# Progress Report Link Light Rail Program



Lynnwood Link Extension - Public open house meeting on the Seattle/Shoreline 60% Station Designs at Shorewood High School

May | 2017





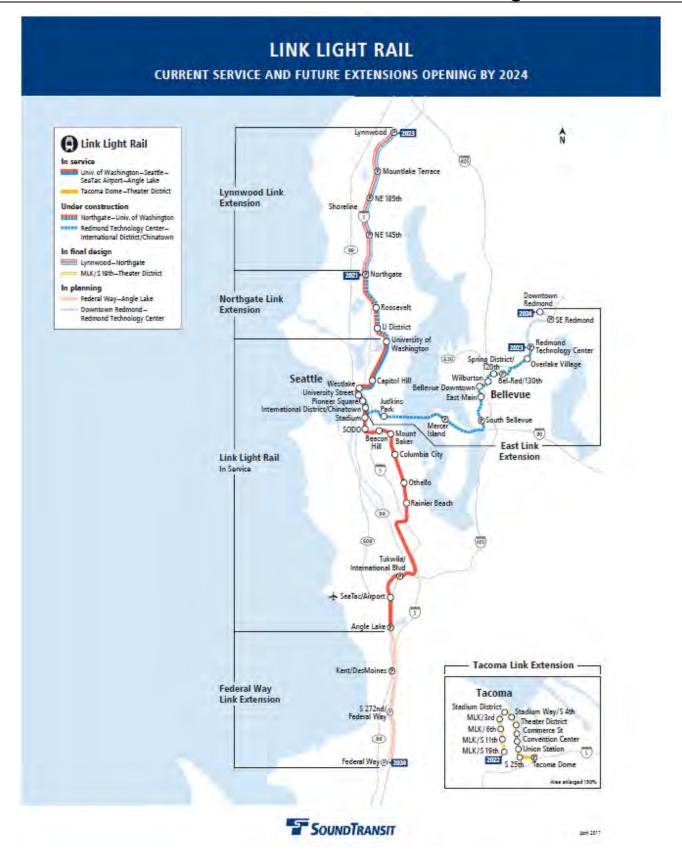




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## Link Light Rail Program Overview



## **Projects**

**University Link Extension (U-Link):** This project is a 3.15-mile light rail segment which 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 Montlake Cut to an underground station on the University of Washington campus, near Husky Stadium. The Sound Transit Board adopted the baseline capital budget of \$1.76B in July 2008. Revenue Service began on March 19, 2016.

**Northgate Link Extension:** The University of Washington Station (UWS) to Northgate project is a 4.3-mile extension of light rail from the UWS north under campus via twin-bored tunnels to an underground station at NE 45th Street continuing to an underground station at NE 65th Street and via tunnel, retained cut and elevated sections to Northgate. The project is in Final Design and Construction. Revenue Service date is September 2021. The Sound Transit Board adopted the baseline capital budget of \$2.13B originally in 2012 and revised the baseline budget to \$1.89B in October 2015.

**Lynnwood Link Extension:** Lynnwood Link Extension extends light rail 8.5 miles to Snohomish County along I-5 from Northgate Mall in Seattle to the Lynnwood Transit Center, with four new light rail stations. The configuration includes at-grade, elevated, and retained cut/fill alignment. The proposed budget for this project is \$488.4M.

**East Link Extension:** East Link Extension expands light rail to East King County via I-90 from Downtown Seattle to the Overlake Transit Center area of Redmond, with stations serving Rainier Avenue/I-90, Mercer Island, South Bellevue, Downtown Bellevue, Overlake Hospital, the Bel-Red corridor, Overlake Village and the Redmond Technology Center (formerly Overlake Transit Center). Revenue service to the Redmond Technology Center is forecast for early 2023 with a tunnel route in Downtown Bellevue. The Sound Transit Board adopted the baseline capital budget of \$3.67B in April 2015.

**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 was developed through a design-build (DB) delivery strategy. The Sound Transit Board adopted the baseline capital budget of \$383.2M in 2011. Revenue Service began on September 24, 2016.

**Federal Way Link Extension:** The Federal Way Link Extension adds approximately 7.8 miles of light rail from the Angle Lake Station in the City of SeaTac to the Federal Way City Center. The extension generally parallels SR 99 and I-5 freeway with stations at Kent/Des Moines, South 272nd Star Lake park –and-ride and the Federal Way Transit Center. The current budget for this project is \$412.6M.

**Tacoma Link Expansion:** The Tacoma Link Expansion is a 2.4-mile extension of the existing Tacoma Link system from the Theater District in downtown Tacoma to the Hilltop neighborhood. The extension will travel at-grade along Stadium Way, North 1<sup>st</sup>. Street, Division Avenue, and Martin Luther King Jr. Way. The Final Design budget is \$34.6M.

**Link Operations and Maintenance Facility East:** This project located in the City of Bellevue, includes a 160,000 square foot operations and maintenance facility that will maintain, store and deploy and expand light rail fleet, including seven LRV service pays, a LRV wash facility and storage for up to 96 light rail vehicles. The ST Board adopted the baseline capital budget of \$449.2M in July 2016.

**Light Rail Vehicle (LRV) Fleet Expansion:** This project includes the design, manufacturing, inspection, testing and delivery of 152 low floor LRVs for service requirements of Northgate, East Link and Lynnwood Link Extensions. The Sound Transit Board adopted the baseline capital budget of \$740.7M in September 2015.

**Downtown Redmond Link Extension:** This project adds two new light rail stations beyond the future Redmond Technology Center Station being build as part of the East Link Extension. Preliminary Engineering for the Redmond light rail extension resumed in 2016 with a budget of \$28.6M.

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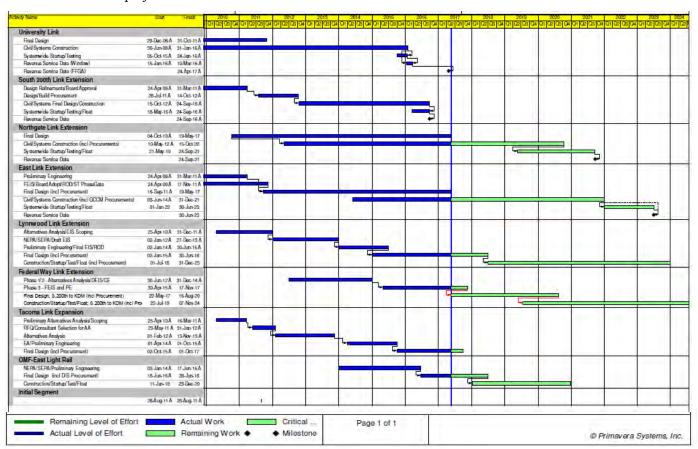
### **Program Budget**

Project	Adopted Budget	Committed to Date	Incurred to Date	Forecast to Complete	Estimated Final Cost	Adopted Budget vs. EFC
University Link	\$1,756.0	\$1,514.4	\$1,501.6	\$39.8	\$1,554.1	\$201.9
Northgate Link Extension	\$1,899.8	\$1,461.3	\$871.5	\$438.5	\$1,899.8	\$0
Lynnwood Link Extension	\$488.4	\$211.7	\$139.2	\$276.6	\$488.4	\$0
East Link Extension	\$3,677.2	\$2,443.1	\$730.4	\$1,234.0	\$3,677.I	0
South 200th Link Extension	\$383.2	\$329.8	\$326.5	\$11.4	\$341.2	\$42.0
Federal Way Extension	\$412.6	\$42.7	\$42.1	\$369.9	\$412.6	\$0
Tacoma Link Expansion	\$34.6	\$21.3	\$15.8	\$13.4	\$34.6	\$0
Link O & M Facility: East	\$449.2	\$69.0	\$49.9	\$380.2	\$449.2	\$0
ST2 LRV Expansion	\$740.7	\$653.4	\$10.1	\$87.4	\$740.7	\$0
Downtown Redmond Link Ext.	\$28.6	\$13.7	\$2.7	\$14.9	\$28.6	0
Total Link	\$9,870.3	\$6,760.5	\$3,689.9	\$2,865.9	\$9,626.4	\$243.9

Table in millions.

## **Program Schedule**

Schedules for active projects are summarized below.



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# Link Light Rail University Link Extension



## 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 Montlake Cut south to the Capitol Hill underground station. U230 commences at Capitol Hill Station and proceeds south under 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-

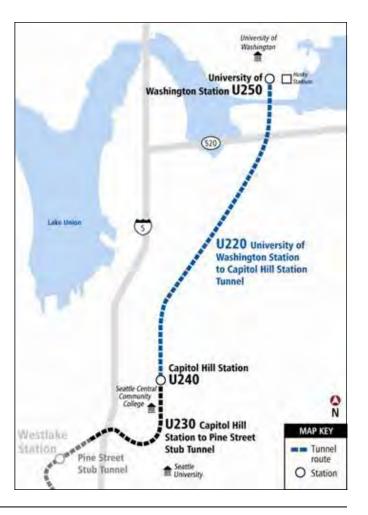
tion electrification, and SCADA communica-

tions

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

subtotal of \$1.756 billion)

Schedule: Revenue Service began on March 19, 2016.



## **Key Project Issues**

- Revenue Service commenced on March 19, 2016. Coordination between the Construction teams and the Operations group are ongoing to adjust the System for optimum operations. Contractors continue to perform punch list items but access to these activities poses to be challenging as they now have to work under Operations' rules and not Construction protocols.
- *U830 Systems*: Contractor is currently focusing on punch list on U-Link and systems refinement to achieve optimal operation status. U-Link Systems has encountered some issues related to this infancy period and is working for resolutions.
- *Certification of Occupancy*: University Link continues to operate under a temporary certification of occupancy until all permit requirements are fully met. The final items remaining are the utilities as-built to be submitted to City of Seattle (SPU) and a final review of the emergency ventilation systems by the Seattle Fire Department.
- Commercial issues with all prime Civil contractors (with the exception of Capitol Hill Station Contractor) have been negotiated as the project proceeds through the close-out process.
- Miscellaneous follow-on commitments and restoration work remain.

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# Link Light Rail University Link Extension

## **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*	ln	ocurred to Date	Es	st. Final Cost (EFC)	Add	opted Budget vs. EFC
ADMINISTRATION	\$ 115.23	\$	113.55	\$ 81.93	\$	81.10	\$	88.17	\$	25.38
PRELIMINARY ENGINEERING	\$ 24.39	\$	24.26	\$ 24.26	\$	\$ 24.26	\$	24.26	\$	-
FINAL DESIGN	\$ 77.94	\$	90.31	\$ 87.98	\$	\$ 86.14	\$	88.66	\$	1.65
CONSTRUCTION SERVICES	\$ 68.53	\$	94.81	\$ 86.92	\$	\$ 86.43	\$	88.72	\$	6.10
3rd PARTY AGREEMENTS	\$ 18.65	\$	18.65	\$ 11.65	\$	11.30	\$	13.23	\$	5.42
CONSTRUCTION	\$ 1,180.00	\$	1,158.18	\$ 995.98	\$	986.71	\$	1,022.38	\$	135.81
VEHICLES	\$ 103.91	\$	103.91	\$ 99.20	\$	\$ 99.19	\$	101.91	\$	2.00
ROW	\$ 167.33	\$	152.33	\$ 126.43	\$	126.43	\$	126.79	\$	25.54
Capital Total	\$ 1,755.97	\$	1,756.01	\$ 1,514.36	\$	1,501.56	\$	1,554.11	\$	201.90
FINANCE COST	\$ 191.71	\$	191.71	\$ 191.71	\$	174.87	\$	191.71	\$	-
Project Total	\$ 1,947.68	\$	1,947.72	\$ 1,706.07	\$	1,676.43	\$	1,745.82	\$	201.90

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

In May, the projected Estimated Final Cost (EFC) including Finance Cost remains at about \$1.75B. As the project inches closer to close out, the timing for expenditure becomes less predictable. This period, after some cost adjustments the project expenditure net approximately \$340K and continues to inch the project's Incurred to Date amount above to \$1.5B (Finance Cost excluded). Direct construction activities pertain to close out and miscellaneous follow on work. The construction EFC continues to be approximately \$1B. The trend continues to hold as the project is essentially completed with only miscellaneous follow on scope and commercial issues remaining. Systems (U830) continues optimization process with some operational equipment purchases trailing. The Total Incurred to Date for the Construction Phase is about \$986M and LRV is at about \$99.2M. Cost of repairs are excluded from this project and tracked independently.

Construction EFC under the SCC format remains relatively unchanged at about \$1B. Construction SCC expenditures to date at about \$975M an increase of about \$0.1M—mostly attributed to Systems' continuing optimization and resolutions to change order work and miscellaneous follow on work. Total capital cost incurred to date including nonconstruction cost (SCC 60 thru 90) now at \$1.5B or about 85% of total project budget scoped (excluding Finance Cost). Total project cost incurred to date at the end of May 2017 close including Finance Cost is at \$1.67B. The financing cost incurred to date is about \$175M. University Link EFC continues to be projected to close out with at least \$200M under budget excluding financing cost.

