# Progress Report Link Light Rail Program



Overview of the north entry exterior of the Capitol Hill Station

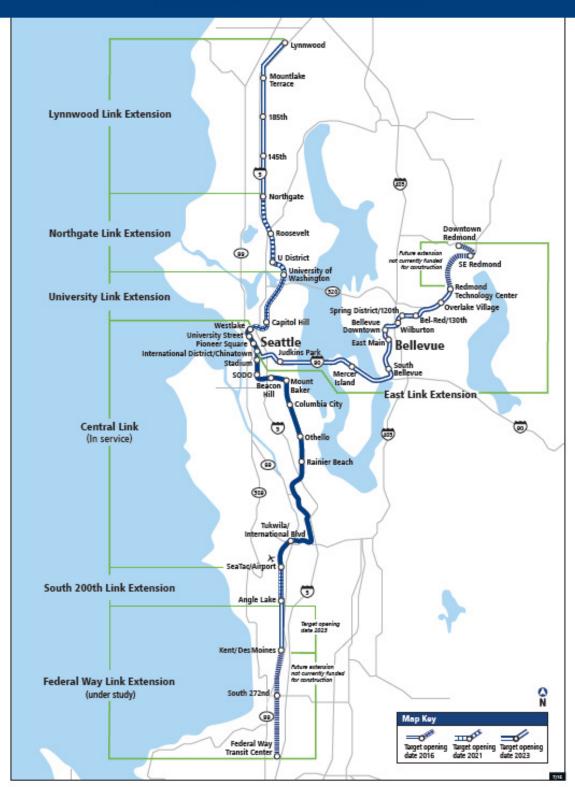


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# LINK LIGHT RAIL

### CURRENT SERVICE AND APPROVED EXTENSIONS



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# Link Light Rail Program Overview



# **Projects**

**University Link Extension:** The University Link Extension work program with \$1.76 billion capital budget was approved by the Board in July 2008. The 3.15-mile light rail segment is located entirely underground with tunnels traveling from Pine Street, under the I-5 freeway to an underground station at Capitol Hill, continuing north beneath SR 520 and the Lake Washington Ship Canal to an underground station on the University of Washington campus, near Husky Stadium. Revenue Service is projected in the 1st QTR 2016.

**Northgate Link Extension:** The University of Washington Station (UWS) to Northgate project is a 4.3-mile extension of light rail from the UWS north under campus via twin-bored tunnels to an underground station at NE 45th Street continuing to an underground station at NE 65th Street and via tunnel, retained cut and elevated sections to Northgate. The project is in Final Design and Construction. Revenue Service date is September 2021.

**Lynnwood Link Extension:** This project entails the planning, design and construction of an extension of Northgate Link from Northgate to Lynnwood in Snohomish County with additional service in the cities of Shoreline and Mountlake Terrace.

**East Link Extension:** East Link Extension expands light rail to East King County via I-90 from Downtown Seattle to the Overlake Transit Center area of Redmond, with stations serving Rainier Avenue/I-90, Mercer Island, South Bellevue, Downtown Bellevue, Overlake Hospital, the Bel-Red corridor, Overlake Village and the Redmond Technology Center (formerly Overlake Transit Center). Revenue service to the Redmond Technology Center is forecast for early 2023 with a tunnel route in Downtown Bellevue.

**South 200th Link Extension:** S. 200th Link Extension consists of a 1.6-mile extension of the light rail from the SeaTac/Airport Station to an elevated station at South 200th Street. The Project is being developed through a designbuild (DB) delivery strategy and the anticipated service launch is September 2016.

**Federal Way Link Extension:** Sound Transit has initiated studies to identify and evaluate routing and station location requirements to inform conceptual engineering and environmental review for the extension of light rail to the Federal Way Transit Center; with preliminary engineering to be completed on the segment extending from S. 200<sup>th</sup> St. to Kent/Des Moines in the vicinity of Highline Community College. The proposed budget for this effort is \$41.8M.

**Tacoma Link Expansion:** In partnership with the City of Tacoma and Pierce Transit, Sound Transit is studying the potential of expanding Tacoma Link in the context of the City and Pierce Transit service and capital plans.

**Link Operations and Maintenance Satellite Facility:** Sound Transit is reviewing and evaluating current and future light rail storage and maintenance requirements to support the development, design, and construction of a future light rail operations and maintenance facility for proposed system expansion.

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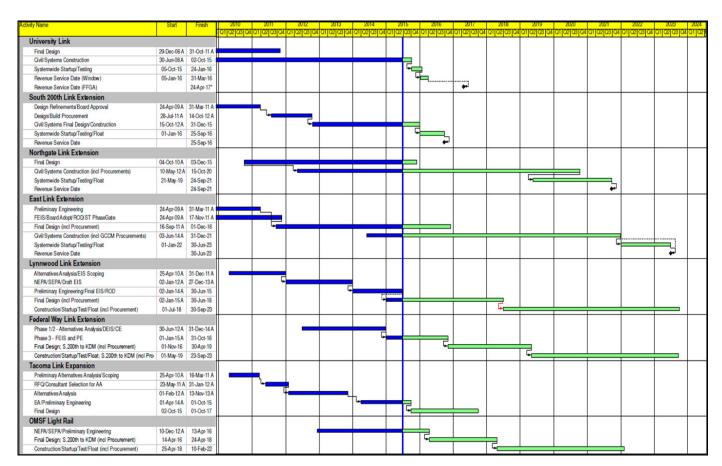
#### **Program Budget**

Project	Adopted Budget	Committed to Date	Incurred to Date	Estimated Final Cost	Adopted Budget vs. EFC
Tacoma Link Expansion	\$7.8	\$6.8	\$5.3	\$7.8	\$0
Link O & M Satellite Facility	\$36.8	\$32.7	\$29.2	\$36.8	\$0
Northgate Link Extension	\$2,131.4	\$809.8	\$533.2	\$2,131.4	\$0
Lynnwood Link Extension	\$64.I	\$51.6	\$46.7	\$64.1	\$0
University Link Extension	\$1,756.0	\$1,475.9	\$1,423.5	\$1,605.6	\$150.4
S. 200th Link Extension	\$383.2	\$313.4	\$234.2	\$362.7	\$20.5
Federal Way Link Extension	\$42.9	\$16.3	\$14.9	\$42.9	\$0
East Link Extension	\$3,677.2	\$386.5	\$341.4	\$3,677.2	\$0
Total Link	\$8,099.4	\$3,093.0	\$2,628.4	\$7,928.5	\$170.9

Table in millions.

## **Program Schedule**

Schedules for active projects are summarized below.



Changes this period: East Link Master Schedule baselined reflects additional three months to complete at 2nd QTR 2023.

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## Scope

**Limits**: 3.15-mile extension of the Initial Segment

light rail transit (LRT) system from the Pine Street Stub Tunnel (PSST) in downtown Seattle to University of Washington (UW) cam-

pus near Husky Stadium.

Tunnels: Two twin bored tunnels. Two contract seg-

ments: U220 starts at Husky Stadium, continues beneath SR 520 and the Lake Washington Ship Canal and south to the Capitol Hill underground station. U230 commences at Capitol Hill Station and proceeds south un-

der the I-5 freeway to the PSST.

**Stations**: 2 underground center platform stations –

Capitol Hill (U240) and University of Washington (U250). U240 is approximately 65' underground with three station entrances. U250 is about 100' below ground, with three station entrances and connections to the UW

campus by a pedestrian bridge.

**System**: 27 LRV; direct fixation tracks, signals, trac-

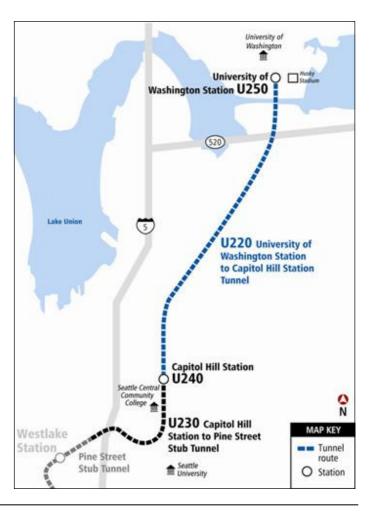
tion electrification, and SCADA communica-

tions

**Budget**: \$1.948 billion including finance cost (capital

subtotal of \$1.756 billion)

Schedule: Project completion in the 1st QTR 2016



# **Key Project Issues**

- *U830 Systems* SCADA software development continues to be the highest risk critical path in Systems. Sound Transit continues to visit the Contractor's facilities to monitor and obtain status of subcontractors SCADA software development. The interim milestones: MS5A (Beacon Hill Cutover) was cutover successfully on March 29, 2015. MS5B (DSTT EVS/BMS & U-Link EVS Cutover) occurred on June 7, 2015. Demolition of the demising wall is progressing. This scope is not merely symbolic as it connects the new U-Link tunnels to the existing tunnel but it also carries a significant interface between Construction and with Operations from this point forward.
- LRV Fleet Wide Repairs Fleet wide defect was discovered in the LRVs' traction motor/gearbox unit. Priority will be given to repairs on the older LRV as they are now unreliable. Without sufficient reliable LRVs by Revenue Service or Pre-Revenue Service, U-Link may be challenged to operate with six- minute headways. ST Board has declared this as an emergency to mitigate this problem. ST is collaborating with Kinkisharyo, the LRV manufacturer, in aligning all necessary steps to expedite and fully repair this issue. Cost will be tracked and isolated. The goal is to complete all repairs by Opening Day and at minimum, there should be enough LRV plus required spares to operate with six- minute headways at Pre-Revenue Service. As of this writing, three car sets have been completed and are being monitored in service.
- Early Opening: Projection for Revenue Service beginning in the 1st QTR 2016 continues to be trending on target. All project float has been released. Testing and Start-Up Period compressed with the critical path running through U240 and U830—any impact or delay will be difficult to absorb as there is no more float. Coordination with regional stakeholders has begun through rail activation activities. A comprehensive qualitative risk register related to Rail Activation has been completed and incorporated into U-Link's main Risk Register.

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## **Project Cost Summary**

The U-Link project cost is summarized in two types of cost classifications. In the first table, cost is classified in accordance with Sound Transit's Work Breakdown Structure (WBS); and in the second table, cost is summarized in accordance to the FTA's Standard Cost Categories (SCC) format. (Both tables' figures in millions.)

WBS Phase Elements	Baseline Budget	Ad	Current opted Budget	 mmitment to Date*	In	curred to Date	Es	st. Final Cost (EFC)	Add	opted Budget vs. EFC
ADMINISTRATION	\$ 115.23	\$	113.55	\$ 71.19	\$	69.52	\$	103.55	\$	10.00
PRELIMINARY ENGINEERING	\$ 24.39	\$	24.26	\$ 24.26	\$	24.26	\$	24.26	\$	-
FINAL DESIGN	\$ 77.94	\$	89.31	\$ 86.43	\$	83.64	\$	89.31	\$	(0.00)
CONSTRUCTION SERVICES	\$ 68.53	\$	95.81	\$ 84.20	\$	78.00	\$	93.80	\$	2.01
3rd PARTY AGREEMENTS	\$ 18.65	\$	18.65	\$ 12.08	\$	10.76	\$	17.77	\$	0.88
CONSTRUCTION	\$ 1,180.00	\$	1,158.18	\$ 972.91	\$	932.53	\$	1,047.67	\$	110.51
VEHICLES	\$ 103.91	\$	103.91	\$ 99.20	\$	99.19	\$	101.91	\$	2.00
ROW	\$ 167.33	\$	152.33	\$ 125.63	\$	125.59	\$	127.29	\$	25.04
Capital Total	\$ 1,755.97	\$	1,756.01	\$ 1,475.90	\$	1,423.49	\$	1,605.56	\$	150.45
FINANCE COST	\$ 191.71	\$	191.71	\$ 191.71	\$	145.54	\$	191.71	\$	-
Project Total	\$ 1,947.68	\$	1,947.72	\$ 1,667.61	\$	1,569.03	\$	1,797.26	\$	150.45

(\*) Totals may not equal column sums due to rounding of line entries.

In June, the projected Estimated Final Cost (EFC) including Finance Cost continues to be about \$1.8B. This period, approximately \$12.36M was incurred, increasing the project Incurred to Date amount to over \$1.4B (Finance Cost excluded). Direct construction cost accounted for over 79% of the cost incurred in June at \$9.8M essentially split between Systems and Station Finishes. The direct construction EFC trends approximately \$1B. This trend continues to be intact as both the high risk tunnel scope and all excavation are now completed. The Capitol Hill Station (U240) Contractor continues west entry work /pedestrian concourse and station mechanical/electrical work, the Systems (U830) Contractor continues SCADA development and integration. Maintenance of Way scope has now commence the erection of the metal structured. The Total Incurred to Date for the Construction Phase is over \$932M with a current commitments approaching \$972M. Cost for LRV is approximately \$99.2M and continues to be working on repairs to the traction motor and gear unit. Cost on this scope is excluded from this project and tracked separately.

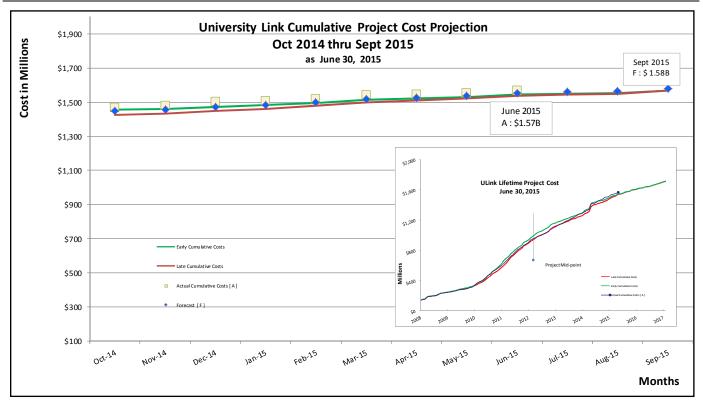
Construction EFC under the SCC format for this period remains stable and relatively unchanged at about \$1B. Construction phase expenditures in June is at approximately \$8.5M. This period, the bulk of U-Link construction cost is attributed Systems \$2 and Stations \$4.5M. U240 station continues to west entry work and station, mechanical and electrical work. All systems work are on schedule towards completion in 4th QTR 2015 and the Maintenance of Way Building trending the end of 2016.

Project Elements by SCC	Baseline	Budget		Current pted Budget		mmitment to Date*	Ind	curred to Date		timated Final Cost (EFC)	Add	opted Budget vs. EFC
10 Cuideus eu 9 Treek Floresete	•	000 00	Φ.	450.40	•	455.00	Φ	4FF 07	Φ	400.44	Φ	(11.00)
10 Guidew ay & Track Elements	\$	626.83	\$	450.46	\$	455.86	\$	455.27	\$	462.44	\$	(11.98)
20 Stations	\$	366.33	\$	350.75	\$	337.63	\$	330.08	\$	353.85	\$	(3.10)
30 Support Facilities: Yards, Shops	\$	7.01	\$	24.83	\$	21.75	\$	14.78	\$	24.83	\$	-
40 Sitew ork & Special Conditions	\$	59.03	\$	67.49	\$	54.60	\$	51.05	\$	61.21	\$	6.28
50 Systems	\$	69.63	\$	116.42	\$	97.93	\$	76.59	\$	104.09	\$	12.33
Construction Subtotal (SCC 10-50)	\$	1,128.82	\$	1,009.95	\$	967.78	\$	927.77	\$	1,006.41	\$	3.54
60 Row, Land, Existing Improvements	\$	167.33	\$	125.77	\$	125.63	\$	125.59	\$	125.77	\$	0.00
70 Vehicles	\$	99.76	\$	100.06	\$	99.32	\$	99.26	\$	100.06	\$	-
80 Professional Services	\$	306.41	\$	346.18	\$	283.16	\$	270.87	\$	342.68	\$	3.51
90 Unallocated Contingency	\$	53.65	\$	174.04	\$	-	\$	-	\$	30.63	\$	143.41
Capital Cost Total (SCC 10-90)	\$	1,755.97	\$	1,756.01	\$	1,475.90	\$	1,423.49	\$	1,605.56	\$	150.45
100 Finance Cost	\$	191.71	\$	191.71	\$	191.71	\$	145.54	\$	191.71	\$	-
Project Total	\$	1,947.68	\$	1,947.72	\$	1,667.61	\$	1,569.03	\$	1,797.26	\$	150.45

(\*)Totals may not equal column sums due to rounding of line entries.

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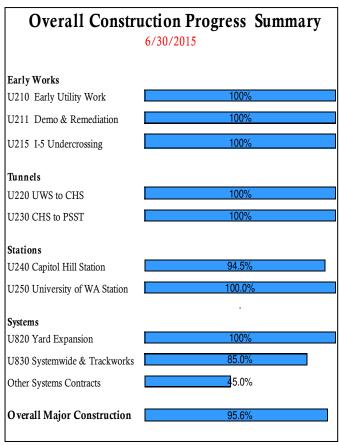




Incurred to date for Construction under the SCC is over \$927M. Total capital cost incurred to date including non-construction cost (SCC 60 thru 90) is over \$1.42B or about 81% of total project budget scoped (excluding Finance Cost).

Total cost incurred at the end of June 2015 including Finance Cost is over \$1.57B. The project financing cost incurred to date about \$145.5M with an annual projection of \$32M to incur in 2015. In the 2nd QTR 2015, \$3.3M of interest cost was recorded under. The next finance cost update will be for the end of 3rd QTR 2015. Overall, University Link cost to date is projected to be approximately \$1.58B by September 2015.

The EFC for project Finance Cost continues to be projected at \$191.7 million. This cost represents booked financing cost and is generated based on allocation of appropriate level of financing cost to each capital project at Sound Transit. Despite an earlier than anticipated release of \$44 million of the FFGA funds due to the American Recovery Reinvestment Act that was used to pay down finance charges, it is premature to project any savings at this time.



Note: The overall construction progress above is based on a weighted combination of duration, schedule and cost % complete for individual construction contracts as compared to the overall U-Link construction contracts.

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## **Cost Contingency Management**

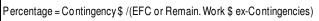
Project contingencies continue to remain unchanged at a healthy level of about \$275M due to the favorable construction bidding climate, ROW acquisition cost trends, diligent project risk management practices and excellent tunneling conditions. June's overall contingency notched down by about \$0.6 million due to change orders and some administrative adjustments due to the budget transition from the previous fiscal year to the current. Contingency level continues to trend well above the Planned Contingency Drawdown; the projected planned balance between the end of 1st QTR and the end of 2nd QTR 2015 ranges from \$87M and \$83M and the Contingency Buffer is now projected to at the minimum \$100M from this point until project completion. The projected planned Reserved Contingency balance is now planned at \$25M (see contingency curve at the bottom of page). Construction has now surpassed 95% complete. Barring any catastrophic event, there is a high likelihood that this contingency trend will remain intact.

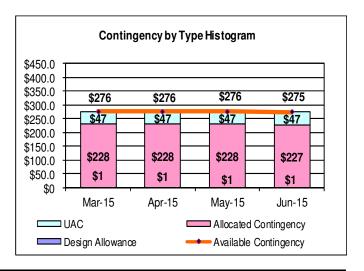
*Design Allowance:* The balance of design allowance has been reduced to less than \$1M and is consistent with the project cycle as all the major design has been completed. The level of design allowance currently represents less than one-half percent of the total remaining scope in the project that has not been procured.

Allocated Contingency: Allocated Contingency continues to remain stable approximately at \$228M.

*Unallocated Contingency (UAC):* The total UAC balance is at \$47M and continues to remain stable compared to the Baseline Cost Estimate amount of \$53.7M considering that the construction is now approaching 95% complete.

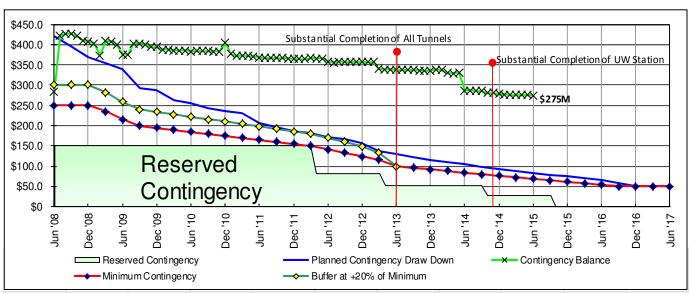
Contingency	В	CE	Current Status		
Status	Amount	% of Total	Remaining Amount	% Remaining Work	
Design Allowance	\$103.9	7.8%	\$0.9	1.6%	
Allocated Contingency	\$264.3	19.8%	\$226.7	391.3%	
Unallocated Contingency	\$53.7	4.0%	\$46.9	80.9%	
Total:	\$421.9	31.6%	\$274.5	473.7%	





### MINIMUM CONTINGENCY CURVES as of June 30, 2015





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## Risk Management

The University Link Risk Management Plan (RMP) established a risk management and oversight process for identifying, assessing, and monitoring risks and develop risk reduction/mitigation plans. On a quarterly basis, the risk register is reviewed and risks are updated to reflect condition at the end of the current quarter. The RMP is also executed in compliance to the Federal Transit Administration's (FTA) guidance laid out as part of FTA's Program Guidelines subtask 40E.

## **Project Risk Overview:**

At the end of the 1st QTR 2015, U-Link project represents about 94% construction completion with U220 and U230 Tunnels at Acceptance; U240 Station is about 88% complete. U250 achieved substantial completion, and is now working on punch list and the pedestrian bridge. U830 Systems approaches 80% complete with continued work on the SCADA development and installation as well as ongoing verification for current communication and signaling elements before the full system integration anticipated to place between 2nd and 3rd QTR 2015. Rail Activation phase is now in full swing. Sound Transit completed updating and identifying risks on the register that were both within the current management time horizon and posed considerable risk to project objectives by having both relatively high probability and impact. The report will be issued shortly to FTA and the PMOC. Prior to this update, the register contained a total of 644 risks, of which 141 were active (503 closed). This quarterly update resulted in a total of 653 risks, of which 132 are active (521closed). Closed risks were those that no longer presents a potential impact, e.g., risks associated with surface and tunnel excavation at the stations and design risks that have been resolved since the last update. The increase new risks registered for this quarter is due to activities in the Rail Activation phase is fully commenced. University Link team will manage the Rail Activation phase with careful deliberation to avoid any "down stream effect" as these are follow-on work and some of the risk may have already been captured upstream in the current active construction phase.

The top remaining risk subjects that will require at least partial mitigating action in the upcoming quarter are provided below along with their planned risk management strategies:

#### Civil to Systems Contract Interfaces

Risk subjects pertaining to the transitioning interface between Station Finishes contractors (U240 and U250) to Systems contractor (U830)

#### • Systems Software Development

Development of the software systems to operate U-Link and the integration of the current operating system

#### • Systems Final Design, Installation, and Testing (U830, U835, System-wide Testing)

All phases U-Link systems integration between the cut over of the current operating systems through to the commissioning and occupancy of the U-Link program

#### • Rail Activation

As the project moves closer towards the transition from construction to rail activation, identification new risks and its potential to impact cost and schedule needs to be more visible.

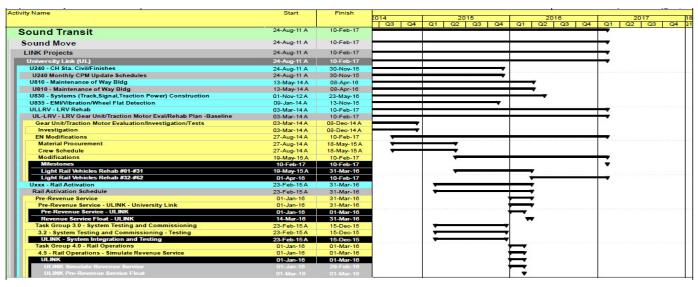
### • LRV Fleet wide Repair

A latest defect was discovered in the Traction Motor/Gear Unit in the LRVs. Repairs require long lead materials and careful coordination to minimize any impacts to current operations. If there are insufficient reliable LRVs by Revenue Start, the six-minute headways promised for U-Link will be at risk.

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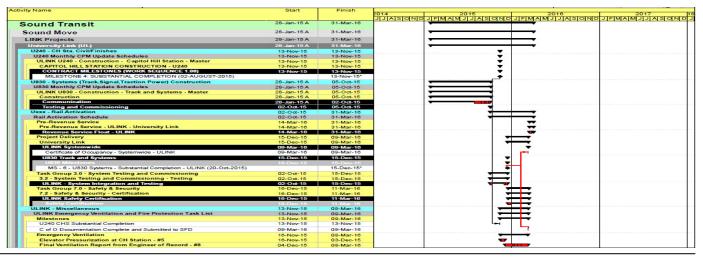
## **Project Schedule Summary**

The University Link schedule is provided below. The U210, U211 and U215 early work contracts have been completed. The U820 LRV Storage Yard Expansion Contractor has also completed all work. The U220 and U230 TBM mining is complete. At U250 UW Station, Substantial Completion was granted in November 2014 and the Contractor is working through the punch-list, expected completion is July 2015. The U240 Contractor has returned the Pine Street site to U830. The U830 Contractor has completed rail installation; OCS installation is nearing completion and OCS tie in at Pine St. is expected to commence next period. System Integration Testing will continue into Fall 2015. U835 EMI/Vibration design is underway and Factory Testing is complete. All U860 Fiber Retrofit, upgrades and fiber installation have been completed. The U810 MOW contract is now well underway; pile driving is complete and slab completion is expected next period. The targeted Revenue Service window is the 1st QTR 2016 with the removal of 169 days of float contingency from the Master Schedule. The Rail Activation and the LRV rehabilitation schedules have been linked to the U-Link Master Schedule and the critical path will now be tracked as the Master Schedule is updated monthly.



