# Progress Report Link Light Rail Program



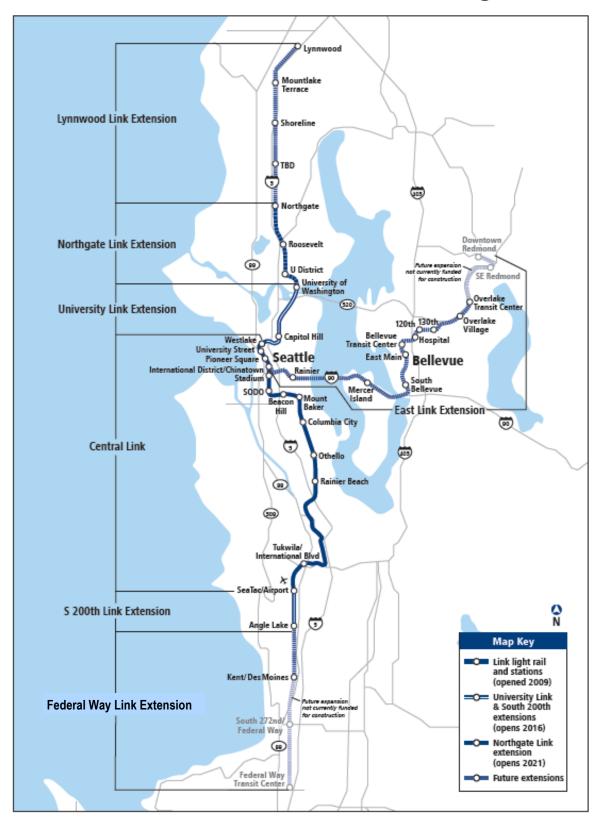
University of Washington Station substantially complete with the Montlake Triangle Project in the foreground.

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Map of Sound Transit's current and future light rail projects.

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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.

**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. The draft environmental impact statement (DEIS) was published in July 2013.

**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 Overlake Transit Center. Revenue service to the Overlake Transit Center is forecast for early 2023 with a tunnel route in Downtown Bellevue.

**Initial Segment**: Completed 13.9-mile light rail line between downtown Seattle and South 154th Street in the City of Tukwila. Revenue service began on July 18, 2009.

**Airport Link**: Completed 1.7-mile extension of the Initial Segment to Sea-Tac International Airport. Revenue service began on December 19, 2009.

**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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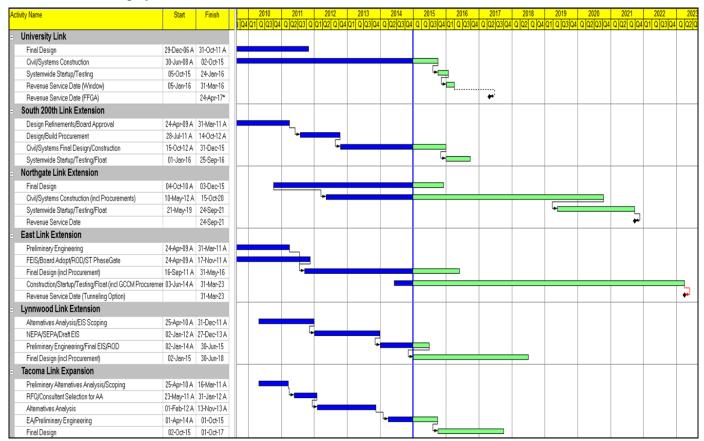
#### **Program Budget**

Project	Adopted Budget	Committed to Date	Incurred to Date
University Link <sup>(3)</sup>	\$1,947.7	\$1,654.4	\$1,501.4
Northgate Link Extension <sup>(2, 3)</sup>	\$2,131.4	\$758.6	\$391.2
Lynnwood Link Extension <sup>(1)</sup>	\$57.1	\$44.2	\$36.6
East Link <sup>(2)</sup>	\$798.3	\$313.6	\$268.5
Initial Segment <sup>(4)</sup>	\$2,433.7	\$2,323.7	\$2,296.3
Airport Link <sup>(4)</sup>	\$261.6	\$261.3	\$260.8
S. 200th Link Extension <sup>(3)</sup>	\$383.2	\$298.7	\$189.3
Federal Way Link Extension(1)	\$42.0	\$14.4	\$12.7
Tacoma Link Expansion (1,5)	\$5.8	\$4.5	\$3.4
Link Operations & Maintenance Satellite Facility <sup>(1)</sup>	\$36.8	\$32.4	\$27.4
Total	\$8,097.6	\$5,705.8	\$4,987.6

Table figures in millions (1) Preliminary Engineering Phase; (2) Final Design Phase; (3) Construction Phase; (4) In Service, (5) Updated Quarterly.

### **Program Schedule**

Schedules for active projects are summarized below.



Changes this period: No changes this period.

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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-

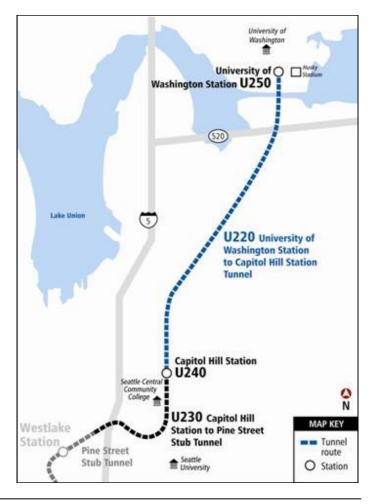
tion electrification, and SCADA communica-

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: Milestone 5 (Train Control DSTT) was successfully met on November 15, 2014 and the system continues to be stable. MS 5A (Beacon Hill Cutover) is anticipated in March 2015 and 5B (DSTT EVS/BMS & U-Link EVS Cutover). Collaboration with U240 contractor will be critical to achieve MS 5B.
- *U830 Systems*—Demolition of the demising wall in Pine Street Stub Tunnel will connect the U-Link tunnels to existing Link tunnel operations. Coordination with all stakeholders is critical.
- LRV Fleet Wide Repairs Fleet wide defect was discovered in the LRVs' traction motor/gearbox unit. Repairs on the older LRV must be made immediately as they are now unreliable. Without sufficient reliable LRVs by Revenue Service or Pre-Revenue Service, U-Link may be challenged to operate with 6 minutes headways. ST Board approved an agency emergency declaration to mitigate this problem is being implemented. ST is collaborating with Kinkisharyo, the LRV manufacturer, in aligning all necessary steps to expedite the fully repair this issue. Cost will be tracked and isolated.
- Early Opening: Projection to open for Revenue Service sometime during the 1st QTR 2016 continues to be 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. ST continues building a comprehensive qualitative risk register addressing risks related to Rail Activation.

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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	 ommitment to Date*	Incurred to Date		Est. Final Cost (EFC)				Ad	opted Budget vs. EFC
ADMINISTRATION	\$ 115.23	\$	113.55	\$ 63.05	\$	65.18	\$	103.56	\$	10.00		
PRELIMINARY ENGINEERING	\$ 24.39	\$	24.26	\$ 24.26	\$	24.26	\$	24.26	\$	-		
FINAL DESIGN	\$ 77.94	\$	89.31	\$ 86.24	\$	82.24	\$	89.31	\$	(0.00)		
CONSTRUCTION SERVICES	\$ 68.53	\$	95.81	\$ 83.70	\$	72.69	\$	93.80	\$	2.01		
3rd PARTY AGREEMENTS	\$ 18.65	\$	18.65	\$ 12.08	\$	10.72	\$	17.77	\$	0.88		
CONSTRUCTION	\$ 1,180.00	\$	1,158.18	\$ 968.51	\$	886.52	\$	1,047.67	\$	110.51		
VEHICLES	\$ 103.91	\$	103.91	\$ 99.20	\$	99.18	\$	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	\$ 1,462.67	\$	1,366.38	\$	1,605.56	\$	150.45		
FINANCE COST	\$ 191.71	\$	191.71	\$ 191.71	\$	135.34	\$	191.71	\$	-		
Project Total	\$ 1,947.68	\$	1,947.72	\$ 1,654.38	\$	1,501.72	\$	1,797.27	\$	150.45		

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

In December, the projected Estimated Final Cost (EFC) including Finance Cost continues to be about \$1.8B. During this period, approximately \$11.4M was incurred, increasing the project Incurred to Date amount to over \$1.36B (Finance Cost excluded). Direct construction cost accounted for about 82% of the cost incurred in December at \$9.5M essentially split 3 ways between Trackwork, Systems and Station Finishes. The direct construction EFC trends approximately \$1B. This trend continues to be intact as both the high risk tunnel scope are now completed. The Capitol Hill Station (U240) Contractor continues west entry work /pedestrian concourse and station mechanical/electrical work, UW Station (U250) continues on mechanical/electrical work and commissioning activities and the Systems (U830) Contractor continues track work, Signals and SCADA development. The Total Incurred to Date for the Construction Phase is over \$886M with a current commitments is now over \$968M. Cost for LRV is approximately \$99.2M and continues to be working on repairs to the traction motor gear unit.

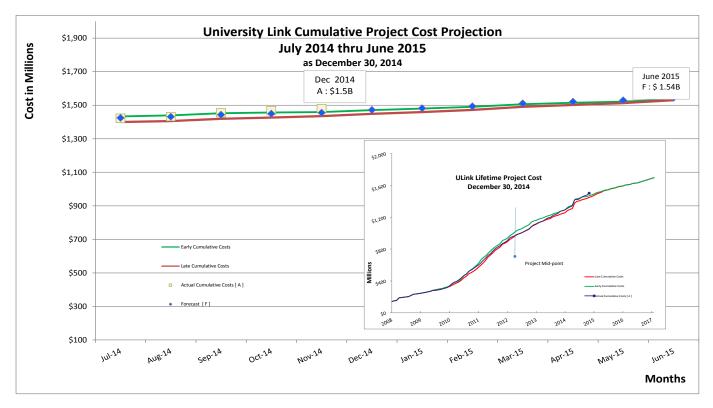
Construction EFC under the SCC format for this period remains stable and relatively unchanged at about \$1B. Construction phase expenditures in December is approximately \$9M. This period, U-Link construction cost is attributed almost equally to Trackwork, Systems and Stations. U240 station continues to west entry work and station, mechanical and electrical work and U250 station is inching closer towards completion with increasing focus towards commissioning and substantial completion in 4th QTR 2015. Floating slab is essentially completed. All trackworks are tracking on schedule towards completion in 4th QTR 2015.

Project Elements by SCC	Basel	ine Budget	Ad	Current opted Budget	_	ommitment to Date*		Commitment to Date*		curred to Date	E	stimated Final Cost (EFC)	Add	opted Budget vs. EFC
10 Guidew ay & Track Elements	\$	626.83	\$	407.16	\$	456.10	\$	454.85	\$	462.41	\$	(55.25)		
20 Stations	\$	366.33	\$	348.75	\$	334.98	\$	311.62	\$	352.24	\$	(3.48)		
30 Support Facilities: Yards, Shops	\$	7.01	\$	23.83	\$	21.47	\$	9.31	\$	23.83	\$	0.00		
40 Sitew ork & Special Conditions	\$	59.03	\$	110.29	\$	54.18	\$	49.44	\$	58.32	\$	51.97		
50 Systems	\$	69.63	\$	113.92	\$	97.53	\$	58.35	\$	107.12	\$	6.80		
Construction Subtotal (SCC 10-50)	\$	1,128.82	\$	1,003.95	\$	964.26	\$	883.57	\$	1,003.91	\$	0.04		
60 Row , Land, Existing Improvements	\$	167.33	\$	125.77	\$	125.63	\$	125.59	\$	125.77	\$	-		
70 Vehicles	\$	99.76	\$	99.76	\$	99.20	\$	99.18	\$	99.76	\$	-		
80 Professional Services	\$	306.41	\$	338.49	\$	273.58	\$	258.04	\$	342.63	\$	(4.14)		
90 Unallocated Contingency	\$	53.65	\$	188.04	\$	-	\$	-	\$	33.48	\$	154.55		
Capital Cost Total (SCC 10-90)	\$	1,755.97	\$	1,756.01	\$	1,462.67	\$	1,366.38	\$	1,605.56	\$	150.45		
100 Finance Cost	\$	191.71	\$	191.71	\$	191.71	\$	135.34	\$	191.71	\$	-		
Project Total	\$	1,947.68	\$	1,947.72	\$	1,654.38	\$	1,501.72	\$	1,797.27	\$	150.45		

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

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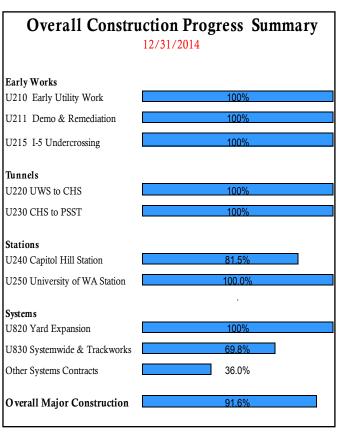




Incurred to date for Construction under the SCC is over \$883M. Total capital cost incurred to date including non-construction cost (SCC 60 thru 90) is over \$1.36B or about 78% of total project budget scoped (excluding Finance Cost).

Total cost incurred at the end of December 2014 including Finance Cost is about \$1.5B. The project financing cost incurred to date about \$135M with an annual projection of \$28M to incur in 2015. The next finance cost update will be for the 1st QTR 2015. Overall, University Link cost to date is projected to be approximately \$1.5B by June 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**

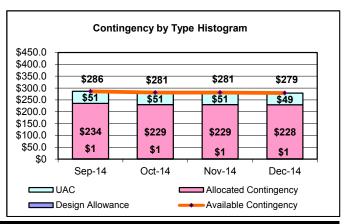
Project contingencies continue to remain at a healthy level of \$279M due to the favorable construction bidding climate, ROW acquisition cost trends, diligent project risk management practices and excellent tunneling conditions. December's overall contingency notched down by about \$3 million due to change orders and the execution of amendment for addition Design Support During Construction consultant. Contingency level continues to trend well above the Planned Contingency Drawdown; the projected planned balance between the end of 3rd QTR 2014 and the end of 4th QTR 2014 ranges from \$93M and \$98M 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 is now approaching 91% complete. Barring any catastrophic event, there is a high likelihood that this contingency trend will remain intact.

<u>Design Allowance</u>: 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.

<u>Allocated Contingency</u>: Allocated Contingency continues to remain stable approximately at \$229M with the recent successful negotiation of the Fare Collection contract.

<u>Unallocated Contingency</u> (UAC): The total UAC balance is at \$49M and continues to remain stable compared to the Baseline Cost Estimate amount of \$53.7M considering that the construction is now approaching 91% complete.

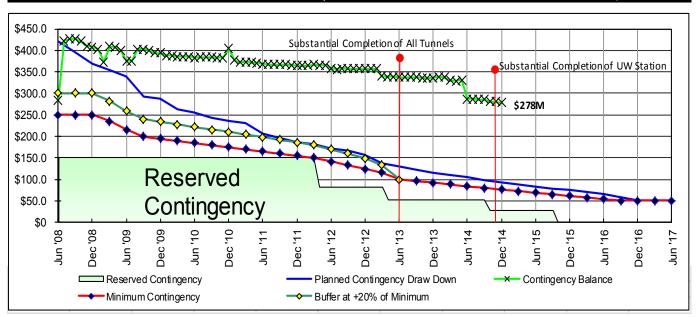
Contingency	В	CE	Current Status				
Status	Amount	% of Total	Remaining Amount	% Remaining Work			
Design Allowance	\$103.9	7.8%	\$1.0	0.9%			
Allocated Contingency	\$264.3	19.8%	\$228.2	205.7%			
Unallocated Contingency	\$53.7	4.0%	\$49.4	44.5%			
Total:	\$421.9	31.6%	\$278.6	251.2%			



#### MINIMUM CONTINGENCY CURVES as of December 30, 2014

Percentage = Contingency \$ /(EFC or Remain. Work \$ ex-Contingencies)

\$ in millions



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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:**

The 4th QTR 2014 risk is currently being updated. At the end of the 3rd QTR 2014, U-Link project represents almost 90% construction completion with U220 and U230 Tunnels at Acceptance; U240 Station is now over 74% complete as it reaches basic structure completion and excavation on the West Entry's pedestrian tunnel is well underway. U250 is over 98% completion, and is now focusing on commissioning items while completing landscaping, restoration and the pedestrian bridge. U830 Systems continued work on rail installation in the tunnels; commenced development of specialty track works; ongoing verification for communication and signaling elements approaches 60% complete. Communication work is somewhat behind and is being monitored closely. 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 586 risks, of which 103 were active (483 closed). This quarterly update resulted in a total of 586 risks, of which 95 are active (491 closed). 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. While there are no new risks registered for this quarter, activities in the Rail Activation phase has commenced and the University Link team is currently in the process of building a comprehensive qualitative risk register addressing risks related to the project. It is currently in a draft state, this risk register will be included and discussed in the next quarter.

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 Long Lead Items

Long lead specialty materials and planning that are necessary to complete for timely installation signaling and communication end devices.

#### • 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

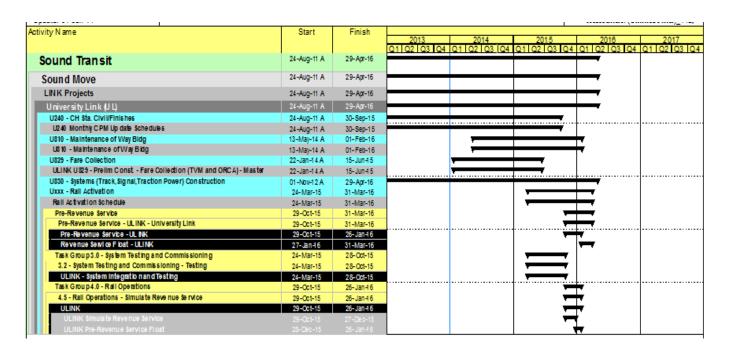
A latest defect was discovered in the Traction Motor/Gear Unit in the LRVs. Repairs require long lead materials and careful coordination to minimize any impacts to current operations. If there are insufficient reliable LRVs by Revenue Start, the 6 minutes headways promised for U-Link will be in jeopardy.

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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 last period and the Contractor is working through the punch-list, expected completion is February 2015. The U240 Contractor has mobilized to the Pine Street site to commence the closure of access to the tunnel from this site, expected turnback to U830 is in January. The U830 Contractor has completed rail installation and the floating slab. U835 EMI/Vibration design is underway. All U860 Fiber Retrofit, upgrades and fiber installation have been completed. A U810 MOW contract has been awarded and a baseline schedule has been accepted.

The targeted Revenue Service window is now the 1st QTR 2016 with the removal of 169 days of float contingency from the Master Schedule. The Rail Activation Schedule has been linked to the University Link Master Schedule this period and the critical path will now be tracked as schedule is updated monthly. The rehabilitation of the LRV's has been added to the Master Schedule this period for tracking purposes.

