicles and associated spares are being procured as part of the U Link Project. The procurement is structured as an option to the existing contract under which the IS/AL vehicles were supplied. Production of the U Link vehicle frames was initiated in February 2010 at the manufacturer's plant in Osaka, Japan. As of month-end June 2010, all twenty-seven sets of vehicle components are in production. Shipment of the initial vehicle components from Japan to Mukilteo, WA for final assembly is scheduled for October 2010.

### 3. PROJECT PLANNING DOCUMENTS

- **Project Management Plan (PMP).** ST issued a PMP and Staffing Plan revision in early September 2008, and the FTA approved the revisions on September 15, 2008, for purposes of advancing the FFGA award. During the April 29, 2009 Quarterly Progress Review Meeting (QPRM), the FTA highlighted its expectation that the PMP would be updated in the near term to reflect the initiation of construction and the effects of ST's organizational changes. ST submitted a revision for review in early July 2009. Based on announced organizational changes and increases to ST's inventory of active projects, the FTA determined that further revisions to the PMP were necessary.

The previous PMOC's summary observations indicated that the supporting staffing plans for the July 2009 version were incomplete. Additionally, changes to the Safety and Security Management Plan (SSMP) and the Construction Safety and Security Manual (CSSM), along with the change in project delivery for the station concrete and finishes for the UW and Capitol Hill Stations from Design-Bid-Build to CM/GC necessitate further revision to the PMP.

ST provided an advance draft PMP (excluding the staffing plan) to the FTA and PMOC in April 2010. Based on a summary review of the draft document, the PMOC believes that the content of the completed document will generally meet the basic regulatory requirements. During May 2010, the FTA and PMOC met with ST and provided comments on the draft document excluding the Staffing Plan. A draft of the Staffing Plan element was delivered in June 2010; however, summary review by the FTA and PMOC found that several organization charts for some of ST's major projects were not included. ST provided draft organizational schematics for the Projects in July 2010. In draft form, the PMP and subordinate Staffing Plan appear to meet the intent of the regulatory requirement. *FTA has informed ST that the documents are generally acceptable and that they should be finalized pending minor maintenance updates. Formal reporting against, and maintenance of the Staffing Plan are required to demonstrate ST's ability to effectively demonstrate its technical capability and capacity.* At this time it appears that ST has not initiated reporting against the new plan.

- **Operations Plan (OP).** UL OP (Revision 3), dated April 11, 2008, was reviewed by the previous PMOC and recommended for acceptance by the FTA as a compliant FFGA submittal. The OP, which is over two years old, was completed prior to the initiation of IS/AL service. The PMOC has recommended that this Plan be reviewed and revised to reflect needed changes based on actual operating data and planned ST operational changes. *ST has submitted a draft update for PMOC review. PMOC comments should*

*be available in conjunction with those related to the Maintenance Plan in late September or October 2010.*