Project Elements by SCC	Baseline Budget		Current Adopted Budget		Commitment to Date*		Incurred to Date		Estimated Final Cost (EFC)		Adopted Budget vs. EFC	
10 Guideway & Track Elements	\$	626.83	\$	450.46	\$	456.22	\$	455.77	\$	461.23	\$	(10.77)
20 Stations	\$	366.33	\$	350.75	\$	344.88	\$	343.04	\$	353.09	\$	(2.34)
30 Support Facilities: Yards, Shops	\$	7.01	\$	24.83	\$	23.42	\$	23.30	\$	24.80	\$	0.03
40 Sitework & Special Conditions	\$	59.03	\$	67.39	\$	57.09	\$	54.73	\$	56.92	\$	10.47
50 Systems	\$	69.63	\$	116.42	\$	101.37	\$	97.98	\$	102.40	\$	14.03
Construction Subtotal (SCC 10-50)	\$	1,128.82	\$	1,009.85	\$	982.99	\$	974.81	\$	998.43	\$	11.42
60 Row, Land, Existing Improvements	\$	167.33	\$	126.60	\$	126.43	\$	126.43	\$	125.77	\$	0.83
70 Vehicles	\$	99.76	\$	100.16	\$	99.87	\$	99.87	\$	100.16	\$	0.00
80 Professional Services	\$	306.41	\$	346.58	\$	305.07	\$	300.45	\$	318.26	\$	28.32
90 Unallocated Contingency	\$	53.65	\$	172.81	\$	-	\$	-	\$	11.48	\$	161.33
Capital Cost Total (SCC 10-90)	\$	1,755.97	\$	1,756.01	\$	1,514.36	\$	1,501.56	\$	1,554.11	\$	201.90
100 Finance Cost	\$	191.71	\$	191.71	\$	191.71	\$	174.87	\$	191.71	\$	-
Project Total	\$	1,947.68	\$	1,947.72	\$	1,706.07	\$	1,676.43	\$	1,745.82	\$	201.90

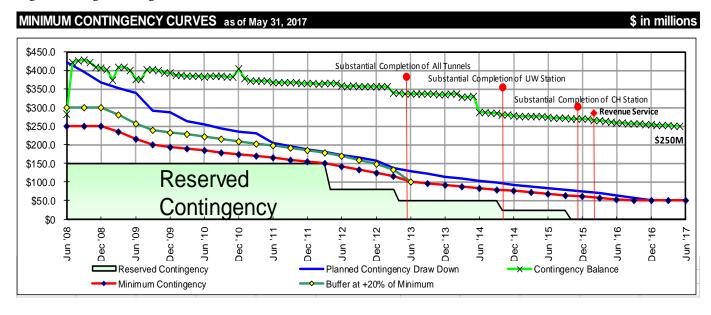
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## **Cost Contingency Management**

Project contingencies remains at healthy at approximately \$250M due to the favorable construction bidding climate, ROW acquisition cost trends, diligent project risk management practices, and excellent tunneling conditions. May's overall contingencies notched down by about \$313K miscellaneous change orders and follow on project commitments. While major construction activities are now done, there are still considerable follow-on scope to complete (pertaining to close-out of the project, systems adjustments to optimize the operating systems as well as settlement of commercial issues). Barring any catastrophic event, the likelihood that this contingency stays on trend is high. The forecast indicates that approximately 80% of these contingencies will be remain unused; thereby, generating at least \$200M of budget savings excluding financing cost.



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# Link Light Rail University Link Extension

## U240 Contract - Capitol Hill Station

#### Close-out

The U240 Contractor achieved Substantial Completion on December 31, 2015.

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

#### Current Period

Continued negotiating and finalizing outstanding commercial issues. The latest round of mediation was successful in resolving some subcontractor claims, but a final settlement with the general contractor has not been reached.

#### Next Period

• Continue negotiating and finalizing commercial issues.

### **Closely Monitored Issues**

Multiple commercial issues remain open including various notice of intents to claim and actual claims. These claims continue to be reviewed and assessed by Sound Transit and the Contractor.

### U250 Contract -University of Washington Sta.

#### Close-out

Milestone #7, Substantial Completion, was granted in November 2014. U250 achieved acceptance on April 26, 2016.

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

#### Current Period

• Continued closing out of all remaining commercial issues.

#### **Next Period**

Continue closing out of all remaining commercial issues

#### **Closely Monitored Issues**

 All outstanding claims have been verbally settled and will continue moving through the formal execution phase. A final settlement change order will be issued to the Contractor.

## **Cost Summary**

Present Financial Status	Amount
U240 Contractor - Turner Construction	
Со	
Original Contract Value	\$104,850,276
Change Order Value	\$11,254,629
Current Contract Value	\$116,104,905
Total Actual Cost (Incurred to date)	\$113,926,440
Financial Percent Complete:	98%
Physical Percent Complete:	99%
Authorized Contingency	\$11,742,514
Contingency Drawdown	\$11,254,629
Contingency Index	1.02

### **Cost Summary**

Present Financial Status	Amount
U250 Contractor - Hoffman Construction	
Co.	
Original Contract Value	141,745,898
Change Order Value	8,568,882
Current Contract Value	150,314,781
Total Actual Cost (Incurred to date)	150,254,810
Financial Percent Complete:	99%
Physical Percent Complete:	99%
Authorized Contingency	9,152,295
Contingency Drawdown	8,568,882
Contingency Index	1.06

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# Link Light Rail University Link Extension



## U810 Contract – Maintenance of Way

## Power and Communications

#### Close-out

Processing outstanding commercial issues.

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

#### Current Period

• Continued processing outstanding commercial issues.

#### Next Period

• Continue processing outstanding commercial issues and contract close-out.

### **Closely Monitored Issues**

• ST and contractor have settled on a final contract amount. A final change order to the contract is pending formal processing.

## Close-out

Revenue Service on March 19, 2016. Punchlist and closeout work continue.

U830 Contract - Track, Signal, Traction

## **Close-out Activities**

#### Current Period

- Ongoing work on Systems punch list items; delivery of spare parts; and finalizing O&M Manuals, As-built drawings, and other final project documentation.
- Ongoing work on commercial closure of the U830 project. ST working closely with the GC/CM and the EC/CMs to ensure rapid and fair commercial settlement of claims.

#### Next Period

- Continue Systems punch list, spare parts delivery, and finalizing O&M Manuals and documentation.
- Continue work on commercial closure of the project.

## **Closely Monitored Issues**

• ST working closely with the GC/CM and the EC/CMs to ensure rapid and fair commercial settlement of claims.

## **Cost Summary**

Present Financial Status	Amount
U810– Forma Construction (Design/ Build)	
Original Contract Value	\$11,998,725
Change Order Value	\$501,013
Current Contract Value	\$12,499,738
Total Actual Cost (Incurred to date)	\$12,438,547
Financial Percent Complete	99%
Physical Percent Complete:	99%
Authorized Contingency	\$959,898
Contingency Drawdown	\$501,013
Contingency Index	1.9

## **Cost Summary**

Present Financial Status	Amount
U830 GC/CM Contractor - Stacy & Witbeck	
Original Contract Value	\$119,167,433
Change Order Value	\$5,582,860
Current Contract Value	\$124,750,293
Total Actual Cost (Incurred to date)	\$121,602,934
Financial Percent Complete	97.5%
Physical Percent Complete:	99.0%
Authorized Contingency	\$5,958,373
Contingency Drawdown	\$5,582,860
Contingency Index	1.1

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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.

Budget: \$1.899 Billion Service: September 2021

Phase: Final Design and Construction



Map of Northgate Link Extension route and stations.

## **Key Project Activities**

- ST Board selected the south plaza at Northgate Station to be named after Scott White and the Union Station Great Hall to be named after Joni Earl.
- UW Plaza restoration has been completed and Sound Transit received UW acceptance.
- For N125 TBM Tunnels, Contractor (JCM) continued postconstruction building surveys in the Roosevelt Station Area; completed restoration work on Cunningham Lawn (CP25); continued excavation in the street for SPU work (CP31).
- For N140 University District Station, Contractor (Hoffman) continued field office installation to be completed in June with site access in mid-July.
- For N150 Roosevelt Station, Contractor (Hoffman) completed wall waterproofing and removed scaffolding; continued rebar installation and invert pours.
- For N160 Northgate Station, ST/CM team continued coordination with Lynnwood Link design team. Contractor (Absher) has submitted cost and schedule impacts and CM team is evaluating. Thirteen girders completed to date at the offsite fabrication facility.
- For N180 Trackwork, Exploring ways to mitigate potential increase in vibration at rail wielding joints.

## **Closely Monitored Issues**

- Design changes on the Lynnwood Link Extension tail track will result in additional costs incurred on the N160 Northgate Station contract. Interface coordination is ongoing.
- Vibration transfer function tests are required to program vibration monitors before installation of floating slabs under the UW campus.
- ST has expressed concern to N125 Contractor regarding UDS handover which is roughly two weeks later than the target date, ST reviewing impacts costs.

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## **Project Cost Summary**

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

Cost Summary by Phase

Project Phase	Baseline Budget	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
ADMINISTRATION	\$147.9	\$147.9	\$47.1	\$47.1	\$147.9	\$0.0
PRELIMINARY ENGINEERING	\$15.1	\$15.1	\$15.1	\$15.1	\$15.1	\$0.0
FINAL DESIGN	\$129.2	\$129.2	\$116.6	\$104.2	\$129.2	\$0.0
CONSTRUCTION SERVICES	\$118.3	\$118.3	\$84.8	\$51.9	\$118.3	\$0.0
3rd PARTY AGREEMENTS	\$11.8	\$11.8	\$10.0	\$6.3	\$11.8	\$0.0
CONSTRUCTION	\$1,343.0	\$1,343.0	\$1,093.9	\$553.6	\$1,343.0	\$0.0
ROW	\$112.3	\$112.3	\$93.8	\$93.4	\$112.3	\$0.0
PROJECT CONTINGENCY	\$22.2	\$22.2	\$0.0	\$0.0	\$22.2	\$0.0
Total	\$1,899.8	\$1,899.8	\$1,461.3	\$871.5	\$1,899.8	\$0.0

The Estimated Final Cost (EFC) for the project as of this reporting period is \$1,899.8M, which is equal to the current project budget. This period approximately \$15.9M was incurred, of which \$13.6M was for the N125 tunneling contract, the N150 Roosevelt Station Finishes contract, the N160 Northgate Station and Elevated Guideway contract, the N180 Trackwork contract and other miscellaneous construction; \$0.5M was incurred for civil and systems final design and design support during construction; and \$1.2M was for construction management. The remaining expenditures were for third party coordination, permits, staff, legal, right-of-way and other direct charges.

#### Cost Summary by SCC

SCC Element	Baseline Budget	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
10 GUIDEWAY & TRACK	\$595.6	\$547.6	\$493.5	\$367.9	\$548.5	(\$0.9)
20 STATIONS	\$376.1	\$429.1	\$414.6	\$68.3	\$430.4	(\$1.3)
30 SUPPORT FACILITIES: YARD, SHOP	\$5.3	\$5.3	\$6.4	\$5.3	\$6.4	(\$1.1)
40 SITEWORK & SPECIAL CONDITIONS	\$140.8	\$225.0	\$165.2	\$102.8	\$219.3	\$5.7
50 SYSTEMS	\$110.9	\$95.1	\$4.0	\$1.1	\$97.4	(\$2.3)
Construction Subtotal (SCC 10 - 50)	\$1,228.7	\$1,302.1	\$1,083.8	\$545.4	\$1,302.1	\$0.0
60 ROW, LAND, EXISTING IMPROVEMENTS	\$119.9	\$110.9	\$93.8	\$93.4	\$110.9	\$0.0
80 PROFESSIONAL SERVICES	\$420.7	\$429.1	\$283.7	\$232.8	\$429.0	\$0.1
90 CONTINGENCY	\$130.4	\$57.8	\$0.0	\$0.0	\$57.8	(\$0.1)
Capital Total (SCC 10 - 90)	\$1,899.8	\$1,899.8	\$1,461.3	\$871.5	\$1,899.8	\$0.0

### **Cost Contingency Management**

Compared to the baseline amount of \$396.2M, the Total Contingency has decreased by \$174.6M to \$221.7M, which is 21.6% of project work remaining. During this reporting period, a decrease of \$6.6M in the overall project contingency occurred. Detailed information is provided below.

**Design Allowance (DA)** – The baseline Design Allowance of \$113.9M has been fully depleted following the receipt of updated construction cost estimates on the N140, N150, and N160 Station Finishes contracts. DA has been utilized as the N140, N150 and N160 contracts have been awarded. No changes to DA occurred during this period.

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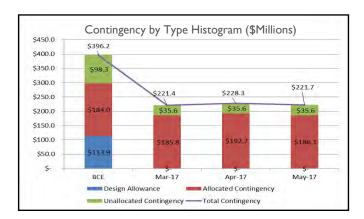


## Cost Contingency Management, continued

**Allocated Contingency (AC)**—Compared to the baseline amount of \$184.0M, Allocated Contingency has increased by \$2.1M to \$186.1M. During this reporting period, a net decrease of \$6.6M occurred in the AC following execution of construction change orders on the N125, N150, and N160 construction contracts.

*Unallocated Contingency (UAC)* – Compared to the baseline amount of \$98.3M, Unallocated Contingency has decreased by \$62.7M to \$35.6M. No changes to UAC occurred during this period.

		Base	eline	Current			
Contingency Status	Amount		% of Total	,	Amount	% of Work Remaining	
Design Allowance	\$	113.9	5.3%	\$	•	0.0%	
Allocated Contingency	\$	184.0	8.6%	\$	186.1	18.1%	
Unallocated Contingency	\$	98.3	4.6%	\$	35.6	3.5%	
Total	\$	396.2	18.6%	\$	221.7	21.6%	



## **Project Schedule**

The N113 SCL 115kV Relocation scope of work has been completed. However, WSDOT has requested a fence be erected along the MSE wall as an additional safety measure. ST has requested a proposal from Potelco to perform the work. Update: Additional fencing by ST will not go forward. The N113 contract is now being closed out.

The N125 Tunneling Contractor (JCM) is continuing work on cross passages and tunnel finishes. JCM has yet to submit a schedule update for May 2017. ST is continuing to negotiate with JCM to get a commitment to a July 17th turnover of the UDS Station box. Turn-over on this date would push back all of the N140 milestones and absorb all of the contract interface float between N125 and N140, as well as the interface float between N140 and N180. JCM will likely continue to forecast negative float in achievement of the following milestones: Milestone 5 - UDS Turnover (due to Cross Passage 23 and claimed post-UDS Turnover access issues) and Milestone 6 - Substantial Completion.

The N140 U District Station contractor, Hoffman Construction, is continuing to set up the construction offices at the Key Bank site. Review of submittals and the Preliminary Construction Schedule submittal has been completed. The Preliminary Schedule submittal will need to be resubmitted once ST has issued the Site Access letter.

At Roosevelt Station (RVS), the N150 contractor, Hoffman Construction, has completed the shotcreting of the station walls, installation of the waterproofing, and has begun the invert pours. Work at RVS remains on schedule.

The N160 Contractor, is continuing with the "C" series columns and mezzanine level cross-beams. Drilling is proceeding at the "B" series shafts north of the station. At the Parking Garage site the Contractor is performing mass excavation, installation of soil nails, timber lagging and soldier piles. Pre-cast girders are being fabricated at CTC in Tacoma.