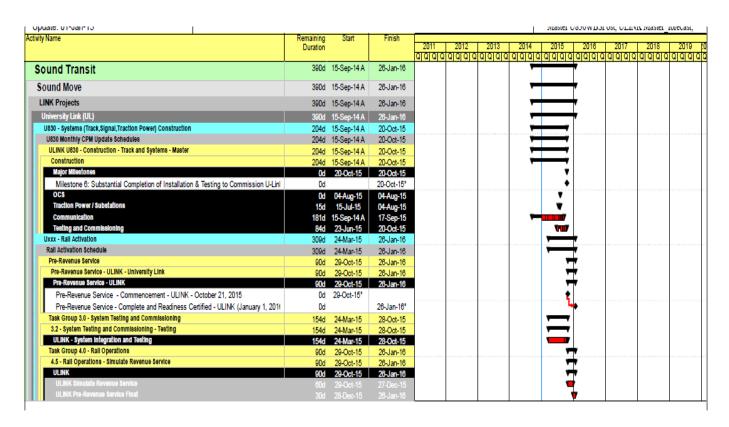


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### **Progress and Critical Path Analysis**

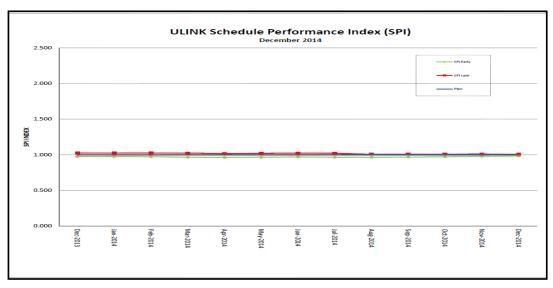
The U-Link Master Schedule update contains the tunnel contractors' schedules and interfaces with the stations and U830 (Track, Signal, Traction power and Communications System) schedules. TBM Mining, U220 and U230, have achieved Substantial Completion and U830 has completed rail charging at the UW Station and now CHS Station. Plinth rail installation is complete in the NB and SB tunnel between CHS and PSST. Sound Transit is tracking multiple critical paths through the project as U-Link nears completion in early 2016. The critical path is progressing through U240 CHS Systems Rooms access and the handover of these rooms to U830 for equipment installation and testing and commissioning. U830's Initial Segment 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 Rail Activation Schedule has been linked to the University Link Master Schedule as the critical path is tracked through System Integration Testing by U830 and the commencement of Pre-Revenue Service for U-Link.



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#### **Schedule Performance Index**

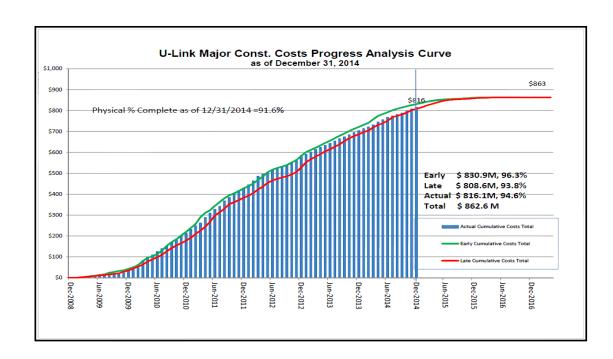
The Schedule Performance Index (SPI) for U-Link rose slightly to 0.98 as rail completes and OCS installation production has increased for the U830 contract. (See details on individual contract sections.) Progress will continue to be monitored closely.



### **Cost Progress Analysis**

U220 and U230 are complete. U250 progress is now leveling off as final finishes and commissioning continued.

Overall U-Link physical % complete is at 91.6% against 85.9% of contract time expended. The U835 EMI/Wheel Flat Vibration Contract was added to the U-Link Major Const. Progress this period. The graph below shows the progress of major construction contracts cost compared to the early/late projections.

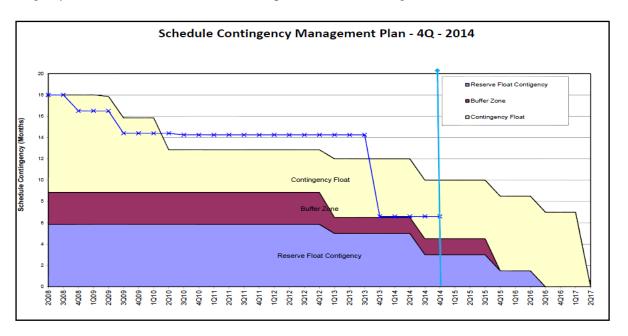


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## **Schedule Contingency Management**

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.



### 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

Capitol Hill Station: The acquisitions and relocations for the station site are complete.

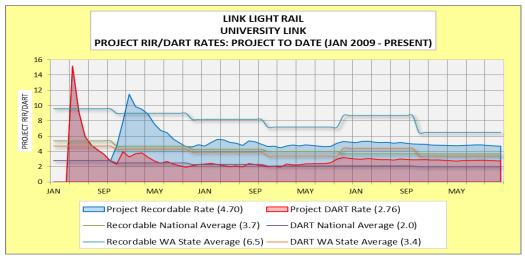
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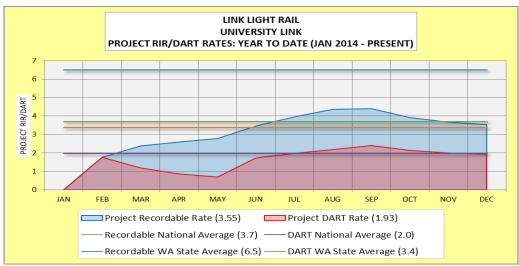
## **Construction Safety**

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

Data/Measure	December 2014	Year to Date	Project to Date
Recordable Injury/Illness Cases	0	11	85
Days Away From Work Cases	0	2	17
Total Days Away From Work	8	139	712
Restricted or Modified Work Cases	0	4	33
Total Days Restricted or Modified Work	23	77	1558
First Aid Cases	2	20	146
Reported Near Mishaps	2	25	228
Ave. Nos. of Employees on Worksite	145	-	-
Total # of Hours (GC & Subs)	20,426	620,535	3,618,909
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	9.66	4.13	3.83
DART Rate	9.66	2.75	2.55
Recordable National Average	3.70	3.70	3.70
DART National Average	2.00	2.00	2.00
Recordable WA State Average	6.50	6.50	6.50
DART WA State Average	3.40	3.40	3.40



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

- U230: MRB dispositioned a Use-As-Is NCR for Air vents used for fire protection piping working pressure not in compliance with spec.
- U830: MRB dispositioned a Use-As-Is NCR for the innerduct was installed without performance of mandrelling or pressure testing prior to installation of fiber optic cable; Issued Surveillance Report on OCS Hanger Installation.
- U810: 90% Design submittal.

#### Issues

• U250: U230: MRB dispositioned a Use-As-Is NCR for Air vents used for fire protection piping working pressure not in compliance with spec;

#### **Summary**

Description	Dec 2014	Notes
No. of Audits Planned	0	None
No. of Audits Completed	0	None
Reports in Progress	0	None
No. of Audits Post- poned	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
R2014-34	Amending the Adopted 2014 Annual Budget for the U-Link project from \$146,865,783 to \$208,689,716 and amending the Northgate Link Project Adopted 2014 Annual Budget to	Dec 18
M2014-101	Execute a contract amendment with Turner Construction Company to increase the contingency for the construction of the Capitol Hill Station in U-Link in the amount of \$5,000,000 for a new total authorized contract amount not to exceed \$115,092,790.	Dec 18

### **Community Outreach**

- Emailed monthly U-Link newsletter.
- Continued to provide access information to businesses ad residents along Nagle Pl, during waterline installation work.

#### **Business Mitigation**

- Attended Stars on Broadway lighting ceremony that were installed on Capitol Hill Station Red Wall.
- Attended Greater Seattle Business Association Annual Meeting.
- Sent out the business mitigation newsletter to over 1,100 subscribers.

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# U220 Contract - TBM Tunnel (UWS to CHS)

#### **Current Progress**

The U220 contract achieved Substantial Completion on June 7, 2013. Continued close-out activities.

# U230 Contract -TBM Tunnel (CHS to PSST)

#### **Current Progress**

Substantial Completion was achieved in March 2013. The Contractor completed the punchlist items and continued working on final documentation. Work is 100% complete.

#### **Close-out Activities**

#### Current Period

• All NCR paperwork are now closed and Acceptance was issued in August 30, 2013.

#### Next Period

Finalize remaining Change Orders to capture remaining Work Directive costs and de-commit unused Provisional Sums.

#### **Closely Monitored Issues**

• No remaining issues.

#### **Close-out Activities**

#### Current Period

Contract is at Acceptance and is currently in the process of achieving Final Acceptance, which includes close out of contract.

#### Next Period

Close out Activities: Continue working on achieving Final Acceptance. This includes reconciling of all outstanding monies and processing of final payment

#### **Closely Monitored Issues**

None to report.

## **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	98%
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	96%
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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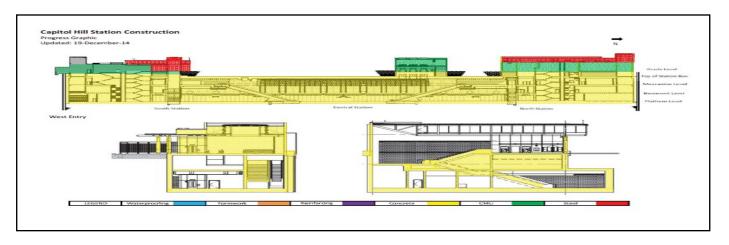
# Link Light Rail University Link Extension – Stations

### U240 Contract - Capitol Hill Station

#### **Current Progress**

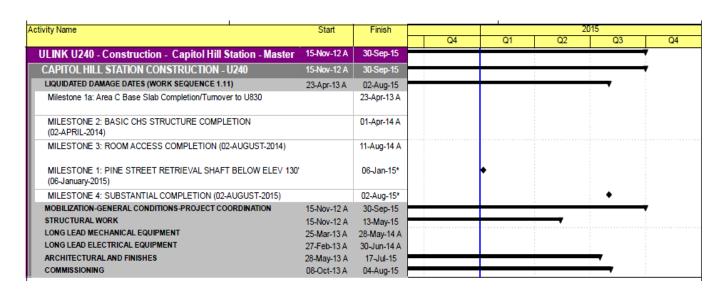
U240 continued the tunnel closure work at Pine Street this period. West Entry exterior wall work continues; the pedestrian corridor pile drilling operations is complete and shoring installation will continue through base slab installation next period. Eastside of Broadway open to traffic is expected in May 2015. Turnover of major systems rooms to U830 was completed in August 2014.

Physical % complete is at 81% against 78% contract time expended.



#### Schedule/Critical Path

Milestone #3, Systems Room Access is complete minus the west entry systems room. Permanent power installation was completed by U830 and U240 is working on an early turnover of Emergency Ventilation Fans to U830 for an early commencement of Level 3 commissioning of the system in 2nd Quarter 2015. Milestone #4, Substantial Completion is reporting 16 days of float.



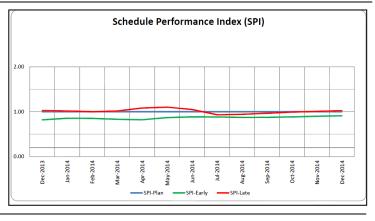
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# Link Light Rail University Link Extension – Stations



#### Schedule Performance Index

The U240 Schedule Performance Index (SPI) has risen slightly to 0.93. The U240 baseline schedule represented an aggressive schedule based on payment for materials and equipment procured but not yet installed. A review of the contract documents subsequent to the baseline schedule submittal indicated payment for these items can only occur once they are in place. The logic in the schedule has been adjusted since the baseline to recognize this payment process. Production levels and material procurement will continue to be monitored closely.



#### **Key Activities**

#### **Current Period**

- Continued installation of parapet flashings, wall panels, and painting of all structural steel at North and South Entries; and erect structural steel components for the roof at the West Entry.
- Continued escalator and elevator work.
- Continued installing tiles.
- Continued commissioning testing of all emergency fan dampers and ventilation fan equipment controls.
- Continued to terminate wires for BMS system.
- Continued excavating and installing lagging between piles from the station box to Broadway.
- Commenced work on the water main replacement work on Nagle Street.
- At Pine Street, continued waterproofing, concrete placement and began removing archway formwork.

#### Next Period

- Continue work on tiling mezzanine level walls and begin floor tiling.
- Continue electrical and mechanical work.
- Continue working on emergency fan commissioning, and system commissioning throughout the station.

- Continue final water line connections to the station, and complete Nagel St. work and reopen to the public.
- Continue excavating and lagging wall installation for the pedestrian concourse.
- Continue work on structural steel and metal roof decking for the West entry.
- Complete Pine Street work excluding site restoration.

#### **Closely Monitored Issues**

- Partition wall "inefficiencies" as outlined in RFC 96 continues to be reviewed with Turner. Sound Transit is awaiting pricing from Turner for work considered payable by ST.
- Costs for establishing a new milestone related to completion of Level 2 tunnel ventilation system testing were received. ST is proceeding with one new milestone for Level 2 testing of the tunnel ventilation system only.
- Continued receiving a large number of incoming RFCs weekly. This continues to be a concerning trend.
- Pine Street work is being impacted due to issues at the headwall. The Contractor has requested additional time for work at the Pines Street Stub Tunnel and is under review. If approved and agreed, this would extend the completion of Milestone 1.

#### **Cost Summary**

Present Financial Status	Amount
U240 Contractor - Turner Construction	
Со	
Original Contract Value	\$104,850,276
Change Order Value	\$3,880,972
Current Contract Value	\$108,731,248
Total Actual Cost (Incurred to date)	\$86,242,288
Financial Percent Complete:	79%
Physical Percent Complete:	79%
Authorized Contingency	\$5,242,514
Contingency Drawdown	\$3,880,972
Contingency Index	1.07



Painting the vent shaft roof.

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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 last period. U250 has commenced punchlist work and is expected to be complete by June 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 work has commenced.

ctivity Name	Start	Finish					2	015		201	6
			Q3	Q4		Q1	Q2	Q3	Q4	Q1	Q2
ULINK U250 - Construction - UW Station	05-Apr-11 A	19-Jan-15				7					
MILESTONES	01-Apr-13 A	14-Nov-14 A		_							
MILESTONE 1 (727d FROM NTP) (31 Mar 13) ACHIEVE BASIC STRUCTURE COMPLETION OF STATION		01-Apr-13 A									
MILESTONE 2 (60d FROM OCC OF EAST BOUNDARY F3) (01 Apr 13)		06-May-13 A									
MILESTONE 3 (880d FROM NTP) (31 Aug 13) UWS ROOM ACCESS COMPLETION		30-Aug-13 A									
MILESTONE 4 (1031d FROM NTP) (29 Jan 14) BASIC STRUCTURE COMPLETION OF ENTIRE UWS FOR USE BY SYSTEM WIDE		29-Jan-14 A									
MILESTONE 5 (1033d FROM NTP) (31 Jan 14) UWS ROOM ACCESS COMPLETION FOR ALL SYSTEM ROOMS		29-Jan-14 A									
MILESTONE 6 (1160d FROM NTP) (07 Jun 14) RESTORATION OF THE SITE OUTSIDE OF THE CONSTRUCTION WORK AREA		06-Jun-14 A									
MILESTONE 7 SUBSTANTIAL COMPLETION OF ALL WORK (1320d FROM NTP) (14 Nov 14) SUBSTANTIAL COMPLETION OF ALL WORK		14-Nov-14 A		+							
CONSTRUCTION	05-Apr-11 A	19-Jan-15		:		7					
STATION	05-Apr-11 A	19-Jan-15				7					
CROSSOVER	01-Aug-12 A	12-Dec-14			7						
ABOVE GRADE ENTRY	31-Aug-12 A	12-Dec-14			7						
PEDESTRIAN BRIDGE	29-Feb-12 A	12-Dec-14			7						

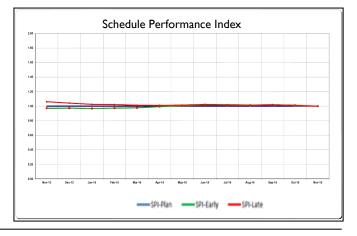
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## **Link Light Rail University Link Extension- Stations**



#### Schedule Performance Index

The U250 Schedule Performance Index (SPI) has risen slightly to above 1.00 this period. Construction progress is trending per plan as the U250 Contractor completes inspections, training and commissioning. Coordination with U830 continues.



#### **Key Activities**

#### **Current Period**

- Completed restoration and landscaping of the southwest
- Continued punch list item completion.
- Continued commission test demonstrations.
- Continued final inspections for escalator and elevator
- Continued Building Management System (BMS) terminations and testing.
- Completed landscaping, installation of irrigation, and installation of site furnishings at grade.

#### Next Period

- Complete grading and restoration efforts at the southwest corner of the site.
- Install site furnishings at grade level.
- Continue Building Management System (BMS) terminations and testing.
- Continue commissioning test demonstrations.

- Complete final inspections for elevator and escalator operation.
- Continue punch list item completion efforts.
- MTP SP1 pedestrian bridge guardrail fabrication is expected to commence in late January after mockup approval. Installation of all aluminum guardrail is expected to be complete before June 1, 2015.

#### **Closely Monitored Issues**

- Continued testing and balancing throughout the building. The Seattle Department of Transportation (SDOT) has advised that a trench drain and site wall will be required due to drainage concerns with the previously-approved design slope of planter beds adjacent to Montlake Boulevard. ST is pursuing the issue with SDOT.
  - Vibrations testing of the smoke exhaust fans on the north end of the project have resulted in alarm-level vibrations with both smoke exhaust fans running simultaneously. Review of the test data by the Engineers of Record were unable to determine the reason for the vibration, and requested the Contractor arrange for review by a vibration specialist to determine the source of the issue.

#### **Cost Summary**

Present Financial Status	Amount
U250 Contractor - Hoffman Construction	
Co.	
Original Contract Value	141,745,898
Change Order Value	6,073,088
Current Contract Value	147,818,986
Total Actual Cost (Incurred to date)	143,913,610
Financial Percent Complete:	97%
Physical Percent Complete:	100%
Authorized Contingency	7,087,295
Contingency Drawdown	6,073,088
Contingency Index	1.10



Testing transformer #2.

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# Link Light Rail University Link Extension - Systems

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

#### **Current Progress**

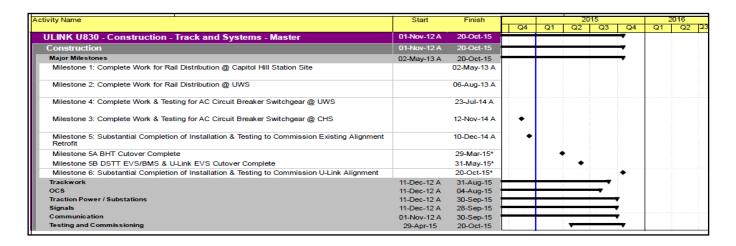
Track construction is now 100% complete with the installation of the crossover and the completion of the floating slab. Permanent power has been established at the UWS and CHS station. OCS brackets installation is underway. Coordination between station contractors continues. The first cutover of the SCADA System was completed last period. Floating Slab Installation and Permanent Power to CHS were also completed last period. Emergency Ventilation Level 3 Testing is expected in 2nd Quarter 2015 and critical SCADA cutovers are expected in March and May of 2015.