- **Maintenance Plan (MP).** UL MP (Revision 1), dated February 22, 2008 was reviewed by the previous PMOC and recommended for acceptance by the FTA as a compliant FFGA submittal. The PMOC identified and transmitted some corrections that should be incorporated into the next revision. In addition to the need to revise the MP to address corrections already identified by the PMOC, this Plan should be reviewed, and revised as needed, on an annual basis in parallel with the OP. *ST has indicated that a draft revision to the plan is in preparation and should be available in September 2010.*
- **Real Estate Acquisition and Management Plan (RAMP).** The RAMP, (Version 1), dated January 17, 2008 has been reviewed by the previous PMOC and found to be acceptable for purposes of the FFGA application.
- **Quality Assurance/Quality Control (QA/QC) Plan.** ST issued Revision 3 of the U Link QA Program Plan (QAPP) in January 2008 with its FFGA Application. The PMOC's review of the Plan found it generally acceptable to support the FFGA process; however, the previous PMOC recommended that ST consider restructuring the Plan for application on an agency-wide basis. As noted above, changes to the project delivery scheme for the two station concrete and finishes contracts will necessitate revisions to the QAPP in conjunction with the PMP. ST's Quality Management has indicated that the effort to revise the QAPP was initiated in March 2010. The Plan was approved by the CCB in late May 2010. As of the end of May 2010 the document was being prepared for distribution. As of month-end *July 2010*, the PMOC has not seen evidence that the distribution has been made.
- **System Safety Program Plan (SSPP).** WSDOT approved the IS/AL SSPP in June 2009. It will be updated annually as required, and the latest approved version will be revised to address the UL project in the later phases of construction.
- **System Security Plan (SSP).** WSDOT approved the IS/AL Safety and Security Emergency Preparedness Plan (SSEPP) in June 2009. (The SSEPP combines the SSP with the ST Emergency Preparedness Plan and was accepted by WSDOT as the ST SSP.) It will be updated annually as required, and the latest approved version will be revised to address UL during the late-construction stage.
- **Safety and Security Management Plan (SSMP).** UL SSMP (Revision 3), dated April 22, 2008, was reviewed by the previous PMOC and recommended for acceptance by the FTA as a compliant FFGA submittal. The PMOC did suggest that ST include Budget and Schedule information in future SSMP revisions however. In light of events that question the level of staffing to oversee safety, the PMOC also recommended a full review of the Plan to assure that it properly reflected current and projected Safety and Security management needs. In August 2009, Safety Security and Quality Assurance (SSQA) indicated it was beginning the SSMP review process and planned to revise the SSMP to include a budget and schedule, as well as to conform to changes now in progress on the CSSM. Both the SSMP and CSSM should reflect any revisions driven by the change in the planned project delivery scheme for the station concrete and finishes contracts. ST delayed the release of the revised SSMP until its revised organization was



established. ST issued a draft of the SSMP in May 2010; the PMOC completed its initial review and provided its comments to ST in late June 2010. *ST issued the SSMP revision in August 2010 and the PMOC review is in progress.*

- **Construction Safety and Security Manual (CSSM).** ST provided its February 2010 revision of the CSSM to the PMOC in March 2010 and the PMOC provided its review comments in May 2010. The PMOC found no material deficiencies in the document; however, recommends that its comments be addressed with the next update.
- **Rail Fleet Management Plan (RFMP).** RFMP (Revision 6), dated July 14, 2008, was reviewed by the previous PMOC and recommended for acceptance by the FTA as a compliant FFGA submittal. Similar to comments made above on the OP, the RFMP is over a year old and was completed prior to the initiation of IS service. In addition, ST considered operational changes for opening the AL in December 2009. The previous PMOC recommended that the RFMP be reviewed and revised to reflect needed changes based on actual operating data and planned ST operational changes. Subsequently, the Plan should be reviewed, and revised as needed, on an annual basis.

ST issued a revised RFMP in July 2010 and the PMOC is coordinating with ST on its review of the inter-related Operations and Maintenance Plans.

- **Bus Fleet Management Plan (BFMP).** BFMP (Revision 3), dated January 2008, was reviewed by the previous PMOC and recommended for acceptance by the FTA as a compliant FFGA submittal. The BFMP should be reviewed, and revised as needed, on an annual basis in parallel with the RFMP.