The N180 Trackwork contract continues with submittal processing, assembly of the 3'-10" forms is underway. Isolation pad production for the 5Mhz pads is underway. The contractor is finalizing the order with British Steel for the Ultra-Straight Rail.

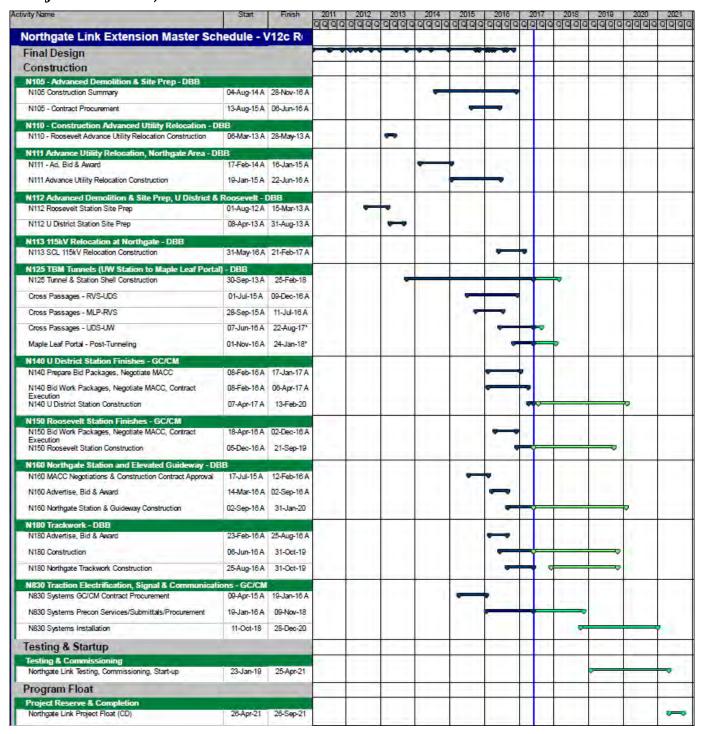
The N830/E750 Systems contract was approved by the ST board. NTP is still expected in early June.

Revenue Service date for Northgate Link Extension is scheduled in September 2021. See schedule in the following page.

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## Project Schedule, continued

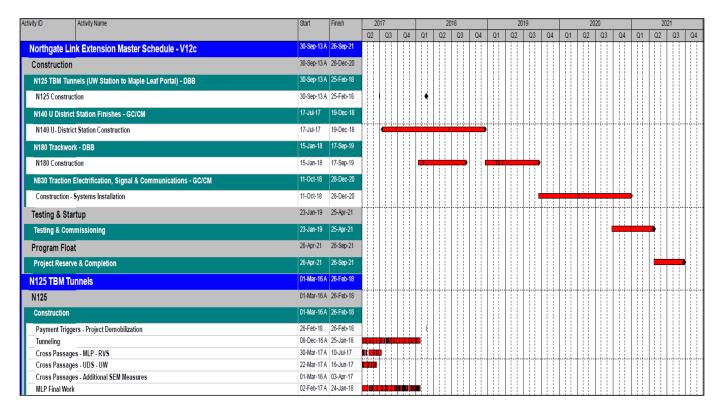


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## **Critical Path Analysis**

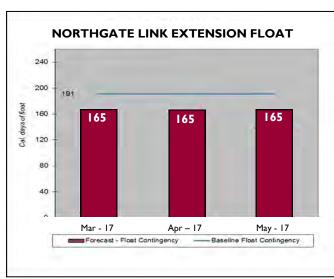
The critical path for the Northgate Link Extension continues to be driven by the completion of cross passage work in the UWS to UDS segment, to a degree sufficient to allow turnover of the UDS station to the N140 contractor. ST CM is continuing to negotiate with JCM regarding this turnover. A turnover in mid-July will result in the loss of contract interface float, but does not alter the overall critical path of N125 turnover to N140, N140 turnover to N180 for trackwork, and subsequently to the N830 Systems contract. While this loss of interface float may not result in a loss of project float, JCM is putting forward a date in late July and this could mean the use of some amount of the remaining 5 months of float. It is also noted that JCM has not submitted an updated schedule for the month of May.



#### **Critical Path Float**

The Northgate Link Project currently retains 165 days of unallocated project float.

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



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## **Construction Safety**

Data/ Measure	May 2017	Year to Date	Project to Date
Recordable Injury/Illness Cases	2	10	64
Days Away From Work Cases	0	0	4
Total Days Away From Work	0	0	219
Restricted or Modified Work Cases	2	4	27
Total Days Restricted or Modified Work	23	81	978
First Aid Cases	0	4	55
Reported Near Mishaps	0	3	57
Average Number of Employees on Worksite	430	-	-
Total # of Hours (GC & Subs)	94,356	411,767	2,384,639
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	4.24	4.86	5.37
DART Rate	4.24	1.94	2.60
Recordable National Average	3.50	3.50	3.50
DART National Average	2.00	2.00	2.00
Recordable WA State Average	7.00	7.00	7.00
DART WA State Average	3.90	3.90	3.90

## Right of Way

The U District and Roosevelt stations required 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 resulted in owner and tenant, residential and commercial relocations.

**Roosevelt Station** – All parcels have been acquired. One parcel de-certified.

**U District Station** – All parcels have been acquired. One parcel de-certified.

Northgate Station - All parcels have been acquired.

## **Tunnel Easements:**

RVS to North Portal - Two parcels are still in court.

UWS to U District Station - All parcels have been acquired.

Line Section	Total Parcels Certified	Offers Made	Signed Agree- ments	Admin. Settle- ments	Posses- sion and Use (P&U)	Closings to date	Baseline Relocations Required	Relocations Completed
U District Station	15	15	0	0	0	15	3	3
Roosevelt Station	19	19	0	0	0	19	26	26
Tunnel Easements	190	188	0	0	0	188	0	0
Northgate Station	П	11	0	0	0	9	13	13
Total	235	233	0	0	0	231	42	42

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# **Community Outreach**

- More than 2,100 people visited the ST information booth at the U District Street Fair on May 20 & 21.
- Continued post construction video survey notifications along the alignment.
- Distributed various construction alerts which includes the following:
  - Nighttime sewer installation in 1st Avenue NE.
  - Water shut-off on 12th Avenue NE.
- Sent monthly newsletter to the Northgate Link distribution list.
- Briefed Licton Springs Community Council on Northgate Station construction progress the Scott White memorial feature at the Station.

## **Sound Transit Board Actions**

Board Action	Description	Date
M2017-75	Selecting the south plaza at Northgate Station to be named after Scott White and selecting the Union Station Great Hall to be named after Joni Earl.	May 25

## **Environmental**

• None to report.

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# Link Light Rail Northgate Link Extension - Construction

## **Major Construction Contract Packages**

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

N105 Advance Demolition and Site Prep - Demolition of Key Bank Building, removal of underground storage tanks and remediation of contaminated soil at UDS. Demolition site and site prep at strip mall near the NG Station. (Complete)

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

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

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

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

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

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

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

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

## **Construction Schedule Highlights**

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

A = Actual

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# Link Light Rail Northgate Link Extension - Construction



## Contract N113-115kv Relocation at Northgate Station

### **Current Progress**

The N113 Contractor has completed the work. Substantial Completion was issued on February 21, 2017.

WSDOT has dropped the request for a protective fence along the MSE wall. ST will proceed with final acceptance and contract close-out.

## **Schedule Summary**

The N113 contractor, Potelco, completed all work and achieved Substantial Completion on February 21. The team is currently working to complete the last punchlist item with WSDOT and begin the project close-out.

### **Key Activities**

#### Current Period

• Determined WSDOT requested fence change at the MSE wall would not be completed under this contract.

#### Next Period

- Issue Acceptance Letter to Contractor.
- Continue project closeout.

### **Closely Monitored Issues**

 WSDOT expressed concern at the MSE wall indicating the lack of fence creates a potential fall hazard for maintenance crews at the top leading edge of the wall.
 ST has determined that any revisions would be not be completed under this contract.

## **Cost Summary**

Present Financial Status	Amount
NII3 Contractor - Potelco, Inc	
Original Contract Value	\$2,811,926
Change Order Value	\$ 55,943
Current Contract Value	\$2,755,983
Total Actual Cost (Incurred to date)	\$2,755,983
Financial Percent Complete:	100%
Physical Percent Complete:	100%
Authorized Contingency	\$281,194
Contingency Drawdown	\$ 55,943
Contingency Index	5.03

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# Link Light Rail Northgate Link Extension - Construction

## Contract N125 - TBM Tunnels

## **Current Progress**

JCM is continuing work on the Cross Passages (CP), tunnel inverts, troughs, electrical, and fire stand piping. Restoration of Husky Stadium Plaza is complete.

Tunnel Finishes – Installation of the sidewalk, cable trough, drainage pipe, and conduit is continuing in both tunnels.

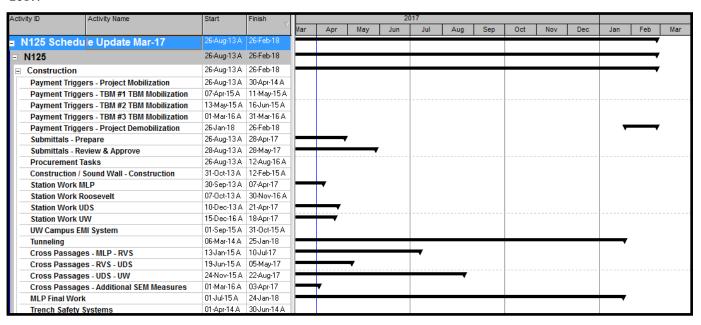
*Cross Passage Construction*—Work in progress at the end of this period: completion of ground freezing, continuation of in -tunnel freezing cross passage 23; and block-out pours, fire standpipe installation, and electrical installation.

MSE Wall—Construction of the MSE Moment slab and walls continues at MLP.

#### **Schedule Summary**

Below is the latest schedule (March 2017) for N125. As of mid-May Sound Transit has not yet received the schedule update for May 2017.

JCM has proposed a turnover of the UDS station box in late July. ST is working with JCM to a target date of July 17, 2017.



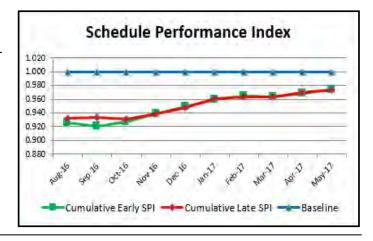
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# Link Light Rail Northgate Link Extension - Construction



#### Schedule Performance Index

The early SPI for this period remains at 0.9. The SPI continues to lag due to the pace of the cross passage work in comparison to the target dates for this work.



## **Key Activities**

#### Current Period

- Continued CCTV and post-construction building surveys.
- Completed replacing 8-in water main at CP31 by SPU with JCM support.
- Completed UW Plaza restoration including joint inspection with UW and handover.
- Continued installation of electrical grounding/corrosion cables and 10-in drain pipe at cross passages.
- Continued installation of door frames at cross passage endcaps.
- Continued installation of overhead electrical equipment and lighting in tunnels.
- Continued installation of tunnel signage.
- Continued installing tunnel fire standpipe.
- Completed removal of SB tunnel push frame and segments; began chipping and smoothing portal head walls at south end of UDS shaft.
- Continued work on the MSE wall moment slab barrier and East retaining wall at MLP.

#### Next Period

- Continue cross passage finishes.
- Continue installation of tunnel utilities.
- Continue surface restoration at cross passages.
- Continue preparing UDS for handover to follow-on contractor.
- Continue construction of MSE wall moment slab barrier and East retaining wall at MLP.

## **Closely Monitored Issues**

• The target to handover UDS shaft by July 5 and complete all outstanding work between UDS and UWS by October 31, 2017 remains feasible, although JCM has indicated dates of July 12 and November 18, 2017 respectively. Final negotiation is ongoing.

#### **Cost Summary**

Present Financial Status	Amount
N125 Contractor - JCM Northlink	
Original Contract Value	\$440,321,000
Change Order Value	\$ 48,201,030
Current Contract Value	\$488,522,030
Total Actual Cost (Incurred to date)	\$455,061,892
Financial Percent Complete:	93.8%
Physical Percent Complete:	94.5%
Authorized Contingency	\$66,048,150
Contingency Drawdown	\$48,201,030
Contingency Index	1.29



RVS to UDS: Pulling electrical wires in NB tunnel.

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# Link Light Rail Northgate Link Extension - Construction

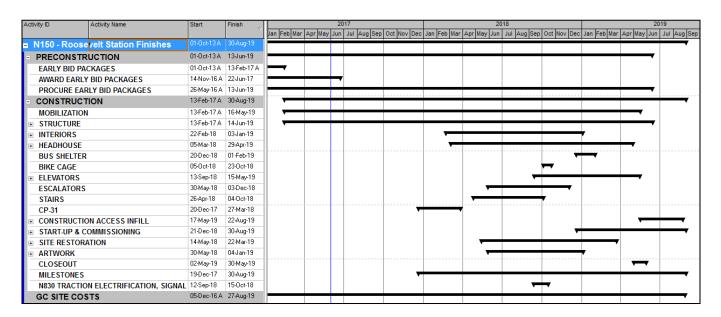
## Contract N150 - Roosevelt Station Finishes

## **Current Progress**

Hoffman Construction is continuing with forming and pouring of the invert slab and walls. Wall and pilaster pours will begin in June.

## Schedule

The latest schedule update continues to forecast an on-time completion. The longest path run through the Invert pours, to the South Station Walls and Slabs, to the South Headhouse to and finally to Start-Up and Commissioning.



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## Link Light Rail Northgate Link Extension - Construction



## **Key Activities**

#### Current Period

- Continued to prepare and process submittals and RFIs.
- Continued work on site with the first invert slab. Three invert slab pours were completed this month.
- Shotcrete was completed on the south wall of the station box and demobilized from the site.
- Placed a crane on the invert slab to support rebar wall installation.
- Completed waterproofing the walls of the station.
- Continued rebar installation and installed slab conduits and drain piping.

#### Next Period

- Continue to prepare, review and respond to submittals and RFIs.
- Rebar installation for invert slabs on the north and south walls.
- Invert slab and pours expected to follow rebar installation approximately once a week.
- First wall concrete placement scheduled early next period.