### **Progress and Critical Path Analysis**

The U-Link Master Schedule update contains the tunnel contractors' schedules and interfaces with the stations and U830 (Track, Signal, Traction power and Communications System) schedules. TBM Mining, U220, U230 and U250 UWS Station have achieved Substantial Completion. U830 Plinth and rail installation is complete and OCS is nearing completion. U830 has scheduled a Cutover in early June as U830's SCADA retrofit activities are closely being monitored at this time due to it's criticality to system-wide testing for the U-Link Extension. The critical path, this period, is tracking through the System Integration Testing by U830 and to the commencement of Pre-Revenue Service for U-Link. U240 and Emergency Ventilation testing is driving the Revenue Service date this period with the delays incurred at CHS and is expected in 1st QTR 2016.

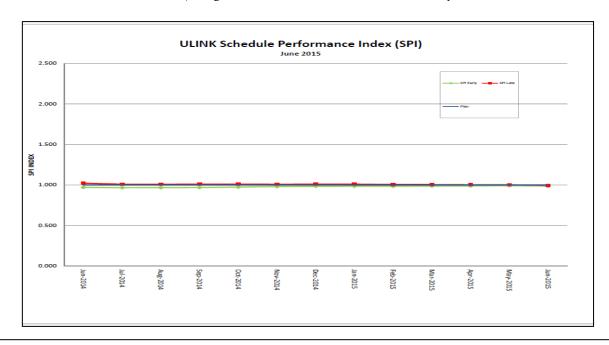


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### **Schedule Performance Index**

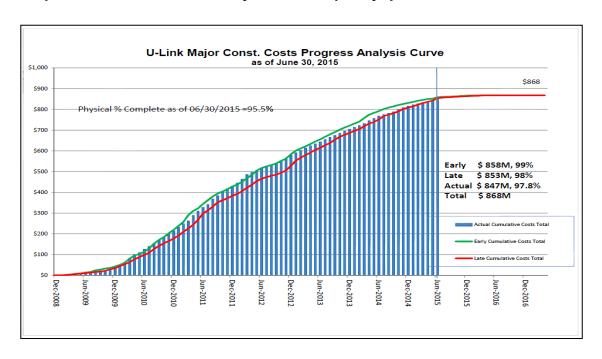
The Schedule Performance Index (SPI) for U-Link climbed slightly this period to 0.99 as U830 completes rail and OCS installation is nearing completion. U240 is completing station finishes and commissioning is well underway (See details on individual contract sections.) Progress will continue to be monitored closely.



# **Cost Progress Analysis**

U220 and U230 are complete. U250 is complete with punchlist and Montlake Triangle Project (MTP) pedestrian bridge handrail still outstanding.

Overall U-Link physical % complete is at 95.5% against 97.8% of contract time expended. The graph below shows the progress of major construction contracts cost compared to the early/late projections.

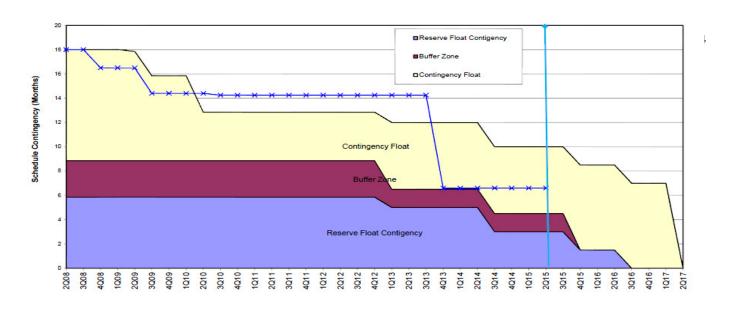


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## **Schedule Contingency Management**

The "Minimum Schedule Contingency Curves" were established in the Project Execution Plan (PEP). The PEP segregated Schedule Contingency into "Forced Lag," which is a built-in float on the Critical Path; "Buffer Float," which is the duration between Sound Transit's targeted Revenue Operation Date and the Schedule Revenue Operation Date; "Contingency Float," which is the duration between Sound Transit targeted Revenue Operation Date and the FFGA Revenue Operation Date, and "Desired Minimum Float" which is the amount of schedule float the FTA requires Sound Transit to maintain. The current schedule contingency balance was reduced by six months in November 2013. All contingency float was removed based on the completion of the tunneling contracts in the 3rd QTR 2013.

### Schedule Contingency Management Plan - 2Q - 2015



## Right-of-Way

The U-Link project involved the acquisition of a range of property interests, including fee takings for stations and staging areas, tunnel easements for the running tunnels, acquisitions from the University of Washington and airspace leases with the Washington Department of Transportation. These acquisitions required relocation of 141 owners and tenants. The right-of-way program status is summarized below.

Line Section	Total Parcels Certified	Offers Made	Signed Agree- ments	Admin. Settle- ments	Posses- sion and Use	Closings to date	Relocations Required	Relocations Completed
Capitol Hill Station	19	19				19	140	140
Tunnel Easements	223	222				222	1	1
TOTAL	242	241				241	141	141

<u>Capitol Hill Station</u>: The acquisitions and relocations for the station site are complete.

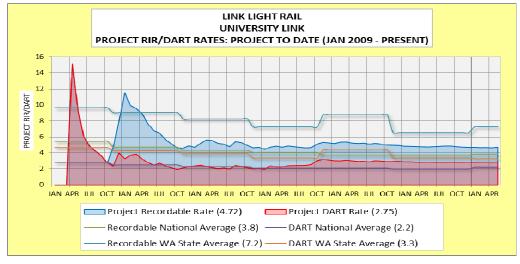
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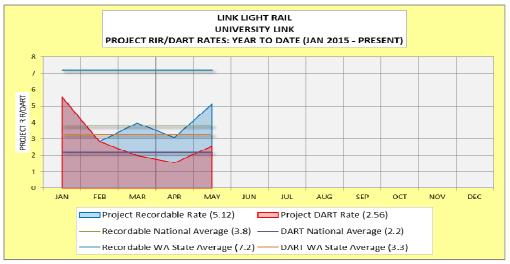
# **Construction Safety**

Safety statistics for the reporting period and year-to-date are summarized in the table and charts.

Data/Measure	June 2015	Year to Date	Project to Date
Recordable Injury/Illness Cases	0	2	87
Days Away From Work Cases	0	2	19
Total Days Away From Work	30	101	813
Restricted or Modified Work Cases	0	0	33
Total Days Restricted or Modified Work	0	0	1558
First Aid Cases	2	3	149
Reported Near Mishaps	2	7	235
Ave. Nos. of Employees on Worksite	119	-	-
Total # of Hours (GC & Subs)	28,310	129,086	3,748,036
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	0.00	3.10	4.64
DART Rate	0.00	3.10	2.77
Recordable National Average	3.80	3.80	3.80
DART National Average	2.20	2.20	2.20
Recordable WA State Average	7.20	7.20	7.20
DART WA State Average	3.30	3.30	3.30



The charts to the right show University Link's Recordable Injury Rates (*RIR*) and University Link's Days Away, Restricted or Modified (*DART*) Injury Rate as compared to the national average.



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## **Quality Assurance Activities**

#### **Activities**

- *U240*: One RFD was dispositioned without requiring MRB approval with a criticality of "Minor" to substitute aluminum grill in lieu of the specified stainless steel grille.
- U810: MRB has disposed as Acceptable two (2) "Use-As-Is" NCRs regarding air content for the Grade Beam mix design and U810 regarding concrete pour slump tests exceeding requirements.

#### <u>Issues</u>

• None to report.

#### **Summary**

Description	June 2015	Notes
No. of Audits Planned	0	None
No. of Audits Completed	0	None
Reports in Progress	0	None
No. of Audits Postponed	0	None

## **Environmental**

• Continued Environmental Oversight of construction.

### **Sound Transit Board Actions**

Board motions and resolutions directly related to University Link are summarized in the table below.

Motion Number	Description	Date
M2015-59	Execute a contract with Tube Art Displays, Inc. to fabricate, remove, and reinstall customer signage at existing Link stations and vehicles in anticipation of the U-Link opening, in the amount of \$672,333, with a 15% contingency of \$100,850, for a total authorized contract amount not to exceed \$773,183.	Jun I I

# **Community Outreach**

- Sent monthly update to more than 5,000 email subscribers.
- Notified Capitol Hill Station neighbors regarding June 20 early morning work.
- Large "Coming in 2016" banners installed at the UW Station (prior to UW commencement).

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# U220 Contract - TBM Tunnel (UWS to CHS)

The U220 contract achieved Substantial Completion on June 7, 2013. All work is done.

# U230 Contract - TBM Tunnel (CHS to PSST)

Substantial Completion was achieved in March 2013. All work is done.

# **Cost Summary**

Present Financial Status	Amount
U220 Contractor— Traylor Frontier- Kemper Joint Venture (TFK)	
Original Contract Value	\$309,175,274
Change Order Value	\$12,067,459
Current Contract Value	\$ 321,408,334
Total Actual Cost (Incurred to date)	\$ 315,071,655
Financial Percent Complete	100%
Physical Percent Complete:	100%
Authorized Contingency	\$30,917,527
Contingency Drawdown	\$12,233,060
Contingency Index*	2.53

<sup>\*</sup>Physical % complete / % contingency drawn down

# **Cost Summary**

Present Financial Status	Amount
U230 Contractor— JCM Joint Venture	
Original Contract Value	\$153,556,000
Change Order Value	\$9,866,998
Current Contract Value	\$163,452,998
Total Actual Cost (Incurred to date)	\$156,979,939
Financial Percent Complete	100%
Physical Percent Complete	100%
Authorized Contingency	\$15,355,600
Contingency Drawdown	\$9,896,998
Contingency Index*	1.56

<sup>\*</sup>Physical % complete / % contingency drawn down

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# Link Light Rail University Link Extension – Stations

## **U240 Contract** – Capitol Hill Station

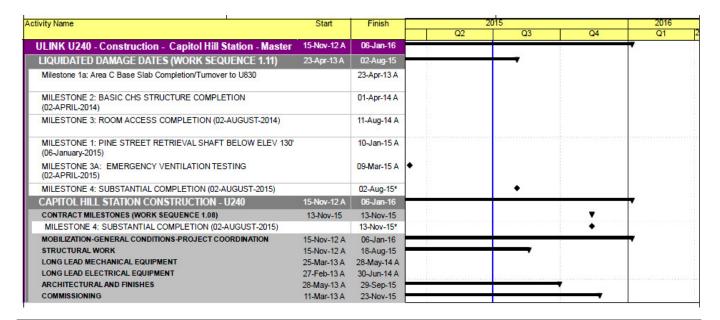
### **Current Progress**

Milestone 3a- Emergency Ventilation Testing was completed in March, earlier then expected. Eastside of Broadway open to traffic is expected in September rather than June 2015 as noted last month. Mechanical and electrical commissioning is well underway. Station finishes continue this period. The phased Red Wall removal is now underway.

Work progress continued with approximately 94.5% physically complete against 97% contract time expended.

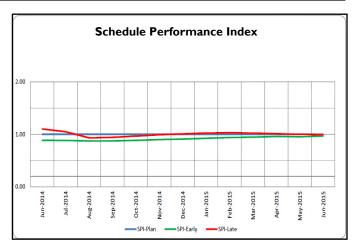
#### Schedule/Critical Path

An early turnover of Emergency Ventilation Fans to U830 for an early commencement of Level 3 commissioning of Systems occurred last period. Milestone #4, Substantial Completion is reporting 52 days of negative float. The schedule last period was rejected but revised contract milestones are being considered. The Contractor has added change order work to the critical path last period which has impacted the critical path and commissioning activities.



#### **Schedule Performance Index**

The U240 Schedule Performance Index (SPI) has improved slightly this period to 0.97.



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# Link Light Rail University Link Extension – Stations



## **Key Activities**

#### Current Period

- Installation of finishes, including painting and tiling continued throughout the station. More specifically at the North and South Station lobbies, and the West Entry mezzanine level.
- Continued work on escalators and elevators throughout the main station and at the West Entry.
- Continued to pull fire alarm and speaker wire at the underside of the pedestrian concourse ceiling.
- Continued commissioning of tunnel ventilation fans, and HVAC systems throughout.
- At the West Entry, the contractor continued painting exterior walls, finalizing the exterior glazing, and continued installing ceiling tiles at the mezzanine level.
- Continued installation of all remaining mechanical and electrical systems in the pedestrian concourse.
- Site work continued, including grade roadway and sidewalk restorations electrical duct bank on E. Denny Way, and removal of the Red Wall Phase 2 continued.

#### Next Period

- Continue work on floor tiling at the platform level east side and South Entry Lobby.
- Continue work on the metal panels at the exterior platform walls
- Contractor to continue installation of elevators and escalators throughout.
- Electrical and mechanical subcontractors will continue working on system commissioning throughout the station and continue working on commissioning remainder of HVAC systems.

- Continue installation of all remaining mechanical and electrical systems in the pedestrian concourse.
- Continue intermittent work with installing and testing the fire alarm system wiring throughout the station and West Entry.
- Contractor to continue site restoration, paving, and removal of the Red Wall fence around the site, Phase 3 and commence Phase 4.
- Continue placing concrete roadway at Denny and 10th avenue and continue irrigation system installation.

### **Closely Monitored Issues**

- Partition wall "inefficiencies" as outlined in RFC 96 continue to be reviewed with the Contractor. ST gave the Contractor an offer for settlement of the issue. Resolution continues to be worked through.
- A request for additional time for work at the Pine Street Stub Tunnel is under review. If approved and agreed, this would extend the completion of Milestone 1. The CM team is still working on final negotiations of costs with the Contractor for resolution.
- The CM team has identified a number of outstanding "Hot Items" that have the potential to delay completion of some of the work beyond Substantial Completion and are working with ST and the Design Team to get immediate resolution and provide direction to the Contractor on how to proceed on these.

#### **Cost Summary**

Present Financial Status	Amount
U240 Contractor - Turner Construction	
Со	
Original Contract Value	\$104,850,276
Change Order Value	\$6,367,248
Current Contract Value	\$111,217,524
Total Actual Cost (Incurred to date)	\$103,387,622
Financial Percent Complete:	93%
Physical Percent Complete:	93%
Authorized Contingency	\$10,242,514
Contingency Drawdown	\$6,367,248
Contingency Index	1.58



Overview of SEFS Exterior Project.

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# Link Light Rail University Link Extension – Stations

## U250 Contract - University of Washington Station

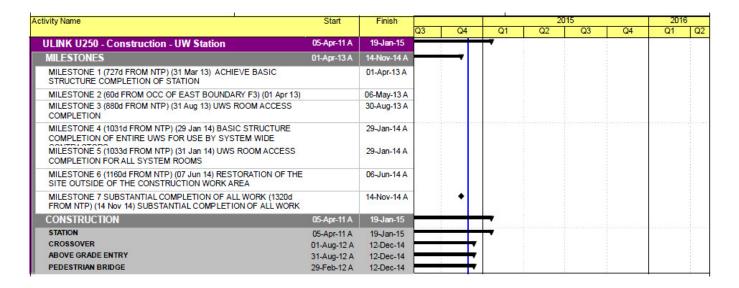
## **Current Progress**

Milestone #7, Substantial Completion, was granted in November 2014. U250 continued punchlist work and is expected to be complete by August 2015 with the installation of the handrail at the MTP Bridge and final inspections by L & I.

Work progress continued with approximately 100% physical completion against 100% contract time expended.

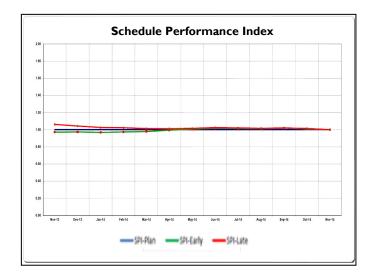
#### Schedule/Critical Path

Milestone #7 (Substantial Completion) has been granted. Punchlist and commissioning work is ongoing and is expected to be complete in August 2015.



#### **Schedule Performance Index**

Substantial Completion was granted in November 2014. Punchlist and handrail are expected to be completed in August 2015.



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# Link Light Rail University Link Extension– Stations



## **Key Activities**

#### Current Period

- Continued punch list item completion, primarily paint touch ups. Items are expected to be complete by the end of July.
- Continued fabrication and installation of the aluminum guardrail for the pedestrian bridge and bike ramp.
- Continued commission test demonstrations. Level 1 through 2 commissioning expected to be completed by the end of July.
- Continued final inspections for elevator operations. All inspections are expected to be complete by the end of July.

#### Next Period

- Continue fabrication of aluminum guardrail materials for the pedestrian bridge and bike ramp. Installation of all aluminum guardrails is expected to be complete by mid-July 2015.
- Complete commission test demonstrations, Levels 1-3.
- Complete final inspections for elevator and escalator operation.
- Complete punch list item completion efforts.

### **Closely Monitored Issues**

- Vibration testing of smoke exhaust fan #2 indicates that the fan operates within specified parameters except for a five-minute stretch of operation occurring after roughly fifteen minutes of runtime. An official report has been received from the fan manufacturer, recommending replacement of the fan motor. A work plan is under development, with implementation anticipated in July following completion of Level 3 testing.
- Pedestrian bridge guardrail fabrication and installation continues. Installation of all aluminum guardrails is expected to be complete by mid-July 2015.
- Three Notices of Intent to Claim have been filed by the GC/CM. All three claims were denied at the Resident Engineer level based on merit. Appeals have been received for all three claims.
- Level 3 testing performed in mid-May identified excessive egress door opening forces while tunnel ventilation modes are active. The Engineer of Record has been contacted to address the pressurization design. Tunnel airflow testing has commenced and preliminary results for U250 fans appear to be acceptable except for door opening and latching forces during ventilation modes.

#### **Cost Summary**

Present Financial Status	Amount
U250 Contractor - Hoffman Construction	
Co.	
Original Contract Value	141,745,898
Change Order Value	6,387,003
Current Contract Value	148,132,901
Total Actual Cost (Incurred to date)	146,903,120
Financial Percent Complete:	99%
Physical Percent Complete:	99%
Authorized Contingency	7,087,295
Contingency Drawdown	6,387,003
Contingency Index	1.1



UWS at night.

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# U810 Contract - Maintenance of Way

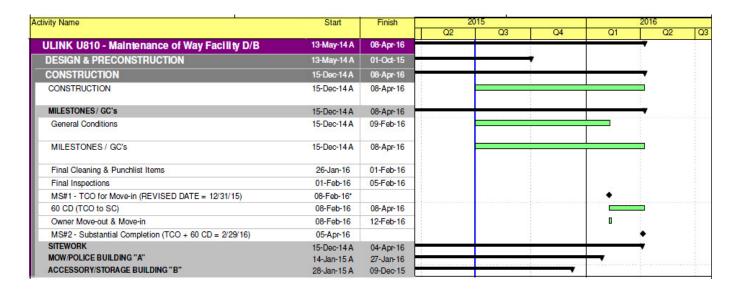
### **Current Progress**

The MOW foundation work is complete and steel erection is well underway and expected to be completed next period for the MOW Bldg.

Work progress continued with approximately 53% physically complete against 69% contract time expended.

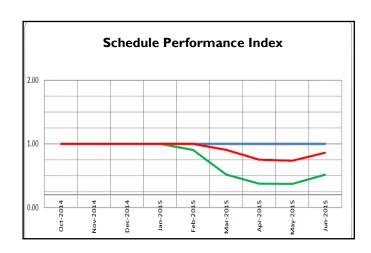
#### Schedule/Critical Path

Milestone revisions are expected to be negotiated with the contractor due to permit issuance delays. Milestone #1 is currently reporting 37 days of negative float.



#### Schedule Performance Index

The SPI based on early forecasts and is reporting below 1.00 this period to .74. The delays to the permit issuance and the start of construction has impacted the SPI this period.



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# Link Light Rail University Link Extension – Systems



### **Key Activities**

#### Current Period

- Continued work on the LEED certification.
- Completed electrical ductbank from Building A to the existing vault.
- Completed the last three structural steel beams for the second. Steel edge forms were welded to the exterior of the frame and pan decking was placed.
- Continued installation of concrete curb form around the perimeter of the building.
- Began installing storm drain and backfill on the north, west, and south side of the main building.
- Began erection of Pre-engineered metal building steel for the high bay.

#### Next Period

- Continue work on the LEED certification.
- Complete installation of red steel at the administrative area of the building.
- Continue removal of the pre-load material for the accessory storage building.
- Continue girt placement at columns of the high bay area of the main building.
- Begin metal stud framing at the first floor of the administrative area of the main building.

### **Closely Monitored Issues**

Due to unforeseen delays in the permitting review process, the commencement of construction has been impacted, causing a slippage in the work required to achieve Milestone 1 (Substantial Completion) and Milestone 2 (Certificate of Occupancy). Contractor preparing recovery schedule to mitigate further delays to both Milestones.

### **Cost Summary**

Present Financial Status	Amount
U810– Forma Construction (Design/ Build)	
Original Contract Value	\$11,998,725
Change Order Value	\$22,278
Current Contract Value	\$12,021,003
Total Actual Cost (Incurred to date)	\$5,573,086
Financial Percent Complete	46%
Physical Percent Complete:	46%
Authorized Contingency	\$959,898
Contingency Drawdown	\$22,278
Contingency Index	19.8



Pre-engineered metal building for the main MOW building.

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# Link Light Rail University Link Extension - Systems

## U830 Contract – Track, Signal, Traction Power and Communications

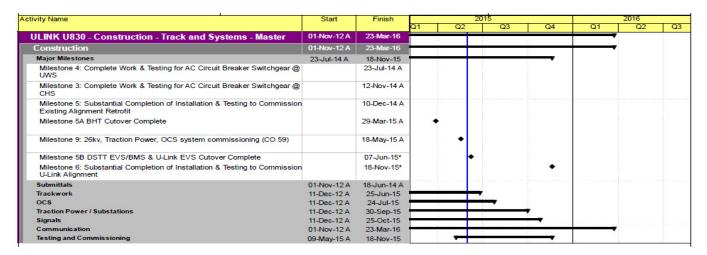
### **Current Progress**

Track construction is now 100% complete. OCS installation has been accelerated and the Contractor is completing punchlist items prior to the live wire tests. OCS tie in at Pine St. is expected late next period. Coordination between station contractors continues. The first cutover of the SCADA System was completed in November. Beacon Hill Cutover was completed at the end of March and punchlist work is under way. DSTT cutover was successful this period. No update has been received from the contractor delays to radio procurement continue. Mitigation measures are expected. Work progress continued with approximately 85% physically complete against 91% contract time expended.

#### Schedule/Critical Path

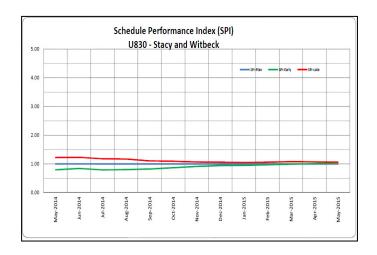
A schedule update for June has not been received. Radio procurement and installation are expected to continue to impact system integration testing and Pre-Revenue Service commencement. Demising wall demo is expected next period and the OCS tie in at Pine St. is expected in August. Milestone #6 (Substantial Completion) is reporting 69 days of negative float based on forecasts .

The U830 Critical Path runs through the radio equipment and testing/commissioning. Contractor production rates and construction submittals are being tracked closely. U830 System Integration Testing is the critical path through the rail activation schedule.



#### Schedule Performance Index

The SPI based on early forecasts has risen above 1.00 this period to 1.03 The completion of rail and floating slab installation and improved production with OCS installation has improved the performance indices for U830.



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# Link Light Rail University Link Extension - Systems



### **Key Activities**

#### Current Period

• Link service was suspended at DSTT on the weekend of June 6-7, 2015 to facilitate the cutover of building management and fire and life/safety systems to upgrade the network system.

#### **Trackwork**

- Continued installation of tunnel signage.
- Continued to repair leaks that have been identified within the tunnel.

#### Traction Power/Signal/Com-SCADA Systems

- Continued terminating and testing fiber optic cables.
- Continued installing communication devices at stations. •
- Continued installing and terminating devices at stations.
- Completed installation of fan damper control panels at UWS and CHS; testing in progress.
- Completed installation of signal equipment at PSST; system testing in progress.
- Began OCS punchlist and began performing hi-potential
   test on 26kv cable from CHS to UWS.
- Performed systems integration testing at DSTT for BMS/EVS/EMP and U-Link EVS during weekend shutdown.
- Begin preparation for demolition of the demising wall.
- Continued LRV powered runs/testings.

#### Next Period

- Continue installation of tunnel signage.
- Continue repairing leaks.
- Continue terminating and testing fiber optic cables.
- Continue installing communication devices at stations.
- Continue installing and terminating devices at stations.
- Continue testing the fan damper control panels at stations
- Continue signal systems testing.
- Continue OCS punchlist and hi-potential test on 26kv cable from CHS to UWS.
- Continue systems integration testing.
- Scheduled to begin demolition of the demising wall.
- Continue LRV powered runs/testing.

### **Closely Monitored Issues**

- Current focus is on the completion of the communications systems installation at CHS.
- Closely monitoring ongoing systems test.
- Preparing to demolish demising wall.

### **Cost Summary**

Present Financial Status	Amount
U830 GC/CM Contractor - Stacy & Witbeck	
Original Contract Value	\$119,167,433
Change Order Value	\$2,599,701
Current Contract Value	\$121,767,134
Total Actual Cost (Incurred to date)	\$101,488,281
Financial Percent Complete	83.3%
Physical Percent Complete:	86%
Authorized Contingency	\$5,958,373
Contingency Drawdown	\$2,599,701
Contingency Index	1.97



BMS testing at the OMF.