Work progress continued with approximately 62% physically complete against 73% contract time expended.

#### Schedule/Critical Path

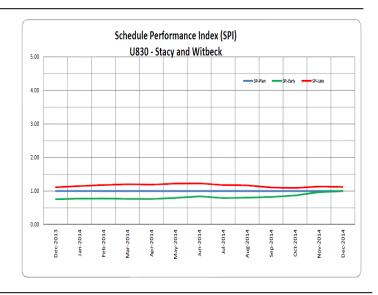
A status schedule update for December has been received for the December update, a December and January updates are expected next period which will address the OCS acceleration and an early commencement for System Integration Testing by U830 and ST. Milestone #6 (Substantial Completion) is reporting 0 days of positive float.

The U830 Critical Path runs through the communication equipment and testing/commissioning. Contractor production rates and construction submittals are being tracked closely. The OCS acceleration revisions are expected to be completed in the schedule update next period.



#### **Schedule Performance Index**

The SPI based on early forecast has risen to a 1.0 this period. 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

#### Trackwork

- Continued welding and setting rail to final line and grade in the tunnels.
- Installation of floating slab is complete. Crews are making final adjustments to bring track to final line and grade.

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

- Continued installation of fiber optic cables between CHS and UWS.
- Continued installation of overhead catenary system (OCS) in the tunnels.
- Continued factory acceptance testing of the field control system for DSTT and BHT.
- Continued installation of the signal cable and equipment in the tunnels between CHS and UWS.
- Ongoing design and software development for all system scopes.

#### Next Period

- Scheduled to complete welding and final adjustment to the double crossover.
- Continue installation of fiber optic cable between CHS and UWS.
- Continue installation of OCS in the tunnels.
- Begin installation of EMI cables at UWS platform and at the double crossover.
- Continue factory acceptance testing of the field control system for the tunnels.
- Continue installation of the signal cable and equipment in the tunnels between CHS and UWS.
- Ongoing design and software development for all system scopes.

#### **Closely Monitored Issues**

• Ongoing coordination with the two station contractors in preparation for communications systems installations at CHS and the closure of the temporary shaft at Pine St.

#### **Cost Summary**

Present Financial Status	Amount
U830 GC/CM Contractor - Stacy &	
Witbeck	
Original Contract Value	\$119,167,433
Change Order Value	\$1,896,776
Current Contract Value	\$121,064,210
Total Actual Cost (Incurred to date)	\$86,337,605
Financial Percent Complete	71%
Physical Percent Complete:	80%
Authorized Contingency	\$5,958,373
Contingency Drawdown	\$1,896,776
Contingency Index	2.5



Rack wiring at the UWS Signal Room.

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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 repair to the Traction Power/ Gear Unit is completed.

#### Other Systems

- U835 EMI/Vibration & Wheel Flat Monitoring continue final design activities and work plans.
- U810 MOW to submit 100% Design and mobilization of construction activities
- U829 Fare Collection Contracts TVM work commenced

#### Next Period

#### P821 – Light Rail Vehicles

- Contract Close Out on hold until repair to the Traction Motor/ Gear Unit (TM/GU) repairs is completed.
- Collaborate with manufacturer on the TM/GU fleet repair .

#### Other Systems

- U835 EMI/Vibration & Wheel Flat Monitoring continue final design activities and work plans.
- U810 MOW to mobilize for construction activities
- 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

### **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. 55% of contract costs are assigned to U-Link 45% Northgate Link.

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### 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.

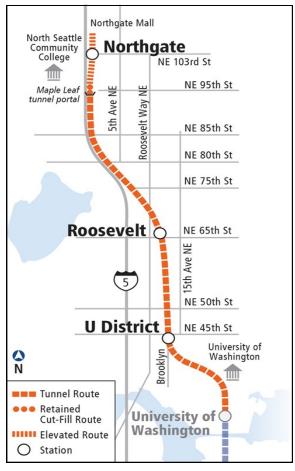
Systems: Include Signals, track electrification, and

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**

- Continued working with King County Metro and SDOT to advance station area planning and transit integration efforts for the Northgate area, including review of the City's cycle track and the pedestrian bridge over I-5 and King County's bus layover facility.
- Continued working to finalize the terms of a Possession and Use Agreement for Northgate Mall properties with the Simon Property Group (SPG). Agreement has been sent to SPG for their signature (anticipated end of Jan.).
- For N160 Northgate Station, Aerial Guideway & Garage, Received final proposals from the 3 finalist teams for the GC/CM contract. Negotiations with the high-scoring team will begin in January in an effort to award the contract for preconstruction services.
- For N111 Advanced Utility Relocation, an LNTP for the contract to relocate the 26kV power lines was issued to Walsh Construction Company.
- For N125, the northbound TBM No. 1 advanced 1,000 feet for a total to date of 4,700 feet. TBM No.2 advanced 375 feet and progress was slow due to the holidays and mechanical issues.

- At the Roosevelt Station, excavation of the station box continued, which is now about 75% complete and scheduled for completion in February 2015.
- At the U District Station, excavation continued to about 50% complete and continued work on a bridge that will support a new roadway on NE 43<sup>rd</sup> Street.

### **Closely Monitored Issues**

- The tunnel contractor has some challenges in meeting planned TBM production rates including delays in starting mining operations with TBM No. 2. A recovery schedule has been submitted with a plan to get this work back on track.
- 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.

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### **Project Cost Summary**

The Northgate Link project cost is summarized below by two cost categorizations. 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	\$149.5	\$149.5	\$24.0	\$25.6	\$149.5	\$0.0
PRELIMINARYENGINEERING	\$15.1	\$15.1	\$15.1	\$15.1	\$15.1	\$0.0
FINAL DESIGN	\$118.5	\$118.5	\$103.3	\$75.9	\$118.5	\$0.0
CONSTRUCTION SERVICES	\$112.1	\$112.1	\$79.5	\$14.6	\$112.1	\$0.0
3rd PARTY AGREEMENTS	\$11.8	\$11.8	\$10.4	\$3.5	\$11.8	\$0.0
CONSTRUCTION	\$1,338.1	\$1,338.1	\$466.7	\$201.9	\$1,338.1	\$0.0
VEHICLES	\$259.1	\$259.1	\$4.7	\$0.4	\$259.1	\$0.0
ROW	\$127.3	\$127.3	\$55.1	\$54.2	\$127.3	\$0.0
Total	\$2,131.4	\$2,131.4	\$758.6	\$391.2	\$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 \$15.5M was incurred, of which \$13.1M was for the N125 tunneling contract. Another \$0.6M was for civil and systems final design and design support during construction, and \$0.9M was for construction management. The remaining expenditures were for permit costs, right-of-way, third party coordination, staff, and other direct charges.

SCC Element	Baseline Budget	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
10 GUIDEWAY & TRACK	\$615.1	\$600.6	\$327.6	\$139.0	\$593.9	\$6.7
20 STATIONS	\$434.2	\$360.5	\$39.9	\$16.9	\$376.5	(\$16.0)
30 SUPPORT FACILITIES: YARD, SHOP	\$5.3	\$5.3	\$5.2	\$5.2	\$5.2	\$0.1
40 SITEWORK & SPECIAL CONDITIONS	\$64.3	\$132.6	\$88.0	\$39.4	\$136.5	(\$4.0)
50 SYSTEMS	\$110.9	\$110.9	\$0.9	\$0.9	\$110.9	(\$0.0)
Construction Subtotal (SCC 10 - 50)	\$1,229.9	\$1,209.9	\$461.7	\$201.5	\$1,223.1	(\$13.2)
60 ROW, LAND, EXISTING IMPROVEMENTS	\$143.1	\$116.8	\$55.1	\$54.2	\$116.8	\$0.0
70 VEHICLES	\$236.9	\$236.9	\$4.7	\$0.4	\$236.9	\$0.0
80 PROFESSIONAL SERVICES	\$400.8	\$411.6	\$237.2	\$135.1	\$405.4	\$6.2
90 CONTINGENCY	\$120.8	\$156.2	\$0.0	\$0.0	\$149.2	\$7.0
Capital Total (SCC 10 - 90)	\$2,131.4	\$2,131.4	\$758.6	\$391.2	\$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 N125 at an amount lower than the adopted budget. 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 \$23.3 million to \$372.9 million, which is 21.4% of project work remaining. During this reporting period, an increase of \$0.03M 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 \$184.0M, Allocated Contingency has increased by \$24.5M to \$208.5M. During this reporting period, an increase of \$0.03M occurred due to the approval of a credit for unspent funds associated with prior changes under the Civil Final Design contract.

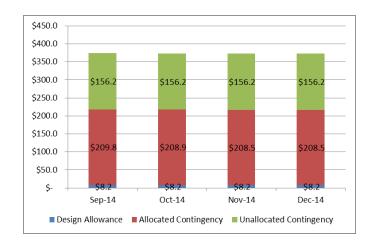
*Unallocated Contingency* – Compared to the baseline amount of \$98.3M, Unallocated Contingency has increased by \$57.9M to \$156.2M. No changes to the UAC occurred during this period.

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#### Cost Contingency Status, continued

	Baseline				Current			
Contingency Status		Amount	%of Total	otal Amount		% of Work Remaining		
Design	\$	113.9	5.3%	\$	8.2	0.5%		
Allowance	Ľ	110.0	0.070	Ľ	0.2	0.070		
Allocated	\$	184.0	8.6%	\$	208.5	12.0%		
Contingency	Ψ	104.0	0.070	Ů	200.0	12.070		
Unallocated	\$	98.3	4.6%	\$	156.2	9.0%		
Contingency	Ψ	30.3	4.0 /0	J	100.2	3.070		
Total	\$	396.2	18.6%	\$	372.9	21.4%		



### **Project Schedule**

The design team for the N105 Key Bank Remediation/Demo has been placed on hold pending resolution of the City of Seattle's comments on the grading permit. The N111 Contractor, Walsh Construction Company received a Limited Notice to Proceed on December 17, with a Full NTP expected on January 19, 2015. For N113, SCL 115kV Transmission Line Relocation, Sound Transit is moving forward with the evaluation of an alignment on the west side of I-5 within the WSDOT Right-of-Way. Geotechnical borings and wetlands delineations are planned to take place in the next two months. On N125 Tunnels, TBM No. 1 was shut down over the holidays with a total of 940 rings placed by mid-December. TBM No. 2 was delayed in starting the southbound bore due to freezing temperatures at the beginning of the month. As of the end of December, a total of 74 rings had been placed in the southbound tunnel.

Excavation of the Roosevelt and U-District Stations continues as planned. The N125 Contractor is nearing completion of the NE 43rd Street Bridge and the achievement of Milestone No. 1 which is anticipated at the end of January. The N140 U District Station GC/CM (Hoffman) is onboard and the 90% design effort began on December 8. Construction start for N140 is currently forecast for 2nd QTR 2017. The N150 Roosevelt Station 90% Design is currently with ST for review. The N160 Northgate Station, Aerial Guideway & Garage 100% Design start is on track with a planned start in March 2015. NTP for the GC/CM is still planned for late February 2015. The 30% Garage design is currently under ST review; 60% design will undergo a streamlined submittal process in late May 2015 and 90% design submittal is scheduled for mid-August 2015 after which the Garage design will be integrated into the N160 100% design package for submission in December 2015.

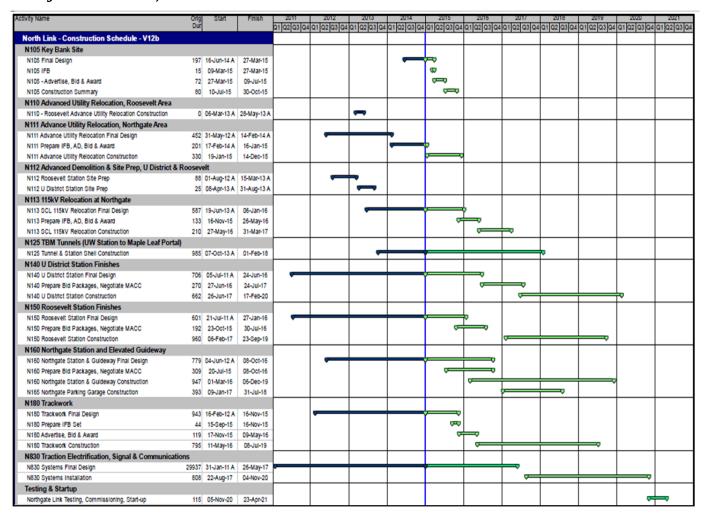
N180 Trackwork design will remain on hold under the end of January 2015 at which time feedback from the industry review of the U830 floating slab will be available.

The Northgate Link Extension Revenue service is still scheduled for September 2021 with overall project float is fore-casted at 139 days due to the current forecast slippage of 26 days in the N125 contract. This slippage currently drives the turnover of the U District Station site to the N140 contractor. It is currently anticipated that a portion (up to 5 days) of ST controlled float in the N125 contract may be used to grant the Contractor relief on the tunneling milestones due to the usually cold weather experienced in late November and early December 2014. Provided the TBM production rates planned by JCM are achieved, it should be possible to hold the current program float.

The Northgate Link Project Schedule is in the following page.

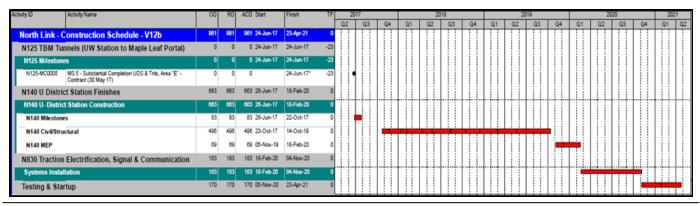
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### Project Schedule, continued



## Critical Path Analysis

The longest path through Northgate Link remains the N125 turnover of the U-District station site to the N140 contractor. Tunneling is the driving element, with station box excavations now anticipated to be complete in advance of the TBM reaching them. TBM No 2 continues to be the primary driver in turning over the station to the N140 contractor, followed by completion of the cross passages. JCM experienced a period of unusually severe cold over the Thanksgiving Holiday and the first few days in December that will result in extension of the milestones for Completion of the 43<sup>rd</sup> Ave. Bridge (1-day) and the Tunneling (5-days). The Revenue Service date is still forecast for September 2021 with the use of program float.

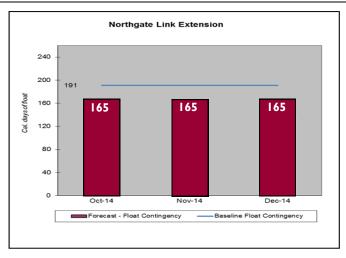


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#### **Critical Path Float**

The Northgate Link baseline schedule included 191 days of project-wide float. Some of those days have been allocated as buffers at critical interfaces between adjacent contracts. The current project-wide float is forecasted to drop from 165 days to 139 days due to the current forecast slippage of 26 days in N125. ST's CM group is currently working with the N125 Contractor to develop a recovery schedule which will put the project back on schedule. The Revenue Service is still scheduled in September 2021.



### **Construction Safety**

Data/Measure	December 2014	Year to Date	Project to Date
Recordable Injury/Illness Cases	2	12	12
Days Away From Work Cases	0	0	0
Total Days Away From Work	0	0	0
Restricted or Modified Work Cases	2	8	8
Total Days Restricted or Modified Work	9	188	188
First Aid Cases	0	8	9
Reported Near Mishaps	4	27	29
Average Number of Employees on Worksite	288	-	-
Total # of Hours (GC & Subs)	41,429	581,395	626,479
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	9.66	4.13	3.83
DART Rate	9.66	2.75	2.55
Recordable WA State Average	6.50	6.50	6.50
DART WA State Average	3.40	3.40	3.40

## 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** - Reviewing counter-offer from owner; two parcels waiting new appraisals; two parcels- Civil team still revising TCE purpose language; two parcels condemnation are filed in court and one parcel –revising documents prior to making offer.

**Tunnel Easements**: *UW Station to U District Station* - All parcels have been acquired. *Roosevelt Station to Northgate Station*— All required parcels have been acquired.

Line Section	Total Parcels Certified	Offers Made	Signed Agreements	Admin. Settle- ments	Possession and Use (P&U)	Closings to date	Baseline Relocations Required	Relocations Completed
U District Station	16	15	0	0	0	15	4	2
Roosevelt Station	20	18	0	0	0	18	26	26
Tunnel Easements	190	188	0	0	0	188	0	0
Northgate Station	11	6	0	0	0	0	13	0
Total	237	227	0	0	0	221	43	28

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### **Quality Assurance Activities**

#### **Activities**

- N105: 90% Design Submittal review.
- N160: Garage Only 30% Design Submittal review

#### Issues

• None to report

#### **Summary**

Description	Dec 2014	Notes
No. of Audits Planned	I	N105 100%
No. of Audits Completed	_	N105 90%
Reports in Progress	1	N105 90%
No. of Audits Post- poned	2	N125 RE Audit, N180 100% Design

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

Board Action	Description	Date
R2014-18 (Amended)	To acquire, dispose, or lease certain real property interests, including acquisition by condemnation to the extent permitted bylaw, and pay eligible relocation and re-establishment benefits to affected owners and tenants as necessary for the Northgate Link Extension and the Lynnwood Link Extension located along 1-5 near NE 94th Street and Northgate in the City of Seattle.	Dec 18
R2014-34	I) Amending the Adopted 2014 Annual Budget for U-Link from \$146,865,783 to \$208,689,716 and 2) Amending the Northgate Link Extension Adopted 2014 Annual budget from \$138,638,600 to \$267,769,271.	Dec 18

### **Community Outreach**

• Emailed monthly newsletter to Northgate Link distribution list.

#### Northgate Station

• Distributed notifications to businesses along 1st Ave. NE ahead of utility work to start in February.

#### Maple Leaf Portal and tunnels

- Distributed notices to residents along NE 69th Street in advance of upcoming street closures and cross passage dewatering work.
- Distributed pre-construction survey alerts and tunnel progress alerts.

#### Roosevelt Station

• Continued measuring windows for nearby residents who qualify for noise dampening window covers.

#### U District Station

- Distributed construction notifications for holiday pathway hours.
- Helped coordinate the NE 43rd Street paving work with SDOT to accommodate Pronto bike share.

#### **Business Mitigation**

• Ended Spend Five Get a Drive promotion on December 31.

#### **Environmental**

• Completed SEPA Addendum for the N113 115kV Line Relocation.

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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 Demolition and Remediation:

• Continued 100% design effort.

Contract Package N113 -115kV Relocation at Northgate Sta.

 Design effort paused in December pending confirmation of possible re-alignment onto WSDOT property.

<u>Contract Package N140</u> - U District Sta. Civil and Finishes:

- 90% design effort resumed.
- Continued preconstruction phase activities with the GC/CM contractor including workshop sessions.
- Continued with efforts on Green Street concept plans.

<u>Contract Package N150</u> - Roosevelt Sta. Civil and Finishes:

- Coordination with GC/CM continued including responses to GC/CM Constructability Log recommendations and comments.
- Continued 90% design effort and incorporation of outstanding 60% comments and submitted 90% design.