## **Closely Monitored Issues**

• N140/N150 Vertical Transportation Procurement: Hoffman issued re-bid was received. Hoffman has issued Sound Transit recommendation to award bid package to Schindler, the apparent low bidder.

## **Cost Summary**

Present Financial Status	Amount
NI50 Contractor - Hoffman Construction	
Original Contract Value	\$152,291,184
Change Order Value	\$ 209,022
Current Contract Value	\$152,500,206
Total Actual Cost (Incurred to date)	\$18,287,675
Financial Percent Complete:	12.0%
Physical Percent Complete:	9.8%
Authorized Contingency	\$7,614,559
Contingency Drawdown	\$206,022
Contingency Index	3.55



Preparing to place concrete for north pour 1.

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# Link Light Rail Northgate Link Extension - Construction

## Contract N160 - Northgate Station, Elevated Guideway, and Parking Garage

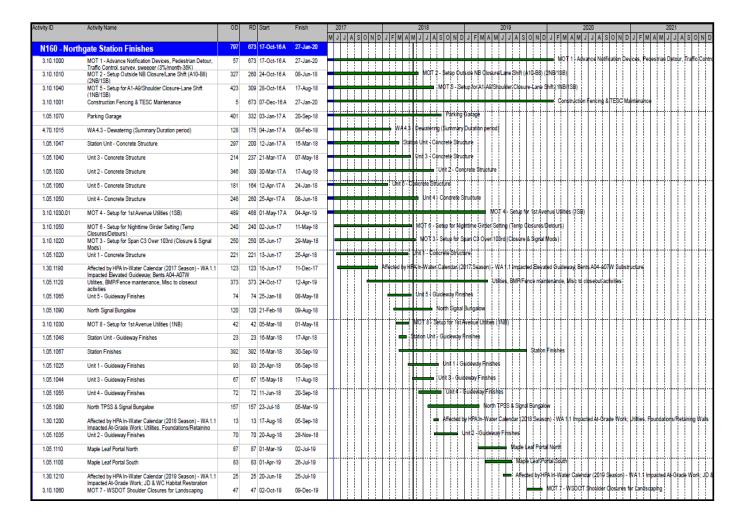
## **Current Progress**

The N160 Contractor continues to make progress on the drilled shafts for Units 2 & 4 and the columns and cross beams at the station.

Piles for the Parking Garage are nearing completion, mass excavation and tie-backs are in progress. Off-site girder fabrication is underway.

#### Schedule

The N160 Contractor's May schedule update forecasts an on time completion of the work. The Parking Garage completion, Milestone No. 3, remains 10 days behind schedule, as does the Systems Room Access, Milestone No. 5. The weather delay granted has been incorporated in the schedule with a new Substantial Completion date of February 3, 2020. The negative float in Milestones 3 and 5 has not reached the threshold for triggering a recovery schedule, however, the team is monitoring the progress of the work closely.



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## Link Light Rail Northgate Link Extension - Construction



## **Key Activities**

#### Current Period

- Guideway: Continued planning and submittals for the north end design changes; continued drilling, rebar cages and concrete placement for drilled shafts on B line; began CSL testing; continued falsework, rebar installation, and concrete placement for the Mezzanine bents at line C, including falsework for support of girders from C1 to C4; began forming and placement of line C upper columns; began removal of sound wall at N125 in preparation for drilled shaft work at Area 1.
- Parking Garage: Maintained dewatering for shoring and excavation; continued soldier pile installation and lagging for excavation shoring at the east and north sides; Completed first row of tiebacks and began second row installation and testing; began erection of steel at NE corner of the excavation as part of the temporary road deck construction and placed asphalt for road access to existing parking structure.
- Offsite Fabrication: Continued girder (13 completed) and structural steel fabrication.

#### Next Period

- Continue guideway activities including excavation, formwork, falsework and girder erection.
- Continue parking garage work includig

## **Closely Monitored Issues**

- Interface coordination associated with the Lynnwood Link track re-alignment design changes continue.
- Elevator supply and installation subcontract remains under review.

### **Cost Summary**

Present Financial Status	Amount
N160 Contractor - Absher Construction	
Original Contract Value	\$174,000,000
Change Order Value	\$ 688,249
Current Contract Value	\$174,688,249
Total Actual Cost (Incurred to date)	\$32,242,329
Financial Percent Complete:	18.5%
Physical Percent Complete:	17.9%
Authorized Contingency	\$17,400,000
Contingency Drawdown	\$ 688,249
Contingency Index	4.52



Weilding girder support frame at Line C.

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# Link Light Rail Northgate Link Extension- Construction

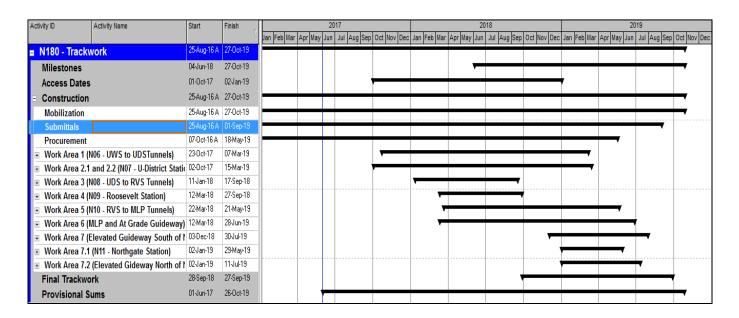
## Contract N180 - Trackwork UWS to Northgate Station

## **Current Progress**

The N180 Contractor continues to focus on procurement, submittals, and manufacturing of the pre-cast floating slabs. The Contractor is finalizing procurement with a British supplier for the Ultra-Straight Rail. The Pre-Cast yard in Woodland, WA has cast the first test slabs and received the steel forms. Isolation pad manufacturing is underway.

## **Schedule Summary**

Below is the latest schedule for N180.



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# Link Light Rail Northgate Link Extension- Construction



### **Key Activities**

#### Current Period

- *Columbia Precast Plant* (CPP) continued casting 5-6 floating slabs each day. Total 5Hz slabs cast to date: 30 out of 1,618.
- Continued fabrication of 5Hz 7'10" formwork.
- *Scougal Facility:* Continued fabrication of the 5Hz tapered side shim pads and sample testing of isolation pads.
- Contractor SWI had positive movement with the British Steel material purchase agreement (MPA) for the Ultra-Straight rail.

#### Next Period

- CPP to continue casting 5-6 floating slabs each day.
- Helser will continue the fabrication of the 7'-10" forms. All forms are scheduled to be complete by mid-June.
- Scougal to begin production of prototype isolation pads, with qualification testing to begin thereafter.

### **Closely Monitored Issues**

 ST design is reviewing a possible revision to the High Resilience DF Fastener assembly, currently specified in the N180 contract documents. SWI to complete qualification testing of the fastener by August 2017, which should provide sufficient time to produce the fasteners and support the installation schedule. Approximately 24,000 of the High Resilience Direct Fixation Fasteners are required for the project.

## **Cost Summary**

Present Financial Status	Amount	
N180 Contractor - Stacy and Witbeck, Inc.		
Original Contract Value	\$71,455,950	
Change Order Value	\$1,159,501	
Current Contract Value	\$72,615,451	
Total Actual Cost (Incurred to date)	\$5,744,123	
Financial Percent Complete:	7.9%	
Physical Percent Complete:	6.2%	
Authorized Contingency	\$10,718,393	
Contingency Drawdown	\$1,159,501	
Contingency Index	0.73	



Floating slab rebar cage being lifted out of tying jig at CPP precast facility.

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# Link Light Rail Lynnwood Link Extension



## Scope

Limits: North Seattle to Shoreline, Mountlake

Terrace, and Lynnwood Transit Center

**Alignment:** Lynnwood Link extends light rail 8.5

miles to Snohomish County along I-5 from Northgate Mall in Seattle to the Lynnwood Transit Center, with four new light rail stations. The configuration includes at-grade, elevated, and retained

cut/fill alignment.

Stations: NE 145th (Shoreline), NE185th

(Shoreline), Mountlake Terrace Transit Center, Lynnwood Transit Center

Systems: Signals, traction power, and communica-

tions (SCADA).

**Budget:** \$488.4 Million Pre-baseline Budget; ex-

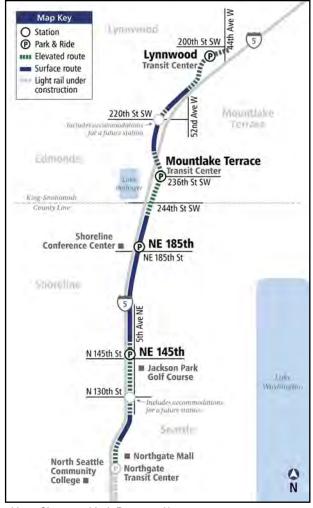
cludes Construction (Year of Expenditure

Dollars)

**Phase:** Final Design

Const. Starts: 2018

Service: Late 2023



Map of Lynnwood Link Extension Alignment.

# **Key Project Activities**

- L200 60% civil design submitted in February 2017; reviews completed in March 2017.
- L300 60% civil design submitted in March 2017.
- L800 60% systems design submittal expected in June 2017.
- Anticipated NTP in July 2017 for the L800 Systems Construction Management Consultant.
- Continuing right-of-way acquisition and pre-construction planning.

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# Link Light Rail Lynnwood Link Extension

## **Project Cost Summary**

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

Commitment and Actuals under Construction Phase is related to Construction Permits for early demolition work associated with ROW Property Acquisitions.

### Cost Summary by Phase

Project Phase	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
Administration	\$88.3	\$15.5	\$15.4	\$88.3	\$0.0
Preliminary Engineering	\$42.0	\$39.9	\$39.1	\$42.0	\$0.0
Final Design	\$111.5	\$82.4	\$33.8	\$111.5	\$0.0
Construction Services	\$104.9	\$18.0	\$5.5	\$104.9	\$0.0
3rd Party Agreements	\$17.4	\$7.1	\$1.9	\$17.4	\$0.0
Construction	\$0.5	\$0.2	\$0.0	\$0.5	\$0.0
Light Rail Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$123.8	\$48.5	\$43.7	\$123.8	\$0.0
Total	\$488.4	\$211.7	\$139.2	\$488.4	\$0.0

### Cost Summary by SCC

SCC Element	Current Adopted Budget	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
10 Guideway & Track	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
20 Stations	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
30 Support Facilities	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$0.5	\$0.2	\$0.0	\$0.5	\$0.0
50 Systems	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Construction Subtotal (10 - 50)	\$0.5	\$0.2	\$0.0	\$0.5	\$0.0
60 Row, Land	\$123.8	\$48.5	\$43.7	\$123.8	\$0.0
80 Professional Services	\$364.1	\$163.0	\$95.6	\$364.1	\$0.0
90 Unallocated Contingency	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Total (10 - 90)	\$488.4	\$211.7	\$139.3	\$488.4	\$0.0

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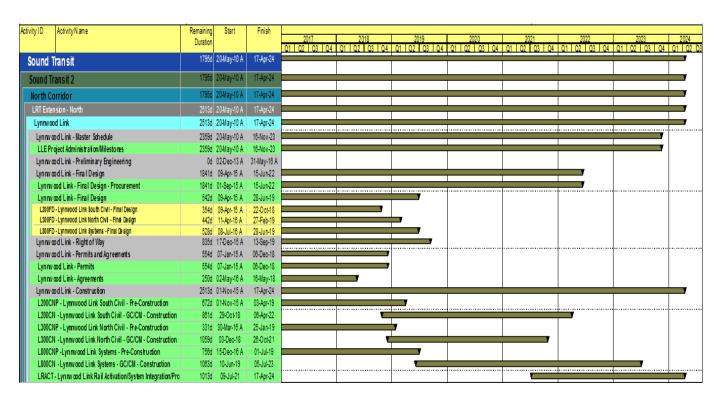
## Risk Management

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

The most recent Lynnwood Link Quarterly Risk Review Workshop was an FTA/PMOC led risk assessment workshop in February 2017.

## **Project Schedule**

The project schedule is shown below. The schedule is at high risk; delays to permitting, right-of-way acquisition, or final design completion could push the anticipated revenue service date into 2024.



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# Link Light Rail Lynnwood Link Extension Final Design

## Right-of-Way

The Right-of Way project for Lynnwood Link involves the acquisition of a range of property interests which includes compensable (e.g. fee acquisitions, guideway easements, permanent and temporary construction easements) and non-compensable rights (e.g. rights of entry). These acquisitions will result in owner and tenant residential and commercial relocations. The right-of-way program status for this period is summarized in the following table.

Lynnwood Link Extension Property Acquisition Status								
Line Section Board Approved Approved Board Approved Approved Board Approved Approved Closings to date Closin								
L200– South Segment	80	48	6	0	0	27	158	47
L300—North Segment	16	12	1	0	1	5	25	1
Total*	96	60	7	0	ı	30	183	48

<sup>\*</sup>Note- number of totals may differ from other reports due to the timing of reporting periods.

#### L200 -Northgate to NE 200th Street Parcels

Eight additional offers made; five additional offers signed; two more relocations required; eight relocations vacated.

#### L300- NE 200th Street to Lynnwood Transit Center

Two parcels closed.

## **Sound Transit Board Actions**

Board Action	Description	Date
R2017-19	To acquire certain real property interests, including acquisition by condemnation to the extent authorized by law, and to reimburse eligible relocation and re establishment expenses incurred by the affected owners and tenants as necessary for the Lynnwood Link Ext.	May 25

## **Community Outreach**

- Approximately 55 residents attended the Ridgecrest Park community meeting on May 9 and heard about new plans for park mitigation.
- Held the first (of three) 60% Station Design Open House in Shoreline on May 24.
- Preparing for the next open house in Mountlake Terrace on June 28.
- Alerted residents about survey work on their property and sent out notices about potholing work near homes.
- Considering staff recommendations for station names forwarded by the Station Naming Committee; Board action to adopt names is expected in July.

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## Link Light Rail Lynnwood Link Extension Final Design - Civil



## Civil Final Design Overview

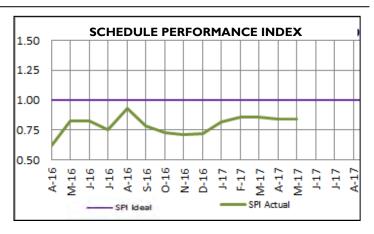
Sound Transit executed a professional services contract with HNTB Jacobs in April 2016 to perform Civil Final Design Services.