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# Link Light Rail University Link Extension – Systems

U820 Contract - LRV Storage and Yard Expansion

P821 Contract - Light Rail Vehicles

C802 Contract - Signals Systems (Yard Expansion)

Other Systems - Radio Console, Fare Collection.

## **Key Activities**

#### **Closed Contracts**

- C802 Signals Yard Expansion
- U820 LRV Storage and Yard Expansion
- U826 Radio Console Upgrade
- U860 Network Fiber
- U820- LRV Storage and Yard Expansion

#### Current Period

#### P821 – Light Rail Vehicles

- Contract Close Out on hold until the completion of the Traction Motor/Gear Unit repairs.
- Completed three car sets of TM/GU.

#### Other Systems

- U835 EMI/Vibration & Wheel Flat Monitoring continue installation and testing and submit functional installation test results
- U829 Fare Collection Contracts TVM work continues.

#### Next Period

P821 – Light Rail Vehicles

- Contract Close Out on hold until the completion of the Traction Motor/Gear Unit repairs.
- Continue with repair collaboration with manufacturer on the TM/GU fleet.

#### Other Systems

- U835 EMI/Vibration & Wheel Flat Monitoring Factory Acceptance Testing is to take place.
- U829 Fare Collection Contracts TVM work continues.

### **Closely Monitored Issues**

- Timely repair of the TM/GU is critical to provide sufficient LRV units to adequately support a 6 minute headways operation when University Link commences.
- Monitor metal stud subcontractor under U810 on Buy America compliant impacts.

### **P821 Cost Summary**

Present Financial Status	Amount
P821 Manufacturer — Kinkisharyo Intl.*	
Original Contract Value (U-Link Option)	\$94,576,095
Change Order Value	\$4,598,480
Current Contract Value	\$99,174,575
Total Actual Cost (Incurred To Date)	\$99,174,575
Financial Percent Complete:	100%
Physical Percent Complete:	100%
Authorized Contingency	\$4,608,904
Contingency Drawdown	\$4,598,480
Contingency Index	N/A

<sup>\*</sup>Change Order to Initial Segment LRV Contract

### **C802 Cost Summary**

Present Financial Status	Amount
C802 Train Control —GETS Global Signaling, LLC*	
Original Contract Value (U-Link Option)	\$1,996,269
Change Order Value	\$15,390
Current Contract Value	\$2,011,659
Total Actual Cost (Incurred To Date)	\$2,011,659
Financial Percent Complete:	100%
Physical Percent Complete:	100%
Authorized Contingency	\$103,731
Contingency Drawdown	\$15,390
Contingency Index	N/A

<sup>\*</sup>Change Order to Initial Segment Train Control Contract.

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<sup>55%</sup> of contract costs are assigned to U-Link 45% Northgate Link.



## Scope

Limits: The Northgate Link Extension consists of 4.3

miles of light rail extending from the University of Washington to Northgate.

Alignment: The extension begins at the UW Station,

boring tunnels under campus then continues north to a portal located north of NE 94<sup>th</sup> Street on the east side of I-5, then transitioning to an aerial structure running north to the

Northgate Mall.

Stations: The *U District Station* is an underground sta-

tion located on the west side of the UW campus near Brooklyn Ave. and NE 45<sup>th</sup> St. The *Roosevelt Station* is an underground station located near NE 65<sup>th</sup> St. and 12<sup>th</sup> Ave NE. The *Northgate Station* is an elevated station located at the southwest edge of the Northgate

Mall property.

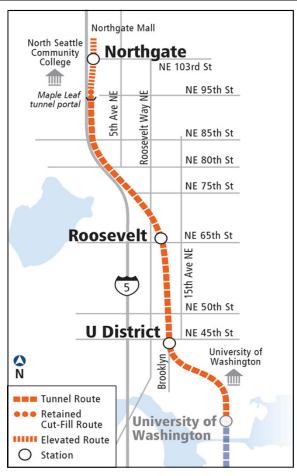
Systems: Include Signals, track electrification, and

SCADA communications, and an additional

40 light rail vehicles.

Budget: \$2.131 Billion Service: September 2021

Phase: Final Design and Construction



Map of Northgate Link Extension route and stations.

# **Key Project Activities**

- Received final sign-off from FTA for the NEPA Reevaluation document and submitted the final SEPA addendum.
- Presented project updates to FTA, ST Board, and Citizen's Oversight Panel which included a site tour.
- Continued progressing Final Design on the various contracts.
- Concluded quarterly Risk Register reviews on all active contracts.
- For N111 Advanced Utility Relocation, the Contractor continued installation of electrical ductbanks and vaults.
- For N113 SCL 115kV Transmission Line Relocation, continued work with WSDOT, SCL, and FHWA.
- For N125 TBM Tunnels, TBM No. 1 advanced about 2,215 feet. TBM No. 2 advanced 1,630 feet.
- At the U District Station (UDS), completed excavation and began installing final row of tie-backs.
- Met with Safety and Quality Assurance (SQA) staff to review safety certification deliverables and processes that will be followed as the project progresses through construction

# **Closely Monitored Issues**

- An alternative route for the relocation of the 115 kV power lines in the Northgate area continues to be evaluated and discussed with FHWA, SCL and WSDOT.
- Planning work on cross-passages indicates high groundwater levels that can impact the construction methods and water disposal schemes. This issue will be closely monitored as planning proceeds.

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## **Project Cost Summary**

The Northgate Link project cost is summarized below by two cost categories. In the first table, the cost is summarized in accordance with Sound Transit's Work Breakdown Structure (WBS). The second table summarizes the project in accordance with the FTA's Standard Cost Category (SCC) format. The figures in both tables are shown in millions.

Cost Summary by Phase

Project Phase	Baseline Budget	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
ADMINISTRATION	\$147.5	\$147.5	\$30.5	\$30.7	\$147.5	\$0.0
PRELIMINARYENGINEERING	\$15.1	\$15.1	\$15.1	\$15.1	\$15.1	\$0.0
FINAL DESIGN	\$128.5	\$128.5	\$106.1	\$84.2	\$128.5	\$0.0
CONSTRUCTION SERVICES	\$117.9	\$117.9	\$79.8	\$21.8	\$117.9	\$0.0
3rd PARTY AGREEMENTS	\$11.8	\$11.8	\$9.9	\$4.4	\$11.8	\$0.0
CONSTRUCTION	\$1,324.2	\$1,324.2	\$478.6	\$292.3	\$1,324.2	\$0.0
VEHICLES	\$259.1	\$259.1	\$4.7	\$0.7	\$259.1	\$0.0
ROW	\$127.3	\$127.3	\$85.0	\$84.1	\$127.3	\$0.0
Total	\$2,131.4	\$2,131.4	\$809.8	\$533.2	\$2,131.4	\$0.0

The Estimated Final Cost (EFC) for the project as of this reporting period is \$2,131.4M, which is equal to the project budget. This period approximately \$29.4M was incurred, of which \$23.3M was for the N125 tunneling contract, \$1M was for the N111 Utility Relocation project at Northgate and other miscellaneous construction, \$2M was for civil and systems final design and design support during construction, and \$1.8M was for construction management. The remaining expenditures were for permit costs, third party coordination, staff, and other direct charges.

#### Cost Summary by SCC

Project Phase	Baseline Budget	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
ADMINISTRATION	\$147.5	\$147.5	\$30.5	\$30.7	\$147.5	\$0.0
PRELIMINARYENGINEERING	\$15.1	\$15.1	\$15.1	\$15.1	\$15.1	\$0.0
FINAL DESIGN	\$128.5	\$128.5	\$106.1	\$84.2	\$128.5	\$0.0
CONSTRUCTION SERVICES	\$117.9	\$117.9	\$79.8	\$21.8	\$117.9	\$0.0
3rd PARTY AGREEMENTS	\$11.8	\$11.8	\$9.9	\$4.4	\$11.8	\$0.0
CONSTRUCTION	\$1,324.2	\$1,324.2	\$478.6	\$292.3	\$1,324.2	\$0.0
VEHICLES	\$259.1	\$259.1	\$4.7	\$0.7	\$259.1	\$0.0
ROW	\$127.3	\$127.3	\$85.0	\$84.1	\$127.3	\$0.0
Total	\$2,131.4	\$2,131.4	\$809.8	\$533.2	\$2,131.4	\$0.0

The Estimated Final Cost (EFC) for some contract packages have been reassessed and revised as a result of updated design development estimates and the award of Contract N125 at an amount lower than the adopted budget. The current adopted budget values have been updated to reflect the 2015 budget revisions and updated contingency amounts. The variances associated with some of the SCC groups shown above reflect the updated EFC due to these revisions.

#### **Cost Contingency Status**

Compared to the baseline amount of \$396.2 million, the Total Contingency has decreased by \$34.1 million to \$362.1 million, which is 22.7% of project work remaining. During this reporting period, a net decrease of \$0.12M in the overall project contingency occurred. Detailed information is provided below.

**Design Allowance** – Compared to the baseline amount of \$113.9M, Design Allowance has decreased by \$105.7M to \$8.2M as a result of updated construction cost estimates that have utilized DA as the scope development has progressed. No changes to DA occurred during this period.

*Allocated Contingency* – Compared to the baseline amount of \$184.0 million, Allocated Contingency has increased by \$44.5 million to \$228.5 million. During this reporting period, a decrease of \$0.12 million occurred due change orders that were executed on the N125 TBM Tunnel contract, the N111 Utility Relocation contract, and on the Civil Final Design contract.

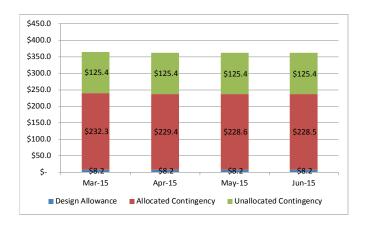
*Unallocated Contingency* – Compared to the baseline amount of \$98.3M, Unallocated Contingency has increased by \$27.1M to \$125.4M. No changes to UAC occurred during this period.

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### Cost Contingency Status, continued

		Base	eline	Current			
Contingency Status	Amount		% of Total	Amount		% of Work Remaining	
Design Allowance	\$	113.9	5.3%	\$	8.2	0.5%	
Allocated Contingency	\$	184.0	8.6%	\$	228.5	14.3%	
Unallocated Contingency	\$	98.3	4.6%	\$	125.4	7.8%	
Total	\$	396.2	18.6%	\$	362.1	22.7%	



# **Project Schedule**

The design team delivered the 100% design package for the N105 Key Bank Site Demolition on June 18, 2015. Review of the final design will be completed in early July. The Grading Permit was approved on June 22 and Bid Advertisement is currently scheduled for early November 2015 with NTP anticipated in early April 2016.

The N111 Advanced Utilities Relocation contractor, Walsh Construction, has encountered difficulties with the quality of the Type 814 vaults. At this time, Walsh has directed the vault producer to halt the vault casting operation until the issues can be remedied. The June schedule update reflects a 28 calendar-day slip in substantial completion as a direct result of the halted vault manufacture. The Contractor is currently working on a recovery plan and schedule. Work on wet utilities and installation of unaffected vaults and handholes is continuing where possible.

The 90% Design of the N113 SCL 115kV Transmission Line Relocation is still scheduled for August 5. Offers were made in June for two Temporary Construction Easements (TCEs) and one Permanent Easement. The team is moving forward with an Advance Pole Procurement contract and will bring the request to CCB in early August. The 100% Design is scheduled for the beginning of October 2015 and the bid for construction of the new line is planned for late November. Construction NTP is currently early March 2016 with completion in November 2016.

The N125 Contractor has completed casting of the tunnel liner segments. The Contractor is currently running both TBMs on a 2-shift/day basis, but will drop TBM No. 1 to a 1 shift/day routine after TBM No. 2 reaches Roosevelt Station in mid-July. TBM No. 1 has averaged 516 feet/week during June. TBM No. 2 averaged 377.5 feet/week. U District Station (UDS) excavation, soil nails, and tie-back installation is expected to finish in mid to late July with the base slab work having started in late June. JCM's schedule update for June has been returned "Revise & Resubmit" due to negative float associated with Milestones 2 and 5, the Roosevelt and UDS stations turnovers.

The N140 U District Station 90% design is continuing. ST is working with the GC/CM, Hoffman Construction, to develop the construction schedule. The revised delivery of the 90% percent design does not impact the start of station construction; this is still driven by the completion of tunneling by the N125 contractor. The N150 Roosevelt Station 100% design remains on schedule for late October. The MUP for the Roosevelt Station is expected in mid-October, the Building Permit approval is anticipated to be early October.

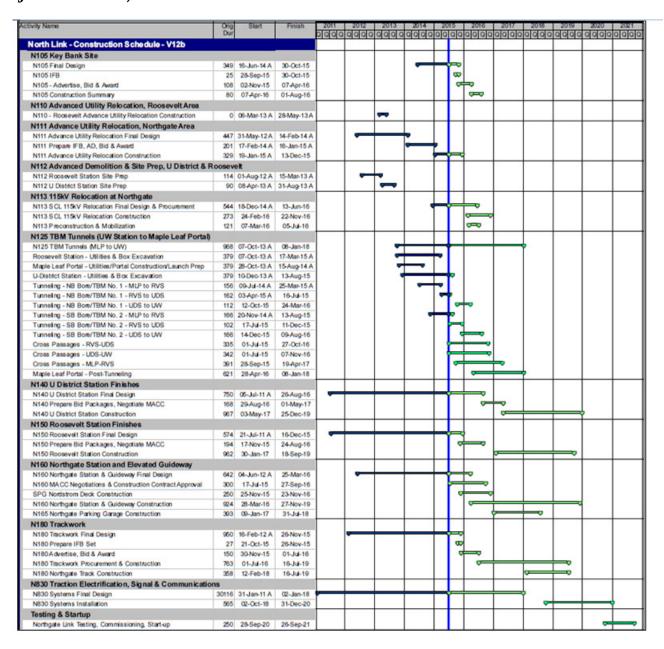
The N160 100% design is still scheduled for delivery in mid-December. The 60% design package for the Garage was submitted to ST on June 5. The 100% Garage design is scheduled for August 28. M.A. Mortenson Construction has continued working on their construction schedule and will present a revised version in mid-July. The Building Permit for the station was submitted to the City of Seattle on the 29th of June.

The N180 package will now undergo a Constructability Review in lieu of the originally planned Industry Review. The review is scheduled for the last week in August.

The 90% design effort for N830 contract continues, in conjunction with the East Link Extension. Systems construction is planned to start in the stations in the 3rd Quarter of 2018. The CM team is working with Systems to identify the interface milestones.

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## Project Schedule, continued

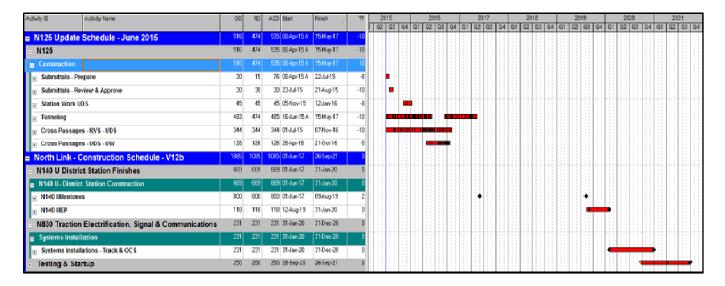


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## **Critical Path Analysis**

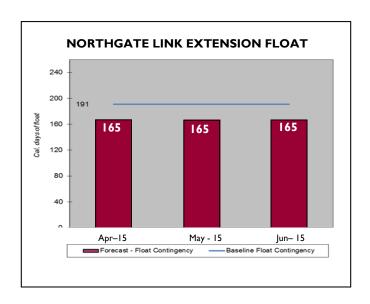
The longest path through the Northgate projects is unchanged and continues to run through N125 Milestone No. 5 and subsequent turnover of the U District station site to the N140 contractor. Tunneling with TBM No. 2 remains the driving factor, followed by cross passages and completion of the Maple Leaf Portal. While tunneling is still the driving factor, cross passages could become the dominant issue, due to anticipated dewatering and ground freezing scope increases.



#### **Critical Path Float**

The Northgate Link Project currently retains 165 days of unallocated project float. The N125 construction schedule currently shows a late completion of Milestone 5 - Turnover of N140 to the station contractor. However, the contractor has not established entitlement for those days, and none of the 30 days of Owner Controlled float for this contract has been allocated to the contractor.

The Revenue Service date for the Northgate Link Extension remains September 2021.



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# **Construction Safety**

Data/ Measure	June 2015	Year to Date	Project to Date
Recordable Injury/Illness Cases	1	5	90
Days Away From Work Cases	0	2	19
Total Days Away From Work	30	167	879
Restricted or Modified Work Cases	0	0	33
Total Days Restricted or Modified Work	0	0	1558
First Aid Cases	2	5	151
Reported Near Mishaps	1	8	236
Average Number of Employees on Worksite	92	-	-
Total # of Hours (GC & Subs)	21,422	177,157	3,796,108
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	9.34	5.64	4.74
DART Rate	0.00	2.26	2.74
Recordable National Average	3.80	3.80	3.80
DART National Average	2.20	2.20	2.20
Recordable WA State Average	7.20	7.20	7.20
DART WA State Average	3.30	3.30	3.30

# Right of Way

The U District and Roosevelt stations require the acquisition of a range of property interests including fee takings for stations and staging areas; tunnel easements are required for the running tunnel. These acquisitions will result in owner and tenant, residential and commercial relocations.

**Roosevelt Station** – All parcels have been acquired.

**U District Station** – All parcels have been acquired.

**Northgate Station** - One parcel closed. Two offers prepared and scheduled to be made in July 7. Updated offers made for two parcels. Conveyance documents sent to owner of one parcel. Offers on two parcels will be made upon receipt of appraisals.

**Tunnel Easements:** All parcels have been acquired.

Line Section	Total Parcels Certified	Offers Made	Signed Agree- ments	Admin. Settle- ments	Posses- sion and Use (P&U)	Closings to date	Baseline Relocations Required	Relocations Completed
U District Station	16	15	0	0	0	15	4	3
Roosevelt Station	20	18	0	0	0	18	26	26
Tunnel Easements	190	188	0	0	0	188	0	0
Northgate Station	П	7	I	0	2	2	13	0
Total	237	228	I	0	2	223	43	29

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# **Quality Assurance Activities**

#### **Activities**

- N140: MRB dispositioned as Acceptable four "Major" RFDs.
- N150: MRB dispositioned as Acceptable one "Major" RFD to approve proposed revisions to seismic load combinations for reinforced concrete cut-and-cover structures.

#### **Issues**

• *N111*: Surveillance Report Issued with four observations and one finding.

#### **Summary**

Description	June 2015	Notes
No. of Audits Planned	2	N105; N125
No. of Audits Completed	0	None
Reports in Progress	2	N105; N125
No. of Audits Post- poned	0	None

### **Sound Transit Board Actions**

Board Action	Description	Date
	None to report.	

### **Environmental**

• None to report.

## **Community Outreach**

- Hosted drop –in session outside the Roosevelt Station site and 23 people attended.
- Distributed a 14-day public notice of the City of Seattle's Major Public Project's Construction Variance for 24 hours a day tunneling activities at the U District Station.
- Briefed various organizations and committees on Northgate Link construction progress.
- Partnered with Customer Outreach to staff an informational booth at UW Tower's Commutopia event and 115 people visited the booth.
- Contacted stakeholders and nearby residents regarding revised transmission line alignment for the Northgate Station project.
- Distributed tunnel boring machine progress alerts to residents in the Roosevelt and U District neighborhoods.

#### **Business Mitigation**

- The "Enter to win a tour of the UW Station" promotion ended last period and the promotion collected nearly 600 entries.
- Met with the U District Partnership and social media team to plan the summer social media activities.

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# Link Light Rail Northgate Link Extension - Final Design

## Final Design Overview

Sound Transit has executed two key contracts with professional services consultants for the Final Design of the Northgate Link Extension. Jacobs Associates (JA) is providing civil engineering and architectural final design services. LTK Engineering Services (LTK) is providing systems engineering final design services.

### **Final Design Activities**

<u>Contract Package N105</u> – *Key Bank Demo and Remediation:*• Continued 100% design effort.

<u>Contract Package N113</u> – 115kV Relocation at Northgate Station:

• Continued 90% design effort for alignment in the WSDOT right-of-way to the west of I-5.

Contract Package N140 - U District Station Civil and Finishes:

- Continued 90% design effort, and continued preconstruction phase activities and coordination with the GC/CM contractor.
- Continued Green Street design efforts and Systems Raceway design.
- Completed the extended TOD Structural Feasibility Study for the 240-foot overbuild.
- Continued research support/product research for cost reduction effort in conjunction with GC/CM.

Contract Package N150 - Roosevelt Station Civil and Finishes:

- Continued 100% design effort including responses to 90% design comments.
- Continued NE 66<sup>th</sup> Street re-design effort.
- Continued coordination with GC/CM during preconstruction activities including responses to constructability comments.
- Continued research support/product research for cost reduction effort in conjunction with GC/CM.

<u>Contract Package N160</u> - Northgate Station, Aerial Guideway and Parking Garage Civil and Finishes:

- Continued 100% design effort for station and guideway with focus on building permit updates.
- Completed 60% design effort on the parking garage structure, and began 90% design. Continued design development of the North Entry Plaza and 1<sup>st</sup> Ave NE Access. Held LRRP review for the 60% garage design.
- Continued GC/CM pre-construction work sessions on station/site design, garage structure and staging, and elevated guideway.
- Continued preparation of demolition package for Northgate Commercial Site temporary restoration.

#### Contract Package N180 - Trackwork:

 Continued coordination with structures and systems and updated the design to accommodate lessons learned from U830.

<u>Contract Package N830</u> – Traction Electrification, Signals, and Communications:

 Completed the kick-off meeting for the Northgate / East Link Systems Heavy Civil GC/CM procurement package.

### Final Design Schedule

The table below summarizes the current civil Final Design submittal schedule for each contract package.

We de De des see	6	0%	9	<u> 00%</u>	<u>100% to ST</u>	
Work Packages	<u>Plan</u>	<u>F/A*</u>	Plan	<u>F/A*</u>	<u>Plan</u>	<u>F/A*</u>
N105 Key Bank Demolition and Remediation	7/31/2014	7/31/2014A	10/3/2014	10/3/2014A	2/23/2015	6/18/2015A
NIII Advanced Utility Relocation – Northgate	12/21/2012	5/23/2013A	3/29/2013	10/14/2013A	7/12/2013	1/31/2014A
N113 115kV Relocation at Northgate	10/29/2013	11/21/2014A	3/27/2014	8/5/2015	6/19/2014	9/23/15
N140 U District Station Finishes	12/24/2011	4/27/2012A	9/18/2012	12/4/2015	5/10/2013	7/30/16
N150 Roosevelt Station Finishes	4/13/2012	2/27/2012A	1/28/2013	12/18/2014	10/23/2013	10/30/2015
N160 Northgate Sta. Civil/Finishes/Guideway	6/27/2012	10/5/2012A	4/17/2013	3/7/2014A	11/26/2013	12/15/15
N180 Trackwork	8/23/2012	8/23/2012A	5/22/2013	4/8/2013A	8/26/2013	10/2/15
N830 Traction Electrification, Signals, Communications	12/12/2012	12/20/2012A	4/10/2014	1/15/16	12/9/2014	7/21/16

F/A\* = Forecast/Actual

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# Link Light Rail Northgate Link Extension - Final Design

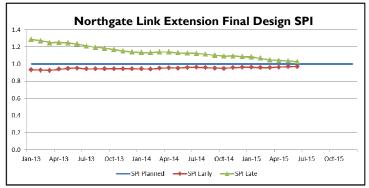


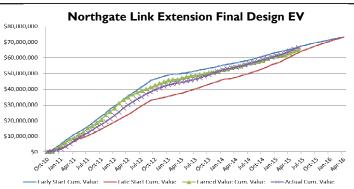
### Final Design Schedule Performance

For Final Design activities only, the Schedule Performance Index (SPI) reported this period is .97 based on the early start dates and the late start SPI is 1.03. The design consultant has had some design deliverable milestones for N113, N140, N150 and N180 pushed back.

### Final Design Cost Performance

Through this period, the total amount spent for civil final design is \$71.6M, which is approximately 77.6% of the total contract amount including change orders. For final design activities only, the total amount spent is \$66.7M, which is approximately 91%. The consultant reported 88.8% complete for final design activities, resulting in an Earned Value of \$65.1M. The current period Cost Performance Index (CPI) is reported at 0.8, and the cumulative CPI remains 1.0, which indicates that overall expenditures are in line with planned cost.





Performance	Previous Period	Current Period	Cumulative To Date
Amount Invoiced	\$65,569,230	\$1,117,113	\$66,686,343
Spent	89.4%	1.5%	91.0%
Earned Value	\$64,200,474	\$864,330	\$65,064,804
% Complete	87.6%	1.2%	88.7%
СРІ	1.0	0.8	1.0

### Other Key Final Design Activities

#### **Geotechnical Investigation**

• Continued geotechnical support and design for N113 and the Northgate Parking Garage.

### Surveying and ROW

- Finalized N105 basemap and updated N150 basemap to reflect relocated poles.
- Continued N160 parcel maps and exhibit updates for ROW.

### Traffic Engineering Report

• Continued traffic engineering support for Maintenance of Traffic efforts and final design traffic elements as needed.

#### **Permits**

- Continued coordination support on MUP and SIP applications for N140, N150 and N160.
- Continued preparation of the ROD Matrix for N113 60% design.

#### Construction Noise Variances

• None to report.

#### Noise Mitigation for At Grade and Elevated Guideway

• None to report.