#### 4. PROJECT SCHEDULE

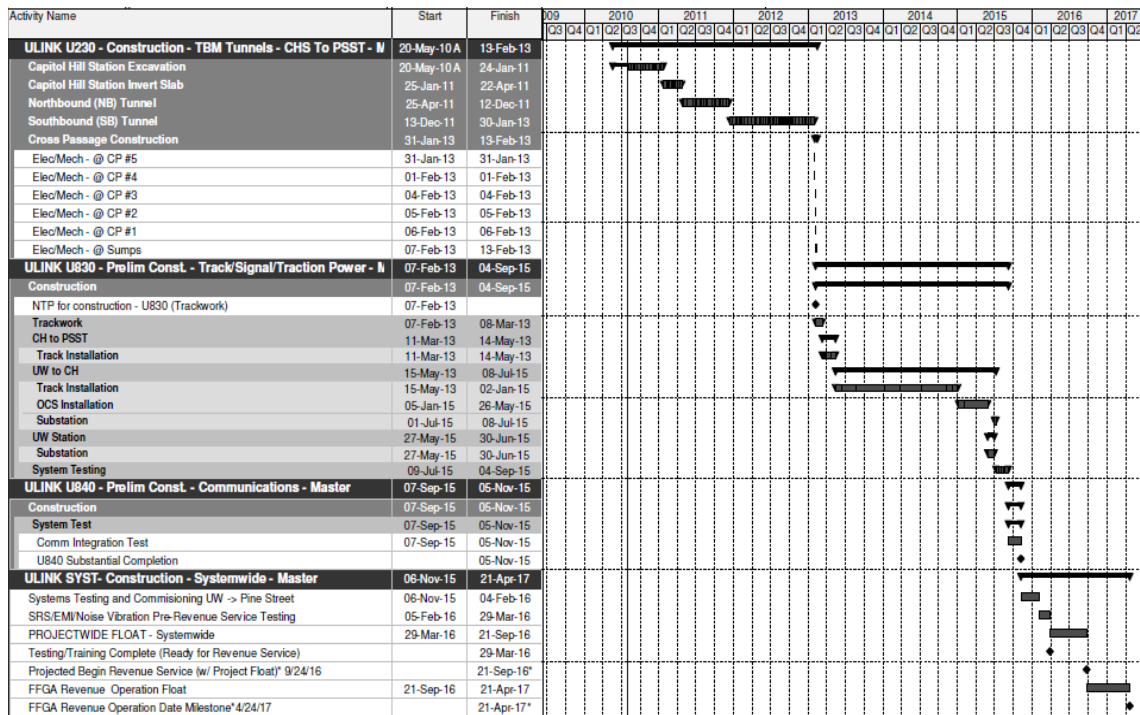
##### a. 90 Day Key Activity Schedule

This section of the report will be further developed in coming editions.

Activity	Date(s)	Status/Comments
QPRM	<i>October 13, 2010</i>	<i>A site tour is planned for October 12, 2010.</i>
PMP/Staffing Plan to FTA	<i>October 2010</i>	<i>Advance draft PMP provided to PMOC in April 2010. FTA found the draft acceptable, awaiting formal publication.</i>
Operations Plan Update	July 2010	ST delivered a draft update during July 2010. The Plan will be reviewed in conjunction with the revised Maintenance Plan and RFMP.
Maintenance Plan Update	<i>September 2010</i>	Annual update reflecting IS/AL operating experience. ST is delaying this update.

**b. Schedule Update and Critical Path.** The PMOC has reviewed the Master Schedule (MS) and found that the activities in the current Critical Path (CP) are reasonable and follow a logical sequence. A summary layout of the current CP is included below.

Although the MS has been updated to reflect a Board-approved revision to the FFGA ROD of April 2017, ST has indicated that it will continue to manage the Project to its September 2016 target revenue service date. ST continues to report 176 days of float on the CP to the planned September 2016 revenue service date. This float inventory does not fully account for the additional float that had been set aside at the milestone interfaces between the major contracts. As a result, fluctuations at the contract interfaces are not evident at the Project summary level. ST has been working to update the current Project Baseline Schedule to reflect incorporation of the Contractor’s approved baseline schedules, changes to the tunnel station concrete and finishes (U240, U250), and Systems contracts (U830, U835, U840, U850 and U860) scoping and procurement scenarios. Now that the major tunnel contract schedules have been established, ST is analyzing and incorporating the effect of liquidating the contract interface float between the tunnel and station finishes contracts in order to more efficiently manage and maintain the Project Schedule. From a conceptual perspective, the PMOC agrees that the proposed changes will provide the potential for a more effective and efficient schedule management process. The PMOC has met with ST’s Project Controls scheduling staff to review progress on the Project Schedule update and continuing maintenance. In general, the PMOC commends the Staff for its efforts in developing, implementing, and maintaining the Schedule Control scheme currently in place and the continuing improvements that now appear to be part of the organizational character. The PMOC is hopeful that the U Link Project Management will take full advantage of the enhanced tools at their disposal.