## **Civil Final Design Activities**

- L200 60% design deliverable submitted in February; completed reviews in March.
- L200 60% design deliverable submitted in March.
- Continuing design refinements to 185th garage and Lynnwood Transit Center area, and advancing design to 90%.

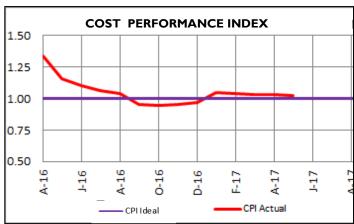
## Civil Final Design SPI

The cumulative Schedule Performance Index (SPI) trends at 0.84 through May 2017, which means that cumulative work accomplished is less than work originally planned. Currently the civil final design is behind schedule due to modifications to the design between 30% and 60%, and delay in finalizing configuration at 185th and Lynnwood Transit Center.



## Civil Final Design Cost Performance

\$31.4M of the total contract amount, 43%, has been spent through May 2017. The Civil Final Design percent complete is 44%, with an earned value of \$32.2M. The cumulative Cost Performance Index (CPI) through May is 1.03 indicating that expenditures are slightly less than the earned value of work performed.



Final Design Performance	Cumulative To-date
Amount Invoiced	\$31.4M
% Spent	43%
Earned Value	\$32.2M
% Complete	44%
SPI	0.84
СРІ	1.03

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## Systems Final Design Overview

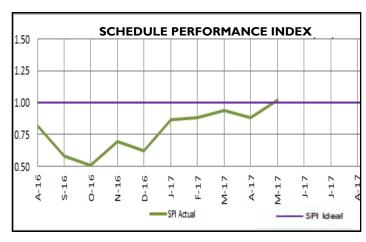
Sound Transit executed a professional services contract with LTK Engineering in July 2016 to perform Systems Final Design Services.

## **Systems Final Design Activities**

- Working on 60% design deliverable based on civil 60% design.
- L800 60% final design submitted expected in June 2017.

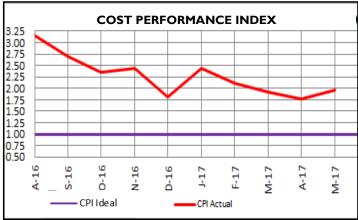
## Systems Final Design SPI

The cumulative Schedule Performance Index (SPI) trends at 1.02 through May 2017, which means that cumulative work accomplished was slightly higher than work originally planned. The monthly SPI for May was 2.07, indicating significantly more work accomplished than planned for the month.



## **Systems Final Design Cost Performance**

\$1.8M of the total contract amount, 19%, has been spent through May 2017. The Systems Final Design percent complete is 38%, with an earned value of \$3.5M. The cumulative Cost Performance Index (CPI) through May is 1.96 indicating that expenditures are significantly lower than the earned value of work performed.



Final Design Performance	Cumulative To Date
Amount Invoiced	\$1.8M
% Spent	19%
Earned Value	\$3.5M
% Complete	38%
SPI	1.02
СРІ	1.96

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# Link Light Rail Lynnwood Link Extension Construction Mgmt - Civil



## Civil Construction Management Overview

Sound Transit executed a professional services contract with PGH Wong in May 2016 to perform Civil Construction Management (CMC) Services

#### **Civil Construction Management Activities**

- Coordinating meetings with design, GC/CM, and ST teams.
- Coordination on various preconstruction activities including cost estimates, schedule, and constructability.
- Coordinating GC/CM review of 60% civil plans.

## **Civil Construction Management SPI**

Work by the CMC is on a level-of-effort basis to support Sound Transit during the final design/pre-construction period. Earned value for level-of-effort is calculated as equal to the planned value, so SPI = 1.00.

#### Civil CM Cost Performance

\$1.4M of the total contract amount, 23%, is spent through May 2017, with an earned value of \$3.8M. The cumulative Cost Performance Index (CPI) through May is 2.18; indicating significantly lower costs than expected on the contract. The Consultant assumed more support staff would be required early in the schedule and that has not been the case, leading to a high CPI. Staffing has increased with the 60% deliverables, and CPI is trending closer to an expected value of 1.0.



Civil CM Performance	Cumulative To-date
Amount Invoiced	\$1.4M
% Spent	23%
Earned Value	\$3.8M
СРІ	2.18

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# Link Light Rail Lynnwood Link Extension GC/CM Pre-Construction

## GC/CM Pre-Con Overview - L200 Northgate to NE 200th Street

Sound Transit executed a professional services contract with Stacy & Witbeck Kiewit Hoffman in June 2016 to perform GC/CM Pre-Construction Services for the L200 segment.

#### L200 GC/CM Pre-Con Activities

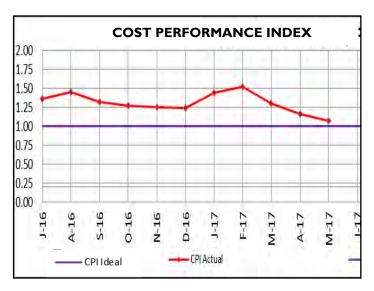
- Coordinating meetings with design, CM, and ST teams.
- Progress on various preconstruction activities including cost estimates, schedule, and constructability.
- Review of 60% civil plans.

#### L200 GC/CM Pre-Con Schedule Performance

Driving the L200 GC/CM Contract is the LLE Final Design contract; GC/CM Pre-Construction work is on a level-of-effort basis to support Sound Transit during the final design/pre-construction period. Earned value for level-of-effort is calculated as equal to the planned value, so SPI = 1.00.

#### L200 GC/CM Pre-Con Cost Performance

\$2.2M of the total contract amount, 43%, is spent through May 2017, with an earned value of \$2.4M. The cumulative Cost Performance Index (CPI) through May is 1.07; indicating actual costs are lower than planned.



L200 GC/CM Performance	Cumulative To-date
Amount Invoiced	\$2.2M
% Spent	43%
Earned Value	\$2.4M
CPI	1.07

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## Link Light Rail Lynnwood Link Extension GC/CM Pre-Construction



## GC/CM Pre-Con Overview - L300 NE 200th St. to Lynnwood Transit Center

Sound Transit executed a professional services contract with Skanska in October 2016 to perform GC/CM Pre-Construction Services for the L300 segment.

#### L300 GC/CM Pre-Con Activities

- Coordinating meetings with design, CM, and ST teams.
- Progress on various preconstruction activities including cost estimates, schedule, and constructability.
- Review of 60% civil plans.

#### L300 GC/CM Pre-Con Schedule Performance

Driving the L300 GC/CM Contract is the LLE Final Design contract; GC/CM Pre-Construction work is on a level-of-effort basis to support Sound Transit during the final design/pre-construction period. Earned value for level-of-effort is calculated as equal to the planned value, so SPI = 1.00.

#### L300 GC/CM Pre-Con Cost Performance

\$1.5M of the total contract amount, 27%, has been spent through May 2017, with an earned value of \$2.6M. The cumulative Cost Performance Index (CPI) through May is 1.82; indicating actual costs are significantly lower than planned. We do anticipate this will moderate and the work towards deliverables increases.



L300 GC/CM Performance	Cumulative To-date
Amount Invoiced	\$1.5M
% Spent	27%
Earned Value	\$2.6M
СРІ	1.82

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



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

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



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

#### **Major Contracts**

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

## **Key Project Activities**

- Resolving punch list items on SCADA and Simplex. Ongoing discussions between WSDOT and Contractor regarding issuance of Substantial Completion. WSDOT is working on resolution of remaining commercial issues with the Contractor.
- I-90 EB and WB HOV lane striping completed; center roadway lanes will be closed June 4, with turnover by WSDOT to Sound Transit on June 14.
- Continued construction on Island Crest Way. Center roadway closure scheduled for weekend of June 3th. Turnover to Sound Transit scheduled June 14th.
- Remaining fire-life-safety testing needed for substantial completion to be completed on the weekend of June 3rd.

## **Closely Monitored Issues**

- Contractor needs to utilize a portion of the 100 days of owner controlled float, while preserving a June center roadway closure date agreeable to by Sound Transit. [As of publication, the center roadway has been turned over to ST.]
- Final Commissioning is taking longer than anticipat-
- Ongoing challenges with network programming tasks for Phase 3 commissioning and Simplex / SCADA video interface and integration.

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

## **Project Cost Summary**

Total Project Cost expended this period is \$5M. The following tables summarize the cost information for the I-90 Two-way Transit and HOV Operations (Stage 3) project. Tables in millions.

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

Project Elements by Phase	Baseline Budget	Current Adopted Budget	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
Administration	\$3.6	\$3.6	\$1.7	\$1.7	\$3.6	\$0.0
Preliminary Engineering	\$1.5	\$1.5	\$1.5	\$1.5	\$1.5	\$0.0
Final Design	\$22.1	\$22.I	\$18.7	\$18.0	\$22.1	\$0.0
Construction Services	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
3rd Party Services	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Construction	\$198.3	\$198.3	\$172.0	\$160.4	\$198.3	\$0.0
Total	\$225.6	\$225.6	\$193.9	\$181.6	\$225.6	\$0.0

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

Project Elements by SCC	Baseline Budget	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
40 Sitework & Special Conditions	\$180.6	\$180.6	\$171.9	\$160.4	\$180.6	\$0.0
80 Professional Services	\$26.3	\$26.3	\$22.0	\$21.2	\$26.3	\$0.0
90 Unallocated Contingency	\$18.7	\$18.7	\$0.0	\$0.0	\$18.7	\$0.0
Project Total (SCC 10-90)	\$225.6	\$225.6	\$193.9	\$181.6	\$225.6	\$0.0

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## **Cost Contingency Management**

In the table below, the Allocated Contingency includes both WSDOT-controlled construction contingency & the total ST-controlled allocated contingencies. The change to the Current Status Remaining Contingency Amount since last period is a result of WSDOT executing change orders to the construction contract during the update period.

	Bas	eline	Current		
Contingency Status	Amount % of Total		Amount	% of Work Remaining	
Design Allowance	\$.0.0	0.0%	\$0.0	0.0%	
Allocated Contingency	\$17.0	7.5%	\$8.5	19.4%	
Unallocated Contingency	\$18.7	8.3%	\$18.7	42.4%	
Total	\$35.7	15.8%	\$27.3	61.8%	

Note: Table in millions. Contract does not carry Design Allowance.

Contingency % of Work Remaining based on Contingency Remaining as a % Budget Remaining.

Allocated contingency includes WSDOT-controlled contingency & ST-controlled Contingency.

## **Project Schedule**

WSDOT executed a change order implementing a schedule recovery plan that preserves the commitment to turn over the center roadway to Sound Transit in June. Substantial Completion was not granted on May 31; WSDOT is currently working with the Contractor to resolve commercial issues affecting agreement on the Substantial Completion date. Although Physical Completion is anticipated July 13, 2017, the Center Roadway will be closed to automobile traffic on June 3 and turnover to Sound Transit will be completed on June 14; this two-week delay to access the Center Roadway will not impact the E130 Construction contractor's anticipated completion of the East Link I-90 Segment.

The remaining Project Milestones for construction are indicated below:

Contract	Final Tunnel Commissioning Complete		Substantial Completion		Center Roadway Turnover		Physical Completion	
I-90 Two-Way Transit & HOV Operations Stage 3	Baseline	Forecast / Actual	Baseline	Forecast / Actual	Baseline	Forecast / Actual	Baseline	Forecast / Actual
	2/16/2017	7/13/2017	2/20/2017	6/30/2017	5/31/2017	6/14/2017	5/31/2017	7/13/2017

Changes from previous update are indicated in RED; A indicates Actual

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#### Scope

**Limits/Alignment:** Fourteen-mile extension from

Downtown Seattle to Mercer Island, Bellevue and the Overlake area of Redmond. The extension includes 10 stations along the alignment that includes at-grade, elevated, bridges, new and retrofitted tunnels.

**Stations:** Judkins Park (formerly Rainier), Mercer

Island, South Bellevue, East Main, Bellevue Downtown, Wilburton (formerly Hospital), Spring District/120th, Bel-Red/130th, Overlake Village and Redmond Technology Center (RTC).

**Systems:** Signals, traction electrification, and com-

munications (SCADA).

**Budget:** \$3.677 Billion Year of Expenditure Dollars

**Schedule:** Revenue Service - June 2023



Map of East Link Extension Alignment.

## **Key Project Activities**

#### Seattle to South Bellevue

- Continued coordination with City of Seattle and WSDOT on encampment clean up around the Dearborn staging area.
- Final Change Order preparation prior to the execution of the balance of the scope for E130 Seattle to South Bellevue segment.
- Obtained access to the center roadway on June 14 to begin physical construction.

#### South Bellevue to Redmond

- *E320 South Bellevue*: Archeological investigation started in South Bellevue Park and Ride (SBPR), demolition of structures north of SE 4th along 112th Ave.
- *E330 Downtown Bellevue Tunnel*: Tunneling continues with refined spiling installation criteria; continue set up of concrete batch plant and new robotic shotcrete arm; Completing Stage 3 (final) work on the Skyline Bldg.
- E335 Downtown Bellevue to Spring Dist.: Bellevue issued ROW use permit; Wright Runstad building demolition agreement signed; Installing TESC, temporary fence, tree protection and tree removal around COB parking garage.
- *E340 Bel-Red*: Coordinating utility disconnects for demo, hazardous material abatement at properties being demolished. Outreach preparing for contractor partnering meeting to be held on June 15th.
- E360 SR520 to Redmond Technology Center: Abatement activities and demolition at Park Place, Clearing and grubbing at WSDOT Sweeper Site. Continue Coordination with Microsoft for OTC temporary trailer

## **Closely Monitored Issues**

- Completing remaining property acquisitions including execution of I-405 Air Space Leases.
- Timely submissions and issuance of construction permits.
- Resolutions of issues related to Mercer Island.
- E330 Downtown Bellevue Tunnel slower than anticipated tunneling production rates.