#### Ground Borne Noise and Vibration

Provided input for the N180 design updates for the Industry Review Package.

#### Construction Cost Estimating

• Continued development of N105 100% cost estimate and N113 60% estimate.

#### Construction Schedules

• None to report.

## **Quality Assurance**

Continued QC tasks on active design packages, including completion of the N105 100% QA Audit.

### Design and Project Integration

- Provided coordination and integration between all contracts in the Northgate area.
- Integration and coordination with Systems Consultant (LTK), Art Consultant and Station Artists.

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# Link Light Rail Northgate Link Extension Construction

## **Major Construction Contract Packages**

Below are the major construction contract packages for the Northgate Link Extension with a brief scope description of each.

**N105 Key Bank Demolition and Remediation** - Demo of Key Bank Building, remove underground storage tanks and remediate contaminated soil.

**N110 Utility Relocation at Roosevelt Station Area** - Relocation of electrical and communication facilities at the Roosevelt Station site. (Complete)

**N111 Advanced Utility Relocation at Northgate Area** - Relocation of 26kV and communication lines at the Northgate Station vicinity.

N112 U District and Roosevelt Station Site Preparation - Demolition of existing structures, grading and paving at the U District and Roosevelt Station sites. (Complete)

N113 115kV Relocation at Northgate Station Area - Relocation of overhead electrical facilities at the Northgate Station area.

N125 TBM Tunnels UW Station to Maple Leaf Portal - Tunneling work and support of excavation of station boxes for the U District and Roosevelt stations.

**N140** U **District Station Finishes** - Civil and architectural finishes work for the U District Station.

**N150 Roosevelt Station Finishes**— Civil and architectural finishes work for the Roosevelt Station.

N160 Northgate Station & Elevated Guideway & Parking Garage- Civil and architectural finishes work for the Maple Leaf Portal, the aerial guideway, and the Northgate Station and Tail Track. Construction of a 450 stall parking garage to be located at the south corner of the existing Northgate Mall surface parking lot at NE 103rd St. near 1st Avenue NE.

**N180 Trackwork** - Installation of all trackwork through two tunnels and three stations between UW Station and Northgate Station, including tail track.

**N830 Track Electrification, Signals, Communication System -** Installation of the major system elements – Traction Electrification, 26kV Distribution, Signals, and Communications.

# **Construction Schedule Highlights**

Package	Bid Advertisement	NTP	Substantial Completion
N105-Key Bank Remediation/Demo	Nov 2015*	Mar 2016	Nov 2016
NIII-Advanced Utility Relocation	Sept 2014A	Jan 2015A	Jan 2016***
N113-SCL 115kV Relocate	Nov 2015**	Mar 2016**	Nov 2016**
N125-Station Box Exc. & TBM Tunnels	Jan 2013A	Sep 2013A	Feb 2018
N140-U District Station Finishes	Oct 2013A (GC/CM-Precon)	Mar 2017 (construction)	Jan 2020
N150-Roosevelt Station Finishes	Apr 2013A (GC/CM-Precon)	Jan 2017 (construction)	Sep 2019
N160-Northgate Station & Guideway & Parking Garage	Feb 2015A (GC/CM –Precon)	Jan 2016	Nov 2019
N180-Trackwork to Northgate Station	Nov 2015	Jul 2016	Jul 2019
N830-Traction Power, Signals & Com	May 2015 (GC/CM-RFQ)	Jan 2018 (construction)	Oct 2020

A = Actual

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<sup>\*</sup> N105 may be "shelved" after 100% design until late 2015. Construction is planned for the Summer 2016. The site will not be needed by N140 until early 2017.

<sup>\*\*</sup>These dates based on the alternative alignment proposed, placing the 115kV line on WSDOT property west of 1-5. ST is now planning to issue a material procurement contract for the Transmission Line poles prior to the construction contract bid, with Advertisement in September 2015.

<sup>\*\*\*</sup>Subject to change based on submission of a recovery plan by Walsh Construction.

# Link Light Rail Northgate Link Extension - Construction



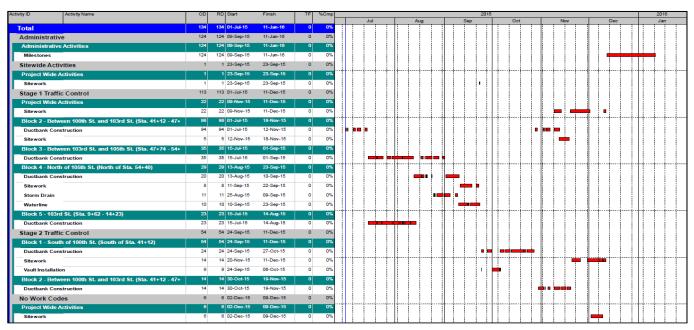
## Contract N111 - Advanced Utility Relocation

## **Current Progress**

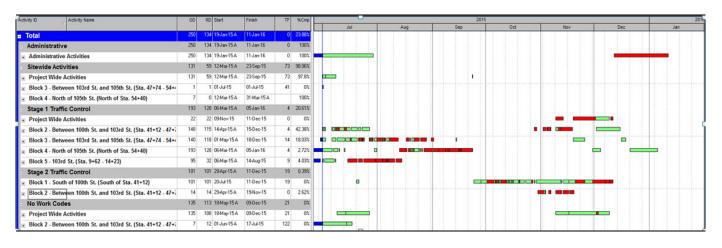
Vault & Ductbank Installation -Vault and handhole construction continued between NE 100th and NE 103rd Streets. Due to ongoing quality issues with the Type 814 panel vaults, installation of these vaults and the connecting ductbanks has been halted. Walsh Construction is working closely with the vault manufacturer to resolve the problems. As a result, the schedule now shows a delay in completion of the project. Substantial Completion has slipped from 12/14/2015 to 1/11/2016, including the 30 days of ST controlled float. Walsh has requested extended work hours, starting earlier in the morning and working a longer night shift, as part of their mitigation plan. ST has requested a recovery schedule.

Storm Sewer & Water Line - Walsh completed installation of the 18" storm drain between NE 103rd and NE 105th Streets, and is preparing to begin storm sewer installation near NE 105th St on both day and night shifts. Materials were delivered at the end of May, with work set to begin in early June.

#### Schedule/Critical Path



The critical path (above) for the project is now driven by the installation of Ductbank ED-2, which is dependent on the installation the Type 814 vaults between NE 100th St and NE 103rd St. (Block 2). Restoration follows in each area. Installation of the waterline in Block 4 is also on the longest path.



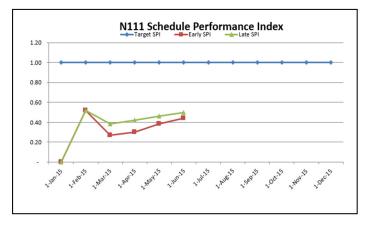
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# **Link Light Rail Northgate Link Extension - Construction**

#### Schedule Performance Index

The SPI for the project was 0.44 in June up from the 0.38 reported in May. The SPI calculated in the schedule update is 0.42 overall. Large vault and ductbank installation is now the primary factor hindering improved performance. Completion of the storm drain and continued installation of the smaller vaults and handholes did result in an improved SPI for the period.



### **Key Activities**

#### Current Period

- Completed installation of all planned vaults and handholes between NE 100th and NE 103rd Streets.
- Excavation, shoring, and installation of ductbank continued along 1st Avenue NE from NE 100th St to NE 103rd St.
- Continued low strength and high strength concrete back- Installation of vaults along 1st Avenue NE, north of NE fill of ductbanks.
- Continued storm drain work north from NE 103rd St to NE 105th St.
- Completed Excavation and shoring for Vaults VS9 and V27.
- Installed and backfilled Vaults V32 and VS3A.
- Installed security fencing along the eastern boundary of the project adjacent to the KCM Park & Ride.

#### Next Period

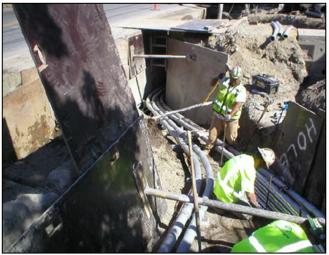
- Excavation & shoring, installation and backfill with low strength and high strength concrete for ductbanks will continue along 1st Avenue NE from NE 100th St to NE 103rd St.
- Excavation & installation of storm sewer lines will continue north of the NE 105th St. Northgate Mall en-
- 103<sup>rd</sup> St.

## **Closely Monitored Issues**

• Ongoing quality issues with the Type 814 precast vaults are forcing resequencing of work activities and may result in delays to contract completion. The issue is being closely monitored.

#### **Cost Summary**

Present Financial Status	Amount
NIII Contractor - Walsh Construction	
Original Contract Value	\$9,370,000
Change Order Value	\$69,382
Current Contract Value	\$9,439,382
Total Actual Cost (Incurred to date)	\$2,383,234
Financial Percent Complete:	25%
Physical Percent Complete:	24%
Authorized Contingency	\$937,000
Contingency Drawdown	\$ 69,382
Contingency Index	3.21



Ductbank construction and formwork installation

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## Link Light Rail Northgate Link Extension - Construction



#### **Contract N125 – TBM Tunnels**

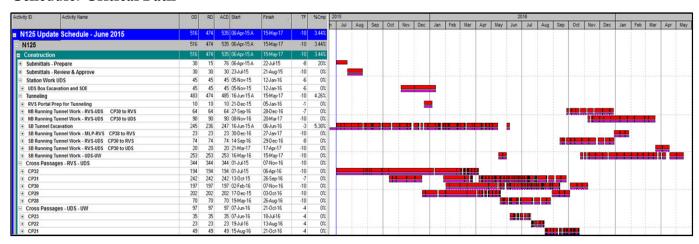
#### **Current Progress**

Tunneling Operations - The casting of the tunnel rings has been completed, with 44,520 segments cast. TBM No. 1 continued its drive toward U District Station (UDS). With 2 shifts per day it averaged 516 feet/week or 103 feet/day. As of July 10, TBM No. 1 has completed 67.9% of this reach. TBM No. 2 has completed 99% of the total length between MLP and RVS and is expected to hole-trough at RVS by mid-July. The southbound drive continues to use 2 shifts with the average production of 75.5 feet/day or 377.5 feet/week. Pump tests at the Cross Passages continue.

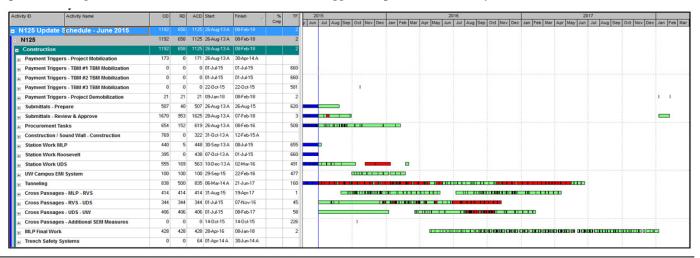
Roosevelt Station (RVS) - Segment staging & delivery in support of TBM No. 1. Final preparation for TBM No. 2 reception is underway.

*U District Station (UDS)* -Excavation of the station box is essentially complete with the final row of soil nails being installed. Placement of the base slabs to support TBM No. 1 reception and refurbishment is underway with the first slab to be placed July 1. JCM continues drilling the ground freeze piping at the headwalls.

#### Schedule/Critical Path



The longest path through the schedule continues to be driven by TBM No. 2 tunneling of the southbound bore, completion of which drives the Cross Passage work. Critical activities driving the interim milestones remain TBM No. 1 tunneling under the UW campus, and dewatering and construction of the Cross Passages. The June schedule update forecasts a 2 day early achievement of Milestone No. 6 Substantial Completion. Milestone 2 – Demobilization from UDS has negative eleven (-11) days of Float, driven by completion of post tunneling work associated with the southbound bore. Milestone 5 – UDS Completion & Tunnel Turnover, has negative fourteen (-14) days of total float also driven by post-tunneling work in the southbound bore. This will trigger a request for a recovery schedule from JCM.



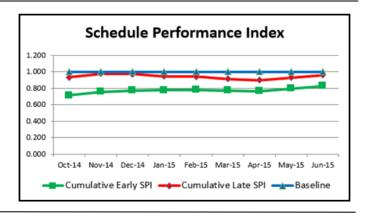
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# Link Light Rail Northgate Link Extension - Construction

#### **Schedule Performance Index**

The Contractor is reporting an overall Performance Percent Complete of 62.5% with a Cost Percent Complete of 62.5% as well. The SPI for June 2015 is 0.828, up from the 0.796 obtained in May. This reflects progress of both TBMs and near completion of the UDS Station Box excavation. The project now has a 0.730 Cumulative Early SPI lifetime average and a 0.770 SPI since July 2014.



#### **Key Activities**

#### Current Period

- Completed casting of segment rings by CSI. As of end of June: 44,520 (100%) have been produced (7,420 rings). *Tunnels & Cross Passages (CPs)*
- Completed pump tests at CP39 and CP33.
- TBM No. 1 tunneling progress totals 2,255 rings to date.
- TBM No. 2 tunneling progress totals 1,468 rings to date. *Roosevelt Site (RVS)*
- Completed installation, testing, and L&I certification of elevator.

U District Site (UDS)

- Continued excavation, lagging and tie-back installation.
- Began freezing the arch at the north head wall in preparation for arrival of TBM No.1.
- Completed soil nail installation on both NB and SB tunnel eyes at south headwall.
- Completed west wall lagging down to the base of excavation.

#### Next Period

• Continue refurbishment of TBM No. 3.

- Continue mining with TBMs No. 1 & 2.
- Complete prep for full pump test at CP34.
- Continue internal dewatering pumping on as needed basis.
- Hole-through TBM No. 2.
- Continue excavation and installation of shaft lagging and tie-backs; continue installation of soil nails at south east wall for the saddlebags.
- Continue installation of freeze pipes on both NB and SB tunnel eyes at south headwall.

#### **Closely Monitored Issues**

- Current estimates of costs to address the CP groundwater DSC will have significant impact on the contract contingency. Upon receipt of the resequencing RFP and the ground freezing RFP, ST will have a better understanding of contingency needs.
- A review panel of experts is being convened to review and concur with the plans for dealing with the CP groundwater DSC.

#### **Cost Summary**

Present Financial Status	Amount
N125Contractor - JCM Northlink	
Original Contract Value	\$440,321,000
Change Order Value	\$ 2.913,576
Current Contract Value	\$443,234,576
Total Actual Cost (Incurred to date)	\$274,659,344
Financial Percent Complete:	62%
Physical Percent Complete:	62%
Authorized Contingency	\$22,016,050
Contingency Drawdown	\$2,913,576
Contingency Index	4.72



Drilling freeze pipe at south headwall of UDS shaft.

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## Link Light Rail Lynnwood Link Extension



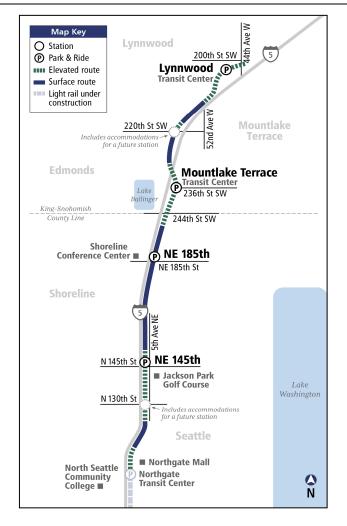
### Scope

The Lynnwood Link Extension Project entails the identification and evaluation of transit alternatives between Northgate in the City of Seattle to Lynnwood in Snohomish County with service in the cities of Shoreline and Mountlake Terrace. Consistent with FTA New Starts requirements, the project has undergone an Alternative Analysis and Environmental Scoping. Development of the Conceptual Engineering and Draft EIS concluded in 2013. Final EIS was published in April 2015.

In April 2015, the Sound Transit Board selected the light rail route and station locations. Trains will run along the I-5 corridor from Northgate to the Lynnwood Transit Center with stations at NE 145th Street, NE 185th Street and the Mountlake Transit Center at 236th Street SW. Construction to begin in 2018 and Revenue Service by 2023.

## **Key Project Activities**

- Phase 3 (Final EIS and Preliminary Engineering) began in December 2013.
- Published Final EIS in April 2015.
- ST Board selected project to be built in April 2015.
- Preparing for PE completion and application for FTA New Starts Engineering phase authority.



Map of Lynnwood Link Extension route and stations.

## **Project Cost Summary**

The Lynnwood Link Extension is currently funded through the completion of preliminary engineering (PE) and environmental documentation. Board approval for additional funding for final design and construction will be sought upon completion of PE. Table (below) figures in millions.

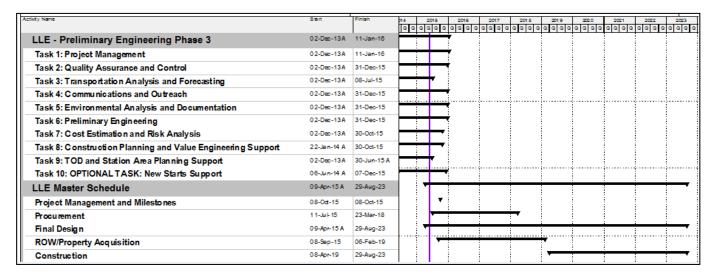
Phase	Adopted Budget	Commitment to Date	Incurred to Date	Forecasts and Trends	Estimated Final Cost (EFC)	Budget Versus EFC
Administration	\$11.7	\$6.0	\$6.1	\$5.8	\$11.7	\$0.0
Preliminary Engineering	\$44.3	\$40.2	\$35.7	\$4.2	\$44.3	\$0.0
3 <sup>rd</sup> Party Agreements	\$1.0	\$0.7	\$0.3	\$0.3	\$1.0	\$0.0
Right of Way	\$7.1	\$4.8	\$4.7	\$2.3	\$7.1	\$0.0
Total	\$64.I	\$51.6	\$46.7	\$12.5	\$64.I	\$0.0

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# Link Light Rail Lynnwood Link Extension

### **Project Schedule**

The Lynnwood Link Extension, environmental documentation and preliminary engineering is anticipated to be completed end of 2015. The project schedule is presented below.



#### **Sound Transit Board Actions**

Board Action	Description	Date
	None to report this period.	

#### **Environmental**

• Published Final EIS in April 2015.

## **Community Outreach**

- Emailed subscribers regarding the newsletter promoting the ST Board's decision on the final route and stations. A folio handout version was created.
- Community kiosks were updated with information on final route and stations and changed locations.
- Placed phone calls in advance to property owners who have previously granted rights-of-entries to notify them about expected entry into their property.
- Continued land and tree survey work on public and private properties which included coordination with the Latvian Lutheran Church.

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# Link Light Rail Lynnwood Link Extension- PE & Final EIS



## Phase 3 Preliminary Engineering and Final EIS

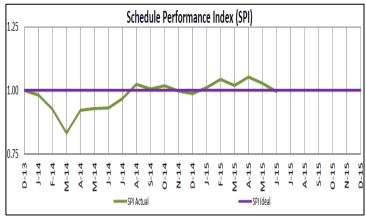
Sound Transit executed a contract amendment for Phase 3, Preliminary Engineering and Final EIS for Lynnwood Link, in December 2013.

## Phase 3 Key Activities

- Continued to advance the engineering of the preferred alternative and final PE submittal.
- Continued development of the work program to obtain FTA New Starts Engineering authority.

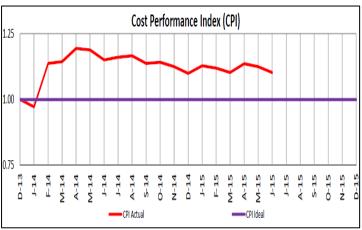
#### **Phase 3 Schedule Performance**

The cumulative Schedule Performance Index (SPI) for the Phase 3 contract is 1.00 through June, indicating work performed to date is close to the amount originally planned.



#### Phase 3 Cost Performance

\$34.7 M of the total contract amount, approximately 89%, has been spent through June. Phase 3 contract expenditures through June totaled \$18.3 M, approximately 81% of the Phase 3 contract total. The Phase 3 contract percent complete reported at the end of June is 90%, with an earned value of \$20.2 M. The cumulative Cost Performance Index (CPI) through June is 1.10; indicating costs are lower than the budget planned for work accomplished.



Phase 3 Performance	Previous Period	Current	
Amount Invoiced	\$17,748,061	\$507,174	\$18,255,235
% Spent	79%	2%	81%
Earned Value	\$19,955,839	\$160,630	\$20,116,469
% Complete	89%	1%	90%
SPI	1.03	0.20	1.00
СРІ	1.12	0.32	1.10

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The project, when completed, will enable 24/7 HOV access on I-90 between Seattle, Mercer Island and Bellevue.

#### Scope:

The I-90 Two-Way Transit and HOV Operations (Stage 3) project will provide approximately four miles of the HOV lanes in each direction of the outer roadway between 80<sup>th</sup> Avenue South on Mercer Island and Rainier Avenue in Seattle. The project includes upgrades and retrofits to the fire, life, safety, and other systems in the Mount Baker and Mercer Island/First Hill tunnels. The project also includes remaining dowel bar retrofit work on the west side of Lake Washington, the installation of screening on the shared—use pathway on the I-90 floating bridge, and eastbound HOV access to Mercer Island. Following completion of this project, the center roadway will be closed to allow the construction of East Link Extension.

Budget: \$225.6 Million
Phase: Construction
Construction Start: January 2015
Construction Completes: June 2017

#### **Major Contracts**

	Scope	Agreement/Contract Amount
WSDOT	Final Design	\$ 20,942,000
WSDOT	CM Services	\$ 16,358,000
IMCO	Construction	\$122,021,000

## **Key Project Activities**

- Continued construction of detention tanks and drainage structures.
- Installed supports and conduit for fire life safety devices.
- Continued submittals and procurement for new fans and SCADA implementation.



Contractor pouring a concrete shaft for a sign bridge foundation.

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# Link Light Rail I-90 Two-Way Transit & HOV Operations (Stage 3)

## **Project Cost Summary**

Total Project Costs expended in May were \$1.593M. The following tables summarize the cost information for the I-90 Two- way Transit and HOV Operations (Stage 3) project. Tables in millions.

#### **Cost Summary by Phase**

Project Elements by Phase	Baseline Budget	Current Adopted Budget	Commit- ment to Date*	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
Administration	\$3.6	\$3.6	\$1.4	\$1.4	\$3.6	\$0.0
Preliminary Engineering	\$1.5	\$1.5	\$1.5	\$1.5	\$1.5	\$0.0
Final Design	\$22.1	\$22.1	\$18.6	\$17.8	\$22.1	\$0.0
Construction Services	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
3rd Party Services	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Construction	\$198.3	\$198.3	\$166.3	\$11.3	\$198.3	\$0.0
Total	\$225.6	\$225.6	\$187.9	\$32.1	\$225.6	\$0.0

#### **Cost Summary by SCC**

Project Elements by SCC	Baseline Budget	Current Adopted Budget	Commit- ment to Date*	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
40 Sitework & Special Conditions	\$180.6	\$180.6	\$166.3	\$11.3	\$180.6	\$0.0
80 Professional Services	\$26.3	\$26.3	\$21.5	\$20.8	\$26.3	\$0.0
90 Unallocated Contingency	\$18.7	\$18.7	\$0.0	\$0.0	\$18.7	\$0.0
Project Total (SCC 10-90)	\$225.6	\$225.6	\$187.9	\$32.I	\$225.6	\$0.0

<sup>\*</sup>Unallocated Contingency in the above table has been corrected to show the actual baseline budget; previous amount reported was in 2013 dollars and was not escalated.

## **Project Schedule**

WSDOT has accepted the Contractor's progress schedule with comments; upcoming Agency Progress Reports will include a high-level progress schedule once issues are resolved.

Current Milestones	Date
Notice to Proceed (NTP)	January 12, 2015
Final Tunnel Commissioning	December 6, 2016
Begin Final Pavement Marking	April 3, 2017
Substantial Completion	February 20, 2017
Physical Completion	May 31, 2017

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# Link Light Rail East Link Extension





Map of East Link Extension. Alignment.

#### Scope

**Limits:** Downtown Seattle to Mercer Island, Bellevue and the Overlake area of Redmond.

**Alignment:** East Link extends light rail 14 miles to East King County from Downtown Seattle serving

Mercer Island via I-90, Bellevue and the Overlake area of Redmond, with ten new light rail stations. The alignment configuration includes at-grade, elevated, bridges, new and retrofitted

tunnels.

Stations: Judkins Park (formerly Rainier), Mercer Island, South Bellevue, East Main, Bellevue Down-

town, Wilburton (formerly Hospital), Spring District/120th, Bel-Red/130th, Overlake Village

and Redmond Technology Center (formerly OTC).

Systems: Signals, traction power, and communications (SCADA).

Budget: \$3.677 Billion Baseline Budget (Year of Expenditure Dollars)

**Phase:** Final Design transitioning to Construction

Construction Starts: 2015

## **Key Project Activities**

#### Project-wide

• Sound Transit Board adopted the permanent station names for East Link Extension.

#### Seattle to South Bellevue

- *R8A Stage 3A:* The only remaining work on this contract is the erection of signs and sign bridges. Contract time is suspended until the sign bridges arrive in late July.
- Held the Feet First Walking Tour of Judkins Park Station area on June 30.
- Finalized field work for Noise and Vibration.
- Initiated Level 2 Analysis for East and West Approach for fixed structures.
- Met with WSDOT landscape architects to review landscape replacement balances across the I-90 corridor.
- Reviewed IRT issues with FHWA and WSDOT; 17 issues were closed by ST, 13 issues accepted by WSDOT, and 11 were accepted by FHWA.
- Continued refinement of scope and cost to complete Final Design.