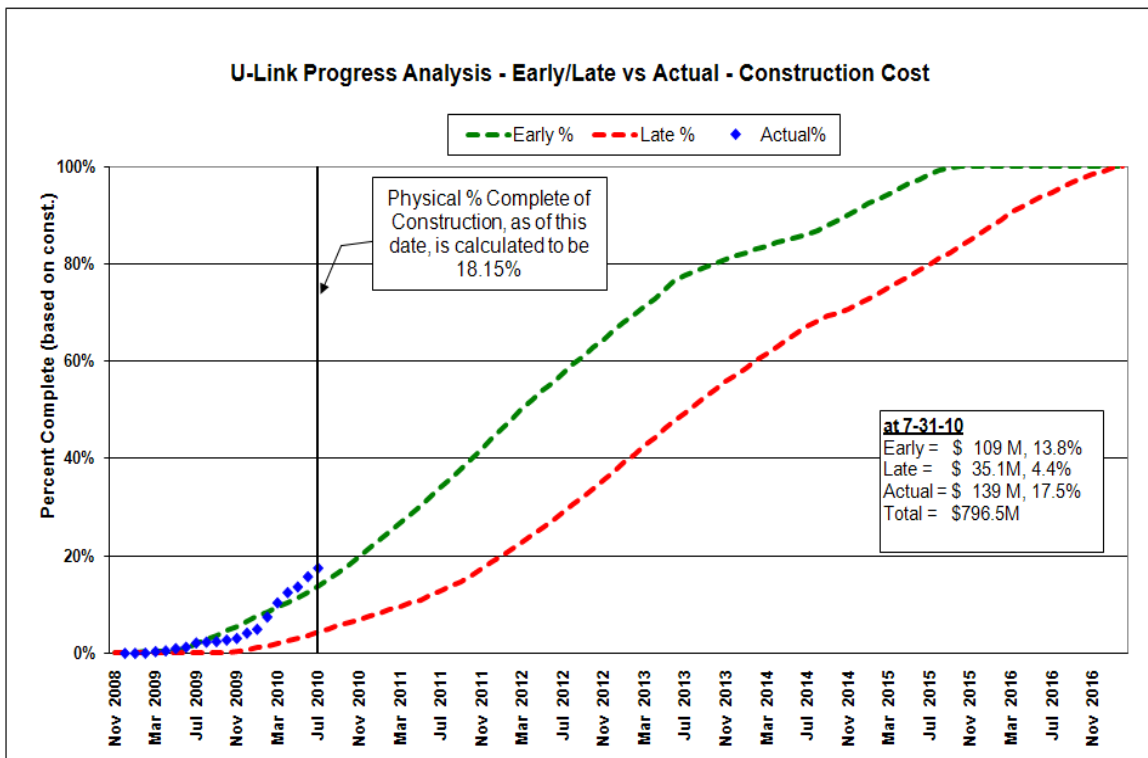
Source: July 2010 U Link Project Schedule

The U830, U835, U840, U850 and U860 Systems Contracts, are the remaining design packages to be finalized. This activity was scheduled for completion in September 2009. However, based on its experience on the IS/AL, ST has indicated that will delay the planned completion into 2011. This is a result of a decision to repackage the Systems scope as outlined earlier in this report (See 2.a. Project Status). As substantial float exists in the bid and award activities for these contract packages, the PMOC believes that this delay can be absorbed without material impact on the Project Schedule. *It is the PMOC's opinion that this disaggregation of the Systems scope is feasible; however, the PMOC also believes that an increased level of risk does accrue to ST and the Project as a result.*

- c. **Construction Contract Progress.** The progress curves below use cost loaded schedule information to depict physical progress. The positive trend in actual progress can be attributed to a combination of factors, including the allowable delays in the baseline schedule combined with the acceleration efforts on the U215 contract, as well as timely progress on the U220 and U230 contracts.

While there are currently several issues that are positively impacting the reported physical progress, the PMOC cautions that the high-risk tunneling activity has not yet begun. Notwithstanding the cautionary note, the PMOC commends the ST Construction Management and functional support departments on their performance to date.