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## **Project Cost Summary**

The East Link project cost is summarized below in two cost categories. In the first table, the cost is summarized in accordance with Sound Transit's Work Breakdown Structure (WBS). The second table summarizes the project in accordance with the FTA's Standard Cost Category (SCC) format. The figures in both tables are shown in millions. The Estimated Final Cost (EFC) continues to be projected at approximately \$3,677M in year of expenditure dollars. This period's expenditure is about \$61.9.M, increasing the total project cost from \$668.5M to \$730.4M. This period's project commitments increased \$897.8M from \$1.55B to \$2.44B largely due to the commitments of E130 and E335 civil construction contracts.

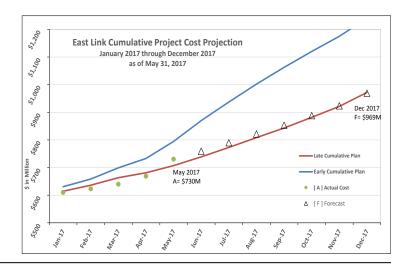
**Cost Summary by Phase** 

Project Phase	Baseline Budget	Current Budget	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Current Budget vs. EFC
Administration	186.2	186.2	\$58.6	\$58.0	186.2	\$0.0
Preliminary Engineering	55.9	55.9	\$54.8	\$54.7	55.9	\$0.0
Final Design	283.0	283.0	\$232.0	\$192.2	283.0	\$0.0
Construction Services	257.5	257.5	\$137.6	\$29.6	257.4	\$0.0
3rd Party Agreements	52.2	52.2	\$34.7	\$10.9	52.1	\$0.0
Construction	2,544.3	2,544.3	\$1,695.1	\$162.3	2,544.3	\$0.0
Light Rail Vehicles	0.0	0.0	\$0.0	\$0.0	0.0	\$0.0
ROW	298.2	298.2	\$230.2	\$222.6	298.2	\$0.0
Total	3,677.2	3,677.2	\$2,443.1	\$730.4	3,677.2	\$0

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

SCC Element	Baseline Budget	Current Budget	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Current Budget vs. EFC
10 Guideway & Track	\$744.6	\$747.6	\$879.6	\$71.4	944.0	(\$196.5)
20 Stations	\$397.7	\$397.7	\$262.2	\$26.2	365.2	\$32.5
30 Support Facilities	\$0.0	\$0.0	\$0.0	\$0.0	0.0	\$0.0
40 Sitework & Special Conditions	\$808.5	\$806.0	\$443.8	\$58.0	669.9	\$136.2
50 Systems	\$353.8	\$353.8	\$88.3	\$3.0	336.4	\$17.4
Construction Subtotal (10 - 50)	\$2,304.6	\$2,305.1	\$1,673.9	\$158.7	2,315.4	(\$10.3)
60 Row, Land	\$288.5	\$288.5	\$230.2	\$222.6	288.5	(\$0.0)
70 Vehicles (non-revenue)	\$2.8	\$2.8	\$0.0	\$0.0	2.8	\$0.0
80 Professional Services	\$898.4	\$899.7	\$539.0	\$349.1	889.2	\$10.5
90 Unallocated Contingency	\$182.9	\$181.0	\$0.0	\$0.0	181.2	(\$0.2)
Total (10 - 90)	\$3,677.2	\$3,677.2	\$2,443.1	\$730.4	3,677.1	\$0.0

The East Link cost projection continues to progress back to within the planned expenditure. Construction activities while slower than previously assumed are now beginning to commence. This period's project expenditure topped out at about \$61.9M where construction phase is responsible for about 90% or \$55.7M of May's cost. This is solid indication that construction activities are picking up ahead of the summer period. Total project cost incurred to date has now surpassed \$730M to which about \$158.7M were within the Construction Phase. All civil construction has now commenced or is mobilizing. Systems contract is a joint East Link and Northgate Link project with Notice to Proceed to be issued in June.



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### Risk and Contingency Management

#### Risk Management

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

This period, Sound Transit began the quantitative risks update and risk assessment workshops. ST included participation of construction management consultants and construction contractors who are already under contract (E130, E330, E335, E340, E360 and E750) in its risks management program.

#### **Contingency Status**

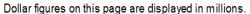
East Link project budget was baselined on April 2015 with a total contingency of \$795.9M. At the end of May 2017, with all major construction contracts essentially let out, the total contingency balance stands at \$490.3M. The current contingency balance is consistent with the project's planned contingency drawdown.

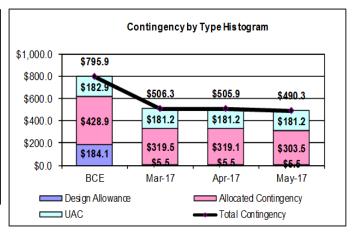
**Design Allowance (DA)** was set up to account for unquantified scope at the time of the cost estimate. This period, DA balance remained the same as the previous period at \$5.5M. DA balance is expected to be fully drawn when all construction scope are executed.

**Allocated Contingency (AC)** is used to address risks, complexity and unforeseen conditions during the execution of work, including procurement. This period some AC was transferred to commitment to reflect the awarded price of the first portion of E335 construction contract (all work, except Stations). The total AC balance is \$303.5M.

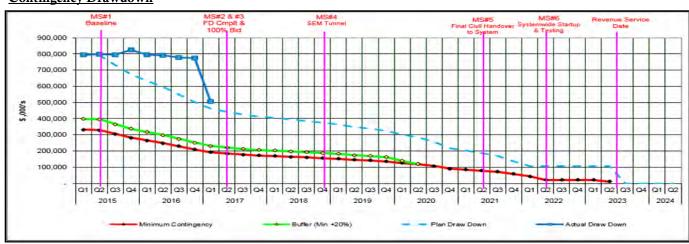
*Unallocated Contingency (UAC)* is used to address general project-wide cost risks and uncertainties. The UAC balance of \$181.2M continues to be stable compared to the initiation balance of \$182.9M at Baseline Cost Estimate (BCE).

Contingency	В	CE	Current Status			
Status	Amount % of Total Budget		Remaining Amount	% of W ork Remaining		
Design Allowance	\$184.1	5.0%	\$5.5	0.2%		
Allocated Contingency	\$428.9	11.7%	\$303.5	10.3%		
Unallocated Contingency	\$182.9	5.0%	\$181.2	6.2%		
Total:	\$795.9	21.6%	\$490.3	16.6%		





#### **Contingency Drawdown**



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## **Project Schedule**

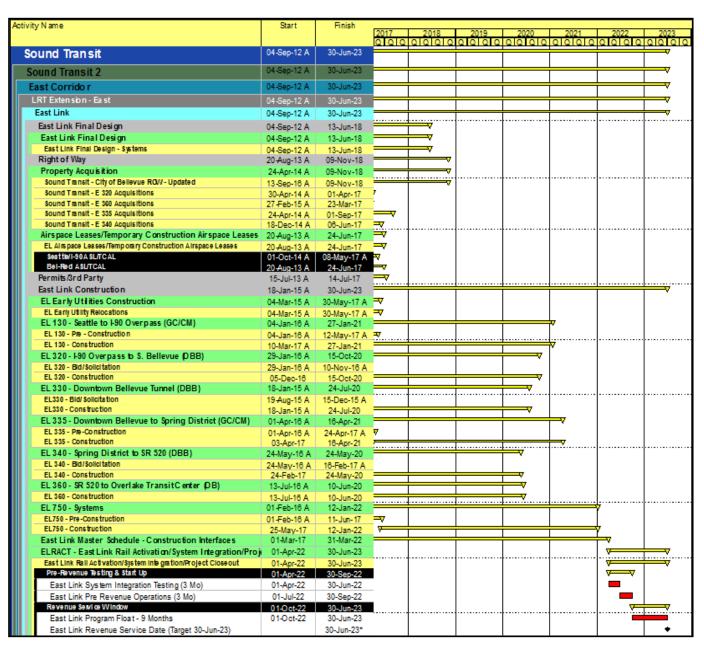
NTP for the full E130 contract was issued on May 12th. The contractor was already proceeding with a limited scope to prepare critical submittals and work plans and to design and fabricate steel for the floating bridge post-tensioning retrofit. They are now preparing critical submittals and anticipate beginning work immediately upon access to the I-90 center roadway on June 14th. NTP for E750 is expected in June.

The E320 and E340 contractors continue preparing key submittals and work plans. Construction is anticipated to start in early June for both contracts.

E330 Downtown Bellevue Tunnel Contractor continued tunneling; after a slower than planned start, they are beginning to achieve anticipated production rates in May. Work continued on the Skyline building retrofit.

E360 SR 520 to RTC design is progressing toward 100%. The first construction tasks are anticipated in late Spring 2017 with the removal of trees. Civil construction is scheduled to start in earnest later in the Summer.

All contracts are forecast to complete on or before target. Revenue Service is forecasted in June 2023.



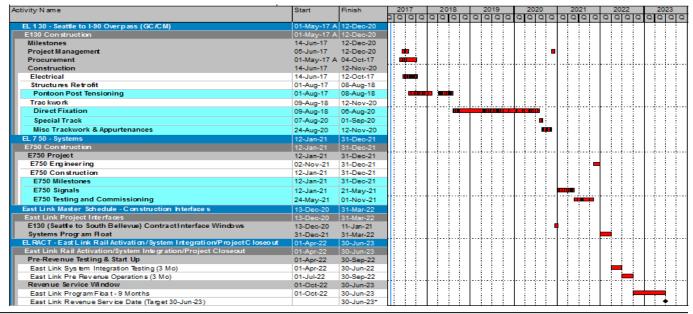
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# Link Light Rail East Link Extension



#### **Critical Path Analysis**

The East Link critical path is currently running through the handover of the I-90 corridor from the E130 contractor to the E750 Systems contractor. The critical path for E130 is driven by the pontoon post-tensioning retrofit due to the restricted work seasons on the floating bridge.



## 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. Market value trends in both residential and commercial properties are exhibiting strong upward pressure. The overall impact on the Right-of-Way (ROW) budget is being closely monitored. Efforts are also underway to prioritize acquisitions by contract package to help ensure timely availability of property. Property acquisition is recognized as a high priority and the management team has formed an ad hoc ROW team consisting of internally involved departments to prioritize and manage the process. See right-of-way program status in the table below.

Several of the remaining properties needed for construction are City of Bellevue Properties committed in the Memorandum of Understanding. The ST/City of Bellevue Steering Committee consisting of senior staff are collaborating to ensure timely transfer of these property rights consistent with the project schedule and priorities.

East Link Extension Property Acquisition Status								
Line Section	Board Ap- proved	Offers Made/In Negotia- tions	Signed Agree- ments	Posses- sion and Use	Admin Settle- ment	Closings to date	Reloca- tions Required	Parcels Vacated
Total	242	232	3	31	2	178	244	199

Note: Excluded from the table above are 9 parcels that were approved under a separate ST Board authorized agreement. These parcels are tracked in a working file and will be added to the table above in future reports.

*E130 Seattle to South Bellevue* - No new activities. Air Space Lease discussions with WSDOT continue.

*E335 Downtown Bellevue to Spring District* - One parcel closed. *E340 Bel-Red* - One parcel closed and one parcel in P&U.

*E320 South Bellevue* - Air Space Lease discussions with WSDOT continued. One parcel closed. One parcel vacated.

 $\it E360~SR~520~to~Redmond~Technology~Center~-~{\it One~parcel~closed}.$ 

E330 Downtown Bellevue - No new activities.

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# **Construction Safety**

Data/ Measure	May 2017	Year to Date	Project to Date
Recordable Injury/Illness Cases	1	2	2
Days Away From Work Cases	0	0	0
Total Days Away From Work	0	0	0
Restricted or Modified Work Cases	0	1	1
Total Days Restricted or Modified Work	0	17	17
First Aid Cases	2	10	14
Reported Near Mishaps	3	10	23
Average Number of Employees on Worksite	136	=	-
Total # of Hours (GC & Subs)	29,078	103,650	142,002
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	6.88	3.86	2.82
DART Rate	0.00	1.93	1.41
Recordable National Average	3.50	3.50	3.50
DART National Average	2.00	2.00	2.00
Recordable WA State Average	7.00	7.00	7.00
DART WA State Average	3.90	3.90	3.90

## **Sound Transit Board Actions**

Board Action	Description	Date
M2017-74	Execute a contract amendment with Northwest Transit Systems Partners to provide construction management consultant services for the Northgate Link and East Link systems construction phase, and the preconstruction phase of the Lynnwood Link systems construction in the amount of \$36,680,922, with a contingency of \$3,588,242, totaling \$40,269,163, for a new total authorized contract amount not to exceed \$44,106,455.	May 24

## **Environmental**

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

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# Link Light Rail East Link Extension - Construction



## **Community Outreach**

- Final coordination with WSDOT regarding I-90 changes first week of June; provided notice to I-90 commuters about changes via listserve.
- Met with City of Mercer Island staff regarding I-90 changes and intersection work.
- Onsite outreach at South Bellevue Park and Ride.
- Held the South Bellevue Construction Kickoff Open House on May 31.
- Multiple on-site meetings with property owners to discuss driveway access during construction, and fence line along ST's construction work zone.
- Construction alert distributed to the BelRed listsery, topics included: pole installation and survey work, clearing trees, etc.

**Business Mitigation** 

- Provided an E335 construction briefing to various businesses—Rack n Road, Bellevue Auto House, Beta Bellevue House, Whole Foods, etc.
- Updated Bravern building representatives on upcoming E335 construction and also scheduled monthly meeting check-ins.
- Multiple phone calls and email correspondence with Bel Red businesses on issues concerning driveway access, parking lot paving and other issues with construction.
- Published an online newsletter to the East Link listserv regrading construction progress.
- Distributed various construction alerts to businesses and residents.

## Major East Link Construction Contract Packages

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

**R8A Stage 3A** – Modification of HOV Ramp between I-90 and Bellevue Way SE. [Design-bid-build]

Status: Completed.

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

Status: MACC negotiated. Proceed with the Contractor on long lead procurement and planning for early work. The balance of the scope awarded. Executed change order for balance of work.

**E160 Track Bridge System** – Fabrication, delivery and installation of eight track bridges that will span over fixed structures and the floating bridge. [Furnish and Install]

Status: Incorporated as part of E130.

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

Status: Contractor commenced mobilization.