<u>Contract Package N160</u> - Northgate Sta. and Aerial Guideway Civil and Finishes:

- Continued to updates and resolve 90% Outstanding Issues, including preparation of action items list for completion during 100% design phase.
- Continued responding to ST 90% review comments.

<u>Contract Package N165</u> – Northgate Parking Garage (will be included in N160):

• Submitted 30% design effort package.

Contract Package N180 - Trackwork:

- Design on hold pending industry review and input from U-Link floating slab test section.
- Continued to track issues and information available from U830.

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

- Refined the construction schedule based on tunnel and station access dates.
- Began preparation for advertisement of GC/CM preconstruction services for the N830/E750 Systems construction project.

#### Final Design Schedule

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

	<u>60%</u>		9	0%	100% to ST	
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	7/31/14	7/31/14A	10/3/14	10/3/14A	2/23/15	2/23/15
NIII Advanced Utility Relocation – Northgate	12/21/2012	5/23/2013A	3/29/2013	10/15/2013A	7/12/2013	1/31/2014
N113 115kV Relocation at Northgate	10/29/2013	11/21/2014A	3/27/2014	6/8/2015	6/19/2014	9/4/15
N140 U District Station Finishes	12/24/2011	4/27/2012A	9/18/2012	8/19/2015	5/10/2013	5/12/16
N150 Roosevelt Station Finishes	4/13/2012	2/27/2012A	1/28/2013	12/18/2014	10/23/2013	9/10/2015
N160 Northgate Sta. Civil/Finishes/Guideway	6/27/2012	10/5/2012A	4/17/2013	3/7/2014A	11/26/2013	12/15/2015
N180 Trackwork	8/23/2012	8/23/2012A	5/22/2013	4/8/2013A	8/26/2013	11/18/2015
N930=TFacetion Electurification, Signals, Communications	12/12/2012	12/20/2012A	4/10/2014	8/31/2015	12/9/2014	5/16/2016

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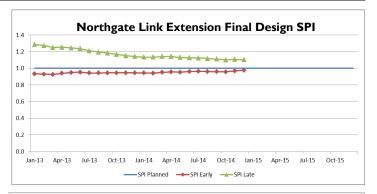
# Link Light Rail Northgate Link Extension - Final Design

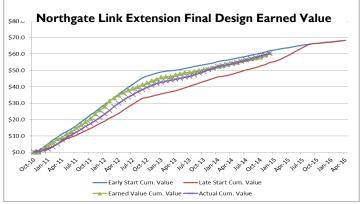
#### Final Design Schedule Performance

For Final Design activities only, the Schedule Performance Index (SPI) reported this period is .98 based on the early start dates. The design consultant has had some design deliverable milestones for N113, N140, N150 and N180 pushed back. Additionally, the late start SPI is 1.10 indicating that the design activities are slightly behind schedule but meeting their critical path dates.

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

Through this period, the total amount spent for civil final design is \$64.3M, which is approximately 71.9% of the total contract amount. For final design activities only, the total amount spent is \$60.3M, which is approximately 85.7%. The consultant reported 86.0% complete for final design activities, resulting in an Earned Value of \$60.5M. The cumulative Cost Performance Index (CPI) is currently 1.0, which indicates expenditures are in line with planned cost (Earned Value).





Performance	Previous Period	Current Period	Cumula- tive To Date
Amount Invoiced	\$59,633,111	\$728,894	\$60,362,005
Spent	84.6%	1.0%	85.7%
Earned Value	\$59,231,374	\$1,347,388	\$60,578,762
% Complete	84.1%	1.9%	86.0%
СРІ	1.0	1.8	1.0

#### Other Key Final Design Activities

#### Geotechnical Investigation

- Completed geotechnical exploration program for the Northgate Parking Garage parcels.
- Prepared N113 Geotechnical Conditions Summary Memo.

#### Surveying and ROW

- Completed field survey for N113 revised alignment.
- Continued updates to the garage parking map and N150 ROW Plans.

#### **Permits**

- Continued coordination support on MUP and SIP applications
- Continued revision of NEPA re-evaluation for N113. *Construction Noise Variances*
- None to report.

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

• None to report.

#### Ground Borne Noise and Vibration

- Reviewed vehicle procurement specification with respect to truck design.
- Developed provision for gear unity vibration & motor vibration testing.

#### Construction Cost Estimating

- Continued development of N150 90% cost estimate.
- Continued updates to KCM Bus Layover Facility cost estimate.

#### Construction Schedules

• Started development of N150 90% schedule.

#### <u>Quality Assurance</u>

• Completed N150 90% QA audit and began preparation of audit report..

#### 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.

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

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 - Civil and architectural finishes work for the Maple Leaf Portal, the aerial guideway, and the Northgate Station and Tail Track.

N165 Northgate Parking Garage (will be part of N160) - 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.

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

### **Construction Schedule Highlights**

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

A = Actual

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

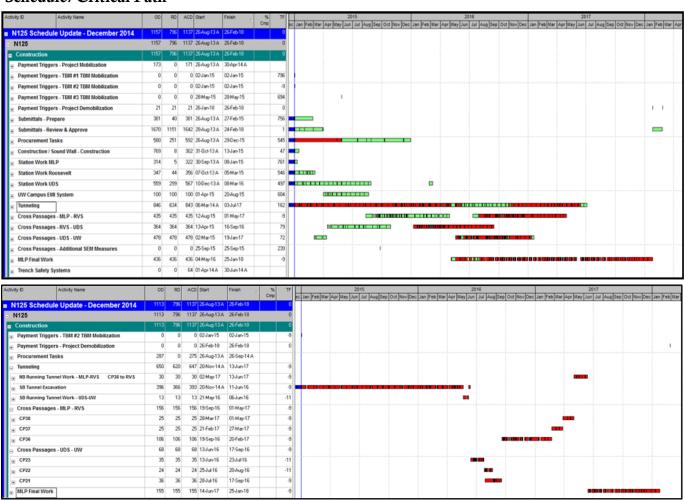
# Link Light Rail Northgate Link Extension - Construction

#### **Contract N125 – TBM Tunnels**

#### **Current Progress**

TBM No. 1 continued mining until December 20 and was shut down over the holiday period, with a total of 940 rings placed. The TBM is expected to resume mining January 5. Dewatering well installation for Cross Passage 36 continues. TBM No. 2 is continuing to mine with a total of 74 permanent rings placed. TBM No. 2 continues to drive the critical path due to its late start and slow progress. *At the Roosevelt Station,* Excavation and tie-back installation is continuing with 74.8% of the soil and is 12 working days ahead of schedule. Gate controller and sound wall modifications are under way. Restoration work at on NE 66<sup>th</sup> St. continues. *At U District Station (UDS)*, excavation and installation of lagging & tie-backs continues, with 39.2% of the soil removed as of the end of December. Completed sidewalk at U Manor and west abutment with handrail installation underway. Began sidewalk at east abutment. The 1600amp vault finish work continues.

#### Schedule/Critical Path



The critical path as illustrated above continues to be driven by TBM No. 2 followed by Cross Passages. The December schedule update now calculates 23 calendar days of negative float in achieving Milestone (MS) 5 - Substantial Completion UDS & Tunnels, and MS 2 – Demobilization from UDS. MS 6 – Substantial Completion of N125 is now 21 calendar days behind the contract date. JCM is expected to request and be granted 1 day of relief for MS 1 – Complete NE 43<sup>rd</sup> Street Bridge at UDS and 5 days for MS 2 due to unusually severe cold temperatures which occurred in early December. JCM's December schedule update indicates they are behind schedule, and in an effort to compensate, tunneling work after UDS is now planned to utilize 2 shifts, depending on the successful completion of a 14 day noise monitoring study, prior to DPD granting a waiver. JCM will complete the study in early to mid-January.

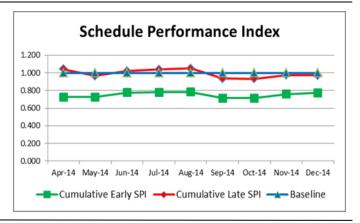
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# Link Light Rail Northgate Link Extension - Construction



#### Schedule Performance Index

The SPI for December is 0.77 up from 0.76 in November. The increase is the result of the performance of the Roosevelt Station excavation and the progress of the NE 43<sup>rd</sup> St. Bridge installation. Overall performance remains below the late curve. The factors keeping the performance low in comparison to the baseline are: lower than planned tunneling rate for TBM No. 2 and shutdown of TBM No. 1 over the holidays. JCM's December Schedule Update is currently in review.



#### **Key Activities**

#### Current Period

• CSI continued casting segment rings – 63% have been produced.

#### Maple Leaf Portal (MLP)

- Continued TBM No.1 mining in NB tunnel. Total progress to date: 940 rings.
- Continued TBM No.2 mining in SB tunnel: 74 rings total.

#### Roosevelt Site (RVS)

- Continued shaft excavation and installation of tie-backs.
- Completed first jet grout core hole at north wall.
- Completed installation of soil nail walls.

#### U District Site (UDS)

- Continued excavation, installation of lagging and tiebacks.
- Completed north saddlebag mud slab.
- Completed pavement and sidewalk by U Manor.

#### Next Period

- Continue casting production segment rings.
- Continue mining with TBM No. 1 and 2.
- At RVS, continue shaft excavation and tie-back installation and continue soil nail installation and repairing of slurry wall bulges and defects.
- At UDS, continue excavation of shaft and installation of tie-backs; continue 1,600 amp vault finishing work; complete sidewalk near U Manor..

#### **Closely Monitored Issues**

• TBM No. 2 schedule continues to fall behind the planned production rate due to various startup problem.

#### **Cost Summary**

Present Financial Status	Amount
N125Contractor - JCM Northlink	
Original Contract Value	\$440,321,000
Change Order Value	\$ 1,876,361
Current Contract Value	\$442,18,361
Total Actual Cost (Incurred to date)	\$185,927,268
Financial Percent Complete:	42%
Physical Percent Complete:	42%
Authorized Contingency	\$22,016,050
Contingency Drawdown	\$ 1,867,361
Contingency Index	4.99



Test coring jet grout block for the NB tunnel eye location at RVS.

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# Link Light Rail Lynnwood Link Extension

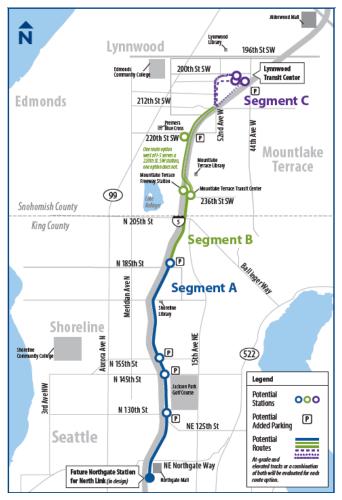


## Scope

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, completed in the 3rd QTR 2011 and Environmental Scoping, completed in the 4th QTR 2011. Development of the Conceptual Engineering and Draft EIS concluded in 2013. In November 2013, the Sound Transit Board identified the preferred route and station alternatives for the Final EIS.

## **Key Project Activities**

- Phase 3 (Final EIS and Preliminary Engineering) began in December 2013.
- Preparing for Final EIS and PE completion in 2015.
- Preparing application for FTA New Starts Engineering phase authority.



Map of Lynnwood Link Extension route and station alternatives.

# **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 and reflects forecasting to complete (EFC).

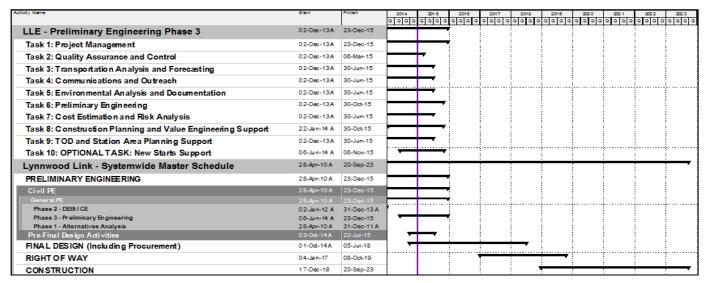
Phase	Adopted Budget	Commitment to Date			Estimated Final Cost (EFC)	Budget Versus EFC
Administration	\$10.7	\$4.3	\$4.3	\$7.5	\$11.7	(\$1.0)
Preliminary Engineering	\$44.3	\$39.0	\$31.8	\$5.3	\$44.3	\$0.0
3 <sup>rd</sup> Party Agreements	\$1.0	\$0.6	\$0.2	\$0.4	\$1.0	\$0.0
Right of Way	\$1.1	\$0.4	\$0.3	\$6.7	\$7.1	(\$6.0)
Total	\$ <b>57.</b> I	\$44.2	\$36.6	\$19.9	\$64.1	(\$7.0)

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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 in 2015. The project schedule is presented below.



## **Sound Transit Board Actions**

Board Action	Description	Date
	None to report this period.	

### **Environmental**

Preparing Final EIS for publication in early 2015.

# **Community Outreach**

- Prepared an Outreach Plan/Agenda and facilitated a team planning meeting regarding notification of the FEIS in March 2015. The meeting concluded with clear direction on activities and responsibilities between Community Outreach, Project, Environmental, Government Relations and Media Relations staff.
- Discussed roles and responsibilities for notification to potentially impacted property owners prior to the FEIS publication.
- On-going discussion of early planning for geotechnical investigation works.

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



## Phase 3 Preliminary Engineering and Final EIS

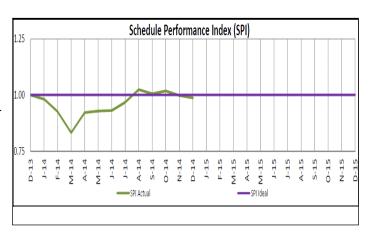
Sound Transit executed a contract amendment for Phase 3, Preliminary Engineering and Final EIS for Lynnwood Link, in December 2013.

## Phase 3 Key Activities

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

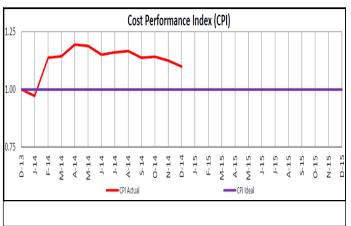
## **Phase 3 Schedule Performance**

The cumulative Schedule Performance Index (SPI) for the Phase 3 contract is 0.99 through December, indicating work performed to date is close to the amount originally planned. Critical path work is slightly behind schedule. Sound Transit is working with the consultant on a potential schedule modification that would extend the Phase 3 completion date.



### Phase 3 Cost Performance

\$31.1 M of the total contract amount, approximately 85%, has been spent through December. Phase 3 contract expenditures through December totaled \$14.7 M, approximately 73% of the Phase 3 contract total. The Phase 3 contract percent complete reported at the end of December is 80%, with an earned value of \$16.2 M. The cumulative Cost Performance Index (CPI) through December is 1.10; indicating costs are lower than the budget planned for work accomplished.



Phase 3 Performance	Previous Current Period Period		Cumulative To-date
Amount Invoiced	\$13,535,930	\$1,160,579	\$14,696,510
% Spent	67%	6%	73%
Earned Value	\$15,216,310	\$937,047	\$16,153,357
% Complete	76%	4%	80%
SPI	1.00	0.84	0.99
СРІ	1.12	0.81	1.10

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# Link Light Rail East Link Extension





Map of East Link Extension.

## 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: Rainier Ave/I-90, Mercer Island, South Bellevue, East Main, Bellevue Transit Center, Hospi-

tal, 120<sup>th</sup>, 130<sup>th</sup>, Overlake Village and the Overlake Transit Center (OTC).

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

**Budget:** \$798.3 Million Lifetime Budget through the Final Design Phase.

**Phase:** Final Design

Construction Starts: 2016 Service: 2023

# **Key Project Activities**

### Seattle to South Bellevue

- R8A Stage 3A HOV lane construction continues.
- *Stations:* Prepared a traffic study for the 80th Street Transit Center in Mercer Island and continued working with staff on alternatives for accommodating additional parking.
- IDS Turn Back Track: Construction sequencing and durations are being studied as part of the VE recommendations.
- Track Attachment: Structural component and system testing will commence at UW in early January 2015.
- Floating Bridge: Coordination with WSDOT continues on a variety of technical analysis.
- Utilities: Ongoing discussions with SCL regarding route and cost for transmission upgrade to service TPSS sites.
- D2: TTCI has completed the operations analysis of the D-2 with regard to alignment and profile and vehicle operating speeds.
- Process to select artists for the corridor is underway.

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# Link Light Rail East Link Extension

## Key Project Activities, continued

#### South Bellevue to Redmond

- Continued working with City of Bellevue on Memorandum of Understanding Amendment.
- Continued working with various third- party utilities to finalize the Master Relocation Agreements.
- Sound Transit and HJH continued design development and responding to 90% review comments of various contract packages.
- Continued E360 (SR 520 to OTC) procurement activities. Final RFP to be issued mid-January 2015.
- Completed agreement with PSE for relocations in E360.
- Continued working through WSDOT's design approval process.
- Continued with the E335 (Downtown to Spring District) GC/CM procurement. Notice to Proceed anticipated in January 2015.

## **Project Cost Summary**

The following table summarizes the cost information for the East Link Extension. Lifetime Budget reflects the project budget adopted by Sound Transit Board, which includes budget through the Final Design Phase.

	Lifetime Budget	Commit- ment to Date	Incurred to Date	Forecasts and Trends	Estimated Final Cost (EFC)	Budget vs. EFC
Administration	\$68.1	\$27.8	\$31.0	\$40.3	\$68.1	\$0.0
Preliminary Engineering	\$56.6	\$54.3	\$53.8	\$2.3	\$56.6	\$0.0
Final Design	\$232.6	\$153.0	\$121.6	\$79.7	\$232.6	\$0.0
Construction Services	\$11.0	\$3.5	\$.12	\$7.6	\$11.0	\$0.0
3rd Party Agreements	\$40.6	\$6.1	\$3.6	\$34.5	\$40.6	\$0.0
Construction	\$24.0	\$12.4	\$5.9	\$11.6	\$24.0	\$0.0
Right-of-way	\$365.4	\$56.5	\$52.6	\$308.9	\$365.4	\$0.0
Total	\$798.3	\$313.6	\$268.5	\$484.8	\$798.3	\$0.0

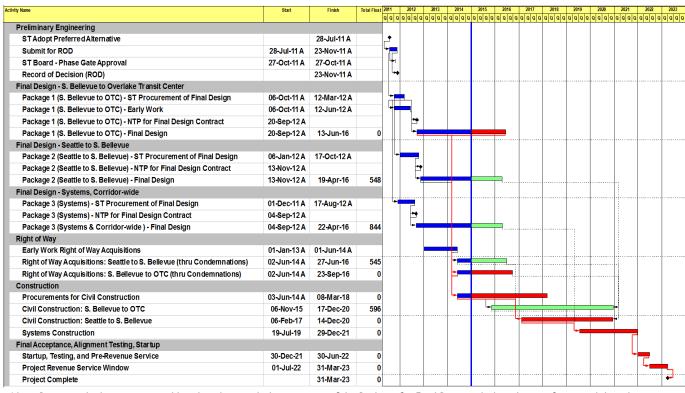
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# Link Light Rail East Link Extension



## **Project Schedule**

The East Link Extension is in Final Design. Revenue Service to the Overlake Transit Center is forecast for 2023. Contract packaging has been established and sequencing of construction continues to be refined. E335 GC/CM (Downtown Bellevue to Spring District) procurement is underway; and Bellevue Segment CMC Contract was awarded. E360 Design Build contract is also in procurement.