It is the PMOC's opinion that the construction work is progressing in a manner that supports the Project CP.



Source: July 2010 ST Project Status Report

- d. **Construction Contracts.** U Link Project Groundbreaking Ceremonies took place on March 6, 2009 at Husky Stadium on the UW campus. Contracts U210 and U211 for general

demolition, utility relocation, site preparation, and special facilities at Husky Stadium are complete along with Contract U215 and closeout is in progress.

The following summaries depict the general progress for the active U Link contracts.

- **U220 (Tunnels: UW Station to Capitol Hill Station).** ST issued the contractor Limited Notice-to-Proceed (LNTP) on June 5, 2009. Full NTP was granted in early January 2010 as planned. The work is progressing in general accordance with the contractor's schedule. *At the end of August 2010, the contractor's field offices are fully mobilized and the placement of the grout block at the north headwall is complete. Placement of the "slurry wall" support system began at the end of July 2010 and is progressing at a rate consistent with the Project Schedule but less than the contractor's work plan. Although expected, obstructions (boulders) have slowed the slurry wall installation. ST is monitoring and documenting the work including the encounters with boulders. With physical progress approximately 18% at the end of July 2010, the PMOC's field observations indicate that the U220 contractor's work continues to be well organized and progressing in a manner that is consistent with the Project Schedule.*

An alternate pedestrian crossing of Montlake Blvd. to the main UW campus, in lieu of the currently planned bridge, remains under consideration. The alternate would require lowering the roadway around the Triangle Underground Parking Structure and has the potential to add complexity to the construction as currently planned. At this time, ST continues to conduct the construction program under the baseline design.

- **U230 (Tunnels: Downtown Seattle Transit Tunnel to Capitol Hill Station).** The contractor was issued LNTP in November 2009 and full NTP in early January 2010. *During August 2010, the U230 contractor advanced the excavation and suspended the major utilities that transition the station box. The support system is being installed as the depth increases. In general, most activities are in adherence to the contractor's current work plan; however, some deviations have been noted by FTA and the PMOC and communicated to ST. ST has responded to the observations and assured the contractor's technical and contractual compliance with respect to the noted deviations. Community coordination in support of the grouting program at the south-end of the alignment on Pine Street was successful and the work is in progress. With physical progress approximately 20% at the end of July 2010, the PMOC notes that ground improvement grouting will reduce the risk associated with breakthrough, recovery and abandonment of the TBM and its shell.*
- **U240 (Capitol Hill Station Concrete and Finishes).** This contract will be procured under a CM/GC project delivery scheme. The bid and award cycle for U240 is scheduled to begin in mid 2012.
- **U250 (UW Station Concrete and Finishes).** This contract package is being procured under a CM/GC project delivery scheme. The contractor selection process was completed in April 2010 and NTP preconstruction phase was issued on June 16, 2010. *ST's Quality Management staff indicates that the Design Quality issues identified for this contract package have been closed. The PMOC has recommended that ST assure the open issues have been contractually implemented prior to negotiation of the Maximum Construction Cost, which is scheduled to happen during the fourth quarter of 2010.*

- **U820 (Storage Tracks/Overhead Catenary System (OCS)/Equipment).** The NTP for this contract was issued in September 2009, ahead of the date in the Project baseline schedule. In general, work is progressing in accordance with the plan with some minor delays related to the switch machine motors. Physical progress was approximated at 96% for July 2010. *By August 2010, the OCS was in place and is being regulated. Punchlist work is progressing and signal work has been initiated. Initial testing has also begun.*
- **Traction Power/OCS, Communication, Signals and Monitoring.** The elements of this scope are approaching design completion; however, studies of anticipated technical advances that may be available in time for implementation are in progress. Additionally, ST has repackaged this scope in an attempt to retain the flexibility to access technical improvements. The Communications elements have been incorporated into contract package U840, Communications. The contract designated U830, will consist of Trackwork, Train Signals and Traction Electrification. Monitoring equipment, required by the ST/UW agreement, will be procured through a separate contract designated U835, EMI, Vibration and Wheel Flat Detection, and is being considered for a Design, Build, Operate and Maintain contract structure. The bid process for the related scope was not scheduled until mid-2010 with installation anticipated in 2014. Schedule implications of this change remain under review.