**E330 Downtown Bellevue Tunnel** – SEM Tunneling along 110th Ave. NE in Downtown Bellevue. [Design-bid-build] *Status: See following pages.* 

**E335 Downtown Bellevue to Spring District** – Four light rail stations; aerial, at-grade and retained-cut guideway from Downtown Bellevue, over I-405 to 124th Ave. NE. [Heavy Civil GC/CM]

Status: Contract with the exception of the Station package scope awarded, executed and NTP issued. The station scope exception will be repackage and procured later in the year.

**E340 Bel-Red** – One light rail station, aerial and at-grade guideway from 124th Ave. NE to NE 20th. [Design-bid-build]

Status: Contract Award in January 2017. NTP issued in March 2017.

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

Status: See following pages under Contract E360.

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

Status: MACC negotiated, Contract executed, Notice to Proceed anticipated in June.

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## Link Light Rail East Link Extension - Construction

#### Contract E330 – Downtown Bellevue Tunnel

#### **Current Progress**

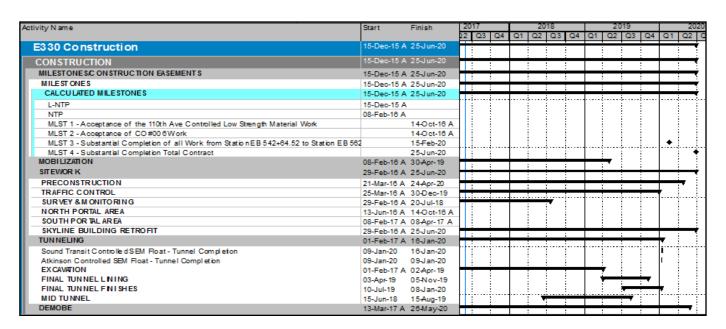
**South Portal:** The Contractor continued tunneling throughout the month and completed excavation through station point 544+88, which is approximately 223 feet of excavation. Continued certifying the concrete batch plant and continued testing the new shotcrete robot and preparing to train and certify the nozzle operators for the robot.

North Portal: Completed the Skyline Building scope of work, and continued finalizing the punchlist items.

Between Portals: Dewatering consultant developing dewatering plan for the tunnel and for the Skyline building.

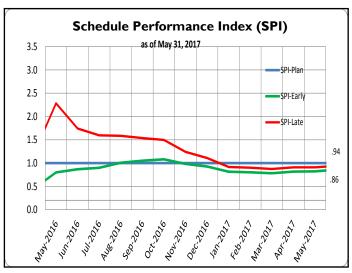
### **Schedule Summary**

The critical path for this contract follows the tunnel excavation and the completion of the South Portal structure. The Contractor has revised their production rate assumptions to a rate of 3.2 LF/day; by the end of May they achieved a rate of 4.2 LF/day. The Contractor continues to employ methods to recover time - including a new batch plant onsite, a new shotcrete robot, and further evaluation of a reduction in spiling—and is on pace to recover most of the time lost due to the slower than planned start to tunneling.



#### Schedule Performance Index

This period, the SPI early is at 0.86 and the SPI late is at 0.94. Both the early and late indexes indicate that the Contractor continues to be behind schedule when compared to the baseline schedule. This trend is supported by the fact that the start of tunnel excavation began later than originally planned, and the contractor experienced a much steeper learning curve than anticipated. The Contractor has started trending in the positive direction with regards to tunnel excavation progress, and is anticipated to continue to improve progress in the near future with the use of the onsite batch plant, a better shotcrete robot being used, and the potential decrease in the number of rebar spiling required moving forward.



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# Link Light Rail East Link Extension - Construction



#### **Next Period's Activities**

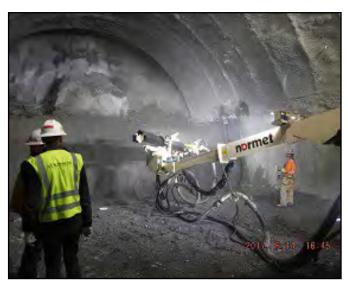
- Continue batch plant installation and begin testing.
- Continue tunnel excavation. Continue improvements to shotcrete production, delivery and application.
- Complete Skyline Building work including punch list items.
- Dewatering Consultant to developed dewatering plan and identified additional test wells required for northernmost end of tunnel.

### **Closely Monitored Issues**

- Contractor submitted Claim #001 for additional face shotcrete for work stoppages in Reach 1 Type 1 excavation. Issue is being reviewed by ST and negotiated between the parties.
- Notice of Intent to Claim (NOITC) for the lattice girder welding requirements; received revised pricing after meeting with manufacturer to discuss cost mitigation efforts. Issue still under negotiation.
- Received NOITC for the overbreak (over-excavation) under the pipe canopy. Issue is being negotiated between the parties.
- Water build-up outside the existing Skyline basement wall along 110th Ave. Discussing means to mitigate the hydrostatic pressure and draining the water out of the ground prior to tunneling at this location.
- Obtaining right of entry agreements and temporary construction easements for properties along alignment.

#### **Cost Summary**

Present Financial Status	Amount
E330 Contractor– Guy F Atkinson Construction, LLC.	
Original Contract Value	\$121,446,551
Change Order Value	\$1,969,956
Current Contract Value	\$123,416,507
Total Actual Cost (Incurred to date)	\$35,362,970
Financial Percent Complete:	28.7%
Physical Percent Complete:	28.7%
Authorized Contingency	\$12,144,655
Contingency Drawdown	\$1,969,956
Contingency Index	1.77



Installing shotcrete with new Normet robot for bench.

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# Link Light Rail East Link Extension - Design-Build

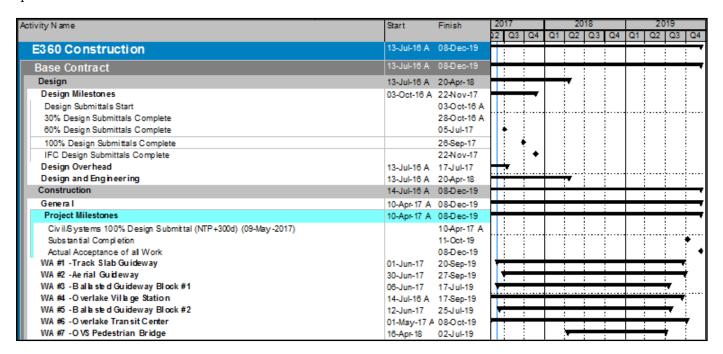
## Contract E360 – SR 520 to Redmond Technology Center (RTC)

#### **Current Progress**

The Design-Build Contractor (Kiewit-Hoffman) submitted the 60% design package for the RTC Station, and the IFC Overlake Village Station Site (OVS) work package in May. The DB team is advancing on the 100% package for the OVS Station, and a number of 100% design packages including guideway and walls. The Contractor continued early site clearing at the station sites and WSDOT ROW. Contractor continues to work on securing all necessary permits for work elements in the City of Redmond right-of-way.

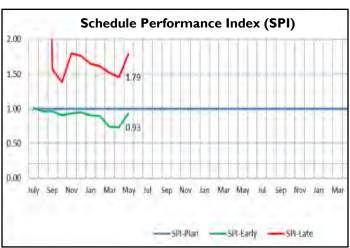
#### **Schedule Summary**

The Contractor is between 60-100% on most design packages. Construction began in May with structure demolition at Overlake Village and some work on temporary structures and bus loop at Overlake Transit Center. The critical path for this contract runs through the aerial guideway and direct fixation trackwork. The Contractor's current projected completion is two months ahead of Sound Transit's baseline milestone.



#### Schedule Performance Index

This period, the SPI early is 0.93 and SPI late is 1.79. The SPI early value recovered significantly this month because of release of an incremental mobilization payment. However, early SPI continues to reflect schedule slippage versus the baseline schedule. The early design packages such as site clearing, demolition and temporary bus loop configuration are near IFC and are anticipated to be approved and progressed into construction in June. 60% Station packages were submitted but require a greater level of completeness. Kiewit-Hoffman has deferred the OVS Station design to prioritize the RTC Station design.



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# Link Light Rail East Link Extension - Design-Build



#### **Next Period's Activities**

- The 100% design package for retaining walls, guideway and the OVS pedestrian bridge. Work progress on 100% and IFC design packages.
- Submit final RTC civil permit application packages to City of Redmond.
- Demolish Park Place building, begin excavation of OVS Storm Water Infiltration Vault, complete the Microsoft temporary facilities, and start Phase 3 temporary bus loop.

#### **Closely Monitored Issues**

- Alternative OTC Ped Bridge Contractor and Microsoft are working on 30% designs for an alternative OTC Ped Bridge. Once design, costs and schedule are developed, a decision will be made whether to retain this scope in E360. That decision will happen in early third-quarter of 2017.
- City of Redmond permitting process continues to lag. Director level meetings are being held to address issues.
- Contractor is continuing with design of soil nail wall (wall #14). Ongoing discussion with ST and Microsoft about soil nail walls.
- High Resilient Fasteners A design and construction change order is being considered for the high resilient fastener change.
- Contractor has numerous outstanding change proposals to submit. ST and the Contractor continue to discuss allowable mark ups on changes.

#### **Cost Summary**

Present Financial Status	Amount
E360 Contractor— Kiewit-Hoffman	
Original Contract Value	\$225,336,088
Change Order Value	\$500,000
Current Contract Value	\$225,836,088
Total Actual Cost (Amount Billed)	\$28,676,775
Financial Percent Complete:	12.7%
Physical Percent Complete:	12.7%
Authorized Contingency	\$22,533,609
Contingency Drawdown	\$500,000
Contingency Index*	4.2



Crews prepping temporary OTC bus shuttle loop.

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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

**Schedule:** Revenue Service began on September 24,

2016



## **Key Project Activities**

- Design Build Guideway and Station (S440): The project team continued working with the Contractor and Operations to finalize remaining work to achieve Acceptance on the contract.
- Design Build Parking Garage (S445): The project team continued working toward achieving Acceptance on the contract.
- *Military Road/South 200th (S446):* ) Construction work managed by WSDOT continues.\ and nearing Substantial Completion.
- Roadway Improvements (S447): Closeout was completed.
- *Project-wide*: Goal to conclude all closeout work by end of 3rd Quarter 2017. Follow-on work items continue and expected to be completed by 4th QTR 2017.

## **Closely Monitored Issues**

- *S440*: Completion of Training, O&M Manuals corrective actions need to be completed.
- S445: Completion of as-builts needs to be accomplished.

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## **Project Cost Summary**

The South 200th Link Extension cost is summarized into two cost tables. The current Adopted Budget column reflects the 2016 Adopted Budget. The first table is in accordance with Sound Transit's Work Breakdown Structure (WBS) displaying the cost summary by phase. The second table summarizes project cost by SCC, in accordance to the FTA Standard Cost Categories (SCC) format. Both tables show figures in millions.

Cost Summary by Phase

WBS Phase Elements	Baseline Budget	Current Adopted Budget	Commit- ment to Date	Incurred to Date	Est. Final Cost (EFC)	Adopted Budget vs. EFC
Administration	\$16.1	\$17.1	\$15.9	\$15.9	\$17.1	\$0.0
Preliminary Engineering	\$5.9	\$5.7	\$5.7	\$5.7	\$5.7	\$0.0
Final Design	\$20.0	\$9.5	\$8.7	\$8.7	\$8.7	\$0.8
Construction Services	\$15.1	\$17.3	\$17.1	\$17.0	\$17.2	\$0.1
3rd Party Agreements	\$6.9	\$7.1	\$5.7	\$3.8	\$5.2	\$1.9
Construction	\$275.7	\$282.9	\$238.6	\$237.3	\$249.2	\$33.7
Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$43.5	\$43.5	\$38.1	\$38.0	\$38.1	\$5.4
Capital Total	\$383.2	\$383.2	\$329.8	\$326.5	\$341.2	\$42.0
Finance Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Project Total	\$383.2	\$383.2	\$329.8	\$326.5	\$341.2	\$42.0

The overall project Estimated Final Cost (EFC) for this period reflects \$341M, a savings projection of \$42M. This period incurred cost increased by approximately \$2.4M, of this \$2.3M for several construction contracts (S440 change order, S445 claim settlement, S446 WSDOT construction task order, and SCADA/Startup) and the remaining expenditures of \$0.1M are administrative charges.

The EFC grouped by SCC is also reflecting \$341M, a savings projection of \$42M. The work remaining can be achieved under the adopted budget.

Project Elements by SCC	Baseline Budget	Current Adopted Budget	Commit- ment to Date	Incurred to Date	Est. Final Cost (EFC)	Adopted Budget vs. EFC
10 Guideway & Track Elements	\$144.8	\$133.0	\$100.1	\$101.0	\$110.1	\$22.9
20 Stations	\$46.4	\$51.7	\$40.1	\$41.2	\$41.6	\$10.2
30 Support Facilities: Yards, Shops	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$34.6	\$55.3	\$57.1	\$54.0	\$58.5	-\$3.2
50 Systems	\$30.8	\$19.9	\$20.1	\$20.0	\$20.1	-\$0.2
Construction Subtotal (SCC 10-50)	\$256.6	\$259.9	\$217.4	\$216.2	\$230.2	\$29.7
60 Row, Land, Existing Improvements	\$43.5	\$43.5	\$38.1	\$38.0	\$38.1	\$5.4
70 Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
80 Professional Services	\$64.1	\$72.5	\$74.3	\$72.3	\$68.3	\$4.2
90 Unallocated Contingency	\$19.0	\$7.3	\$0.0	\$0.0	\$4.6	\$2.7
Project Total (SCC 10-90)	\$383.2	\$383.2	\$329.8	\$326.5	\$341.2	\$42.0
100 Finance Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Project Total (SCC 10-90)	\$383.2	\$383.2	\$329.8	\$326.5	\$341.2	\$42.0

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## **Cost Contingency Management**

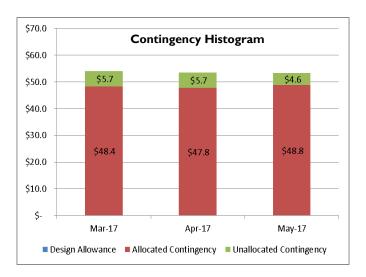
The overall project contingency balance as of this period is \$53.4M. Table (below) figures in millions.