\*Note: Dates tracked are contractual baseline dates with the exception of the Package 2 - Final Design which is showing forecasted date that is currently being negotiated. Project baselining is scheduled to occur in the 1st QTR 2015, at which time the dates shown will all be baseline dates.



South Bellevue Station platform (60% design).

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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.

East Link Extension Property Acquisition Status									
Line Section	Board Approved Offers Made Signed Agreements Possession and Use Closings to date Relocations Required Comp								
Seattle to S. Bellevue	2	0	0	0	0	0	0		
S. Bellevue to OTC	233	90	3	0	57	218	62		
Bellevue Mile	I	1	1	0	I	0	0		
Total	236	91	4	0	58	218	62		

In an effort to clearly track the individual parcels as they directly relate to each individual project segment or multiple segments, the report has been modified to reflect those parcels that fall into the multiple segment category. Therefore, 19 parcels were removed from E320 and placed into the E330/E335 segment and 26 parcels were removed from E330 and placed in the E330/E335 segment. Status of the City of Bellevue parcels are found in the "Board Approved" column.

### Seattle to S. Bellevue

E110 IDS Rail Connection Upgrades - No new activity.

#### S. Bellevue to OTC parcels

E130 I-90/E320 S. Bellevue- No new activity.

E320 - Two parcels signed and four vacated.

E330 Downtown Bellevue / E335 Downtown Bellevue to Spring District – Offers were made on five parcels, one parcel closed and three vacated.

*E335* – One parcel board approved, one offer made and one vacated.

E340 Bel-Red - Two offers made and one closed.

*E360 SR 520 to OTC* – One offer made and one parcel vacated.

# **Quality Assurance Activities**

#### Activities

• E120: Substantial Post 60% Progress package review

• E340: 100% Design Submittal review

E750: 60% Design Submittal review

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

• None to report.

Description	Dec 2014	Notes
No. of Audits Planned	2	E330 IFB, E320 100%
No. of Audits Completed	2	E340 100%, E320 90%
Reports in Progress	3	E130 60%, E340 100%, E320 90%
No. of Audits Postponed	3	E110 90%, E120 90%, E130 90%

### Summary:

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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
	None to report this period.	

## **Community Outreach**

- Published the South Bellevue 90% Final Design Public Involvement Summary.
- Continued coordination with Project team on private utility outreach to property owners.
- Continued responding to a number of public inquiries related to Mercer Island's integrated transit service and proposed parking. The public involvement summary will be published next period.
- Presented project updates to various stakeholders.
- Notified property owner regarding proposed noise monitoring.

### Construction

### I-90

- Continued I-90 (Stage 3A) HOV ramp construction.
- I-90 Stage 3 (adding HOV lanes on outer roadway between Mercer Island and Seattle) pre-construction underway.
- I-90 Construction management Services Request for Qualification (RFQ) in development.

### Bellevue-Redmond

- Bellevue Segment Construction Management Services (for preconstruction services), contract awarded.
- E335 GC/CM procurement in progress. Notice to Proceed anticipated in January 2015.



Paving the realignment of the Bellevue Way HOV off ramp from I-90.



I-90 Floating Bridge Track Attachment Test Program



I-90 Floating Bridge Track Attachment Test Program

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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 Overlake Transit Center (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 OTC.



Map of South Bellevue to the Overlake Transit Center in Redmond.

## Final Design Key Activities

#### E320 So. Bellevue

- Continued Surrey Downs Park coordination with City of Bellevue, confirming design details included in the E320 contract.
- Revised civil drawings to include and reflect the City of Bellevue East Central Business District (ECBD) Sewer Trunkline Improvements project and the Bellefield Pump Station project.
- Initiated revisions to plans and specifications for the 100% design package.

# E330 Downtown Bellevue/E335 Downtown Bellevue to Spring District

- Completed responses to 100% comments and incorporated revisions.
- Performed/supervised testing and sampling of concrete coring and reinforcement sampling work at the Skyline basement in support of the basement evaluation work.
- Completed revisions to the IFB submittal drawings and specifications and began checking quality control .

#### E335 Downtown Bellevue to Spring District

- Continued coordination with King County Wastewater Treatment District regarding their Eastside Interceptor project.
- Prepared ground and surface water disposal concurrence exhibits.

#### E340 Bel-Red

- Completed, sealed, signed the 100% E340 contract package plans, specifications, reports, and calculations.
- Completed and submitted the final white paper summarizing results of VISSIM analysis of signal timing and coordination options for managing queues on North East 20<sup>th</sup> Street between 140<sup>th</sup> Avenue NE and the future Light Rail Transit grade crossing at 136<sup>th</sup> Place NE.
- Coordinated with precast contractor (includes plant site visit) for the fourth round of precast panel mockups.

### E360 SR 520 to OTC

- Met with WSDOT to discuss SR 520 closure conditions.
- Updated Operation and Maintenance drawings for the Sound Transit/WSDOT Airspace Lease.
- Re-evaluated WSDOT sweeper spoils processing site embankment volumes for coordination of the agreement for Sound Transit construction impacts at that site.

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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% Submittal		<u>90% Su</u>	90% Submittal		100% Submittal		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	7/13/2015	7/13/2015
E330 Downtown Bellevue Tunnel	11/18/2013	11/18/2013	6/2/2014	6/02/2014	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	10/19/2015	3/8/2016	3/8/2016	6/13/2016	6/13/2016
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		*Baseline schedule dates revised to reflect final contract packaging			act packaging
	Baseline*	Forecast/ Actual	Baseline*	Forecast/ Actual	and construction delivery methods.			
E360 SR-520 to OTC	2/18/2014	2/18/2014	1/19/2015	1/19/2015				

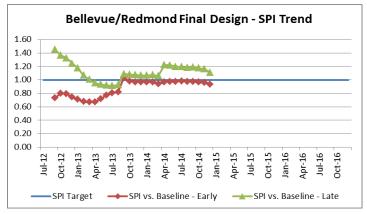
## Final Design Schedule Performance

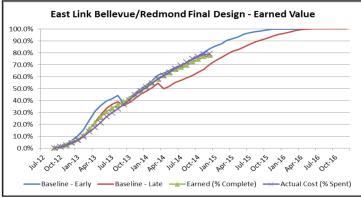
OTC

Excluding Other Direct Expenses (ODC's), Profits and DSDC, the Schedule Performance Index (SPI) reported this period is at 0.98 when measuring against the Early Schedule Baseline, and 1.21 when measuring against the Late Schedule Baseline. E335 design progress is on-hold until the GC/CM contractor is under contract (anticipated in January 2015) Design Submittal Milestones were established on November 20, 2014 and are reflected in the table above.

### **Final Design Cost Performance**

Labor cost (for Phase 2 Final Design) to-date is \$60.6 million, or 77.9% of the budget. Progress earned through the same period is approximately 77.2% or \$60.1 million of earned value. This yields a cumulative Cost Performance Index (CPI) of 0.99, 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.

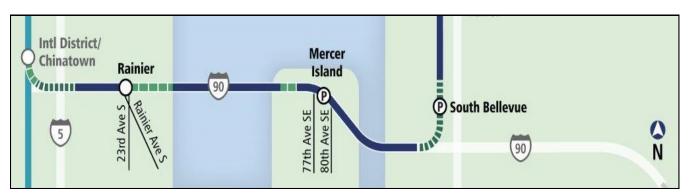




Performance	Previous	Current	Cumulative
Periormance	Period	Period	To Date
Labor Amt. Invoiced	\$59,239,055	\$1,310,424	\$60,549,479
% Spent	76.9%	1.0%	77.9%
Earned Value	\$57,832,628	\$2,224,301	\$60,056,929
% Complete	75.1%	2.1%	77.2%
CPI	0.98	1.70	0.99

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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 and community outreach support.

The project in this segment has been grouped into three Contract Packages: (1) E110 Rail Connection and Upgrades at IDS, (2) E120 Seismic Retrofits of WSDOT Structures, (3) E130 I-90 Civil/Architectural, which also includes the two at-grade stations, and Electrical/Mechanical Upgrades to existing Tunnels.

## Final Design Key Activities

- TTCI has completed the operations analysis of D2 Roadway with regard to alignment, profile and vehicle operating speeds. The report is being circulated for approval of operating speeds.
- *Mercer Island Station:* A traffic study is being prepared for the 80th Street Transit Center and work continues with Mercer Island staff on identifying additional parking alternatives.
- *Rainier Avenue Station*: Initiated a Pedestrian Circulation Concept for the Rainer Avenue station entrance area and will be reviewed for concurrence by SDOT and WSDOT.
- Floating Bridge: Met with WSDOT to discuss the combined global and local analysis report submitted in November
- Track Attachments: Held a VE workshop. Phase 2/Stage 2, structural testing, will commence in January 2015.

### Final Design Schedule

	60% Submittal		90% Submittal		100% 5	Submittal	IFB Submittal	
Contract Packages	Baseline	Actual	Baseline	Forecast/ Actual	Baseline	Forecast/ Actual	Baseline	Forecast/ Actual
E110 - Rail connection & IDS upgrades	12/6/2013	6/3/2014	10/9/2014	3/15/2015	2/13/2015	6/22/2015	4/28/2015	10/6/2015
E120 - Seismic Retrofits	11/1/2013	9/24/2014	1/15/2015	7/17/2015	3/25/2015	11/6/2015	4/28/2015	2/24/2016
E130 – I-90 Civil/ Arch./Elect. & Mech. Upgrades	4/4/2014	7/11/2014	12/17/2014	4/15/2015	3/25/2015	1/2/2016	4/30/2015	2/5/2016

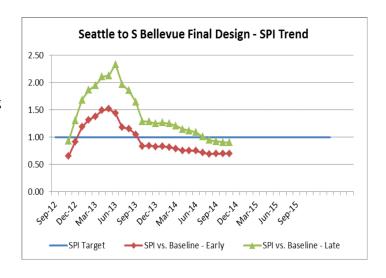
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# Link Light Rail East Link Extension Final Design - Seattle to S. Bellevue



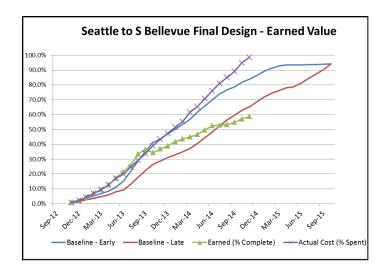
## Final Design Schedule Performance

Schedule Performance continues to indicate the project schedule is slipping; cumulative SPI – Early as reported for the November 2014 period remains at 0.70. The overall E120 60% Design Submittal was submitted as a progress print only, due in part to pending design concurrences from WSDOT. Mitigation strategies are being put into place to reduce the impact to the overall schedule, including submittal of progress prints to allow review to begin. 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, anticipated 1st QTR 2015. Concurrence on a revision of the current baseline milestone dates is anticipated in the 1st QTR 2015. Upon ST acceptance of revisions, baseline milestones will be revised by an administrative change order.



## Final Design Cost Performance

Excluding professional fee, labor and Other Direct Costs for Final Design through November 2014 is \$27.2 million, or 99.4% of the budget. Cost performance for the current period is 0.45; the CPI continues to indicate a downward trend, and remains below the desired 1.00 at 0.59 cumulative. The current budget includes executed change orders; however, additional upward cost pressure continues in several areas due in part to added scope and scope changes at the request of Sound Transit, pending design concurrences from WSDOT, and other factors. The Estimate at Completion (EAC) continues to trend above the current budget. The ST Board authorized contract contingency of \$5.5M in October 2014. Senior management for both the consultant and Sound Transit continue to engage in discussions on scope/budget realignment that include these items; agreement on the final terms is anticipated in the 1st QTR 2015. Ongoing review continues to ensure project completion in a cost-effective and successful manner.



Performance	Previous Period	Current Period	Cumula- tive To Date
Amount Invoiced (not include Prof. Fee)	\$26,138,767	\$1,037,461	\$27,176,228
% Spent	95.6%	3.8%	99.4%
Earned Value	\$15,605,682	\$461,959	\$16,067,640
% Complete	57.1%	1.7%	58.8%
СРІ	0.60	0.45	0.59

Table figures in millions.

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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, preparations of comprehensive construction contract documents, 3rd party coordination, cost estimating, scheduling, and bid support.

## Final Design Key Activities

- Finalized the SE 20<sup>th</sup> street traffic/ train control simulations to assist with justification for proper safety measures.
- Held the 60% design value engineering week long workshop with results expected in Mid-January.
- Completed train control/ signal system white paper for the operations of 130<sup>th</sup> and 132<sup>nd</sup> street gated crossing.
- Completed Central Link radio system traffic survey.
- Finalized baseline construction schedule.
- Submitted E340 100% design to ST.
- Finalized electrical isolation prototype plinth test report.

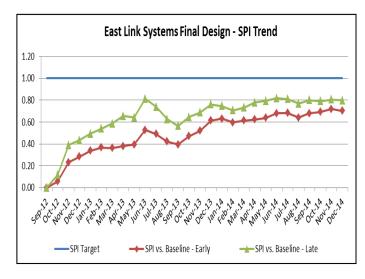
## Final Design Schedule

Though IFB submittal is showing six months behind schedule, there is no impact to the overall schedule.

	60% Submittal		90% Submittal		100% Submittal		IFB Submittal	
	Baseline	Actual	Baseline	Forecast/ Actual	Baseline	Forecast/ Actual	Baseline	Forecast/ Actual
E750– LRT Systems	5/16/2014	10/24/2014	2/2/2015	7/8/2015	8/20/2015	1/28/2016	10/21/2015	4/22/2016

### Final Design Schedule Performance

In December 2014, the project is 46.3% complete resulting in an Earned Value of \$8.16M. The project has an early SPI of 0.75 and a late SPI of 0.99 which indicates that the contract is behind schedule. Revisions to the civil design schedules resulted in a delay to the systems deliverables.



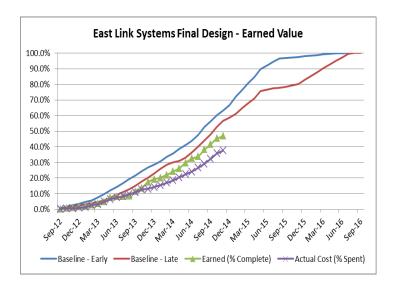
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# Link Light Rail East Link Extension Final Design - Systems



## **Final Design Cost Performance**

Through the end of December 2014, the project has spent approximately 37.14% of the budget resulting in CPI of 1.25. The current Estimate at Completion (EAC) is expected to be less than the current budget of \$18M.



Perfor- mance	Previous Period	Current Period	Cumulative To Date
Labor Amt. Invoiced	\$6,239,400	\$306,279	\$6,545,679
% Spent	35.4%	1.7%	37.1%
Earned Value	\$7,912,838	\$247,210	\$8,160,048
% Complete	44.9%	1.4%	46.3%
CPI	1.3	0.8	1.3



Community Outreach staff answering questions in the Open House.

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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.

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

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): Meeting with S440 Contractor and the City of SeaTac (COS) Fire Marshall determined that electrical chases and above ceiling spaces will need to be sprinkled to protect fire/life/safety conductors. COS has indicated King County Storm Water codes may require adding detention facilities to the previously approved S440 storm water IFC and permitted design. COS provided feedback to S440 sub-contractor, which they are taking action to update and submit the revised drainage report.
- *Design Build Parking Garage (S445):* None to report.
- *Military Road / South 200th (S446):* Final design consultant finalizing to 60% design.

Roadway Improvements (S447): Final design consultant finalized IFB package and procurement was advertised for bids-ST Board scheduled for February 2015. Working with the City to finalize the flow control and water quality agreements; working to finalize the permit agreement with the Highline Water District; continue to obtain ROW takes and easements.

# **Closely Monitored Issues**

 Port of Seattle was advised of a potential claim from ST Contractor due to the late column footing design changes; discussions continue with Port.

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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	\$8.5	\$9.2	\$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	\$7.9	\$9.7	\$0.2
CONSTRUCTION SERVICES	\$15.1	\$17.3	\$15.0	\$6.5	\$17.1	\$0.2
3rd PARTY AGREEMENTS	\$6.9	\$7.1	\$5.6	\$2.6	\$7.1	\$0.0
CONSTRUCTION	\$275.7	\$283.8	\$214.2	\$121.1	\$263.5	\$20.3
VEHICLES	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$43.5	\$43.5	\$41.4	\$36.3	\$43.5	\$0.0
Capital Total	\$383.2	\$383.2	\$298.7	\$189.3	\$362.5	\$20.7
FINANCE COST	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Project Total	\$383.2	\$383.2	\$298.7	\$189.3	\$362.5	\$20.7

The overall project Estimated Final Cost (EFC) for this period continues to reflect \$362.5M. This period incurred cost increased approximately \$7.7M, of this \$7M was for construction activities. \$440 design build Guideway & Station contract was \$4M and \$445 design build Parking Garage contract was \$2M. Construction services were \$0.3M and the remaining expenditures for \$0.5M were related to civil final design, third party, ROW and administrative charges .

The EFC grouped by SCC is consistent at \$362.5M and remains unchanged from last month, indicating remaining work 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	\$134.0	\$98.4	\$58.2	\$118.1	\$15.8
20 Stations	\$46.4	\$48.9	\$38.0	\$12.2	\$37.8	\$11.1
30 Support Facilities: Yards, Shops	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$34.6	\$49.6	\$39.3	\$21.9	\$53.0	-\$3.4
50 Systems	\$30.8	\$20.1	\$19.2	\$11.1	\$20.1	\$0.0
Construction Subtotal (SCC 10-50)	\$256.6	\$252.6	\$195.0	\$103.3	\$229.1	\$23.5
60 Row, Land, Existing Improvements	\$43.5	\$43.5	\$41.4	\$36.3	\$43.5	\$0.0
70 Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
80 Professional Services	\$64.1	\$70.9	\$62.3	\$49.7	\$76.3	-\$5.4
90 Unallocated Contingency	\$19.0	\$16.2	\$0.0	\$0.0	\$13.6	\$2.6
Project Total (SCC 10-90)	\$383.2	\$383.2	\$298.7	\$189.3	\$362.5	\$20.7
100 Finance Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Project Total (SCC 10-90)	\$383.2	\$383.2	\$298.7	\$189.3	\$362.5	\$20.7

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## **Cost Contingency Management**

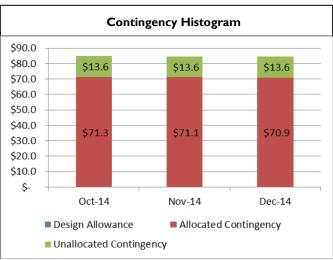
The overall project contingency balance as of this period is \$84.5M.