**e. Key Milestone Dates.**

- **Preliminary Engineering (PE):** FTA authorized PE on December 5, 2005
- **Record of Decision (ROD):** FTA issued ROD on June 7, 2006
- **Final Design (FD):** FTA authorized FD on December 11, 2006
- **Full Funding Grant Agreement (FFGA)** January 15, 2009
- **Construction:** Ground Breaking on March 6, 2009
- **FFGA Revenue Operations Date** April 2017 (Current schedule September 2016)
- **Total Project Complete (%):** 22.3% (Based on expenditures against the Project Budget of \$1.948 Billion)

**5. PROJECT COST**

**a. Funding (in million \$)**

	<b>FFGA</b>	<b>FFGA (Amended)</b>	<b>Current Cost Estimate</b>	<b>Expenditure-to-Date</b>
<b>Total Project Cost</b>	\$1,948	N/A	\$1,851	\$435
<b>Total FTA Share</b>	\$825	N/A	\$825	\$128
<b>New Starts Share</b>	\$813	N/A	\$813	\$116
<b>Local Share</b>	\$1,123	N/A	\$1026	\$307

Source: ST Grants Management/TEAM and July 2010 Progress Report.

**b. Cost Summary by Standard Cost Category (in million \$)**

SCC	BCE	Adopted Budget	Commitment to Date	Incurred to Date	EFC	BCE vs. EFC
10 Guideway & Track	\$626.8	\$597.2	\$369.5	\$92.9	\$509.5	\$117.3
20 Stations	\$366.3	\$367.0	\$87.3	\$20.3	\$338.7	\$27.6
30 Support Facilities	\$7.0	\$8.3	\$7.1	\$5.9	\$7.2	(\$0.2)
40 Sitework & Special Cond.	\$59.0	\$72.2	\$45.3	\$16.3	\$71.9	(\$12.9)
50 Systems	\$69.6	\$84.4	\$0.5	\$0.2	\$83.7	(\$14.1)
<b>Construction Subtotal</b>	<b>\$1128.8</b>	<b>\$1129.1</b>	<b>\$509.8</b>	<b>\$135.7</b>	<b>\$1011.1</b>	<b>\$117.7</b>
60 ROW	\$167.3	\$152.3	\$125.9	\$122.8	\$148.9	\$18.4
70 Vehicles	\$99.8	\$99.8	\$97.3	\$27.7	\$99.8	\$0.0
80 Prof. Services	\$306.5	\$321.5	\$189.7	\$128.9	\$343.4	(\$36.8)
90 Unallocated Contingency	\$53.5	\$53.4	\$0.0	\$0.0	\$53.4	\$0.2
<b>Capital Cost Total</b>	<b>\$1756.0</b>	<b>\$1756.0</b>	<b>\$922.7</b>	<b>\$415.0</b>	<b>\$1656.4</b>	<b>\$99.5</b>
100 Finance Cost	\$191.7	\$191.7	\$191.7	\$20.1	\$191.7	\$0.0
<b>Total</b>	<b>\$1947.7</b>	<b>\$1947.7</b>	<b>\$1114.4</b>	<b>\$435.1</b>	<b>\$1848.2</b>	<b>\$99.5</b>

Source: ST's July 2010 Progress Report

Although forecasts for some of the Standard Cost Categories (SCC) are over budget, the forecast for the major civil work, SCC 10 and 20, more than offset forecasts for SCCs 30, 40, 50 and 80. The current Estimated Final Cost excluding Unallocated Contingency is more than 5% below the FFGA Budget. When Unallocated Contingency is excluded the forecast would be nearly 8% below the FFGA Budget. The U Link Project Budget, adopted in July 2008, is \$1.948 billion in Year of Expenditure (YOES) values including Financing Charges of \$192 million. The Total Contingency included in the proposed FFGA Baseline Cost Estimate (BCE) of \$1.756 billion is \$422 million. The Total Contingency value comprises of \$104 million in Design Allowance, \$264 million in Allocated Contingency, and \$54 million in Unallocated Contingency. The Total Contingency value represents 21.6% of the Total Project Budget and 35.5% of the Construction Cost Estimate. At this time it is the PMOC's opinion that the U Link Budget and Contingency are adequate to support the completion of the Project Scope.