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## Link Light Rail East Link Extension

#### South Bellevue to Redmond

- The Olympic Pipeline (OPL) Task Order was approved by CCB and the Executed Task Order was delivered to OPL. They are planning to mobilize on site in July.
- Began working with WSDOT regarding task order for construction work in WSDOT Right-of-Way in E320, E335 and E360.
- E320– Preparation continues for advertisement anticipated for Fall 2015.
- E330 Updating specifications following readiness review comments/edits.
- E335 Design continued to advance to 90%.
- E360 Continued finalizing the RFP.

### **Project Cost Summary**

The East Link project cost is summarized below by two cost categories. In the first table, the cost is summarized in accordance with Sound Transit's Work Breakdown Structure (WBS). The second table summarizes the project in accordance with the FTA's Standard Cost Category (SCC) format. The figures in both tables are shown in millions. The Estimated Final Cost (EFC) for this project is \$3,677.2M in year of expenditure dollars. Approximately \$23.5M was incurred this period.

Project Phase	Baseline Budget	Current Adopted Budget	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
Administration	\$186.2	\$186.2	\$35.5	\$36.1	\$186.2	\$0.0
Preliminary Engineering	\$55.9	\$55.9	\$54.3	\$54.0	\$55.9	\$0.0
Final Design	\$283.0	\$283.0	\$159.9	\$134.7	\$283.0	\$0.0
Construction Services	\$257.5	\$257.5	\$6.9	\$2.6	\$257.5	\$0.0
3rd Party Agreements	\$52.2	\$52.2	\$8.9	\$4.6	\$52.2	\$0.0
Construction	\$2,544.3	\$2,544.3	\$18.9	\$12.3	\$2,544.3	\$0.0
Light Rail Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$298.2	\$298.2	\$102.1	\$97.1	\$298.2	\$0.0
Total	\$3,677.2	\$3,677.2	\$386.5	\$341.4	\$3,677.2	\$0.0

#### Cost Summary by SCC

SCC Element	Baseline Budget	Current Adopted Budget	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
10 Guideway & Track	\$744.6	\$744.6	\$0.0	\$0.0	\$744.6	\$0.0
20 Stations	\$397.7	\$397.7	\$0.0	\$0.0	\$397.7	\$0.0
30 Support Facilities	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$808.5	\$808.5	\$18.9	\$12.3	\$808.5	\$0.0
50 Systems	\$353.8	\$353.8	\$0.0	\$0.0	\$353.8	\$0.0
Construction Subtotal (10 - 50)	\$2,304.6	\$2,304.6	\$18.9	\$12.3	\$2,304.6	\$0.0
60 Row, Land	\$288.5	\$288.5	\$102.2	\$97.1	\$288.5	\$0.0
70 Vehicles (non-revenue)	\$2.8	\$2.8	\$0.0	\$0.0	\$2.8	\$0.0
80 Professional Services	\$898.4	\$898.4	\$265.4	\$232.0	\$898.4	\$0.0
90 Unallocated Contingency	\$182.9	\$182.9	\$0.0	\$0.0	\$182.9	\$0.0
Total (10 - 90)	\$3,677.2	\$3,677.2	\$386.5	\$341.4	\$3,677.2	\$0.0

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# Link Light Rail East Link Extension



### **Risk and Contingency Management**

#### **Contingency Status**

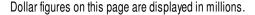
Sound Transit has completed a draft Risk and Contingency Management Plan (RCMP) for East Link, and is currently addressing review comments from the Project Management Oversight Consultant (PMOC). The project's baseline budget, which was approved by the Sound Transit Board in April 2015, contains a total of \$795.9M Total Contingency. This period, total contingency decreased by \$0.6M to \$796.0M. Total Contingency is made up of the following:

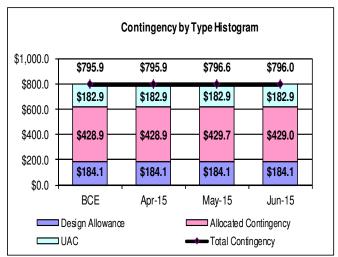
**Design Allowance** is used to account for scope that could not be quantified at the time of the cost estimate. The total amount of design allowance in the baseline cost estimate is \$184.1M and has remained unchanged this period.

**Allocated Contingency** is used to address risks, complexity and unforeseen conditions during the execution of work. The total amount of allocated contingency has <u>decreased by \$0.6M</u> to a new total of \$429.0M due to the execution of multiple change orders for additional final design services from South Bellevue to OTC.

*Unallocated Contingency* is used to address general project-wide cost risks and uncertainties. The total amount of unallocated contingency in the baseline cost estimate is \$182.9M and has remained unchanged this period.

Contingency	В	CE	Current Status		
Status	Amount	% of Total Budget	Remaining Amount	% of Work Remaining	
Design Allowance	\$184.1	5.0%	\$184.1	5.5%	
Allocated Contingency	\$428.9	11.7%	\$429.0	12.9%	
Unallocated Contingency	\$182.9	5.0%	\$182.9	5.5%	
Total:	\$795.9	21.6%	\$796.0	23.9%	





## Risk Management

The RCMP established a risk management and oversight process for identifying, assessing, and monitoring risks and develops risk reduction/mitigation plans. It provides a tool for the project team to proactively manage risks on the project. It is Sound Transit's responsibility for quarterly monitoring of project status and associated risks, taking mitigation actions for known risks identified on the risk register, and effectively responding in a timely manner to those risks that pose a significant impact to the project cost or schedule forecast.

In June 2015, Sound Transit completed the first quarterly risks review meeting for each of the construction contract package. The Quarterly Risk Assessment Report is in the process of being drafted to summarize and report out results, and the activities that took place during the review.

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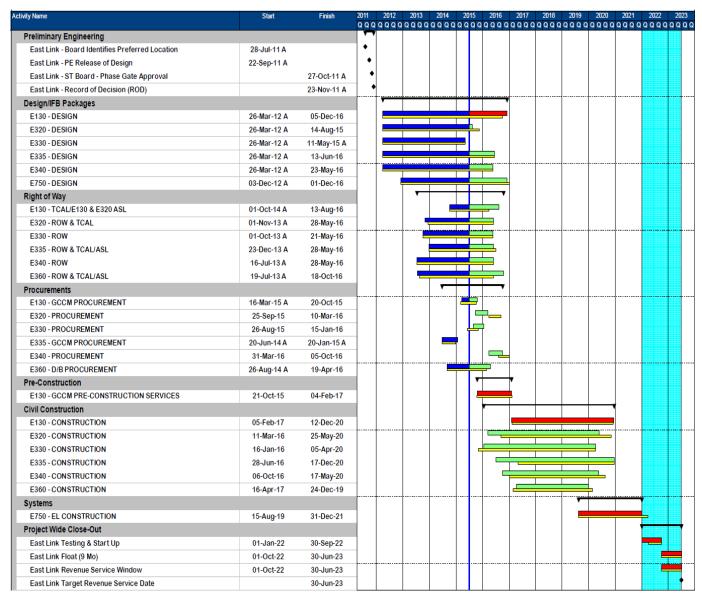


### **Project Schedule**

The East Link Extension is in Final Design. Sound Transit Board baselined East Link on April 23, 2015. The first early construction contract, Early Utilities for E340 (Bel Red), started May 2015. Revenue Service forecasted June 30, 2023.

East Link contract procurements have started:

- Bellevue Segment Construction Management Consultant (CMC) awarded 3rd QTR 2014.
- Redmond Segment Project Management Services Consultant (CMC) awarded 4th QTR 2014.
- E335 GC/CM (Downtown Bellevue to Spring District) awarded 1st QTR 2015.
- E130 GC/CM (I-90 Heavy Civil), E750 GC/CM (East Link Systems) and I-90 Segment Construction Management Consultant (CMC) <u>currently in procurement</u>, scheduled to be awarded 4th QTR 2015.
- E360 D/B (SR520 to Overlake Transit Center) currently in procurement and final RFP release is planned for 2nd QTR 2015, and now scheduled to be awarded 2nd QTR 2016.



\*Note: Dates tracked are East Link Target Schedule dates. East Link Baselined Schedule is attached as a baseline (yellow bar below).

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## Link Light Rail East Link Extension



## Right of Way

The East Link Extension involves the acquisition of a range of property interests including fee acquisitions for stations, guideway, staging areas, support facilities, and tunnel and guideway easements as well as permanent and temporary easements for construction. These acquisitions will result in owner and tenant residential and commercial relocations. The East Link Extension included the advance acquisition of approximately one mile of an existing railroad parcel ("Bellevue Mile") that the Sound Transit Board approved in June 2011. The right-of-way program status for this period is summarized in the following table. Market value trends in both residential and commercial properties are exhibiting strong upward pressure. Appraisals are being adjusted to reflect this increasing trend in the market. The overall impact on the Right-of-Way budget is being closely monitored. Efforts are also underway to prioritize acquisitions by contract package to help ensure timely availability of property.

East Link Extension Property Acquisition Status								
Line Section	Board Approved	Offers Made	Signed Agree- ments	Possession and Use	Closings to date	Baseline Relocations Required	Reloca- tions Completed	
Seattle to S. Bellevue	2	I	0	0	0	0	0	
S. Bellevue to OTC	239	121	7	4	66	230	96	
Bellevue Mile	I	I	I	0	1	0	0	
Total	242	123	8	4	67	230	96	

#### Seattle to S. Bellevue

*E130 IDS Rail Connection & IDS & I-90 Upgrades -* One offer made.

*E340 Bel-Red* - One offer made; four additional parcels signed and one parcel vacated.

E360 SR 520 to OTC – One new offer made.

#### S. Bellevue to OTC parcels

*E320 S. Bellevue*– One parcel closed and three parcels vacated.

E330 Downtown Bellevue – One parcel vacated.

E335 - No activity.

## **Quality Assurance Activities**

#### **Activities**

• None to report.

#### <u>Issues</u>

• None to report.

#### **Summary**

Description	June 2015	Notes
No. of Audits Planned	I	E320 Design Performance Audit 100% Design Submittal
No. of Audits Completed	0	None
Reports in Progress	I	E320 Design Performance Audit 100% Design Submittal
No. of Audits Postponed	0	None

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## Link Light Rail East Link Extension

#### **Environmental**

• Developing environmental permit application packages. Environmental commitments are being incorporated into the design, program, and specifications of the project.

#### **Sound Transit Board Actions**

Board Action	Description	Date
M2015-58	Adopted the permanent station names for East Link Extension.	Jun 25

## **Community Outreach**

- Tabled at the Mercer Island Farmer's Market and engaged 122 individuals.
- Staffed table at Spirit of Bellevue Run and gave out pre-race packets with an East Link Project Overview and a contact card.
- Conference call with investment group considering purchase of Bellevue Marriott, focusing on construction timeline and MOT.
- Notified more than 200 Bel Red businesses about the archaeological survey in Bel Red which would require a full intersection closure.
- Provided wayfinding tile samples to Lighthouse for the Blind to educate their constituency on accessible station materials.
- Published an E-newsletter regarding the adoption of permanent East Link station names and ST3.
- Participated in Feet First's walking tour of the Judkins Park Station with WSDOT, KCM, and SDOT on June 30. Over 100 people attended,



Community Outreach at the Strawberry Festival in Bellevue.

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## Link Light Rail East Link Extension Final Design - S. Bellevue to OTC

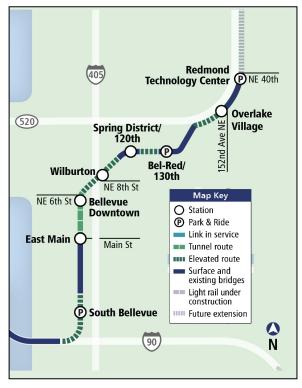


#### Final Design Scope

Final Design for the East Link Extension includes three major design contracts: two for civil improvements and one for systems improvements. This contract is for civil and architectural design services from South Bellevue to the Redmond Technology Center (formerly OTC). The contract was awarded to H-J-H Final Design Partners, a joint venture of HNTB Corporation, Jacobs Engineering Group, Inc., and Hatch Mott MacDonald.

The scope of H-J-H services includes detailed designs of the corridor, preparation of comprehensive construction contract documents, permitting support, surveying, geotechnical investigations, right-of-way planning, third party coordination, systems coordination, cost estimating, scheduling, sustainability report, bid support, Preliminary Hazards Analysis, and community outreach.

The design is being grouped into five Contract Packages: (1) E320 South Bellevue; (2) E330 Downtown Bellevue Tunnel; (3) E335 Downtown Bellevue to Spring District; (4) E340 Bel-Red, and (5) E360 SR-520 to Redmond Technology Center.



Map of South Bellevue to Redmond Technology Center.

#### Final Design Key Activities

#### E320 So. Bellevue

- Worked through resolution of all 100% Sound Transit and third party comments.
- Incorporated 100% Sound Transit and third party comments into IFB documents.
- Completed IFB specification edits.

#### E330 Downtown Bellevue

- Completed revised Civil IFB changes based on GC/CM preconstruction input and review of adjacent Contract E335
- Advanced revisions to SEM/cut-and-cover interface at northern SEM limit to accommodate GC/CM Idea #4 "E330 and E335 North Portal Interface".
- Reviewed potential revisions to South Cut and Cover Structure to accommodate E335-constructed dry standpipe.

#### E335 Downtown Bellevue to Spring District

- Reviewed, resolved, and prepared responses to 60% review comments.
- Continued advancing 90% drawings and specifications submittals.
- Commenced irrigation system design.

#### E340 Bel-Red

 Began developing quantity take-offs in support of the 100% cost estimate.

#### E360 SR 520 to Redmond Technology Center

- Supported input to Special Conditions and coordinated with Project Requirements and Specifications.
- Reviewed and Updated RFP for Sound Transit, Proposer, and AHJ comments.
- Updated attachments and supporting documents in the RFP.



Advanced storm water utility relocation.

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## Link Light Rail East Link Extension Final Design - S. Bellevue to OTC

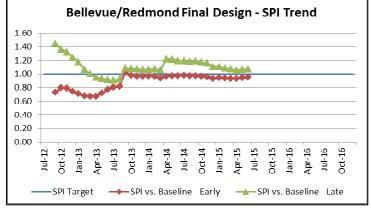
#### Final Design Schedule

The table below shows the design submittal dates for each of the contract.

Contract	60% Su	<u>lbmittal</u>	<u>90% Su</u>	ıbmittal	100% S	<u>ubmittal</u>	IFB Submittal		
<u>Packages</u>	Baseline*	Forecast/ Actual	Baseline*	Forecast/ Actual	Baseline*	Forecast/ Actual	Baseline*	Forecast/ Actual	
E320 So. Bellevue	12/6/2013	12/6/2013	9/19/2014	9/19/2014	4/3/2015	4/3/2015	8/14/2015	8/14/2015	
E330 Downtown Bellevue Tunnel	11/18/2013	11/18/2013	6/2/2014	6/2/2014	10/20/2014	10/20/2014	5/11/2015	5/11/2015	
E335 Downtown Bellevue to Spring District	12/20/2013	12/20/2013	10/19/2015	2/2/2016	3/8/2016	6/17/2016	6/13/2016	9/23/2016	
E340 Bel-Red	7/15/2013	7/15/2013	4/04/2014	7/21/2014	12/8/2014	12/8/2014	5/23/2016	5/23/2016	
	Draft RFP	Submittal	Final RFP	Submittal		ule dates revised to		ract packaging	
	Baseline*	Forecast/ Actual	Baseline*	Forecast/ Actual	ana constructioi	n delivery methods.			
E360 SR-520 to	2/18/2014	2/18/2014	1/19/2015	7/16/2015	1				

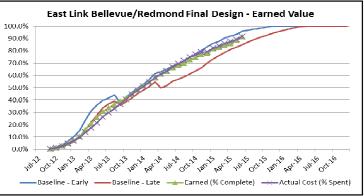
### Final Design Schedule Performance

Excluding Other Direct Expenses (ODC's), Profits and DSDC, the Schedule Performance Index (SPI) reported this period is at 0.97 when measuring against the Early Schedule Baseline, and 1.16 when measuring against the Late Schedule Baseline. Execution of change orders impacted the SPIs.



## Final Design Cost Performance

Labor cost (for Phase 2 Final Design) to-date is \$68.9 million, or 86.8% of the budget. Progress earned through the same period is approximately 86.4% or \$68.6 million of earned value. This yields a cumulative Cost Performance Index (CPI) of 1.00, which indicates approximately on-budget cost efficiency of the current contract budget, including executed change orders. There are upward cost pressures in several areas due to refinements to the design and potentially extension of the contract time. Estimate At Completion (EAC) based on EV data, which does not account for potential change orders, is approximately equal to current budget.



Performance	Previous	Current	Cumulative
Periormance	Period	Period	To Date
Labor Amt. Invoiced	\$67,068,262	\$1,817,167	\$68,885,429
% Spent	84.5%	2.3%	86.8%
Earned Value	\$66,377,444	\$2,182,281	\$68,559,725
% Complete	83.7%	2.7%	86.4%
CPI	0.99	1.20	1.00

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## Link Light Rail East Link Extension Final Design - Seattle to S. Bellevue





Map of International District Station to South Bellevue.

#### **Final Design Scope**

Final Design for the East Link Extension is delivered by three major design contracts: two for civil improvements and one for systems improvements. This Contract is for the civil and architectural design services from International District Station (IDS) to South Bellevue. The contract was awarded to Parsons Brinkerhoff, Inc. (PB).

The scope of the services includes detailed design of the corridor, preparation of comprehensive construction contract documents, permitting support, surveying, geotechnical investigation, right-of-way planning, third party coordination, systems coordination, cost estimating, scheduling, sustainability report, bid support, preliminary hazards analysis, and community outreach support.

The project in this segment has been aggregated into one Contract Package: E130 Rail Connection and Upgrades at IDS; seismic Retrofits of WSDOT Structures; and I-90 Civil/Architectural, which also includes the two at-grade stations, and Electrical/Mechanical Upgrades to existing Tunnels.

#### Final Design Key Activities

#### Design (Civil, Systems, Architecture, Art)

- Floating Bridge: Conducted a site visit as part of the bolt survey for the pontoons.
- IRT: A presentation was given to FHWA on Issues A and F.
- Fixed Structures: Initiated Level 2 Analysis for East and West Approach.
- Permits: Initiated JARPA, DAP processes.
- Judkins Station (Rainier Station): Started re-design of west entrance.
- Finalized Fieldwork for Noise and Vibration.
- Track Attachment: Prepared a report on fastener alternatives.

#### Third Party, Agreements, & Permits

- KCM met with ST about Mercer Island transit integration.
- Sound Transit met with WSDOT Landscape architects to review landscape replacement balances across the I-90 corridor. This included a review of landscape impacted from all five of the I-90 contracts: R8A, E320, E130, E120 and E110.
- Sound Transit, FHWA, and WSDOT met to review the IRT issues. This meeting was followed by a technical overview of IRT issues F (stray current), Issue H (cathodic protection), Issue A (track bridge). As of this meeting, 17 issues were closed by ST, 13 issues were accepted by WSDOT, and 11 were accepted by FHWA.
- Sound Transit met with WSDOT and SDOT to discuss Judkins Station (Rainier Station) and prepare for the Feet First walking tour on June 30.
- Sound Transit is reviewing a draft of the SDOT technical memorandum: Bus Transit Facility on Rainier Ave at I-90 East Link LRT.

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## Link Light Rail East Link Extension Final Design - Seattle to S. Bellevue

#### Final Design Schedule

	<u>60% S</u>	Submittal	90% Su	<u>bmittal</u>	100% 5	<u>Submittal</u>	<u>IFB Su</u>	<u>bmittal</u>
Contract Packages	Baseline	Actual	Baseline	Forecast/ Actual	Baseline	Forecast/ Actual	Baseline	Forecast/ Actual
E130 – Rail connection & IDS upgrades; Seismic retrofits; and I-90 Civil/Arch./Elect. & Mech. Upgrades	4/4/2014	7/11/2014 A	12/17/2014	10/1/2015	3/25/2015	6/16/2016	4/29/2015	9/30/2016

#### Final Design Schedule Performance

Schedule information was not reported by the consultant for the May 2015 reporting period, due to a moratorium on non-critical work requested by ST. A revised baseline design schedule will be submitted once current scope & budget realignment negotiations have been resolved by senior management for ST and the consultant; a proposed Cost To Complete was submitted by PB on May 7, 2015. The proposal is currently under review; upon final ST acceptance, baseline milestones will be revised by an administrative change order.

#### **Final Design Cost Performance**

Cost Performance data was not submitted by the consultant for the May 2015 reporting period, due to ST's moratorium on non-critical work. The current budget includes executed change orders; a change order for \$2.8 million was executed April 14, 2015, and is included in this report. Including professional fee, total Labor and Other Direct Costs for Final Design through May 2015 is \$31.8 million, or 94.80% of the current authorized budget. A revised budget to complete final design was submitted by PB on May 7, 2015 and is under review; upon ST acceptance, cost performance for all remaining work will again be submitted by the consultant and monitored to ensure project completion in a cost-effective and successful manner.

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# Link Light Rail East Link Extension Final Design - Systems



#### Final Design Scope

Final Design for the East Link Extension is delivered by three major design contracts: two for civil improvements and one for systems improvements. This contract is for the systems design services for the entire alignment. The contract was awarded to LTK Engineering Services, Inc. The scope of the services include detailed design of the corridor, preparation of comprehensive construction contract documents, 3rd party coordination, cost estimating, scheduling, and bid support.

#### Final Design Key Activities

- Coordinated the traction electrification system with tunnel rescue operations with the City of Bellevue Fire Department.
- Provided updated Cathodic Protection System Architecture diagram to WSDOT in support of closeout of IRT issue H (cathodic protection).
- Held first E750 quarterly risk register review meeting.
- Provided train control operational white paper for the Rainier Avenue Bridge to WSDOT for review.
- Held N830/E750 GC/CM contractor pre-proposal meeting.
- Received WSDOT acceptance of IRT Issue F (stray current), Corrosion Control Criteria for the I-90 Floating Bridge.
- Presented IRT Issue F, Corrosion Control Criteria for the I-90 Floating Bridge to the Federal Highway Administration.
- Continued refinement of scope and cost to complete Final Design.

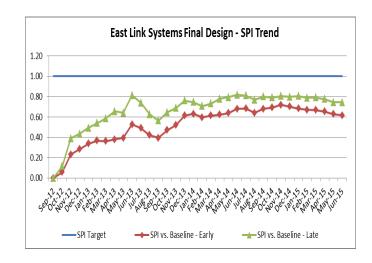
#### Final Design Schedule

The schedule and budget were re-allocated this period to address the significant schedule changes relating to the 90%, 100%, and IFB submittals.

	<u>60% Su</u>	<u>bmittal</u>			<u>100% St</u>	<u>ıbmittal</u>	IFB Submittal		
	Baseline	Actual	Baseline	Forecast/ Actual	Baseline	Forecast/ Actual	Baseline	Forecast/ Actual	
E750- LRT Systems	10/24/2014	10/24/2014	7/8/2015	7/8/2015	1/28/2016	1/28/2016	4/22/2016	4/22/2016	

#### **Final Design Schedule Performance**

In June 2015, the project is 56.4% complete resulting in an Earned Value of \$9.9M. The project has an early SPI of 0.71 and a late SPI of 0.95 which indicates that the contract is behind schedule. Revisions to the civil design schedules resulted in a delay to the systems deliverables.



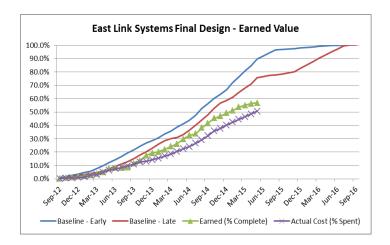
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# Link Light Rail East Link Extension Final Design - Systems

### Final Design Cost Performance

Through the end of June 2015 the project has spent approximately 50.2% of the budget resulting in CPI of 1.12. The current Estimate at Completion (EAC) is expected to be less than the current budget of \$17.7M.



Perfor- mance	Previous Period	Current Period	Cumulative To Date
Labor Amt. Invoiced	\$8,461,217	\$349,455	\$8,810,672
% Spent	47.3%	2.9%	50.2%
Earned Value	\$9,808,859	\$85,871	\$9,894,730
% Complete	55.6%	0.8%	56.4%
CPI	1.2	0.2	1.1

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## **Link Light Rail East Link Extension - Construction**



## **Major East Link Construction Contract Packages**

Below are the major construction contract packages for the East Link Extension with a brief scope description and status of each.

R8A Stage 3A – Modification of HOV Ramp between I-90 E335 Downtown Bellevue to Spring District – Four light and Bellevue Way SE. [Design-bid-build] Status: In construction, 95% complete

E130 Seattle to South Bellevue – International District Station (IDS) modification. Retrofit of existing WSDOT structures, I-90 Center Roadway and two light rail stations. E340 Bel-Red - One light rail station, aerial and at-grade [Heavy Civil GC/CM]

Status: Procurement underway

E160 Track Bridge System – Fabrication, delivery and install eight track bridges that will span over fixed structures and the floating bridge. [Furnish and Install] Status: Design, Fabrication, and testing complete

E320 South Bellevue – One light rail station and a parking garage at South Bellevue P&R; aerial, at-grade and retained-cut guideway along Bellevue Way SE and 112th Avenue SE. [Design-bid-build]

Status: Advertise Fall 2015

E330 Downtown Bellevue Tunnel – SEM Tunneling along 110th Ave. NE in Downtown Bellevue. [Design-bidbuild]

Status: Advertise Summer 2015

rail stations; aerial, at-grade and retained-cut guideway from Downtown Bellevue, over I-405 to 124th Ave. NE. [Heavy Civil GC/CM]

Status: Preconstruction Services contract awarded

guideway from 124th Ave. NE to NE 20th. [Design-bidbuild]

Status: Advertise 2016

E360 SR520 to Redmond Technology Center – Two light rail station; aerial and retained-cut guideway along SR-520 in the Overlake area of Bellevue and Redmond. [Design-Buildl

Status: Procurement underway

**E750 Systems** – Light rail systems elements, including Traction Power Electrification, Overhead Catenary System, Train Signals and Communication System. Combined with Northgate Link N830. [Heavy Civil GC/CM] Status: Advertise Summer 2015

## I-90 (Stage 3A) HOV Ramp Construction

#### **Key Activities**

- Continued work on Phase 3C (last phase of the construction) which includes permanent striping, installing sign bridges and other minor work.
- Continued layout and installation of permanent stripping.
- Remaining work is the erection of the sign bridges and signs. Contract time is suspended until the sign bridges arrive in late July.