<u>Design Allowance (DA):</u> 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.

<u>Allocated Contingency (AC)</u>: This period the AC shows a current balance of \$70.9M, a decrease of \$0.2M from the previous period. The reduction was primarily attributed to construction change orders from \$440 contract, ROW expenditures, and minor administrative expenses.

<u>Unallocated Contingency (UAC)</u>: This period the UAC continues to show a current balance of approximately \$13.6M.

Contingen-	Base	line	Current		
cy Status	•		Amoun t	% of Work Remaining	
Design Allowance	\$26.7	7.0%	\$ -	0.0%	
Allocated Contingency	\$29.8	8.0%	\$70.9	40.9%	
Unallocated Contingency	\$19.0	5.0%	\$13.6	7.9%	
Total	\$75.5	20.0%	\$84.5	48.8%	



# 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 3rd QTR 2014:

- Construction: Delays due to City of SeaTac electrical inspections (S440).
- Third Party: Port of Seattle changing rules of engagement on their property after DB contract awarded (S440).
- *Construction:* Integrating the various System and Station components.
- Construction: Delays due to L&I inspections and Certificate of Occupancy for elevators (S440 and S445).
- Construction: Inconsistent application of quality management process (S440).

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# **Project Schedule**

Typical span erection by the overhead truss is underway though full production rate has not been achieved but is expected next period. S445 DB Parking Garage Design/Builder has mobilized on site with early access in August 2014. A baseline schedule was accepted and the November schedule update is under review. The S. 200th Link Extension anticipated service launch is September 2016. (See Project Schedule Summary below).

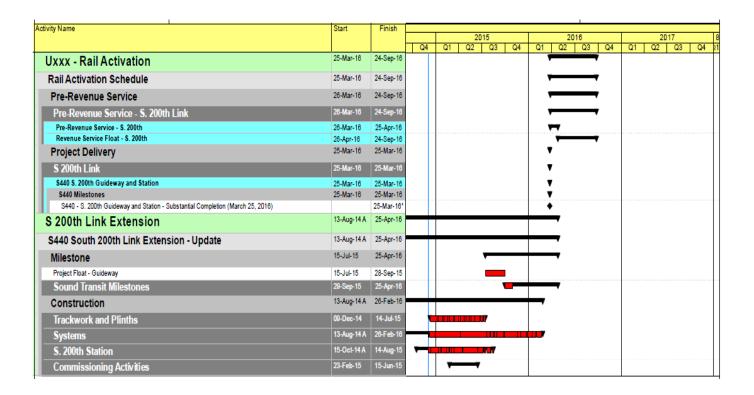
tivity Name	Start	Finish				
			14	2015	2016	2017
			Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3
Sound Transit	29-Sep-10 A	27-Sep-17				
University Link (UL)	29-Sep-10 A	27-Sep-17				
Rail Activation Schedule	29-Sep-10 A	27-Sep-17	_			
LRT Extension - South	28-Sep-12 A	25-Apr-16				
S440 South 200th Link Extension - Update	28-Sep-12 A	25-Apr-16			<del></del>	
SL 442 - Fare Collection Equipment (TVM/ORCA)	24-Jan-14 A	21-Feb-16			_	Ī
SL 443 - SCADA (U830)	22-Dec-15	21-Jan-16		٠,	7	
S445 S. 200th Link Extension Parking Garage Design-Build	03-Mar-14 A	13-Jan-16			7	
SL 446 - S. 200th WSDOT Roadway - Preliminary	01-Nov-12 A	01-Apr-16			_	
SL 447 - S. 200th Station Area Roadway	01-Mar-13 A	08-Feb-16			~	

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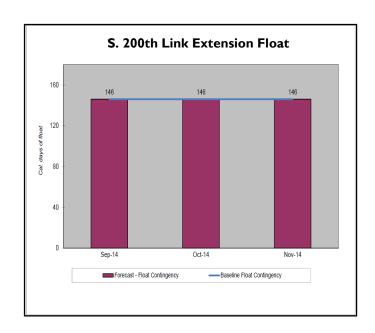
# **Critical Path Analysis**

The critical path of S. 200<sup>th</sup> 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 special track and the installation of plinths commencing next period through systems installation and commissioning and system wide testing and integration.



## **Critical Path Float**

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



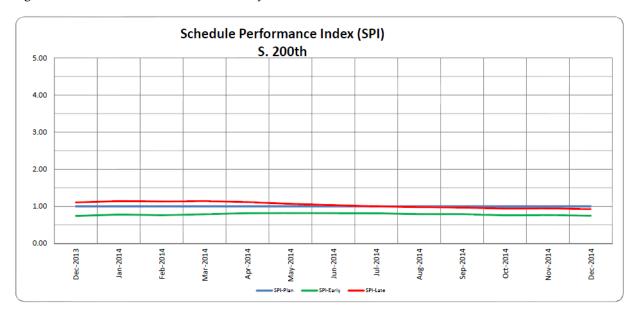
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## **Schedule Performance Index**

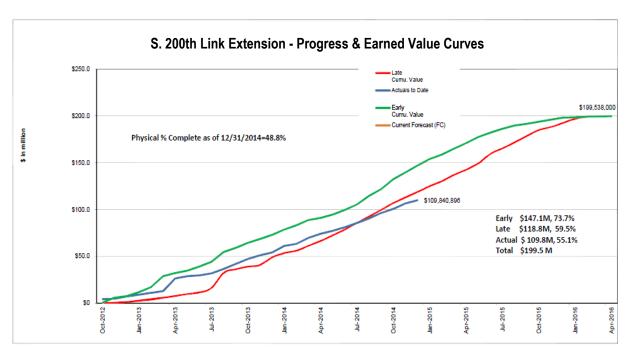
The Schedule Performance Index (SPI) for S.200th continues to fall to 0.75 due to slower than expected span erection by the gantry truss and segment casting at the casting yard for S440 and design delays at S445. (See details on individual contract sections.)

Progress will continue to be monitored closely.



## **Cost Progress Analysis**

Overall S. 200th physical % complete is at 49.0%. 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 S. 200<sup>th</sup> Link Extension involves the acquisition of a range of property interests, including owner and tenant residential and commercial relocations. Property interests include compensable (e.g., easements, fee acquisitions) and noncompensable rights (e.g., rights of entry). The S. 200th Link Extension project involved the advance acquisition of three parcels that the Board approved in 2006 and 2007; the final decree was entered in 2009. These parcels were acquired through the Regional Fund Contingency. Sound Transit's protective acquisition of these properties prevented development of parcels needed for the project. The acquisition of property rights from additional parcels along the route was authorized by the Board in July 2011 and February 2012. The right-of-way program is summarized below.

Line Section	Total Parcels Certified	Of- fers Made	Signed Agree- ments	Admin. Settle- ments	Posses- sion and Use	Closings to date	Baseline Relocations Required	Relocations Completed
\$440	61	56	0	0	0	56	8	8
S445	I	I	0	0	0	I	0	0
S447	30	18	I	0	0	7	0	0
Total	92	75	1	0	0	64	8	8

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

On November 21, 2013 the Sound Transit Board authorized the acquisition of 21 parcels for S447 that also includes 7 parcels previously certified for S440. Sound Transit has reduced the number of acquisitions for S447 from 28 parcels to 18.

*S440 DB Guideway and Station* - Offers have been made on 56 parcels. A total of 33 parcels were submitted for condemnation and 32 parcels have been filed in court. All owners have settled and no parcels remain in condemnation. Three new acquisitions have been identified and added to the project; appraisals are in process and are due mid-January.

S445 Parking Garage and Plaza-No new activity.

S447 Station Area Roadways - One parcel signed.

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# **Construction Safety**

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

Data/Measure	December 2014	Year to Date	Project to Date
Recordable Injury/Illness Cases	0	11	85
Days Away From Work Cases	0	2	17
Total Days Away From Work	8	139	712
Restricted or Modified Work Cases	0	4	33
Total Days Restricted or Modified Work	23	77	1558
First Aid Cases	2	20	146
Reported Near Mishaps	2	25	228
Average Number of Employees on Worksite	145	-	-
Total # of Hours (GC & Subs)	20,426	620,535	3,618,909
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	0.00	3.55	4.70
DART Rate	0.00	1.93	2.76
Recordable National Average	3.70	3.70	3.70
DART National Average	2.00	2.00	2.00
Recordable WA State Average	6.50	6.50	6.50
DART WA State Average	3.40	3.40	3.40

# **Quality Assurance Activities**

### **Activities**

- S440: MRB dispositioned: three (3) NCRs to Repair concrete structural spalling in multiple locations; an NCR to Use-As-Is a PT Anchor Head fitted for 19 strands was cast in the segment, instead of the 21 strands as specified.
- S445: Package #2 Structure, 100% Design Review
- S447: Conducted IFB Audit

### <u>Issues</u>

None to report.

#### **Summary**

Description	Nov 2014	Notes
No. of Audits Planned	0	None
No. of Audits Completed	I	S447 - Station Roadway & Surface Parking IFB Package
Reports in Progress	I	S447 - Station Roadway & Surface Parking IFB Package
No. of Audits Postponed	0	None

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# **Community Outreach**

- Distributed construction alerts for overnight closures of 182nd Street (airport entrance).
- Coordinated access with Alaska Airlines for timelapse camera installation on their rooftop.
- Met with property owners on access as gantry pases over driveways.

## **Sound Transit Board Actions**

Board Actions	Description	Date
	None to report this period.	

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

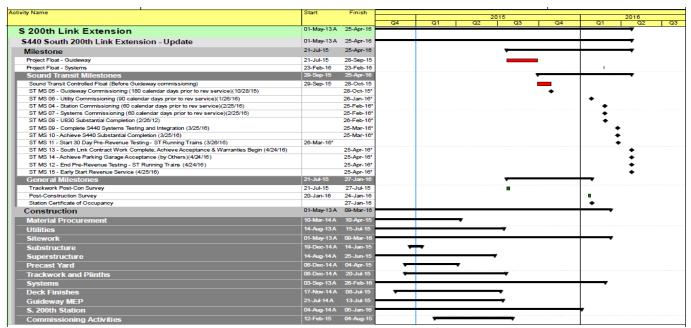
## S440 Contract—Design -Build (Guideway and Station)

### **Current Progress**

Drilled shaft construction is complete. Column erection is at 70 of 70 (100%) columns completed. Casting yard production is at approx. 1,129 of 1,166 segments (96.8%) have been poured to date. Gantry erection should progress into full production next period of two spans a week. Typical Span Erection by the gantry is underway but is progressing slower than expected due to the complexity through the station at 59% complete. Overall the progress of this contract represents 61% physical completion; the Design element is 100% complete and Construction is 58.%.

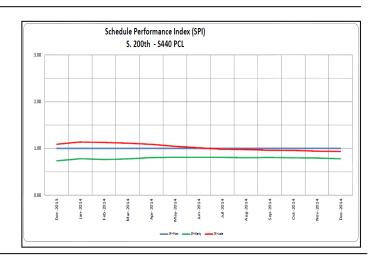
### Schedule/Critical Path

The schedule update for December has been submitted and is under review. Milestone #5, Guideway Commissioning, is reporting 93 days of positive float, including owner controlled float. Milestone #10 (Substantial Completion) is reporting 32 days of positive float. The critical path this period runs through the station civil construction and finishes and communication installation and System Testing and Integration. Guideway and Track systems will also be tracked closely. Production rates will be monitored closely.



#### Schedule Performance Index

The SPI remains below 1.00 at 0.78 this period. 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. Full production of the typical span erection with the overhead truss is expected next period and may improve the SPI.



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



## **Key Activities**

#### Current Period

- Angle Lake Station activities: continued concrete slab; continued plaza retaining walls; continued North and South plaza elevators and stair towers.
- Continue guideway platform decking.
- Began special trackwork installation.
- Construct signal house duct-bank.
- Continued other column activities: construct the diaphragm; align permanent bearings.
- Continued long span activities: continue grout tendons; pier table erection.
- Continued Gantry segmental span erection (55% complete), and Cantilever segment erection on Port of Seattle ROW (57% complete).
- Segment production this month at casting yard is 29, total produced to date is 1122 out of 1170 (or 96%).
- Continue truck delivery of segments from Casting Yard.

### Next Period

- Continue casting precast segments at Casting Yard.
- Continue tray, storm drain, downspout and handrail installation.
- Continue launching gantry to erect spans.
- Continue cantilever segment erections.
- Continue Station work-retaining walls, structural steel for stairs and elevator.
- Continue special trackwork
- Begin guideway trackwork and typical plinths.
- Continue truck delivery of segments.

## **Closely Monitored Issues**

• Conflict between T3 post-tensioning tendon anchor heads and tie-downs on simple spans is a significant engineering issue. The Contractor is analyzing this issue.

# **Cost Summary**

Present Financial Status	Amount
S440 Contractor—PCL Civil Contractors, Inc.	
Original Contract Value	\$169,000,000
Change Order Value	\$2,576,841
Current Contract Value	\$171,576,841
Total Actual Cost (Amount Billed)	\$104,170,550
Financial Percent Complete:	61%
Physical Percent Complete:	61%
Authorized Contingency	\$13,520,000
Contingency Drawdown	\$2,576,841
Contingency Index*	3.2



Gantry erecting span.

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

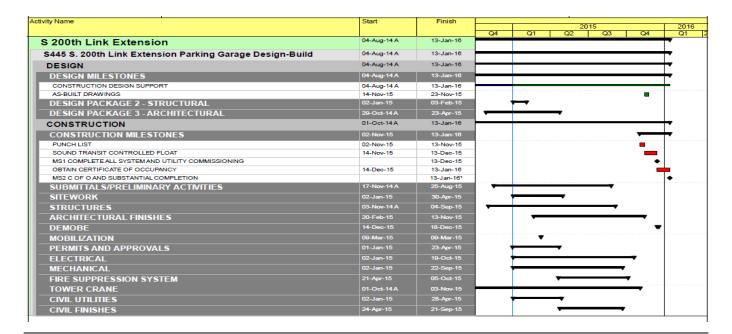
## S445 Contract—Design -Build Parking Garage

### **Current Progress**

S445 DB Parking Garage Design/Builder was issued the Notice to Proceed and a baseline schedule submittal has been accepted. Mass excavation and foundation installation is well underway. The first slab pour at the detention vault was completed this period. Tower crane erection is expected to be completed next period.

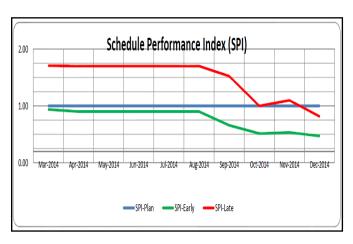
#### Schedule/Critical Path

The December schedule update has been submitted. The garage design is well under way at 79% complete. Construction work has commenced and is 11% complete. Site work and mass excavation at the garage are now underway. The critical path this period follows footing concrete, through levels 1 through 7 deck form and pours and then architectural finishes. Milestone #2 Substantial Completion is reporting 7 days of negative float with 30 days of owner controlled float intact.



### **Schedule Performance Index**

The SPI this period continues to fall as the Contractor fails to meet early start forecasts from the baseline schedule. Based on critical activities this period, the S445 Contractor is approximately 60 calendars days behind on critical work activities but is expected to mitigate the delays in future work by revising work sequences. The SPI base on early forecasts is at .47 this month. The installation of the tower crane in January may help with poor production onsite.



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



## **Key Activities**

#### Current Period

- Continue design package development and coordination meetings with ST, RE team and third party agencies.
- Design packages awaiting to be submitted for review:
   100% Architectural, IFC Structural, and IFC Utilities.
- Continued design and construction interface coordination meetings with S440 DB Contractor.
- Continued with excavation and footing formwork/ rebar of garage structure.
- Continued with subgrade/formwork/rebar installation for walls and columns of the detention vault.
- Began formwork/rebar/pour tower crane footing.
- Excavated and set PSE permanent power vault and conduit. Ongoing survey and control.

### Next Period

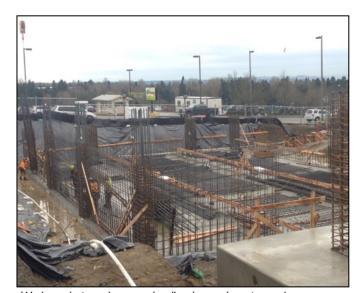
- Continue design and coordination meetings.
- Anticipate review of: IFC Structures, 100% Architecture design package submittals.
- Continue with ongoing survey and control
- Continue excavation and footing formwork/rebar of garage structure
- Continue rebar and concrete of wall and column detention vault footings.
- Place and set tower crane anchors.

## **Closely Monitored Issues**

• None to report this period.

# **Cost Summary**

Present Financial Status	Amount
S445 Contractor—Harbor Pacific/Graham	
Original Contract Value	\$29,978,000
Change Order Value	\$100,000
Current Contract Value	\$30,078,000
Total Actual Cost (Amount Billed)	\$5,670,248
Financial Percent Complete:	19%
Physical Percent Complete:	19%
Authorized Contingency	\$2,398,240
Contingency Drawdown	\$100,000
Contingency Index*	4.6



Workers placing columns and walls rebar at detention vault.

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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.
- Conceptual design, cost estimates and risk assessment activities are complete.
- Cooperating agency review of the Draft EIS is complete; document has been revised to address comments.
- Two month schedule extension to address cooperating agency comments and accommodate FTA reviews.



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. The proposed 2014 budget includes an increase to the project lifetime budget to fund Right of Way activities needed to advance the design work. Table (below) figures in millions.

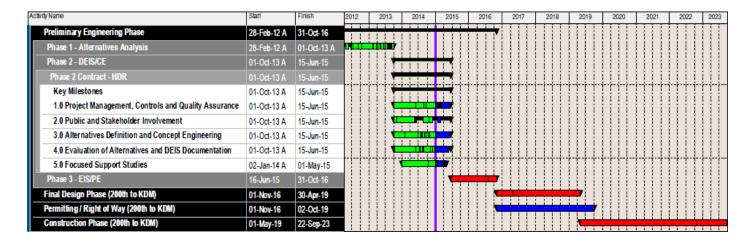
Phase	Adopted Budget	Commitment to Date	Incurred to Date	Forecasts and Trends	Estimated Final Cost (EFC)	Budget Versus EFC
Administration	\$9.4	\$1.7	\$2.0	\$7.7	\$9.4	\$0.0
Preliminary Engineering	\$30.9	\$12.3	\$10.4	\$18.6	\$30.9	\$0.0
Third Parties	\$1.6	\$0.2	\$0.1	\$1.4	\$1.6	\$0.0
Right of Way	\$0.2	\$0.2	\$0.2	\$0.8	\$1.0	-\$0.8
Total	\$42.0	\$14.4	\$12.7	\$28.5	\$42.9	-\$0.8

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# Link Light Rail Federal Way Link Extension

# **Project Schedule**

The DEIS and Conceptual Engineering Phase will run through the 2nd QTR 2015. 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.	

# **Community Outreach**

 Hosted various property owner meetings in Kent, Des Moines and Federal Wy.

## **Environmental**

• Preparing Draft EIS for publication early 2015.