Summary status comments by SCC are as follows:

- **SCC 10 Guideway and Track:** The positive variance to the BCE is in part a result of favorable bids received for the first three major construction contract packages, including the tunnel construction. Contributing factors include the market conditions at the time of bid and contingency added to the contract budgets based on the results of the FTA's Risk Assessment.
- **SCC 20 Stations:** Although the Guaranteed Maximum Construction Costs (GMCC) have yet to be established for the station concrete and finishes, ST is anticipating that the same factors influencing SCC 10 will have a similar effect on this line item. Some uncertainty exists for this Cost Category as a result of dynamics in the marketplace and potential influence of the Rainier Vista Project at the UW Station site. ST reports that the current forecast for the U240 Capitol Hill Station was increased by \$21.6 million to reflect a risk driven 90% confidence level until the GMCC can be established for the

scope. This change is an internal administrative redistribution of Contingency and has no impact on the Project forecast at this time.

- **SCC 30 Support Facilities:** Work is in progress and should be substantially complete by year end 2010 at the Link Yard and Shops facility. The higher than planned forecast is primarily the result of the addition of switch heaters throughout the yard. This change was necessary to eliminate the potential for delays to the start of daily transit operations during inclement weather.
- **SCC 40 Site Work and Special Conditions:** Two of the contracts associated with the site preparation at the two station sites are complete and closeout is in progress. When combined, the contracts were over their base value by approximately \$3 million. Contributing to the increased value is the addition of temporary facilities to support stadium operations at Husky Stadium and greater than expected volumes of contaminated material at the Capitol Hill Station site. ST's forecast also considers anticipated environmental compliance requirements in excess of those recognized in the earlier stages of the Project Budget development.
- **SCC 50 Systems:** The increase in forecast cost is driven by the clear definition of Systems requirements, primarily relating to the Electro-magnetic Field and vibration provisions of the agreement with UW. Designs for the power distribution system and related monitoring systems account for the majority of the forecast increased costs. Design and contracting solutions are being revisited for elements of the Systems scope, leading to a broader spectrum of risk potential. *The PMOC has discussed the increased risk potential with ST and Risk Management provisions are being assessed.*
- **SCC 60 Right of Way:** To date, ROW settlements have been less than budgeted and most acquisitions have been completed, or the values have been firmly established. The January 2010 forecast for this SCC was increased by \$1.8 million due to trends relating to the complexity of some of the property title searches and environmental accommodations. At this time it is the PMOC's opinion that the risk to this budget category is limited and an underrun may be realized.
- **SCC 70 Vehicles:** The vehicle procurement is based on an option exercised on the IS/AL Project; therefore the price is essentially fixed. There is limited risk associated with this cost category.
- **SCC 80 Professional Services:** ST is forecasting an overrun to this category; the PMOC also believes that this budget area was understated and will likely incur costs in excess of the current forecast. It is the PMOC's current opinion that the costs for this item alone will not jeopardize the U Link Project Budget.
- **SCC 90 Unallocated Contingency:** This category remains essentially stable. At this time, due to the favorable bids to date, the value is adequate to meet the needs of the Project. The PMOC expects that as additional savings are recognized in other areas, ST should transfer excess funds to this category. It is the PMOC's opinion that the Contingency is adequate for the current phase of the Project
- **SCC 100 Finance Charges:** ST is not currently forecasting a change for this category; however, American Recovery and Reinvestment Act (ARRA) funding has been allocated

to the U Link Project and has been drawn down. FTA and the PMOC requested that ST provide a briefing on its forecast methodology for this cost category. A summary briefing was conducted on July 29, 2010, and the PMOC will meet with ST's Finance staff to follow-up on the mechanics of ST's newly developed forecasting tool in late September 2010. ST has indicated that the potential exists for the Finance Charges to exceed the budgeted value.