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#### Scope

Limits: South 200th Link Extension consists of 1.6-

> mile extension of light rail from the SeaTac/Airport Station to South 200th

Street.

Alignment: The extension continues in an aerial config-

uration heading south of the existing SeaTac/Airport Station, east of Air Cargo Road across South 188th Street, and continuing south along the east side of 28th Avenue South to the elevated Angle Lake Station located at South 200th Street. A passenger pickup/drop-off area, bus transfer, plaza, and a minimum 700-space structured park and ride facility will be located at Angle Lake Station. Up to 400 additional spaces may be developed for interim parking while Angle Lake Station is the interim southern terminus of the Link system. Guideway/Station and Parking Garage/ Plaza are being delivered under a Design Build contract.

Station: Angle Lake Station is located at South 200<sup>th</sup>

Street.

Signals, track electrification, and SCADA **Systems:** 

communications

**Budget:** \$383.2 Million Service: September 2016

Phase: Final Design and Construction



Map of S. 200th Link Extension.

## **Key Project Activities**

- Design Build Guideway and Station (S440): Major construction activities continue for Station/Plaza, segment hanging and track installation on guideway. Coordinating with City of SeaTac on detention facility and electrical permit issues. Held Risk Register review.
- Design Build Parking Garage (S445): 100% Architectural design package completed and IFC package continues, expected completion next month. Construction continues with garage structure of elevated floors. BMS system design has been revised.
- Roadway Improvements (S447): TCE's on four ROW properties were signed and issued for construction work to begin in those areas. Design issues are impeding Contractor performance.
- Military Road/South 200th (S446): Designer continues working on 100% submittal.

## **Closely Monitored Issues**

• None this period.

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## **Project Cost Summary**

The S. 200th Link Extension project cost is summarized in two cost tables. The first table in in accordance with Sound Transit's Work Breakdown Structure (WBS), and in the second table, cost is summarize in accordance to the FTA's Standard Cost Categories (SCC) format. (Both tables' figures in millions).

WBS Phase Elements	Baseline Budget	Current Adopted Budget	Commitment to Date*	Incurred to Date	Est. Final Cost (EFC)	Adopted Budget vs. EFC
ADMINISTRATION	\$16.1	\$15.9	\$10.9	\$10.7	\$15.9	\$0.0
PRELIMINARY ENGINEERING	\$5.9	\$5.7	\$5.7	\$5.7	\$5.7	\$0.0
FINAL DESIGN	\$20.0	\$9.9	\$8.4	\$8.7	\$9.9	\$0.0
CONSTRUCTION SERVICES	\$15.1	\$17.3	\$15.0	\$8.6	\$17.1	\$0.2
3rd PARTY AGREEMENTS	\$6.9	\$7.1	\$5.6	\$3.0	\$7.1	\$0.0
CONSTRUCTION	\$275.7	\$283.8	\$225.3	\$160.2	\$263.5	\$20.3
VEHICLES	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$43.5	\$43.5	\$42.6	\$37.2	\$43.5	\$0.0
Capital Total	\$383.2	\$383.2	\$313.4	\$234.2	\$362.7	\$20.5
FINANCE COST	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Project Total	\$383.2	\$383.2	\$313.4	\$234.2	\$362.7	\$20.5

The overall project Estimated Final Cost (EFC) for this period continues to reflect \$362.7M. This period incurred cost increased approximately \$10.8M, of this \$9.5M was for construction activities. S440 Guideway & Station Design Build contract was \$7M, S445 Parking Garage Design Build contract was \$2M, and S447 was \$0.5M. Construction services were \$0.4M and the remaining expenditures for \$0.9M were related to ROW, third party, final design and administrative charges.

The EFC grouped by SCC is consistent at \$362.7M and remains unchanged from last month, indicating the work remaining can be achieved under the adopted budget.

Project Elements by SCC	Baseline Budget	Current Adopted Budget	Commit- ment to Date*	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
10 Guideway & Track Elements	\$144.8	\$133.0	\$98.5	\$76.2	\$118.1	\$14.9
20 Stations	\$46.4	\$51.3	\$38.8	\$21.0	\$37.9	\$13.5
30 Support Facilities: Yards, Shops	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$34.6	\$51.1	\$49.4	\$29.7	\$53.3	-\$2.2
50 Systems	\$30.8	\$19.9	\$19.1	\$14.5	\$20.1	-\$0.2
Construction Subtotal (SCC 10-50)	\$256.6	\$255.3	\$205.8	\$141.5	\$229.4	\$26.0
60 Row, Land, Existing Improvements	\$43.5	\$43.5	\$42.6	\$37.2	\$43.5	\$0.0
70 Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
80 Professional Services	\$64.1	\$70.5	\$65.1	\$55.5	\$76.4	-\$5.9
90 Unallocated Contingency	\$19.0	\$13.8	\$0.0	\$0.0	\$13.4	\$0.5
Project Total (SCC 10-90)	\$383.2	\$383.2	\$313.4	\$234.2	\$362.7	\$20.5
100 Finance Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Project Total (SCC 10-90)	\$383.2	\$383.2	\$313.4	\$234.2	\$362.7	\$20.5

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### **Cost Contingency Management**

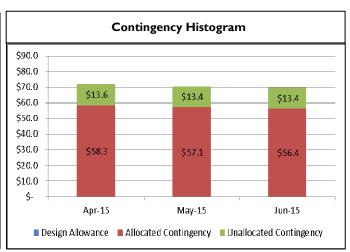
The overall project contingency balance as of June is \$70.5M.

**Design Allowance (DA):** After baselining the project the design allowance of \$26.7M was added to the base estimate for the design build work package. There will be no future reporting of DA.

**Allocated Contingency (AC)**: This period the AC shows a current balance of \$56.4M, a decrease of \$0.7M from the previous period. The reduction was primarily due to a change order from \$447 contract (\$55K), ROW acquisition/easement (\$270K), and a new utility relocation task order agreements & administration charges.

*Unallocated Contingency (UAC)*: This period the UAC was reduced by \$0.2M to address Safety Certification support, a revised balance of approximately \$13.4M.

Contingen-	Base	eline	Cı	ırrent
cy Status	Amount	% of Total	Amount	% of Work Remaining
Design Allowance	\$26.7	7.0%	\$ -	0.0%
Allocated Contingency	\$29.8	8.0%	\$56.4	43.9%
Unallocated Contingency	\$19.0	5.0%	\$13.4	10.4%
Total	\$75.5	20.0%	\$69.8	54.3%



## Risk Management

The South 200th Link Extension Risk Management Plan (RMP) established a risk management and oversight process for assessing and monitoring risks to determine how risks have been reduced or mitigated. RMP captures scope growth, schedule delay, and cost growth risks that could arise during any phase of the project and potentially affect parts of the project scope. On a quarterly basis, the South 200th Link Extension team reviews and updates risk to reflect conditions. Below is a list of the top five major risk review items identified through 2nd QTR 2015:

- Construction: Delays due to City of SeaTac electrical inspections (S440).
- Third Party: City of SeaTac permit approval of crucial elements of work at times is a hindrance.
- Construction: Delays due to L&I inspections and Certificate of Occupancy for elevators (\$440 and \$445).
- Construction: Contract documents with design errors could impact cost and schedule (S447).
- Construction: Utilities damaged impacting Alaska Airlines (S447).

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## **Project Schedule**

S440 span erection is nearly done. S445 DB Parking Garage Design/Builder continues construction of the parking garage structure. The S. 200th Master Schedule has been tied to the Rail Activation Schedule but commissioning activities in the S440 schedule require more detail and logic to be tied properly. The S. 200th Link Extension anticipated service launch is September 2016. (See Project Schedule Summary below).

I Activation Schedule  Ooth Link Extension  17 - South 200th Link Extension - CPM Schedule  10 South 200th Link Extension - Update  15 S. 200th Link Extension Parking Garage Design-Build  ESIGN	Start	Finish	2015					2016		
			Q4	Q1	Q2	015   Q3	Q4	Q1	710 Q2	
Uxxx - Rail Activation	30-Sep-13 A	31-Oct-17								
Rail Activation Schedule	30-Sep-13 A	31-Oct-17								
S 200th Link Extension	28-Sep-12 A	25-Apr-16							<b>—</b>	
S447 - South 200th Link Extension - CPM Schedule	19-Mar-15 A	18-Feb-16		•						
\$440 South 200th Link Extension - Update	28-Sep-12 A	25-Apr-16							<b>—</b>	
\$445 S. 200th Link Extension Parking Garage Design-Build	03-Mar-14 A	29-Mar-16							,	
DESIGN	03-Mar-14 A	29-Mar-16							7	
CONSTRUCTION	03-Mar-14 A	29-Mar-16							7	



Segment installation at \$440.

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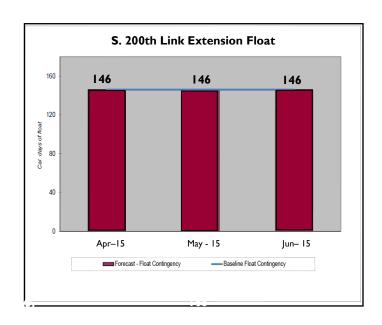
## **Critical Path Analysis**

The critical path of S. 200th Link Extension runs through S440 which commences with the procurement of the guide-way erection truss, guideway erection. The critical path this period runs through procurement of OCS and Communications equipment through installation and commissioning and system wide testing and integration and Pre-Revenue Service.

vity Name	Start	Finish							
			Q4	01		015			116
Uxxx - Rail Activation	16-Sep-15	24-Sep-16	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Rail Activation Schedule	16-Sep-15	24-Sep-16					•		
Pre-Revenue Service	13-Apr-16	24-Sep-16							•
Pre-Revenue Service - S. 200th Link	13-Apr-16	24-Sep-16							_
Pre-Revenue Service - S. 200th	13-Apr-16	12-May-16							$\overline{}$
Revenue Service Float - S. 200th	13-May-16	24-Sep-16							
Task Group 3.0 - System Testing and Commissioning	16-Sep-15	10-Mar-16						<del></del>	
3.2 - System Testing and Commissioning - Testing	16-Sep-15	10-Mar-16						<del></del>	
S200th - System Integration and Testing	16-Sep-15	10-Mar-16					_	_	
S 200th Link Extension	06-Apr-15 A	01-Feb-16			·			—	
S440 South 200th Link Extension - Update	06-Apr-15 A	01-Feb-16						<del></del>	
Construction	06-Apr-15 A	01-Feb-16						<del></del>	
Trackwork and Plinths	06-Apr-15 A	22-May-15 A			$\overline{}$				
Systems	01-Jul-15	01-Feb-16						<del>   </del>	
Overhead Catenary	01-Jul-15	01-Feb-16							

#### **Critical Path Float**

The float contingency for S. 200th Link Extension is at 146 days.

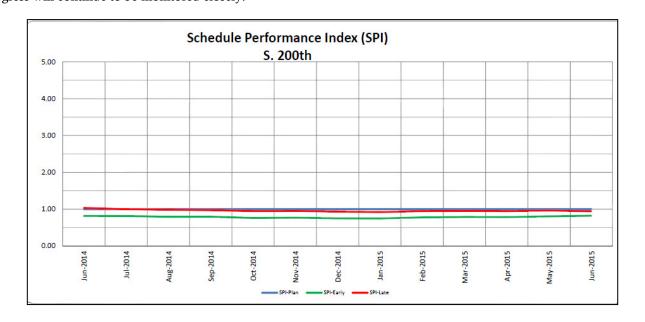


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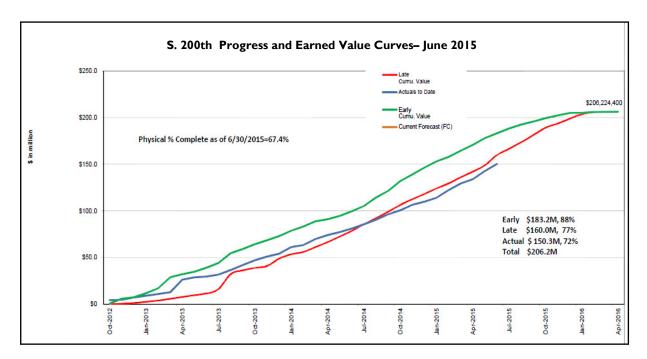
#### **Schedule Performance Index**

The Schedule Performance Index (SPI) for S.200th remains the same this period at 0.82 as production at S445 is maintaining and station construction and rail installation continues at S440. Systems installers are on site and OCS installation will commence next period. Guideway finishes are ongoing. (See details on individual contract sections.) Progress will continue to be monitored closely.



## **Cost Progress Analysis**

Overall S. 200th physical % complete is at 67%. Graphic below is a representation of the progress of major construction contracts cost compared to the early/late projections. S440 will be the main driver for performance levels for S. 200th.



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## Right-of-Way

The South 200th Link Extension (S440) will extend from the SeaTac Airport Station along an elevated guideway to a station combined with a park and ride garage at South 200th Street. The South 200th Link Extension involves the acquisition of a range of property interests, including fee acquisitions, permanent and temporary easements, and both business and residential relocations. S447 covers road and utility improvements necessary as a result of the increased traffic that is anticipated with the new station. S447 initially covered 28 parcels of which 10 were previously certified for S440. Six (6) parcels that had ST acquisitions on S440 will also have acquisitions on S447. The right-of-way program is summarized below.

Line Section	Total Parcels Certi- fied*	Offers Made	Signed Agree- ments	Admin. Settle- ments	Posses- sion and Use	Closings to date	Baseline Relocations Required	Relocations Completed
S440	64	59	0	0	0	56	8	8
S445	1	1	0	0	0	1	0	0
S447	27	16	0	0	1	15	0	0
Total	92	76	0	0	1	72	8	8

Note: \*Seven of these parcels are in two different contracts and three parcels are in the S440 contract twice. These 10 parcels are counted twice as they have 2 different milestones.

*S440 DB Guideway and Station* - Worked with owner on edits to easement documents (3 parcels); submitted payment request for first acquisition TCE extension.

S445 Parking Garage and Plaza-Completed.

S447 Station Area Roadways - Four Port of Seattle parcels and two American Airlines parcels were closed. One parcel granted P & U.

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## **Construction Safety**

Safety Statistics for the reporting period and year-to-date are summarized in the table below.

Data/Measure	June 2015	Year to Date	Project to Date
Recordable Injury/Illness Cases	1	4	12
Days Away From Work Cases	1	1	1
Total Days Away From Work	4	4	4
Restricted or Modified Work Cases	0	2	7
Total Days Restricted or Modified Work	2	7	207
First Aid Cases	0	3	36
Reported Near Mishaps	1	3	20
Average Number of Employees on Worksite	153	-	-
Total # of Hours (GC & Subs)	17,237	159,613	889,874
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	11.60	5.01	2.70
DART Rate	11.60	3.76	1.80
Recordable National Average	3.80	3.80	3.80
DART National Average	2.20	2.20	2.20
Recordable WA State Average	7.20	7.20	7.20
DART WA State Average	3.30	3.30	3.30

## **Quality Assurance Activities**

#### Activities

• S440: MRB has disposed as Acceptable the following 1) seven "Repair" NCR regarding structural repairs, unsound concrete and exposed rebar, duct misalignment, blocked tendons and concrete voids. 2) three "Use as Is" NCRs wall thicknesses outside of the tolerance; precast segments with duct wobble, and tie down pads for a column placed with old concrete. 3) Two NCRs were dispositioned without requiring MRB approval as "Repair". 4) One NCR was dispositioned with requiring MRB approval as "Rework".

#### <u>Issues</u>

- Recurring NCRs.
- S445 Surveillance Report with 3 observations and no findings.

#### **Summary**

Description	June 2015	Notes	
No. of Audits Planned	0	None	
No. of Audits Completed	0	None	
Reports in Progress	I	S446– 90% Design Submit- tals; S440 RE Audit	
No. of Audits Post- poned	0	None	

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## **Community Outreach**

 Met with business owner about upcoming restoration work.

### **Sound Transit Board Actions**

Board Actions	Description	Date
	None to report.	

## **Contract Packages**

The South 200<sup>th</sup> Link Extension consists of two major contract packages, both by Design Build methods, and two minor contracts. Below is a brief scope description of each package.

- **S440 Design Build Guideway and Station** This contract involves the design and construction of an elevated guideway (1.6 miles) and station, site work, civil /roadwork, and systems. See S440 contract page for detailed information on the following page.
- S445 Design Build Parking Garage and Plaza This contract involves the design and construction of a parking garage (700 space structure), passenger pick-up and drop-off lot, plaza area, retail space and surface parking. See S445 contract page for details.
- **S446 Military Road & South 200**<sup>th</sup> **Street Improvements** This contract package consists of construction of roadway and traffic signals work.
- **S447 Station Area Roadways & Surface Parking** This contract package consists of station area roadway, surface parking, and non-motorized Improvements (sidewalks, traffic signals, pedestrian/bicycle connection, roadwork).

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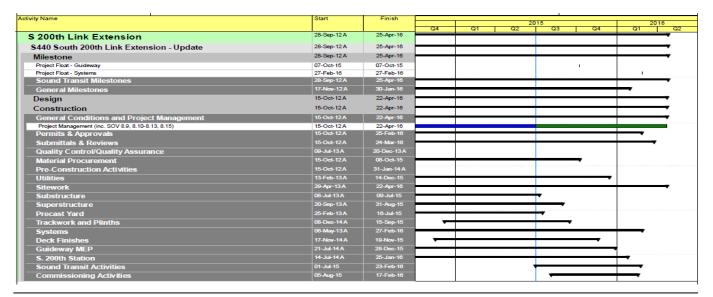
## S440 Contract—Design -Build (Guideway and Station)

#### **Current Progress**

Drilled shaft construction is complete. Column erection is completed. Casting yard production is 100% complete. Span Erection by the gantry is progressing and is approx. 97% complete. Plinth and Rail installation has commenced with plinth installation at 83%. Overall the progress of this contract represents 76% physical completion as compared to 80% time to date.

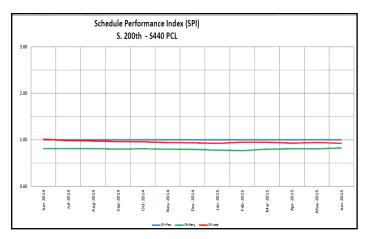
#### Schedule/Critical Path

The schedule update for May has been received. Milestone #5, Guideway Commissioning, is reporting 76 days of negative float as commissioning activities begin to be tied properly in the schedule; 30 days of owner controlled float are still intact. Milestone #7, Systems Commissioning is reporting 1 day of negative float but commissioning activities are not tied properly. Milestone #10 (Substantial Completion) is reporting zero days of float. The critical path this period runs through the Communications activities and System Testing and Integration. Schedule coordination with the System Integration Testing Plan is expected to continue. Guideway and Track systems will be tracked closely. Production rates will also be monitored closely.



#### Schedule Performance Index

The SPI has risen slightly this period with station and plinth and rail production improving but remains below 1.0 at 0.85. Delays to the commencement of station construction, span erection, and an aggressive baseline schedule continue to plague S440. The Contractor has been able to absorb these delays by shifting the various work sequences. Testing and Commissioning Activities for the station have been added to the schedule. Train Systems commissioning activities are expected to be detailed in future updates.



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#### **Key Activities**

#### Current Period

- Angle Lake Station/Plaza activities: Continue elevator/ escalator installation; continue roofing installation; continue painting structural steel; continue MEP installation; form TPSS walls.
- Continued Building Management System (BMS) design.
- Continue plinth and trackwork installation.
- Continue guideway drainage installation.
- Continue cable tray and grounding.
- Continue handrail and guardrail installation.
- Continue aligning permanent bearings, grouting, post tension spans, closure pours, seismic buffers and shear keys.
- Continue Gantry segmental span by span erection on Port of Seattle ROW; 2 spans remain to be completed.
- Began Special Track for Pocket Track.
- PSE relocation of transmission lines.
- OCS poles were delivered.
- Began site restoration.

#### Next Period

- Complete span erection for the project.
- Begin disassembling Gantry.
- Continue Station work-elevators/escalator installation; painting structural steel; roofing installation; MEP installation; art wall installation.
- Continue BMS Design.
- Continue plinth, track work and drainage installation.
- Continue Cable Tray and grounding.
- Continue other miscellaneous work: align permanent bearings; post tensioning, grout, seismic buffers/shear keys.
- Continue site restoration.

#### **Closely Monitored Issues**

- Station electrical permit meetings continue with City of SeaTac Inspector.
- Portions of final systems points (Fire Alarm and Station Control) list for U830 SCADA programing have yet to be submitted.
- City of SeaTac (COS) has indicated that the King County Storm Water codes may require adding detention facilities to the previously approved S440 storm water IFC and permitted design. DB Contractor working on low-cost solution. Additional inspection is underway to determine configuration of existing SD piping.

## **Cost Summary**

Present Financial Status	Amount
S440 Contractor—PCL Civil Contractors, Inc.	
Original Contract Value	\$169,000,000
Change Order Value	\$3,696,704
Current Contract Value	\$172,696,704
Total Actual Cost (Amount Billed)	\$134,797,919
Financial Percent Complete:	78%
Physical Percent Complete:	77%
Authorized Contingency	\$13,520,000
Contingency Drawdown	\$3,696,704
Contingency Index*	2.8



Preparing to begin with the segment erection.

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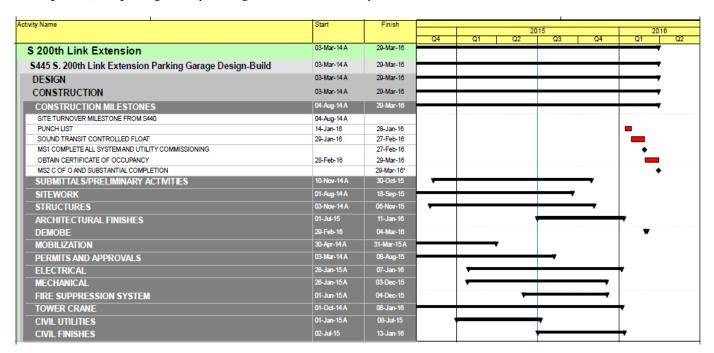
## S445 Contract—Design -Build Parking Garage

#### **Current Progress**

At S445, elevated slab construction is now underway. Milestone #1 and #2 have been revised due to weather delays and contaminated soil issues. Twenty-five calendar days have now been added to the schedule in this update but delays continue for S445. Production will be watched closely as the Contractor comes out of the ground. Overall the progress of this contract represents 48% physical completion; the Design element is 90% complete and Construction is 36.06%.

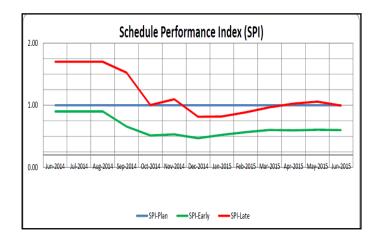
#### Schedule/Critical Path

The May schedule update has been submitted. Elevated slab installation is well underway. The critical path this period runs through Levels 1 through 7 deck form and pours and through elevator installation. Milestone #2 Substantial Completion, is reporting 47 days of negative float with 30 days of owner controlled float intact.



#### Schedule Performance Index

The SPI has fallen slightly this period to 0.60 based on early forecasts. Delays to elevated slab production continues and additional time required for elevator has been added to the critical path.



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#### **Key Activities**

#### Current Period

- Architectural design package 100% was reviewed by ST and City of SeaTac; and comments were submitted to Contractor.
- Continued design and construction interface coordination meetings with S440 DB Contractor, and continue construction coordination with S447 contractor.
- Continue BMS design.
- Continued excavation, formwork, rebar and pour garage footings.
- Continued formwork, rebar and pour retaining walls.
- Poured and stressed elevated deck and beams (Level 3 & 4).
- Continued underground installation of electrical and plumbing.
- Continued water, storm, and irrigation utility work in little 28th.
- Continue ongoing survey and control.

#### Next Period

- Continue design and coordination meetings.
- Continue IFC Architectural.
- Continue BMS design.
- Continue with ongoing survey and control.
- Install main stair from Level 3 to Level 4.
- Continue form, rebar and pour garage footings.
- Continue form, rebar, pour, and backfill retaining walls.
- Continue installation of underground and elevated electrical and plumbing.
- Continue building elevated deck and beam formwork.
- Pour pedestrian walkway.

#### **Closely Monitored Issues**

ST approved to simplify the requirements of the parking garage systems based on maintenance responsibilities. The affected parking garage systems include Communications, CCTV, BMS, Fire Alarm, and Access Control. ST will finalize revised contract requirements for the agency initiated change order.