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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

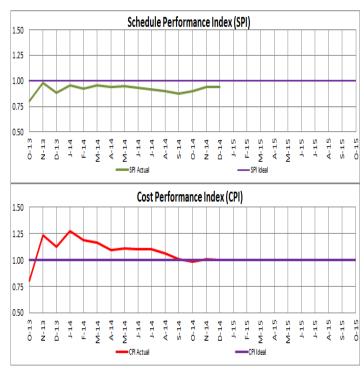
- Continued preparations for public outreach efforts for Draft EIS publication.
- Conducted one-on-one meetings with potentially affected property owners.
- Concluded Phase 2 risk review activities including Risk Outbrief.
- Revised Administrative Draft EIS to address cooperating agency comments.
- Continued assessment of Transit-Oriented Development (TOD) potential of the Draft EIS alternatives.
- Continued coordination activities with key stakeholders in advance of Draft EIS publication.
- Continued advancement of permitting activities for Phase 3 field investigations.

## **Phase 2 Schedule Performance**

The cumulative Schedule Performance Index (SPI) is 0.94 through December, indicating the overall amount of work accomplished is less than planned. Review of the critical path suggests that publication of the Draft EIS will be in March 2015, with Board identification of a preferred alternative (& Phase 3 contract approval) in May 2015. Although this represents a two month 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**

\$10.1M of the total contract amount, approximately 84%, has been spent through December 2014. Phase 2 expenditures through December totaled \$6.9M, approximately 78% of the Phase 2 contract total. The Phase 2 percent complete reported at the end of December is 78%, with an earned value of \$6.9M. The cumulative Cost Performance Index (CPI) through December is 1.00, indicating costs planned are very close or 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 two month schedule extension will result in increased costs to Phase 2.



Phase 2 Performance	Previous Period	Current Period*		
Amount Invoiced	\$6,595,779 \$316,608		\$6,912,387	
% Spent	75%	3%	78%	
Earned Value	\$6,622,222	\$292,682	\$6,914,904	
% Complete	75%	3%	78%	
SPI	0.94	1.11	0.94	
СРІ	1.00	0.92	1.00	

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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.
- *Conceptual Engineering (CE):* Final CE Plans are almost complete. Value Engineering and Risk Assessment studies were conducted in October 2014.
- *Environmental:* The FTA made a preliminary decision to proceed with DCE. The environmental review process is scheduled to be completed in 1st QTR 2015.
- The initial Small Starts Rating submittal was submitted in September 2014.

# **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. The proposed 2014 budget includes an increase to the project lifetime budget to fund Right of Way activities needed to advance the design work. (Table in millions.)

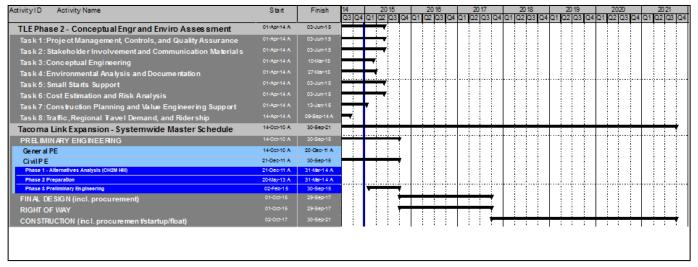
Phase	Adopted Budget	Commitment to Date	Incurred to Date	Forecasts and Trends	Estimated Final Cost (EFC)	Budget Versus EFC
Administration	\$1.0	\$1.0	\$1.0	\$0.1	\$1.0	\$0.0
Preliminary Engineering	\$4.7	\$3.5	\$2.4	\$1.1	\$4.7	\$0.0
Right of Way	\$0.1	\$0.0	\$0.0	\$0.0	\$0.1	\$0.0
Total	\$5.8	\$4.5	\$3.4	\$1.3	\$5.8	\$0.0

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# Link Light Rail Tacoma Link Expansion

## **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**

- Distributed fliers for field survey.
- Attended Downtown Merchant Group meeting.
- Participated in Stadium District's Dickens Festival.

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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

- 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**

- Urban Land Institute conducted Advisory Services Panel in March 2014.
- DEIS published in May 2014 and comment period closed June 23, 2014.
- Coordination Support for Stakeholder Meetings scheduled for September 19 and October 9, 2014.
- Phase 1 work is now complete and Phase 2 NTP on September 08, 2014.

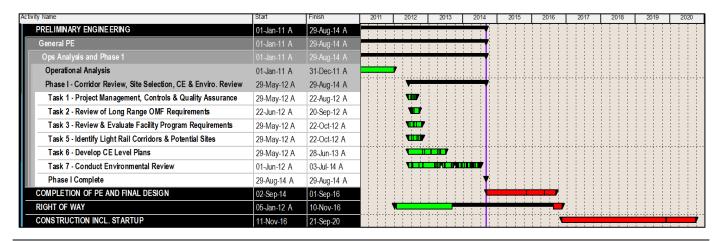
### **Program Cost**

The Link Operations and Maintenance Satellite Facility (OMSF) project 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	Commit- ment to Date	Incurred to Date	Forecasts and Trends	Estimated Final Cost (EFC)	Budget Versus EFC
Administration	\$3.2	\$0.7	\$0.8	\$2.6	\$3.2	\$0.0
Preliminary Engineering	\$10.0	\$8.6	\$3.5	\$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	\$23.1	\$0.0	\$23.2	\$0.0
Total	\$36.8	\$32.4	\$27.4	\$4.4	\$36.8	\$0.0

## **Program Schedule**

The project schedule is presented below. The extension of Phase 1 completion to August 2014 requires 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, such as design-build, in order to retain the desired service date in 2020. Moving the service date into 2021 may conflict with the operational needs of the East Link Extension.



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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

Delivered Final Phase 2 scope of work and cost proposal for Preliminary Engineering and the final EIS on July 29.

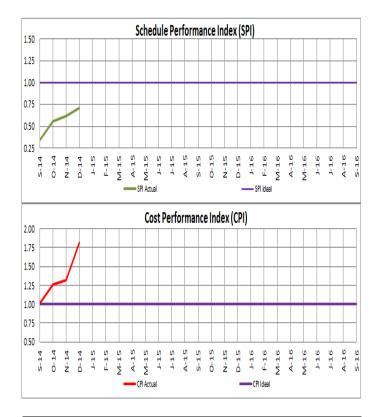
#### Phase 2 Schedule Performance

Change Order 004 incorporated Phase 2 of the project on September 2014. The schedule has been baselined and the first schedule update was provided for the November reporting period.

The cumulative Schedule Performance Index (SPI) trends at 0.71 through December 2014, which means that cumulative work accomplished is less than the baseline planned work.

#### Phase 2 Cost Performance

\$0.4M of the total contract amount, approximately 7%, was spent through December 2014. The Phase 2 percent complete is 13%, with an earned value of \$0.7M. The cumulative Cost Performance Index (CPI) is 1.81, indicating 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	\$249,398	\$143,726	\$393,125
% Spent	5%	2%	7%
Earned Value	\$328,592	\$383,652	\$712,244
% Complete	6%	7%	13%
SPI	0.62	0.82	0.71
СРІ	1.32	2.67	1.81

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## **Link Light Rail Staffing Report**



## **Staffing Variance Report**

### **Recruiting Activity**

During reporting period of November 2014 the following positions were filled to support the capital program.

Position	Project Assignment	Planned Hire Date
Sr. Real Property Agent	East Link Extension	2014 Attrition*
Civil Engineer	Right of Way	2014 Attrition*
Community Outreach Specialist	East Link Extension	2014 Attrition*
Sr. Project Coordinator	University and Northgate Link Ext.	2014 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
Construction Manager	East Link Extension	2013 Attrition
Systems Engineer	Traction Power	2013 Attrition
Deputy Project Director	University Link Extension	2013 Attrition*
Project Director	Sounder and Regional Express	2013 Attrition*
Construction Manager	East Link Extension	2013 Attrition*
Construction Claims Specialist	Construction Management	March 2014
Construction Manager	Northgate Link Extension	April 2014
Deputy Construction Manager	Northgate Link Extension	April 2014
Construction Manager	Systems	April 2014
Corridor Design Manager	Systems	May 2014
Project Manager	Non-corridor projects	May 2014
Deputy Director	Construction Management	May 2014
Project Manager	Public Art	May 2014
Fire Protection Engineer	All capital projects	June 2014
Civil Engineering Supervisor	All Capital Projects	2014 Reclassifica- tion
Sr. Noise &Vibration Engineer	Link projects	2014 Reclassifica- tion
Sr. Architect	Northgate Link Extension	2014 Attrition*
Sr. Cost Engineer	Link Capital Program	2014Attrition*
Community Outreach Assistant	East Link Extension	2014 Attrition*
Sr. Design Technology Specialist	All capital projects	2014 Attrition

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Position	Project Assignment	Planned Hire Date
Project Manager	Sounder and Regional Express	2014 Attrition
Architect	East Link Extension	2014 Attrition
Director	Systems Eng. and Integration	2014 Attrition

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

### Project Staffing - Major Link Light Rail Programs

A total of 528.5 (95% 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 November 2014, a decrease of 11% (64.4 FTE) from October. Staffing exceeded plan for the University, S. 200<sup>th</sup> and Northgate Link Extensions. Staffing for the Lynnwood Link Extension was on plan; staffing for the East Link extension was 9% (49.2 FTE) below plan. Year-to-date average staffing of 599.4 FTE/mo. for the Link capital program is trending 2% (8.9 FTE/mo.) above plan. Staffing variance to plan for the month by project follows.

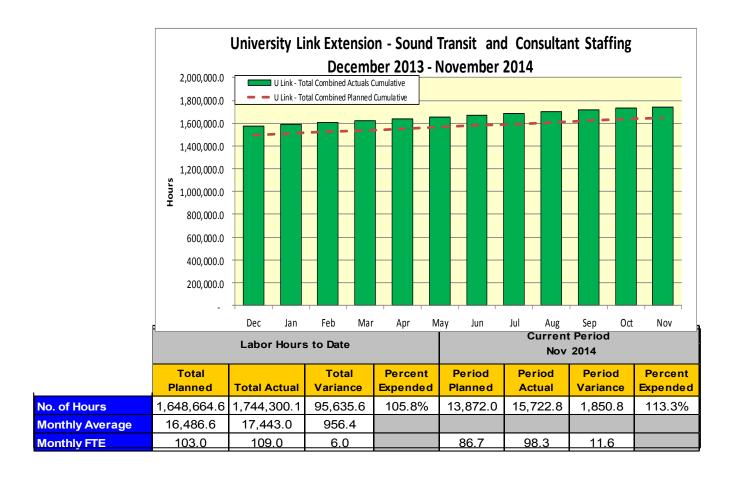
		2014 Staffing Variance Summary - Current Period and Year to Date																		
				Novemb	oer <b>201</b> 4	ļ								Yea	r to Da	ite				
		Cons	ultants		S	ound Tr	ansit St	aff		Coı	nsultar	nts	So	und Tra	nsit St	aff		All S	Staff	
	F	ΓE	Vari	ance	F	ΓE	Vari	iance	FT	Έ	Varia	ance	F	TE	Vari	ance	F	TE	Var	iance
				% of				% of				% of				% of				% of
Link Extension	Plan	Actual	FTE	Plan	Plan	Actual	FTE	Plan	Plan	Actual	FTE	Plan	Plan	Actual	FTE	Plan	Plan	Actual	FTE	Plan
University	55.7	66.6	10.90	120%	31.0	32.3	1.3	104%	55.7	59.1	3.4	106%	36.1	37.3	1.2	103%	91.8	96.3	4.6	105%
Northgate	77.6	98.1	20.50	126%	42.1	27.1	-15.0	64%	77.6	89.2	11.6	115%	49.2	35.9	-13.3	73%	126.8	125.1	-1.7	99%
South 200th	19.9	25.8	5.90	130%	15.6	13.9	-1.7	89%	19.7	22.3	2.6	113%	17.5	15.6	-1.8	90%	37.2	38.0	0.8	102%
East	194.4	153.7	-40.66	79%	65.3	56.8	-8.5	87%	194.4	207.4	13.0	107%	83.0	64.1	-18.9	77%	277.4	271.5	-5.9	98%
Lynnwood	38.7	41.5	2.80	107%	16.0	13.0	-3.0	81%	38.7	56.2	17.5	145%	19.5	13.1	-6.4	67%	58.2	69.3	11.1	119%
Total	386.3	385.7	-0.56	100%	170.0	143.1	-26.9	84%	386.1	434.2	48.1	112%	205.2	166.0	-39.2	81%	591.4	600.3	8.9	102%

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

There were 98.3 FTE assigned to the University Link Extension in November including 66 consultant and 32.3 internal FTE. Staffing for the month increased by 5% (4.4 FTE) from October and remained above plan by 13% (11.6 FTE). Year-to-date, staffing is trending 5% (4.6 FTE/mo.) above plan. Cumulatively, since August 2006, average monthly project staffing is trending approximately 6% (6FTE/mo.) above plan.

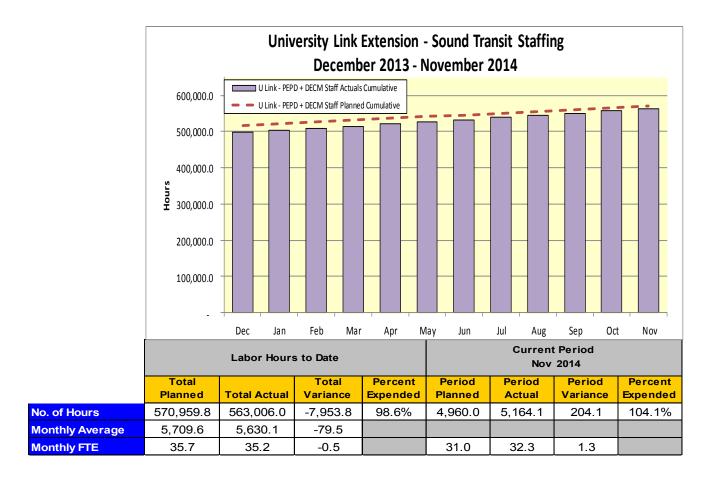


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#### Internal Resource Commitments to University Link Extension

There were 32.3 internal FTE assigned to the University Link Extension in November. Internal staffing was 4% (1.3 FTE) above plan; year-to-date, average internal staffing of 37.3 FTE/mo. is 3% (1.2 FTE/mo.) above plan. Cumulatively, since August 2006, average monthly internal staffing is trending approximately 1.4% (0.5 FTE/mo.) below the baseline.

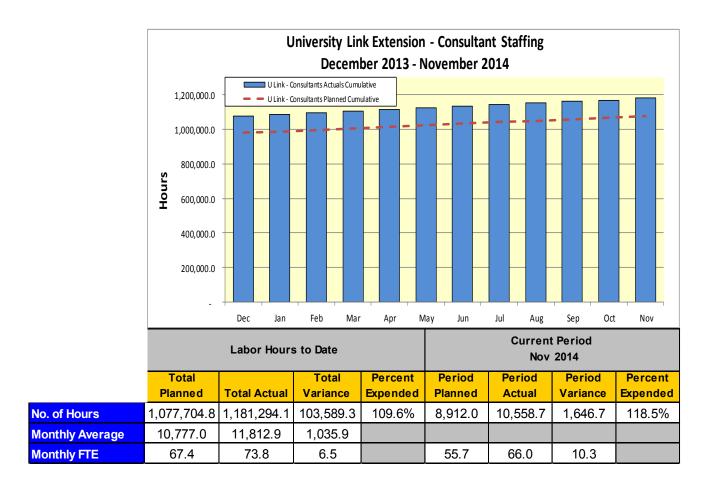


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#### Consultant Resource Commitments to University Link Extension

During November, 66 consultant FTE were assigned to the University Link Extension; consultant staffing was 18.5% (10.3 FTE) above plan. Year-to-date average University Link Extension consultant staffing is trending 6% (3.4 FTE/mo.) above plan; cumulatively, since August 2006, average monthly consultant staffing continues to trend approximately 10% (6.5 FTE/mo.) above plan.



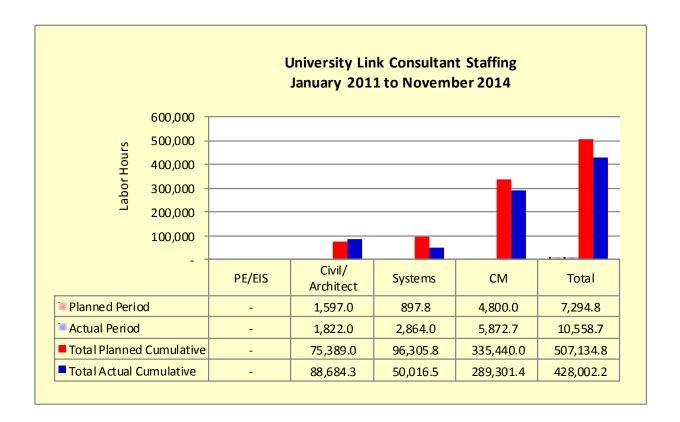
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#### Consultant Resource Commitments to University Link Extension, continued

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

In November civil engineering consultant staffing (11.4 FTE) was 44% (3.5 FTE) above plan and 40% (3.3 FTE) above October staffing. Systems engineering staffing (17.9 FTE) was consistent with plan and 8 .6% (1.4 FTE) above Systems staffing in October. Construction management consultant staffing (36.7 FTE) increased 36.6% (9.8 FTE) from October and was 22% (6.7 FTE) above plan. Cumulatively, civil engineering and architecture consultant staffing (34.7 FTE/mo.) continues to trend 40% (9.9 FTE/mo.) above plan; cumulative, systems consultant staffing (8.1 FTE/mo.) is 34% (4.2 FTE/mo.) below plan. Cumulative construction management staffing (31.3 FTE/mo.) is 2.5% (0.8 FTE/mo.) above plan.

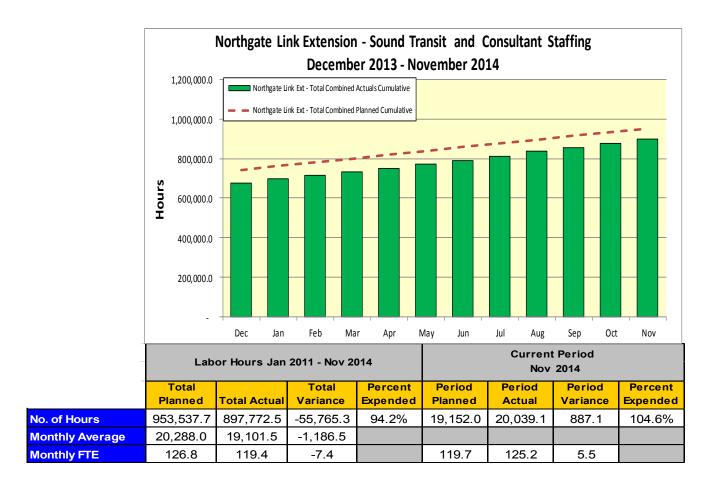


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#### Total Internal and External Staffing - Northgate Link Extension

During November, 27 internal and 98 consultant FTE were assigned to the Northgate Link Extension. This is a 1% (1.4 FTE) decrease from October and is 5% (5.5 FTE) above plan. Year-to-date average internal and consultant staffing of .125.1 FTE/mo. is 1% (1.7 FTE/mo.) below plan; cumulatively since January 2011 average monthly staffing is trending approximately 6% (7.4 FTE/mo.) below plan.