## **6. PROJECT RISK**

ST is in the process of preparing its quarterly update to its Risk Register and Status Report; the quarterly update for year-end 2009 was issued and discussed with the FTA and PMOC. The report for the third quarter of 2010 is in preparation and is expected to focus on current, future and newly identified risks. ST has indicated that it has worked with its risk consultant to reformat its risk management and reporting tools. ST reviewed the output of the most recent update with the FTA/PMOC during August 2010. *The Project Risk profile has been reduced by virtue of ST's consistent progress to date. It should be noted that the high risk tunneling element of the project is yet to begin. ST has indicated that it will conduct a series of risk working meetings during September 2010 that the PMOC will participate in.* The PMOC will review the applicable materials as they become available and include relevant information in future monthly monitoring reports. The next report is expected in *October 2010*.

## 7. 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)

- 1 – Most Critical
- 2 – Critical
- 3 – Least Critical

### GRANTEE ACTION

- D – Remedial Action Developed
- A – Remedial Action Approved
- I – Action Implemented

### PMOC STATUS

- R – Review On-going
- C – Completed – No further review required

### CATEGORY OF CONCERN

S – SCOPE

SC – SCHEDULE

SS – SAFETY/SECURITY

TC -TECHNICAL CAPACITY

B – BUDGET/COST

Q – QUALITY

F - FFGA

M - MANAGEMENT

<u>PR</u>	<u>ITEM NO.</u>	<u>IDENTIFICATION</u>	<u>CATEGORY</u>	<u>NATURE OF CONCERN</u>	<u>PMOC RECOMMENDATION</u>	<u>D</u>	<u>A</u>	<u>I</u>	<u>STATUS</u>
1	2.07-09	SSMP Revision	SS	Required Revision of SSMP	ST is currently revising the SSMP as a result of comments received from the PMOC in June 2010.	Y	Y	N	R

Legend: Grantee Action: D = Remedial Action Developed; A = Remedial Action Approved; I = Remedial Action Implemented.  
 PMOC Status: R = Review Ongoing; C = Completed, No Further Review Required.

## APPENDIX A: LIST OF ACRONYMS

AL	Airport Link
ARRA	American Recovery and Reinvestment Act
BCE	Baseline Cost Estimate
BFMP	Bus Fleet Management Plan
CAP	Corrective Action Plan
CCB	Change Control Board
CEO	Chief Executive Officer
CM	Construction Management
CMC	Construction Management Consultant
CP	Critical Path
CSSM	Construction Safety and Security Manual
CSP	Construction Safety Plan (Program)
CSSP	Construction Safety and Security Plan
EFC	Estimated Final Cost
FD	Final Design
FFGA	Full Funding Grant Agreement
FTA	Federal Transit Administration
IFB	Issued For Bid
IS	Initial Segment
IS/AL	Initial Segment/Airport Link (combined)
(L)NTP	(Limited) Notice-to-Proceed
LRT	Light Rail Transit
MACC	Maximum Allowable Construction Cost
MP	Maintenance Plan
MS	Master Schedule
OCIP	Owner Controlled Insurance Plan
OCS	Overhead Catenary System
OP	Operations Plan
OSHA	Occupational Safety and Health Administration
PE	Preliminary Engineering
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
PSST	Pine Street Stub Tunnel
QA	Quality Assurance
QAPP	Quality Assurance Program Plan
QC	Quality Control
QPRM	Quarterly Progress Review Meeting
RE	Resident Engineer
RAMP	Real Estate Acquisition Management Plan
RFMP	Rail Fleet Management Plan
ROD	Record of Decision/Revenue Operations Date
ROW	Right-of-Way
SCC	Standard Cost Category

SCP	Safety Certification Program
SR	Spot Report
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
SSQA	Safety Security and Quality Assurance
SSPS	System Safety Program Standards
ST	Sound Transit
TCE	Temporary Construction Easements
UL/U Link	University Link
USC	United States Code
UW	University of Washington
Wong	PGH Wong Engineering, Inc.
WSDOT	Washington State Department of Transportation
YOE	Year of Expenditure