## **Cost Summary**

Present Financial Status	Amount
S445 Contractor—Harbor Pacific/Graham	
Original Contract Value	\$29,978,000
Change Order Value	\$1,344,203
Current Contract Value	\$31,322,203
Total Actual Cost (Amount Billed)	\$14,866,549
Financial Percent Complete:	47%
Physical Percent Complete:	48%
Authorized Contingency	\$2,398,240
Contingency Drawdown	\$1,344,203
Contingency Index*	0.84



Forming in progress for Level 3 cantilever walkway of the garage.

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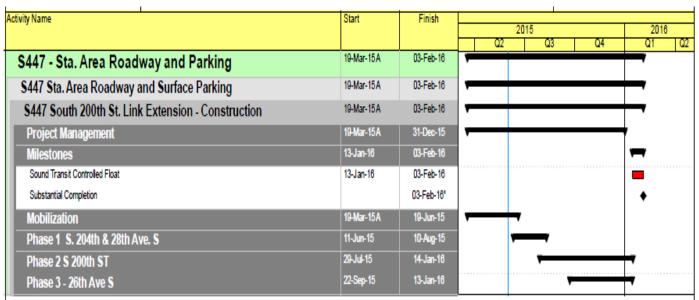
## S447 Contract - Station Area Roadway Improvements and Surface Parking

#### **Current Progress**

In June, S447 Contractor continued curb and gutter work on S. 204th and storm drainage on 28th Ave. S. Delay claim to NTP is still in negotiations. Overall this contract is 38% physical completion and 37% schedule complete.

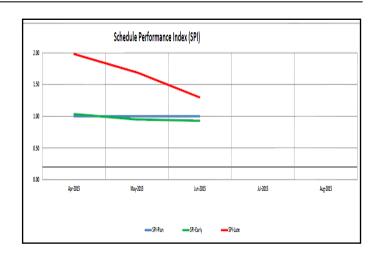
#### Schedule/Critical Path

The June schedule update has been submitted.



#### **Schedule Performance Index**

The SPI for S447 has dropped to 0.93 this period due to delays caused by ROW availability.



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## Link Light Rail S. 200th Link Extension – Design-Build



#### **Key Activities**

#### Current Period

- Continue weekly construction progress meetings.
- Continue coordination meetings with S440 and S445 Contractors.
- Potholing for utilities.
- Installation of Storm Drains and Catch Basins.
- Pour, strip, form and backfill Wall 8 and 9.
- Grade/install curb and sidewalk on S. 204<sup>th</sup> St, East of 28th.
- Modify existing drainage structure on 204<sup>th</sup> Ave S.
- Power pole relocation work by PSE.

#### Next Period

- Continue retaining wall work.
- Continue installation of storm drain lines.
- Grade the parking lot south of Angle Lake Station.
- Regrade 28<sup>th</sup> Ave.

#### **Closely Monitored Issues**

• Multiple/continuing design errors and omissions are impacting schedule and cost. TCE and permit delays have already occurred.

## **Cost Summary**

Present Financial Status	Amount
S447 Contractor – Johansen Excavating, Inc	
Original Contract Value	\$8,426,400
Change Order Value	\$54,790
Current Contract Value	\$8,481,190
Total Actual Cost (Amount Billed)	\$2,183,131
Financial Percent Complete:	26%
Physical Percent Complete:	23%
Authorized Contingency	\$842,640
Contingency Drawdown	\$54,790
Contingency Index*	3.5



Installing a catch basin at 28th Avenue.

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## Link Light Rail Federal Way Link Extension

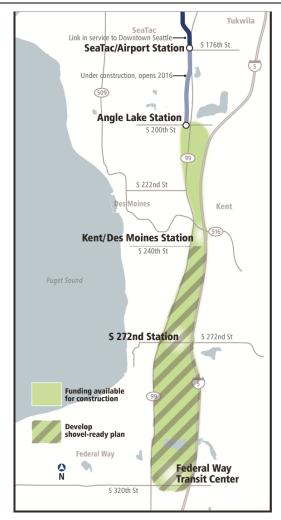


### Scope

The Federal Way Link Extension includes alternatives analysis, environmental work and conceptual engineering for an extension of Link Light Rail from S. 200<sup>th</sup> St. in SeaTac to the Federal Way Transit Center. Preliminary engineering will be performed only for the segment from S. 200<sup>th</sup> St. to Kent/Des Moines (in the vicinity of Highline College).

### **Key Project Activities/Issues**

- Completed Phase 1 work (Alternatives Analysis) in Sept. 2013.
- DEIS alternatives identified by the Board in Sept. 2013.
- Executed Phase 2 contract amendment with HDR for Conceptual Engineering and Draft EIS work in October 2013.
- Published Draft EIS on April 10. Comment period ended May 26.
- Updated project schedule to reflect Sound Transit Board identification of a Preferred Alternative in July 2015.



Map of Federal Way Link Extension.

## **Project Cost Summary**

The Federal Way Link Extension is currently funded through the completion of preliminary engineering (PE) and environmental documentation, with the exception of the segment from Kent/Des Moines to Federal Way, which is only funded through environmental documentation. Board approval for additional funding for final design and construction of the segment from S. 200<sup>th</sup> St. to Kent/Des Moines will be sought upon completion of funded work. Table (below) figures in millions.

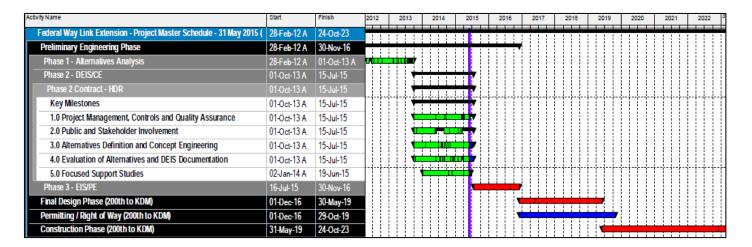
Phase	Adopted Budget			Forecasts and Trends	Estimated Final Cost (EFC)	Budget Versus EFC
Administration	\$9.4	\$2.6	\$2.6	\$6.8	\$9.4	\$0.0
Preliminary Engineering	\$30.9	\$13.3	\$12.0	\$17.6	\$30.9	\$0.0
Third Parties	\$1.6	\$0.2	\$0.1	\$1.4	\$1.6	\$0.0
Right of Way	\$1.0	\$0.2	\$0.2	\$0.8	\$1.0	\$0.0
Total	\$42.9	\$16.3	\$14.9	\$26.6	\$42.9	\$0.0

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## Link Light Rail Federal Way Link Extension

### **Project Schedule**

The Final EIS and Preliminary Engineering will run through 4th QTR 2016. It is anticipated that the Board will adopt the project and the FTA will issue the ROD in late 2016.



#### **Sound Transit Board Actions**

Board motions and resolutions directly related to Federal Way Link Extension is summarized in the table below.

Motion Number	Description	Date
	None to report.	

## Environmental

 Published Draft EIS in April. Comment period ended in May 2015.

### **Community Outreach**

- Project Team distributed the Comment Summary Report from the draft EIS comment period.
- Emailed notification of current project status and opportunity for public involvement to list-serv.

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## Link Light Rail Federal Way Link Extension—Conceptual Engineering



## **Phase 2 Conceptual Engineering**

In October 2013, Sound Transit executed an amendment to the professional services agreement with HDR Engineering, Inc. for Phase 2 professional services, including Conceptual Engineering and a Draft Environmental Impact Statement.

#### Phase 2 Key Activities

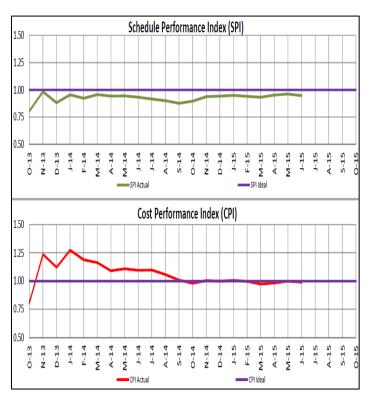
- Presented Draft EIS comments to Sound Transit Board; anticipate Board will identify preferred alternative in July 2015.
- Completed development of Phase 3 (PE and Final EIS) scope of work.
- Continued advancement of permitting activities for Phase 3 field investigations.

#### **Phase 2 Schedule Performance**

The cumulative Schedule Performance Index (SPI) is 0.95 through June, indicating the overall amount of work accomplished is slightly less than planned. Review of the critical path indicates that Board identification of a preferred alternative (& Phase 3 contract approval) will be in July 2015. Although this represents an extension of the Phase 2 schedule, the project team still expects to complete Phase 3 PE work on schedule in late 2016.

#### **Phase 2 Cost Performance**

\$11.7M of the total contract amount, approximately 90%, has been spent through June 2015. Phase 2 expenditures through June totaled \$8.5M, approximately 86% of the Phase 2 contract total. The Phase 2 percent complete reported at the end of June is 85%, with an earned value of \$8.4M. The cumulative Cost Performance Index (CPI) through June is 0.99, indicating costs are nearly equal to work accomplished. Based on the current trend, the Phase 2 cost is expected to be on budget. Currently there is no indication that a three month schedule extension will result in increased costs to Phase 2.



Phase 2 Performance	Previous Period	Current Period	Cumulative To Date
Amount Invoiced	\$8,291,974	\$161,770	\$8,453,744
% Spent	84%	2%	86%
Earned Value	\$8,293,498	\$79,493	\$8,372,991
% Complete	84%	1%	85%
SPI	0.96	0.38	0.95
СРІ	1.00	0.49	0.99

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## Link Light Rail Tacoma Link Expansion



### Scope

In cooperation with the City of Tacoma and Pierce Transit, Sound Transit is studying the potential of expanding the Tacoma Link light rail system in the context of the City and Pierce Transit service and capital plans. A technical advisory committee comprised of the City, Pierce Transit and Sound Transit staff convened to provide technical feedback and guidance throughout the Alternative Analysis (AA) process. Sound Transit, the City of Tacoma and Pierce Transit signed a cooperative agreement term sheet. In February 2014, the Tacoma City Council unanimously recommended and the Sound Transit Board unanimously identified one alignment to undergo environmental review.



Tacoma Link

### **Key Project Activities**

- During 1st QTR 2014 Sound Transit executed an amendment to the professional services contract with CH2M Hill in March to perform conceptual engineering and environmental review and to assist in the preparation of the Small Starts Grant application. The initial Small Starts Rating submittal was submitted in September 2014.
- Preliminary Engineering (PE): Draft PE Plans submitted. Final PE Plans to be submitted in September 2015. Constructability Review workshop was conducted in July 2015.
- Environmental: The FTA made a preliminary decision to proceed with DCE. The environmental review process is scheduled to be completed in 3rd QTR 2015.

## **Project Cost Summary**

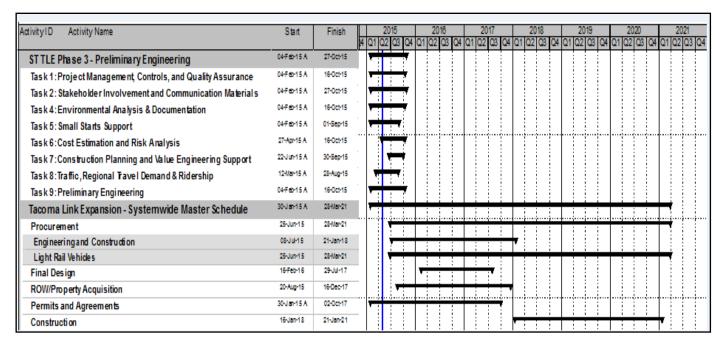
The Tacoma Link Alternatives Analysis is currently funded through the completion of the alternatives analysis, PE and Environmental Documentation. Funding included in the ST2 financial plan represents a maximum capital contribution by Sound Transit to the overall cost of expanding Tacoma Link if other public or private entities provide additional funding. Board approval for funding environmental documentation, preliminary engineering, final design and construction will be sought upon completion of the alternatives analysis. Board approval for funding preliminary engineering, final design and construction will be sought upon completion of the environmental documentation, a project funding strategy and agreements with funding partners. (Table in millions.)

Phase	Adopted Budget	Commitment to Date	Incurred Forecasts to Date and Trends		Estimated Final Cost (EFC)	Budget Versus EFC
Administration	\$1.8	\$1.4	\$1.4	\$0.5	\$1.8	\$0.0
Preliminary Engineering	\$5.9	\$5.3	\$3.9	\$0.5	\$5.9	\$0.0
Right of Way	\$0.1	\$0.0	\$0.0	\$0.0	\$0.1	\$0.0
Total	\$7.8	\$6.7	\$5.3	\$1.0	\$7.8	\$0.0

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### **Project Schedule**

The Alternative Analysis was completed by the 1st QTR 2014. The project schedule is presented below.



#### **Environmental**

 Sound Transit identified a preferred alignment that will be evaluated as part of the environmental process.

## **Community Outreach**

• None to report.

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## Link Light Rail Tacoma Link Expansion—Conceptual Engineering



### **Phase 2 Conceptual Engineering**

In March 2014, Sound Transit executed an amendment to the professional services agreement with CH2M Hill, Inc. for Phase 2 professional services, including conceptual engineering and environmental work.

## Phase 2 Key Activities

- Continued public outreach efforts.
- Prepared detailed Phase 2 work plan and schedule.
- Prepared design criteria and various conceptual engineering technical memos.
- Drafted methodology for the environmental analysis.
- Continued to refine the design of the E-1 alternative.

#### Phase 2 Schedule and Cost Performance

This project will begin reporting earned value data for the Phase 2 contract soon.

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## Link Light Rail Link Operations and Maintenance Satellite Facility



### Scope

Sound Transit is reviewing and evaluating current and future light rail storage and maintenance requirements to support the development, design, and construction of a future light rail operations and maintenance facility for proposed system expansion. Sound Transit Board identified Draft Environmental Impact Statement (DEIS) alternatives in 2012.

### **Key Project Activities**

- DEIS published in May 2014 and comment period closed June 23, 2014.
- Sound Transit Board identified preferred alternative July 24, 2014.
- MOU with the City of Bellevue approved by the Bellevue City Council and Sound Transit Board in April 2015.
- Issues with obtaining ROE's for two parcels. To date, owners have denied Sound Transit ROE requests limiting the ability to survey the parcels and conduct geotechnical exploration.
- Expediting Environmental activities for publication of the FEIS this fall.

## **Program Cost**

The Link Operations and Maintenance Satellite Facility (OMSF) project is currently funded through the completion of Preliminary Engineering (PE) and environmental documentation. ST Board approval for additional funding for Final Design and Construction will be sought upon completion of PE. Table (below) figures in millions.

Phase	Adopted Budget	Commit- ment to Date	Incurred to Date	Forecasts and Trends	Estimated Final Cost (EFC)	Budget Versus EFC
Administration	\$3.2	\$1.0	\$1.0	\$2.3	\$3.2	\$0.0
Preliminary Engineering	\$10.0	\$8.6	<b>\$5.1</b>	\$1.4	\$10.0	\$0.0
3 <sup>rd</sup> Party Agreements	\$0.4	\$0.0	\$0.0	\$0.4	\$0.4	\$0.0
Right of Way	\$23.2	\$23.2	\$23.2	\$0.0	\$23.2	\$0.0
Total	\$36.8	\$32.7	\$29.2	\$4.1	\$36.8	\$0.0

## **Program Schedule**

The project schedule is presented below. The extension of Phase 1 completion to August 2014 required that the remaining preliminary engineering and final design work be complete by September 2016 in order to maintain the current construction and startup schedule. Sound Transit is preparing a conceptual schedule to show the remaining preliminary engineering duration and investigating alternative delivery methods.

Activity Name	Start	Finish	2014	2015	2016	2017	2018	2019	2020	2021	202.2
			Q2 Q3 Q4	@1 @2 @3 @4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	@1 @2 @3 @4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4 (
OMSF Phase 2	08-Sep-14A	11-Mar-16	-		7						
Project Management	08-Sep-14A	11-Mar-16	_		_						
Quality Assurance and Control	08-Sep-14A	11-Feb-16	_		7						
En vironmental Analysis and Documentation	08-Sep-14A	11-Mar-16	_		7						
Preliminary Engineering	08-Sep-14A	11-Feb-16	_		7	<u>:</u>	!				
Cost Estimation and Risk Analysis	08-Sep-14A	11-Feb-16			7						
Construction Planning and Value Engineering Support	16-Jun-15	16-Sep-15		-							i
Preferred Alternative Refinement	27-Oct-14 A	29-Jan-15 A	_								
OMSF - Project Master Schedule	05-Jan-12 A	10-Feb-22									7
Procurement (assumes GC/CM)	26-Aug-15	16-Aug-17		_		_					
Final Design	14-Apr-16	30-Aug-17			-		·				
Right of Way	05-Jan-12 A	07-Nov-18					_				
Construction	07-Nov-18	10-Feb-22									7

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## Link Light Rail Link Operations and Maintenance Satellite Facility

## Phase 2 Preliminary Engineering and FEIS

Sound Transit executed a professional services agreement with Huitt-Zollars, Inc. for civil engineering and architectural design services and issued NTP for Phase 2, Preliminary Engineering and FEIS for the Link Operations and Maintenance Satellite Facility (OMSF) project in September 2014.

### Phase 2 Key Activities

- Expediting Cultural Resources and Biological Assessment Technical Reports.
- ROE and environmental coordination revisions to geotechnical site investigation plan.
- Completed field survey of OMSF site. Completed geotechnical borings and continued with sample analysis.
- Completed MOU with City of Bellevue.
- Consultant Delivered Interim PE Design Documents.
- Submitted 2nd Draft of FEIS Document for FTA Review

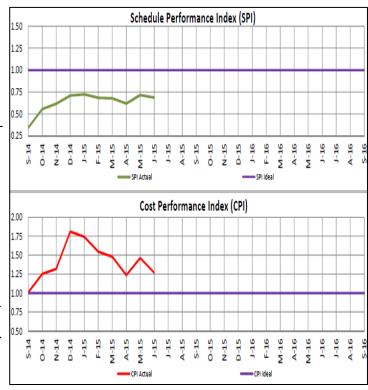
#### Phase 2 Schedule Performance

Change Order 004 incorporated Phase 2 of the project on September 2014.

The cumulative Schedule Performance Index (SPI) trends at 0.69 through June 2015, which means that cumulative work accomplished is less than the planned work. Completing the Final EIS is the critical path activity. Completion of the preliminary engineering plans, which were delayed in order to focus efforts on the environmental work, will increase schedule performance in upcoming periods.



\$2.1M of the total Phase 2 contract amount, approximately 38%, was spent through June 2015. The Phase 2 percent complete is 49%, with an earned value of \$2.6M. The cumulative Cost Performance Index (CPI) is 1.27, meaning that expenditures are less than the earned value. Based on these trends, the final cost is expected to be under the contract budget of \$5.3M.



Phase 2 Performance	Previous Period	Current Period	Cumulative To Date
Amount Invoiced	\$1,634,584	\$416,649	\$2,051,233
% Spent	31%	8%	39%
Earned Value	\$2,394,843	\$208,167	\$2,603,010
% Complete	45%	4%	49%
SPI	0.72	0.47	0.69
CPI	1.47	0.50	1.27

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## **Link Light Rail Staffing Report**



## **Staffing Variance Report**

#### **Recruiting Activity**

During May, the following positions the following positions were filled to support the Link capital program:

Position	Project Assignment	Planned Hire Date
Deputy Construction Manager	Non-corridor Projects	April 2014
Sr. Mechanical Engineer	Systems	2015 Attrition*

<sup>\*</sup>Attrition resulting from internal promotion

Recruiting continued during the reporting period for the following design, engineering and construction management positions:

Position	Project Assignment	Planned Hire Date
Systems Engineer	Traction Power	2013 Attrition
Construction Manager	East Link Extension	April 2014
Construction Manager	Systems	April 2014
Deputy Director	Construction Management	May 2014
Project Director	Tacoma Link Extension	2014 Attrition*
Principal Architect	Northgate Link Extension	2014 Attrition*
Community Outreach Coordinator	East Link Extension	2014 Attrition*
Systems Engineer	Link	2014 Attrition
Architect	East Link Extension	2014 Attrition
Assistant Permit Administrator	Lynnwood Link	March 2015
Executive Project Director	Lynnwood Link Extension	April 2015
Sr. Property Mgmt. Specialist	Property Management	April 2015
Real Property Agent	East/Lynnwood Extension	May 2015
Sr. Real Property Specialist	Property Management	May 2015
Assistant Permit Administrator	East Link Extension	May 2015

<sup>\*</sup>Attrition resulting from internal promotion

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## **Link Light Rail Staffing Report**

Position	Project Assignment	Planned Hire Date
Deputy Project Director	Operations Satellite Facility	2015 Reclassification
Design Technology Specialist	All capital projects	2015 Attrition*
Document Control Coordinator	Fed. Way Ext., Tacoma Trestle, ST3	2015 Attrition*
Structural Engineer	All Capital Projects	2015 Attrition*
Mechanical Engineer	Systems	2015 Attrition*
Community Outreach Corridor Supervisor	East Link Extension	2015 Attrition

#### Project Staffing-Link Light Rail Program-May 2015

A total of 508.5 (107% of plan) consultant and internal staff full time equivalents (FTE) participated in the on-going planning, design and construction of Link light rail extensions in May 2015, a 2% increase (9.4 FTE) from April. Average year-to-date staffing of 497.2 FTE/mo. is trending 5% (21.8 FTE/mo.) above plan. May staffing for the University, Northgate and S. 200th Link Extensions exceeded plan; staffing for the East Link (154.7 FTE) and Lynnwood (38.8 FTE) Extensions was 85% and 72% of plan respectively. Staffing variance to plan for the month by project follows.

	May 2015 Staffing Plan Variance Summary								Year to Date				
		Consult	ant Staff			Sound Transit Staff				Total Staff			
	F	ΓΕ	Var	iance	FTE		Variance		FTE		Variance		
	Planned	Actual	FTE	% of Plan	Planned	Actual	FTE	% of Plan	Planned	Actual	FTE	% of Plan	
University Link Extension	36.9	52.1	15.2	141%	39.5	45.0	5.5	114%	76.4	94.0	17.6	123%	
Northgate Link Extension	73.6	132.8	59.2	180%	48.7	37.6	-11.1	77%	122.3	153.4	31.1	125%	
South 200th Extension	20.1	29.5	9.4	147%	20.6	18.1	-2.5	88%	40.7	46.1	5.4	113%	
East Link Extension	109.2	97.5	-11.7	89%	73.2	57.2	-16.0	78%	182.4	159.6	-22.8	88%	
Lynnwood Link Extension	27.0	21.5	-5.5	80%	26.6	17.3	-9.3	65%	53.6	44.1	-9.5	82%	
Total	266.8	333.4	66.6	125%	208.6	175.2	-33.4	84%	475.4	497.2	21.8	105%	

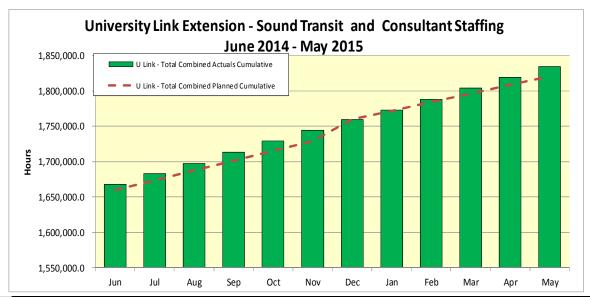
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Total Internal and External Staffing – University Link Extension

Total Internal and Consultant Staffing – University Link Extension

There were 97.1 FTE assigned to the University Link Extension in May including 52.1 consultant and 45 internal FTE. Staffing for the month increased 3% (3.2 FTE) from April and was above plan by 27% (20.7 FTE). Average year to date staffing of 94 FTE/mo. is trending above plan by 23% (17.6 FTE). Cumulatively, since August 2006, average monthly project staffing is consistent with plan.



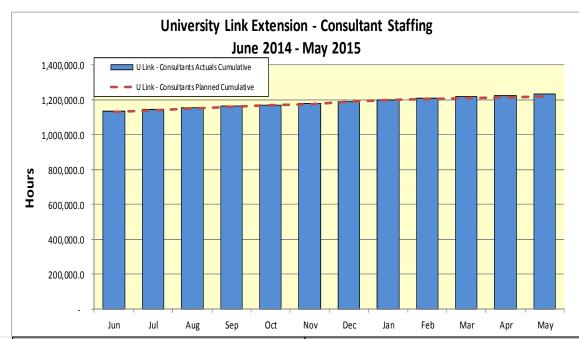
	Labor Hours to Date				Current Period May 2015			
	Total Planned	Total Actual	Total Variance	Percent Expended	Period Planned	Period Actual	Period Variance	Percent Expended
No. of Hours	1,820,605.7	1,834,661.1	14,055.4	100.8%	12,224.0	15,538.1	3,314.1	127.1%
<b>Monthly Average</b>	17,175.5	17,308.1	132.6					
Monthly FTE	107.3	108.2	0.8		76.4	97.1	20.7	

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#### Internal Resource Commitments to University Link Extension

There were 45.internal FTE assigned to the University Link Extension in May. Internal staffing was 14% (5.5 FTE) above plan and 3% (1.3 FTE) below staffing for April. Cumulatively, since August 2006, average monthly internal staffing is trending with plan.