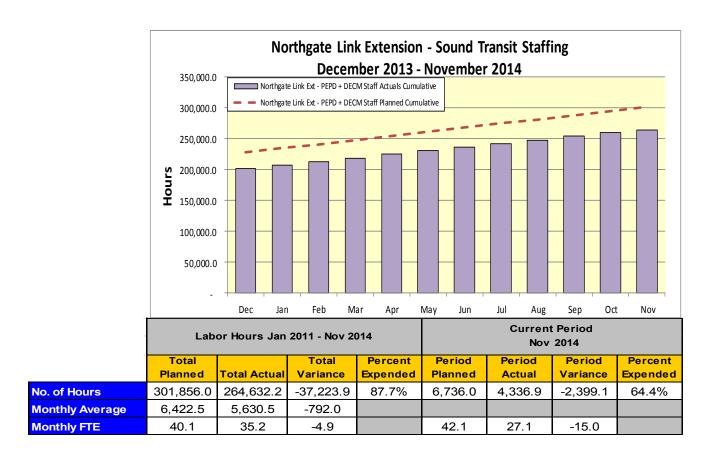


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#### Internal Resource Commitments to Northgate Link Extension

Internal staffing in November (27.1 FTE) decreased 31% (11.9 FTE) from October and was 36% (15 FTE) below plan. Year-to-date internal staffing 35.9 FTE/mo. is trending 27% (13.3 FTE/mo.) below plan; cumulatively, since January 2011, average monthly internal staffing continues to trend approximately 12% (4.9 FTE/mo.) below plan.

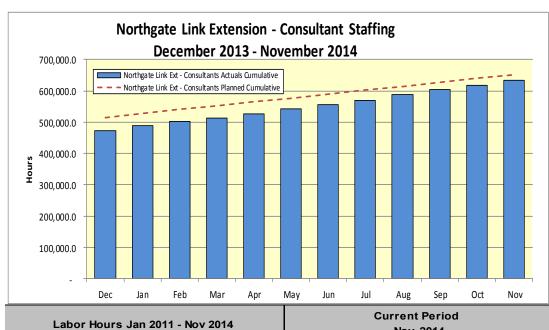


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#### Consultant Resource Commitments to Northgate Link Extension

In November, 98.1 consultant FTE were assigned to the Northgate Link Extension; consultant staffing was above plan by 26% (20.5 FTE) and increased 11% (10.5 FTE) from October staffing. Year-to-date, consultant staffing is 15% (11.6 FTE/mo.) above plan; cumulatively, since January 2011, average consultant utilization is trending approximately 3.8% (2.5 FTE/mo.) below plan.

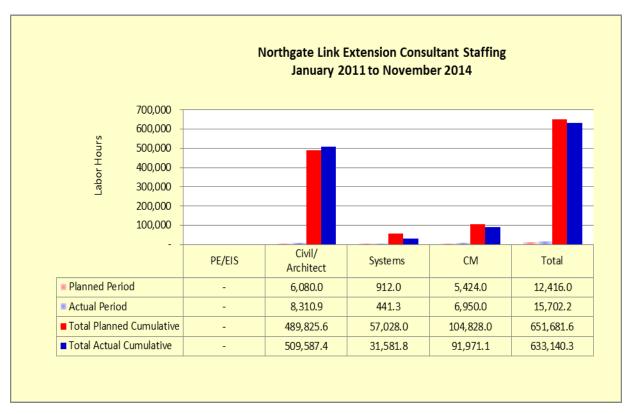


	Lab	or nours Jan	2011 - NOV 20	J 14	Nov 2014					
	Total		Total	Percent	Period	Period	Period	Percent		
	Planned	<b>Total Actual</b>	Variance	Expended	Planned	Actual	Variance	Expended		
No. of Hours	651,681.7	633,140.3	-18,541.4	97.2%	12,416.0	15,702.2	3,286.2	126.5%		
Monthly Average	13,865.6	13,471.1	-394.5							
Monthly FTE	86.7	84.2	-2.5		77.6	98.1	20.5			

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#### Consultant Resource Commitments to Northgate Link Extension



#### Consultant utilization by discipline follows:

- Civil/architecture consultant utilization in November (51.9 FTE) increased 3.9% (1.9 FTE) from October and was 37% (13.9 FTE) above plan. Cumulatively since January 2011, civil engineering/architecture consultant staffing of 67.8 FTE/mo. is 4% (2.6 FTE/mo.) above plan.
- Systems consultant utilization (2.8 FTE) decreased 15% (0.5 FTE) from October and was 52% (2.9 FTE) below plan. Since January 2011, average monthly Systems consultant staffing is trending 45% (3.4 FTE/mo.) below plan.
- CM consultant staffing in November (43.4. FTE) increased 27% (9.1 FTE) from October and was 28% (9.5 FTE) above plan. Cumulatively, since January 2011, average monthly CM consultant (12.2 FTE) staffing is trending 12% (1.7 FTE/mo.) below plan.

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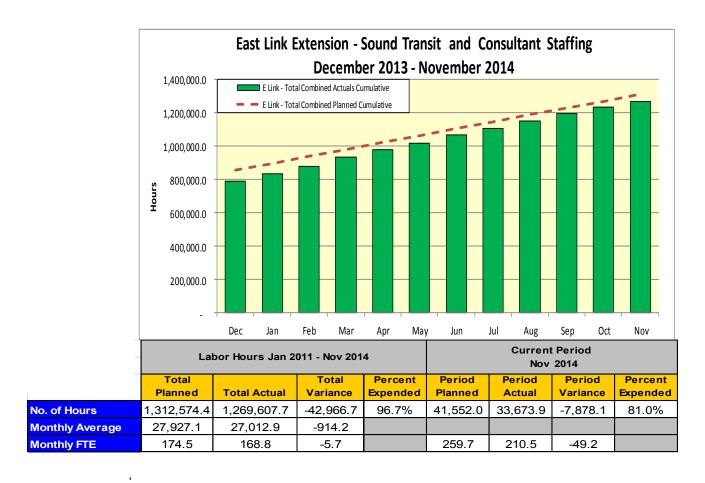
## Link Light Rail Staffing Report



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

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

Staffing for the East Link Extension in November (210.5 FTE) decreased 16% (40.4 FTE) from October and was 19% (49.2 FTE) below plan. Year-to-date internal and consultant staffing of 271.5 FTE/mo. is trending 2% (5.9 FTE/mo.) below plan; cumulatively since January 2011, average monthly staffing continues to trend 3.3% (5.7 FTE/mo.) below plan.



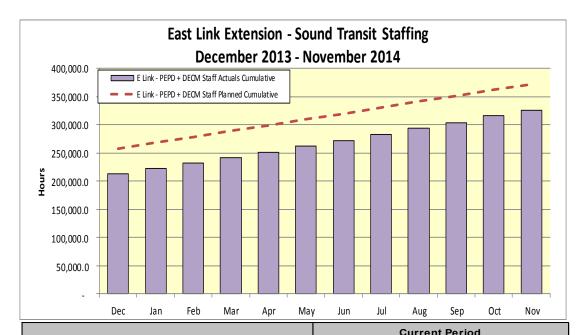
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#### **East Link Extension Staffing**

#### Internal Resource Commitments to East Link Extension

During November internal staffing for the East Link Extension (56.8 FTE) decreased 27% (20.7 FTE) from October and was 13% (8.5 FTE) below plan. Year-to-date average internal staffing (64.1 FTE/mo.) is 23% (18.9 FTE/mo.) below plan; cumulatively, since January 2011, average monthly internal staffing is trending nearly 3% (6.2 FTE/mo.) below plan.



	Lal	oor Hours Jan 2	011 - Nov 201	4	Nov 2014					
	Total Planned	Total Actual	Total Variance	Percent Expended	Period Planned	Period Actual	Period Variance	Percent Expended		
No. of Hours	372,496.0	325,709.1	-46,786.9	87.4%	10,448.0	9,083.7	-1,364.3	86.9%		
Monthly Average	7,925.4	6,930.0	-995.5							
Monthly FTE	49.5	43.3	-6.2		65.3	56.8	-8.5			

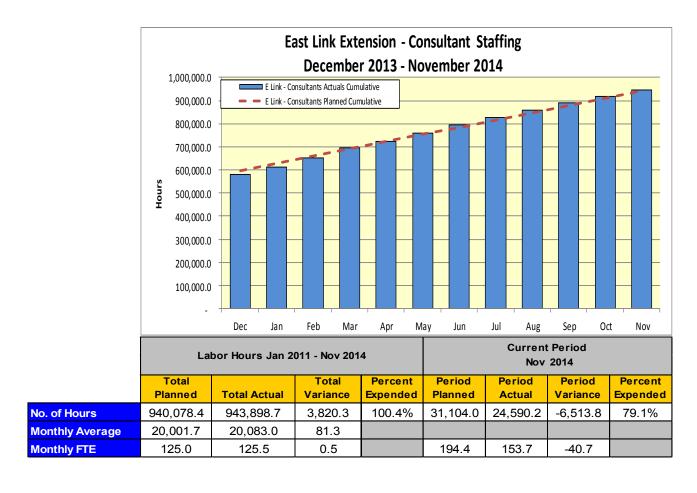
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#### **East Link Extension Staffing**

#### Consultant Resource Commitments to East Link Extension

There were 173.4 consultant FTE assigned to the East Link Extension during October. Consultant staffing decreased 16% (28.3 FTE) from September and was 11% (21 FTE) below plan. Year-to-date average consultant staffing (212.8 FTE/mo.) is 9% (18.4 FTE/mo.) above plan; cumulatively since January 2011, average monthly consultant staffing is trending 1.1% (1.4 FTE/mo.) above plan.



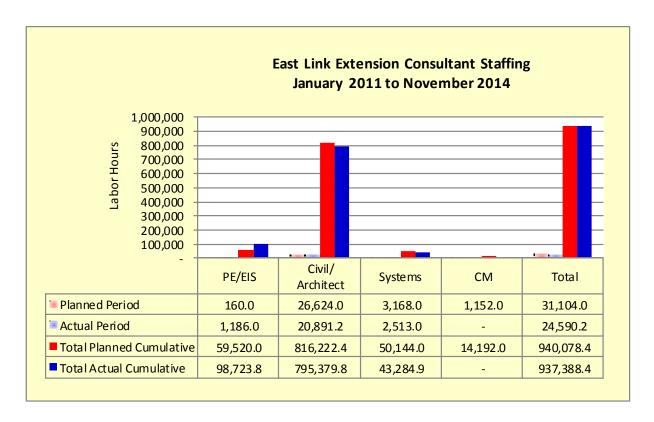
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#### **East Link Staffing**

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

In November, similar to previous reporting periods, civil engineering consultant staffing (130.3 FTE) was 85% of consultant staffing for the month. Civil engineering consultant staffing was 22% (36.1 FTE) below plan. Systems consultant staffing (15.7 FTE) decreased 29% (4.1 FTE) from October and was above plan by 21% (4.1 FTE). Cumulatively since January 2011, Preliminary Engineering (PE) consultant staffing (13.1 FTE/mo.) remains nearly 65% (5.2 FTE/mo.) above plan. Cumulative Civil engineering (106 FTE/mo) was 2% below plan; Systems consulting staffing (5.8 FTE) is 14% (0.9 FTE/mo.) below plan.

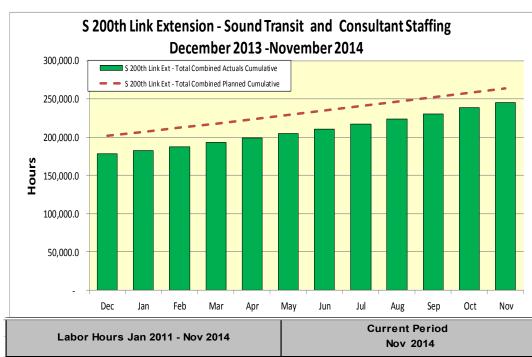


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#### <u>Total Internal and External Staffing - S. 200th Link Extension</u>

Staffing for the South 200<sup>th</sup> Link Extension in November (39.7 FTE) decreased 24% (12.5 FTE) from October but remained above plan by 12% (4.2 FTE). Year-to-date consultant and internal staffing of 38 FTE/mo. is 2% (0.8 FTE) above plan; since January 2011, average monthly internal and consultant staffing is trending 7.1% (2.5 FTE/mo.) below plan.



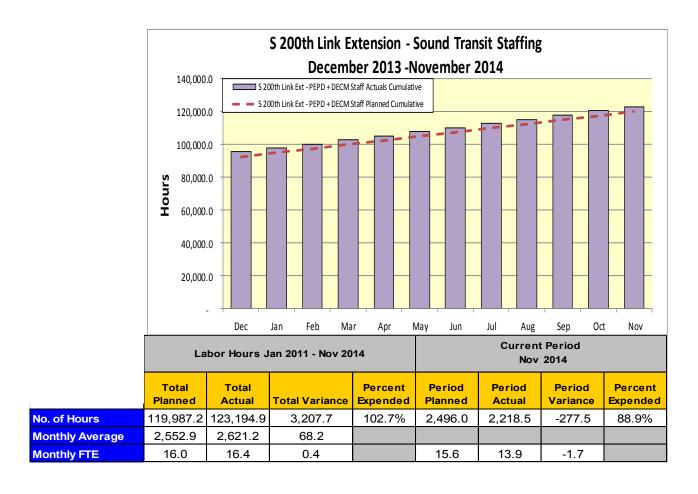
	La	por Hours J	an 2011 - NOV 20	Nov 2014					
	Total Planned	Total Actual	Total Variance	Percent Expended	Period Planned	Period Actual	Period Variance	Percent Expended	
No. of Hours	263,827.2	245,003.0	-18,824.2	92.9%	5,680.0	6,349.3	669.3	111.8%	
Monthly Average	5,613.3	5,212.8	-400.5						
Monthly FTE	35.1	32.6	-2.5		35.5	39.7	4.2		

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

Internal staffing in November (13.9 FTE) was 26% (4.9 FTE) below October staffing and 11% (1.7 FTE) below plan. Year-to-date internal staffing of 15.6 FTE/mo. is 10% (1.8 FTE/mo.) above plan; cumulatively, since January 2011, average monthly internal staffing continues to trend approximately 3% (0.4 FTE/mo.) above plan.

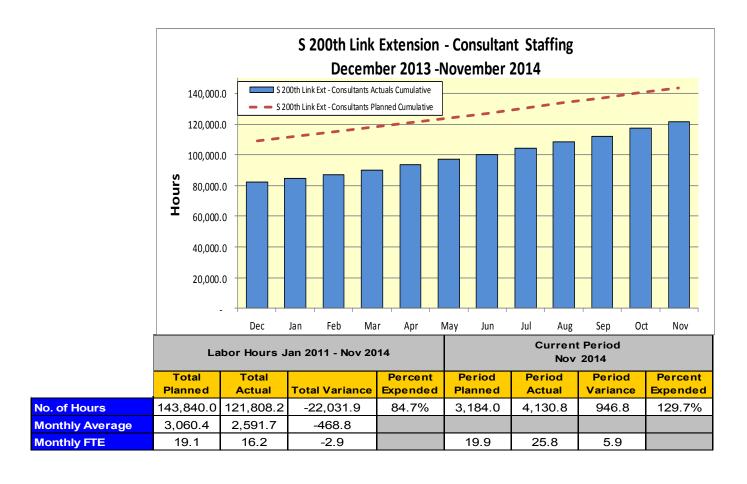


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#### Consultant Resource Commitments to S. 200th Link Extension

Consultant staffing on the S. 200<sup>th</sup> Link Extension in November FTE) decreased 29% (7.6 FTE) from October but was 30% (5.9 FTE) above plan. Year-to-date consultant staffing is 13% (2.6 FTE/mo.) above plan; cumulatively since January 2011, average consultant staffing is trending approximately 15% (2.9 FTE/mo.) below plan.

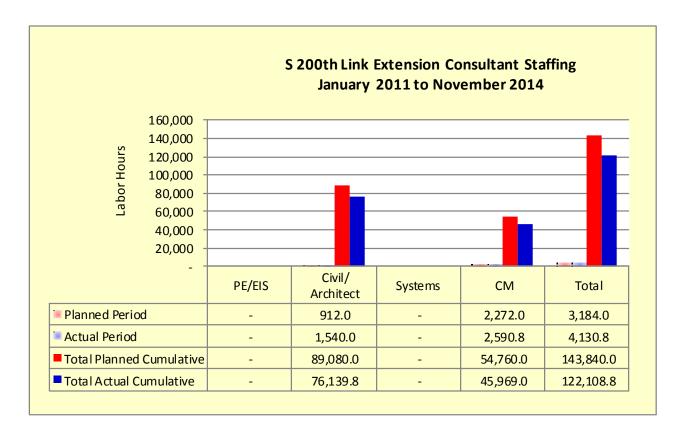


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#### Consultant Resource Commitments to S. 200th Link Extension

Design/build project management consultants (16.2 FTE) accounted for 63% of consultant staffing in November and was 14% (2 FTE) above plan. Additional consultant staff (9.6 FTE) provided civil and architectural engineering support. Civil engineering consultant staffing was 22% (3.9 FTE) above plan Similar to other reporting periods, Systems consultant utilization is not reported as it has been incorporated into the station and guideway design/build contract and is not being tracked or reported separately from design/build consultant staffing.



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## Link Light Rail Staffing Report



#### Lynnwood Link Extension Staffing

Total Internal and Consultant Staffing - Lynnwood Link Extension

During November there were 54.5 consultant and internal FTE (100% of plan) assigned to the Lynnwood Link Extension. Internal staffing for November (13 FTE) decreased 31% (5.9 FTE) from October and was below plan by 19% (3 FTE). Consultant staffing (41.5 FTE) decreased 21% (8.6 FTE) from October but was above above plan by 7% (2.8 FTE). All consultant staff assigned to the project are supporting preliminary engineering. Year- to- date average consultant and internal staffing (69.3 FTE/mo.) is 19% (11.1 FTE) above plan. Year- to- date internal staff (13.1 FTE/mo.) is 33% (6.4 FTE/mo.) below plan; year- to- date consultant staffing (56.2 FTE/mo.) is 45% (17.5 FTE/mo.) above plan. Cumulatively since January 2013, staffing for the Lynnwood Link Extension (54.4 FTE/mo) is trending 0.6% (0.8 FTE) below plan.

	Labo	or Hours Jan	2013 - Nov	2014	Current Period Nov 2014					
	Total Planned	Total Actual						Percent Expended		
No. of Hours	178,256.0	175,349.3	-2,906.7	98.4%	8,752.0	8,711.1	-40.9	99.5%		
<b>Monthly Average</b>	7,750.3	7,623.9	-126.4							
Monthly FTE	48.4	47.6	-0.8		54.7	54.4	-0.3			

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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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