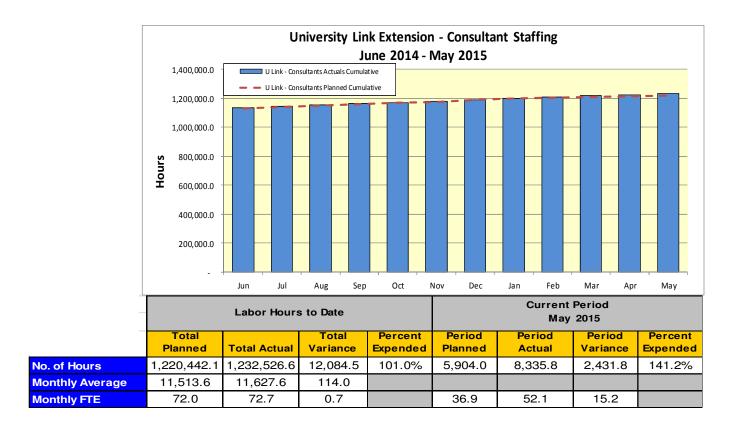
	Labor Hours to Date				Current Period May 2015			
	Total Planned	Total Actual	Total Variance	Percent Expended	Period Planned	Period Actual	Period Variance	Percent Expended
No. of Hours	1,220,442.1	1,232,526.6	12,084.5	101.0%	5,904.0	8,335.8	2,431.8	141.2%
<b>Monthly Average</b>	11,513.6	11,627.6	114.0					
Monthly FTE	72.0	72.7	0.7		36.9	52.1	15.2	

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#### Consultant Resource Commitments to University Link Extension

During May, 52.1 consultant FTE were assigned to the University Link Extension; consultant staffing was 41% (15.2 FTE) above plan and 9% (4.5 FTE) above April staffing. Cumulatively, since August 2006, average monthly consultant staffing is trending with plan.



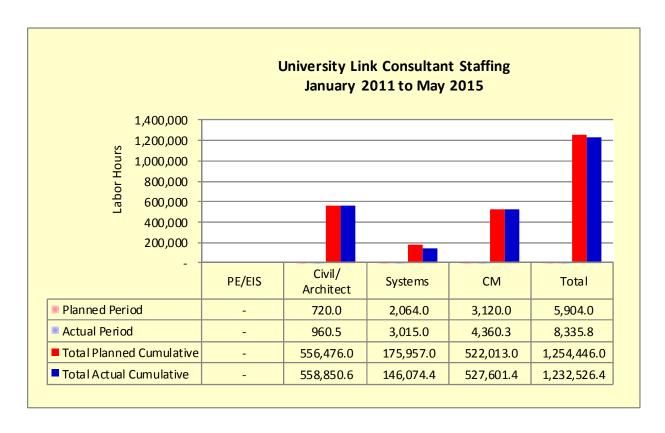
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#### Consultant Resource Commitments to University Link Extension, continued

Consultant utilization by discipline for the University Link Extension since January 2011 is illustrated below.

In May, civil engineering consultant staffing (6 FTE) was 33% (1.5 FTE) above plan and was consistent with April staffing. Systems engineering staffing (18.8 FTE) was 46% (5.9 FTE) above plan and 3.8% (0.7 FTE) below Systems staffing in April. Construction management consultant staffing (27.3 FTE) increased 23.8% (5.2 FTE) from April and was above plan by 40% (7.8 FTE). Cumulative staffing levels for civil, systems and construction management consultants are trending with plan.

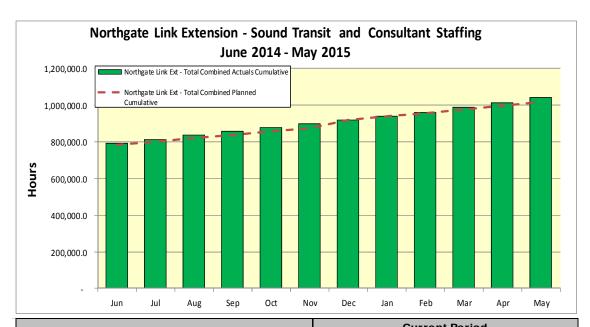


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#### Total Internal and External Staffing - Northgate Link Extension

During May, 37.6 internal and 132.8 consultant FTE were assigned to the Northgate Link Extension. This is a 3% (5 FTE) increase from April and is 39% (48.1 FTE) above plan. Average year to date staffing of 153.4 FTE/mo. is 25% (31.1 FTE/mo.) above plan; cumulatively since January 2011 average monthly staffing is 2.4% (2.9 FTE) above plan.



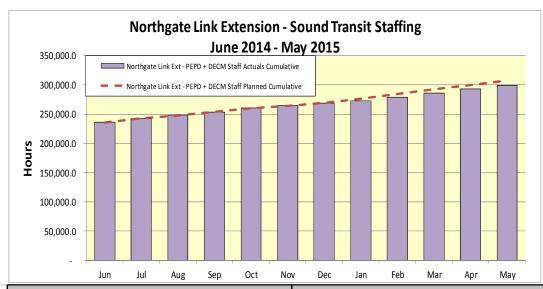
-	Labor Hours Jan 2011 - May 2015				May 2015			
_	Total Planned	Total Actual	Total Variance	Percent Expended	Period Planned	Period Actual	Period Variance	Percent Expended
No. of Hours	1,015,843.3	1,040,715.0	24,871.7	102.4%	19,568.0	27,260.3	7,692.3	139.3%
Monthly Average	19,166.9	19,636.1	469.3					
Monthly FTE	119.8	122.7	2.9		122.3	170.4	48.1	

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#### Internal Resource Commitments to Northgate Link Extension

Internal staffing in May (37.6 FTE) decreased 12% (5 FTE) from April and was 23% (11.1 FTE) below plan. Cumulatively, since January 2011, average monthly internal staffing is 3% (1.1 FTE) below plan.



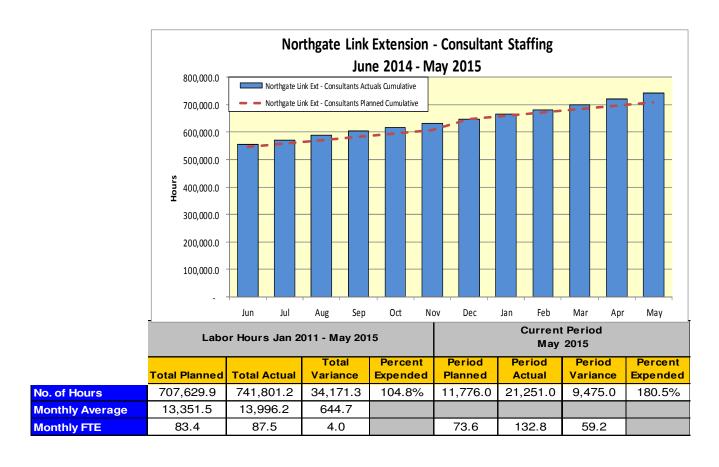
	Labor Hours Jan 2011 - May 2015				Current Period May 2015			
	Total Planned	Total Actual	Total Variance	Percent Expended	Period Planned	Period Actual	Period Variance	Percent Expended
No. of Hours	308,213.4	298,913.8	-9,299.6	97.0%	7,792.0	6,009.3	-1,782.7	77.1%
<b>Monthly Average</b>	5,815.3	5,639.9	-175.5					
Monthly FTE	36.3	35.2	-1.1		48.7	37.6	-11.1	

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#### Consultant Resource Commitments to Northgate Link Extension

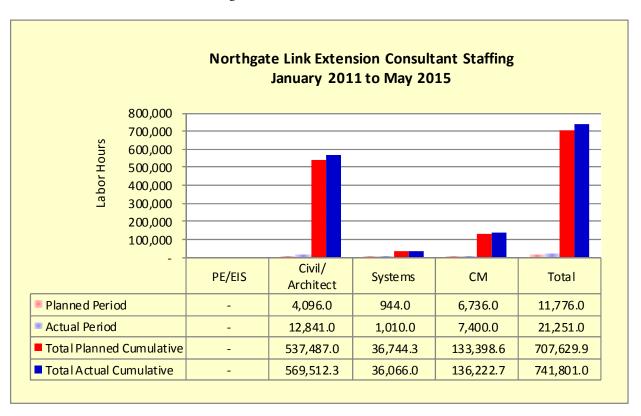
In May, 132.8 consultant FTE were assigned to the Northgate Link Extension; consultant staffing was above plan by 80% (59.2 FTE) and was 8% (10 FTE) above April staffing. Cumulatively, since January 2011, average consultant utilization is trending 4.8% (4 FTE/mo.) above plan.



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Consultant Resource Commitments to Northgate Link Extension



#### Consultant utilization by discipline follows:

- Civil/architecture consultant utilization in May (80.3 FTE) increased 13.8% (9.7 FTE) from April and was 214% (54.7 FTE) above plan. Cumulatively since January 2011, civil engineering/architecture consultant staffing of 67.2 FTE/mo. is 6% (3.8 FTE/mo.) above plan.
- Systems consultant utilization (6.3 FTE) was 7% (0.4 FTE) above plan and 4.7% (0.3 FTE) above April staffing. Since January 2011, average monthly Systems consultant staffing is trending 2% (0.1 FTE/mo.) below plan.
- CM consultant staffing in May (46.3 FTE) was consistent with April staffing and was 10% (4.2 FTE) above plan. Cumulatively, since January 2011, average monthly CM consultant staffing (16.1 FTE/mo.) is trending 2% above plan.

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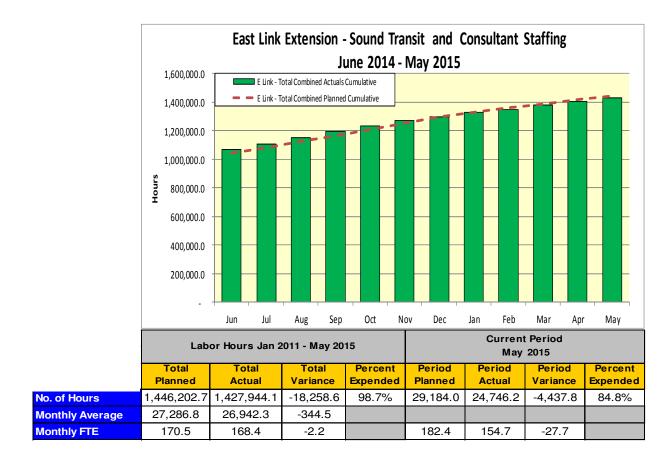
## Link Light Rail Staffing Report



#### **East Link Extension Staffing**

#### Total Internal and External Staffing - East ink Extension

Staffing for the East Link Extension in May (154.7 FTE) increased 4% (5.3 FTE) from April and was 15% (27.7 FTE) below plan. Year to date staffing of 159.6 FTE/mo. is 12% (22.8 FTE/mo.) below plan; cumulatively since January 2011, average monthly staffing is trending 1.3% (2.2 FTE/mo.) below plan.



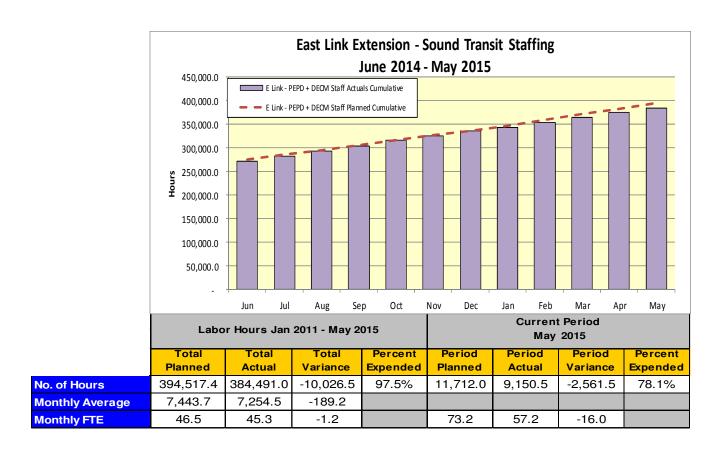
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#### **East Link Extension Staffing**

#### Internal Resource Commitments to East Link Extension

During May, internal staffing for the East Link Extension (57.2 FTE) decreased 14% (9.7 FTE) from April and was 22% (16 FTE) below plan. Cumulatively, since January 2011, average monthly internal staffing is trending 2.5% (1.2 FTE/mo.) below plan.



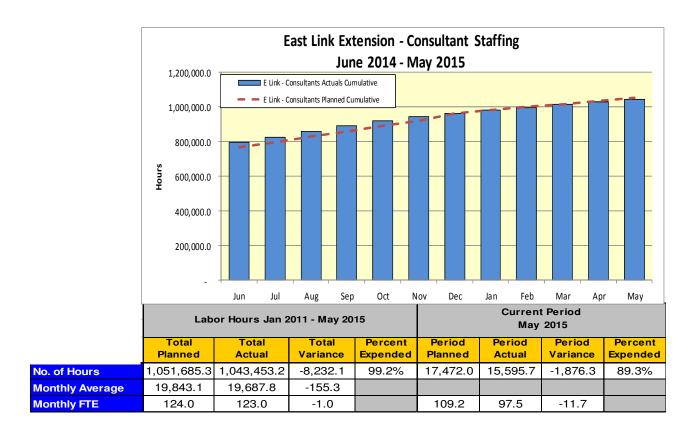
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#### **East Link Extension Staffing**

#### Consultant Resource Commitments to East Link Extension

There were 97.5 consultant FTE assigned to the East Link Extension during May. Consultant staffing increased 15% (15 FTE) from April and was 11% (11.7 FTE) below plan. Cumulatively since January 2011, average monthly consultant staffing is trending with plan.



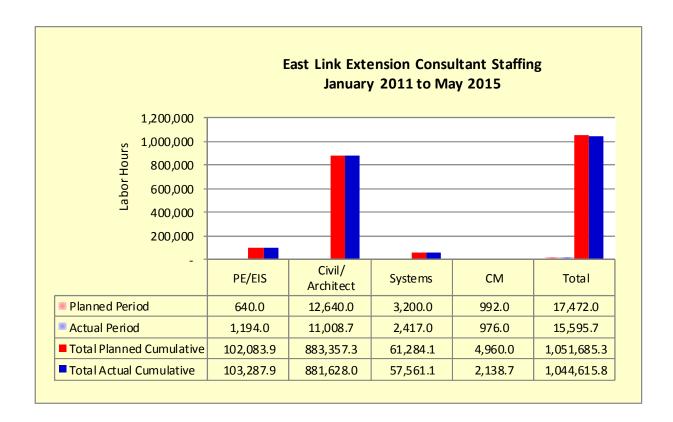
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#### **East Link Staffing**

#### Consultant Resource Commitments to East Link, continued

In May civil engineering consultant staffing (68.8 FTE) was 75% of consultant staffing for the month. Civil engineering consultant staffing was 13% (10.2 FTE) below plan. Systems consultant staffing (15.1 FTE) increased 14% (1.9 FTE) from April and was below plan by 24% (4.9 FTE). Preliminary Engineering (PE) consultant staffing for May (7.5 FTE) was 87% (3.5 FTE) above plan.

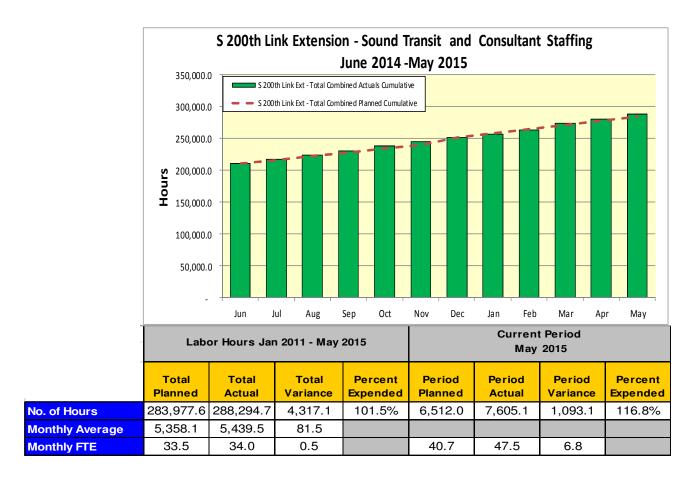


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#### Total Internal and External Staffing - S. 200th Link Extension

Staffing for the South 200th Link Extension in May (47.5 FTE) increased 3% (1.2 FTE) from April and was above plan by 17% (6.8 FTE); average year to date staffing of 46.1 FTE/mo. is 13% (5.4 FTE/mo.) above plan. Since January 2011, average monthly internal and consultant staffing is trending with plan.

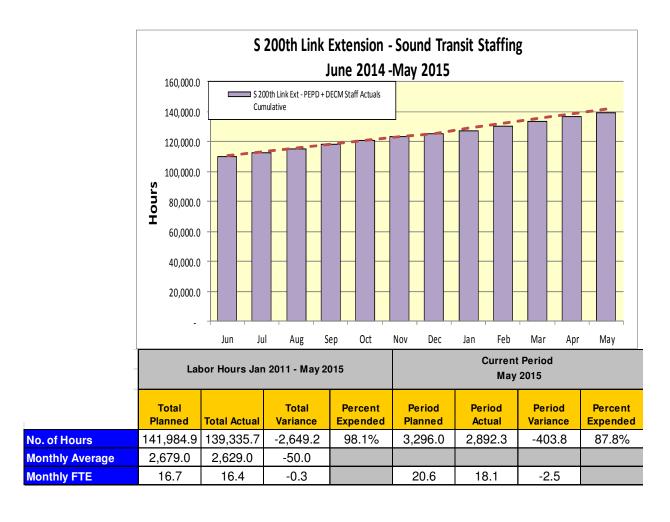


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#### Internal Resource Commitments South Link to S.200th Link Extension

Internal staffing in May (18.1 FTE) was 8% (1.6 FTE) below April staffing and 12% (2.5 FTE) below plan. Cumulatively, since January 2011, average monthly internal staffing is trending 1.9% (0.3 FTE/mo.) below plan.

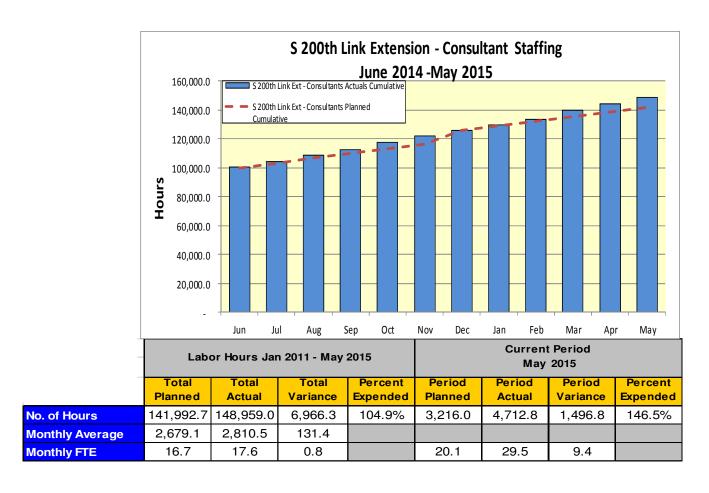


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### Consultant Resource Commitments to S. 200th Link Extension

Consultant staffing on the S. 200th Link Extension in May (29.5 FTE) increased 9% (2.8 FTE) from April and was 47% (9.4 FTE) above plan. Cumulatively since January 2011, average consultant staffing is trending 5% (0.8 FTE) above plan.

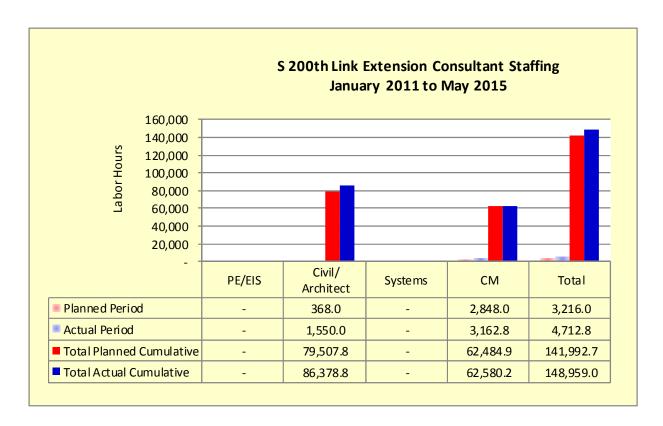


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#### Consultant Resource Commitments to S. 200th Link Extension

Design/build project management consultants (19.8 FTE) accounted for 67% of consultant staffing in May; additional consultant staff (9.7 FTE) provided civil and architectural engineering support for on-going construction.



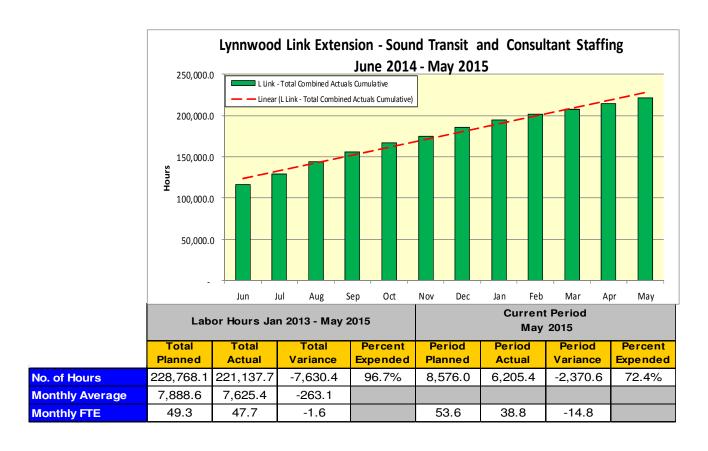
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#### Lynnwood Link Extension Staffing

#### Total Internal and Consultant Staffing - Lynnwood Link Extension

During May, there were 21.5 consultant and 17.3 internal FTE (72% of plan) assigned to the Lynnwood Link Extension. Internal staffing for May (17.3 FTE) was consistent with April staffing and 35% (9.3 FTE) below plan. Consultant staffing (21.5 FTE) decreased 23% (5 FTE) from April and was 21% (5.5 FTE) below plan. All consultant staff assigned to the project are supporting preliminary engineering. Average year to date project staffing (44.1 FTE/mo.) is 18% (9.5 FTE/mo) below plan; cumulatively since January 2013, staffing for the Lynnwood Link Extension (47.7 FTE/mo.) is 3.3% (1.6 FTE/mo.) below plan.



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## Link Light Rail Acronyms



#### **ACRONYMS**

AA Alternative Analysis
APE Area of Potential Impact
BCE Baseline Cost Estimate
BCWS Budgeted Cost of Work

BIM Building Information Modeling

BNSF Burlington Northern Santa Fe Railway

CCB Change Control Board
CDF Controlled Density Fill
CHS Capitol Hill Station

CM Construction Management
CMU Concrete Masonry Unit

CO Change Order

CPI Cost Performance Index
CPM Critical Path Method

DAHP Department of Archaeology & History Preservation

DART Days Away, Restricted or Modified

DB Design -Build

DECM Design, Engineering and Construction Management

DEIS Draft Environmental Impact Statement

DPD Seattle Department of Planning and Development

DSC Differing Site Conditions

DSDC Design Support During Construction
DSTT Downtown Seattle Transit Tunnel

EFC Estimated Final Cost

EMI Electro Magnetic Interference

FD Final Design

FHWA Federal Highway Administration

FSEIS Final Supplemental Environmental Impact Statement

FFGA Full Funding Grant Agreement FTA Federal Transit Administration

FTE Full Time Employee

GC/CM General Contractor / Construction Management
HVAC Heating, Ventilation and Air Conditioning

ICD Integration Control Document
IRT Independent Review Team
IWP Industrial Waste Permit

JA Jacobs Associates

JARPA Joint Aquatic Resource Permit Application

KCM King County Metro

LNTP Limited Notice to Proceed

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## Link Light Rail Acronyms

ACRONYMS, continued

LRRP Light Rail Review Panel

LRT Light Rail Transit
LRV Light Rail Vehicle

LTK Engineering Services

MACC Maximum Allowable Construction Cost

MDA Major Discharge Authorization
MLK Martin Luther King, Jr. Way
MOA Memorandum of Agreement
MOS Minimum Operable Segment
MOU Memorandum of Understanding

MPPCV Major Public Project Construction Variance

MRB Material Review Board
MTP Montlake Triangle Project

MUP Master Use Permit

NB Northbound

NCTP North Corridor Transit Partners
NEPA National Environmental Policy Act

NOAA National Oceanic and Atmospheric Administration

NTP Notice to Proceed

OCS Overhead Catenary System

OMF Operations and Maintenance Facility

OMSF Operations and Maintenance Satellite Facility

OTC Overlake Transit Center
PE Preliminary Engineering
PEP Project Execution Plan

PEPD Planning, Environment and Project Development

PMOC Project Management Oversight Consultant

PSST Pine Street Stub Tunnel
QA Quality Assurance
QC Quality Control

QTR Quarter

RE Resident Engineer
RFC Request for Change
RFD Request for Deviation
RFI Request for Information
RFP Request for Proposal
RFQ Request for Qualifications
RIR Recordable Injury Rates

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# Link Light Rail Acronyms



#### ACRONYMS, continued

SB

RMP Risk Management Plan
ROD Record of Decision
ROW Right of Way

SCADA Supervisory Central and Data Acquisition

Southbound

SCC Standard Cost Categories
SCL Seattle City Light

SDEIS Supplemental Draft Environmental Impact Statement

SEPA State Environmental Policy Act
SIP Street Improvement Permitting
SPI Schedule Performance Index

SR State Route
ST Sound Transit

START Seattle Tunnel and Rail Team

SWI Stacy & Witbeck, Inc.

TBM Tunnel Boring Machine

TCE Temporary Construction Easement

TE Traction Electrification

TFK Traylor Frontier Kemper Joint Venture

TOD Transit Oriented Development

TVM Ticket Vending Machine
UAC Unallocated Contingency
U-Link University Link project

USFWS U.S. Fish and Wildlife Service UW University Of Washington

UWS University of Washington Station

VE Value Engineering

VECP Value Engineering Cost Proposal

WBS Work Breakdown Structure

WSDOT Washington Department of Transportation

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