#### Design Allowance (DA): N/A

Allocated Contingency (AC): This period the AC shows a current balance of \$48.8M, an overall increase of \$1M from the previous period. This change is mostly due to the construction claim settlement for S445, and various small change orders for S440, S445 plus commitment adjustment (add/reduction) to Fare Collection contract and SCADA/Startup; all in the Construction phase.

*Unallocated Contingency (UAC):* This period the UAC balance is \$4.6M, a decrease of \$1.1M to cover S445 claim settlement reimbursement.

	Base	eline	Cı	ırrent
Contingency Status	Amount	% of Total	Amount	% of Work Remaining
Design Allowance	\$26.7	7.0%	\$ -	0.0%
Allocated Contingency	\$29.8	8.0%	\$48.8	330.5%
Unallocated Contingency	\$19.0	5.0%	\$ 4.6	31.2%
Total	\$75.5	20.0%	\$53.4	361.7%



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

#### Close-out

Revenue Service began on September 24, 2016. The S440 Contractor continues to work on closeout and punchlist items.

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

#### Current Period

- Completed O&Ms and punchlist activities.
- Continued post revenue work arounds, NCRs, and safety certification.
- Continued change order work and address contract closeout items (training, O&M Manuals, Commissioning Reports and As-Builts).

#### Next Period

• Complete closeout materials and work around work.

#### **Closely Monitored Issues**

 Need to complete remaining training, Safety Certification, and as-builts to transfer maintenance responsibilities to Operations and Facilities.

# S445 Contract—Design -Build Parking Garage

#### Close-out

Substantial Completion issued on December 21, 2016.

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

#### Current Period

- Completed all outstanding change items.
- Continue closeout activities (As-builts).

#### Next Period

• Contract closeout.

#### **Closely Monitored Issues**

• Close-out completed.

## **Cost Summary**

Present Financial Status	Amount
S440 Contractor—PCL Civil Contractors, Inc.	
Original Contract Value	\$169,000,000
Change Order Value	\$7,219,903
Current Contract Value	\$176,219,903
Total Actual Cost (Amount Billed)	\$175,483,048
Financial Percent Complete:	99.6%
Physical Percent Complete:	100%
Authorized Contingency	\$13,520,000
Contingency Drawdown	\$7,219,903
Contingency Index*	2.0

## **Cost Summary**

Present Financial Status	Amount
S445 Contractor—Harbor Pacific/Graham	
Original Contract Value	\$29,978,000
Change Order Value	\$2,604,606
Current Contract Value	\$32,582,606
Total Actual Cost (Amount Billed)	\$32,485,625
Financial Percent Complete:	99.7%
Physical Percent Complete:	99.7%
Authorized Contingency	\$2,798,240
Contingency Drawdown	\$2,604,606
Contingency Index*	1.1

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# S447 Contract – Station Area Roadway Improvements and Surface Parking

## **Current Progress**

S447 Contractor continues punchlist work. Substantial Completion issued December 19, 2016. Final payment has been processed.

No more updates next period.

## **Key Activities**

Current Period

• Final payment processed.

## **Cost Summary**

Present Financial Status	Amount
S447 Contractor - Johansen Excavating,	
Inc	
Original Contract Value	\$8,426,400
Change Order Value	\$2,642,328
Current Contract Value	\$11,068,728
Total Actual Cost (Amount Billed)	\$11,067,794
Financial Percent Complete:	100%
Physical Percent Complete:	100%
Authorized Contingency	\$2,642,640
Contingency Drawdown	\$2,642,328
Contingency Index*	1.0

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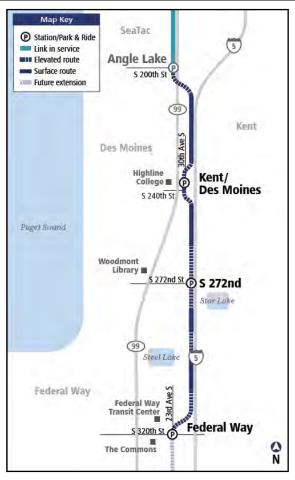


## Scope

The Federal Way Link Extension adds approximately 7.8 miles of light rail from the Angle Lake Station in the City of SeaTac to the Federal Way City Center. The extension generally parallels SR 99 and I-5 freeway with stations at Kent/Des Moines, South 272nd Star Lake Park –and-Ride and the Federal Way Transit Center. The current budget for this project is \$412.6M.

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

- Board identified a Preferred Alternative and approved Phase 3 contract amendment on July 23, 2015.
- Executed Phase 3 contract amendment with HDR for Final EIS and Preliminary Engineering on July 24, 2015.
- ST Board approved contract amendment in February 2016 to extend Preliminary Engineering from Kent/ Des Moines to the Federal Way Transit Center.
- Final EIS was published in November 2016.
- Sound Transit Board has selected the alignment and stations for the project on January 26, 2017.
- Received Record of Decision from FTA in March 2017.
- Entered Final Design (Phase Gate 4) in March 2017.



Map of Federal Way Link Extension.

## **Project Cost Summary**

In March 2017, the Sound Transit Board authorized the Federal Way Link Extension Project to advance through Gate 4 (Final Design), increasing the authorized project allocation from \$48.8M to \$412.6M. Board approval for Gate 5 to release the entire project budget will be sought in December 2017. Table (below) figures in millions.

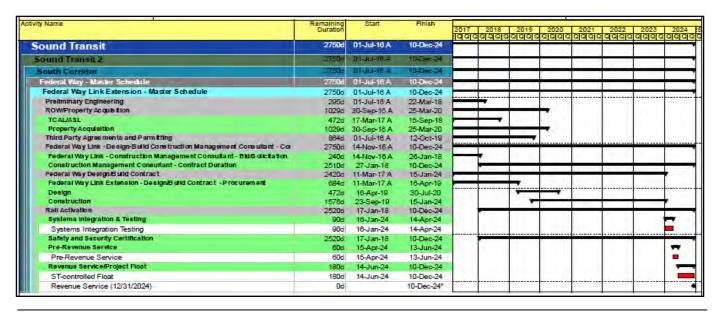
Phase	Adopted Budget	Commitment to Date	Incurred to Date	Forecasts and Trends	Estimated Final Cost (EFC)	Budget Versus EFC
Administration	\$14.9	\$6.9	\$6.8	\$8.1	\$14.9	\$0.0
Preliminary Engineering	\$40.4	\$32.1	\$33.3	\$8.2	\$40.4	\$0.0
Final Design	\$2.4	\$0.0	\$0.0	\$2.3	\$2.4	\$0.0
Construction Services	\$45.7	\$0.0	\$0.0	\$45.7	\$45.7	\$0.0
Third Parties	\$18.6	\$2.6	\$1.0	\$16.1	\$18.6	\$0.0
Construction	\$25.5	\$0.0	\$0.0	\$25.5	\$25.5	\$0.0
Right of Way	\$265.1	\$1.1	\$1.0	\$264.0	\$265.1	\$0.0
Total	\$412.6	\$42.7	\$42.1	\$369.9	\$412.6	\$0.0

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## **Project Schedule**

The project schedule is presented below. ROD was received in March 2017. ST has commenced acquiring real estate and will Baseline the project in 4th Qtr 2017 and may issue an RFQ for potential Design-Build contractors in 4th quarter 2017 or early 2018. Real Estate Acquisition is now underway and additional detail will be added to the master



### **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
M2017-69	Execute (1) a City Services Agreement with the City of Federal Way for expedited design, design review, permitting and construction services for the Federal Way Link Extension and (2) Task Order 1, for the design-build Request for Proposal preparation phase, in the amount of \$273,373, and a 10%, for a total authorized amount not to exceed \$300,710.	May 25
M2017-70	Execute (1) a City Services Agreement with the City of Des Moines for expedited design, design review, permitting and construction services and (2) Task Order 1, for the design-build Request for Proposal preparation phase, in the amount of \$165,000, and a 10% contingency, for a total authorized amount not to exceed \$181,500.	May 25
M2017-71	Execute (1) a City Services Agreement with the City of SeaTac for expedited design, design review, permitting and construction services and (2) Task Order 1, for the design-build Request for Proposal preparation phase, in the amount of \$178,560, with a 9% contingency for a total authorized amount not to exceed \$194,416.	May 25

## **Community Outreach**

- Continued scheduling multiple property owner meetings.
- Met with various property owners/businesses to discuss the project and its potential impacts.
- Held a project workshop at the Federal Way Transit Center Station and 30 people attended.

#### **Environmental**

None to report.

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## Phase 3 Preliminary Engineering (PE)

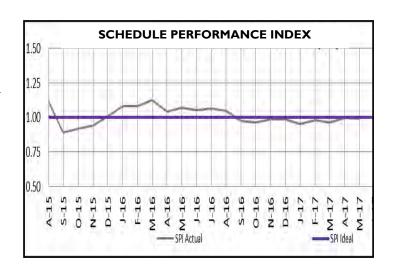
In July 2015, Sound Transit executed an amendment to the professional services agreement with HDR Engineering, Inc. for Phase 3 professional services, including completion of a Final Environmental Impact Statement (FEIS) using the preferred alternative and the other alternatives in the Draft EIS, preliminary engineering of the preferred alternative to Kent/Des Moines and additional engineering as needed to support receipt of environmental approvals. In February 2016, Sound Transit executed an amendment to extend the preliminary engineering effort from Kent/Des Moines to the Federal Way Transit Center.

## Phase 3 Key Activities

- Record of Decision (ROD) from FTA received and moving toward Entry to Engineering.
- Resolution of Pre-Final PE submittal comments by third parties and initiation of development of project requirements associated with RFP development for design-build contract.
- Continued coordination with potentially affected property owners including neighborhood briefings and one-on-one meetings.
- Completion of term sheets with affected jurisdictions documenting concurrence on project improvements, impacts analysis and mitigation and initiation of future agreements.
- Continued discussion with FTA regarding New Starts requirements for Entry to Engineering.
- ST Board approved City Services Agreements with the Cities of Federal Way, Des Moines and SeaTac.

#### Phase 3 Schedule Performance

The cumulative Schedule Performance Index (SPI) is 0.99 through May 2017, indicating the overall amount of work accomplished is planned. A new plan has been developed to incorporate new scope to extend consultant contract for assistance in RFP process of DB contract and in ROW acquisition support.



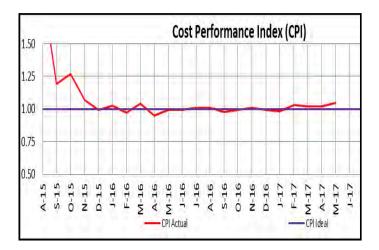
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# Link Light Rail Federal Way Link Extension- Preliminary Engineering

## **Phase 3 Cost Performance**

Phase 3 expenditures totaled \$20.1M, approximately 68% of the contract total. The Phase 3 percent complete reported at 71%, with an earned value of \$21.1M. The cumulative Cost Performance Index (CPI) is 1.05, indicating costs are on track with work accomplished. Phase 3 cost is within budget.

A change order was approved for a contract extension for one year for assistance in RFP process of the DB contract and in ROW acquisition support.



Phase 3 Performance	Cumulative To Date
Amount Invoiced	\$20.1
% Spent	68%
Earned Value	\$21.1
% Complete	71%
SPI	0.99
СРІ	1.05

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# Link Light Rail Tacoma Link Expansion



Scope

**Limits:** City of Tacoma

**Alignment:** The Tacoma Link Expansion is a 2.4-

mile extension of the existing Tacoma Link system from the Theater District in downtown Tacoma to the Hilltop neighborhood. The Expansion will travel atgrade along Stadium Way, North 1st. Street, Division Avenue, and Martin

Luther King Jr. Way.

Stations: Relocated Theater District Station, Sta-

dium Way & 4th St, Stadium District, MLK Jr. Way and Division, MLK Jr. Way and 6TH Ave, MLK Jr. Way and S. 11th St., and MLK Jr. Way and S.

19th St.

**Systems:** Expansion of the Operations and Mainte-

nance Facility; The at-grade alignment will include additional signals, OCS, traction power, and communications infra-

structure.

**Budget:** \$34.6 Million Phase Gate 4 budget; ex-

cludes Construction (Year of Expenditure

Dollars)

**Phase:** Final Design

Const. Starts: 2018



Map of Tacoma Link Expansion.

## **Key Project Activities**

#### Final Design

• Design consultant began responses to ST staff and Third Party 60% design review comments. Value Analysis and Risk Assessment workshops were held based on the 60% cost and schedule estimate.

#### **Pre-Construction Services**

 Mobilized the Construction Management Consultant's (CMC) Resident Engineer for Phase I – Pre-construction Services.

#### Third Parties

Agreements with the City of Tacoma were routed for signature. ST and City of Tacoma staff continued work
order negotiations for City inspection and project management services of various project elements, most notably
utilities.

#### Right of Way

 Continued early right of way property acquisition activities as they relate to the expansion of the Operations and Maintenance.

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## **Project Cost Summary**

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

#### Cost Summary by Phase

WBS Phase Elements	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
Administration	\$10.6	\$3.9	\$3.9	\$10.6	\$0.0
Preliminary Engineering	\$5.9	\$5.6	\$5.6	\$5.9	\$0.0
Final Design	\$10.8	\$7.7	\$4.5	\$10.8	\$0.0
Construction Services	\$0.8	\$0.5	\$0.0	\$0.8	\$0.0
3rd Party Agreements	\$1.3	\$0.0	\$0.0	\$1.3	\$0.0
Construction	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Vehicles	\$2.0	\$1.9	\$0.3	\$2.0	\$0.0
ROW	\$3.2	\$1.6	\$1.5	\$3.2	\$0.0
Total	\$34.6	\$21.3	\$15.8	\$34.6	\$0.0

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

Project Elements by SCC	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
10 Guideway & Track	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
20 Stations	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
30 Support Facilities	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
50 Systems	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Construction Subtotal (10 - 50)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
60 Row, Land	\$3.2	\$1.6	\$1.5	\$3.2	\$0.0
70 Vehicles (non-revenue)	\$2.0	\$1.9	\$0.3	\$2.0	\$0.0
80 Professional Services	\$29.4	\$17.7	\$14.0	\$29.4	\$0.0
90 Unallocated Contingency	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Total (10 - 90)	\$34.6	\$21.3	\$15.8	\$34.6	\$0.0

## Risk Management

The Tacoma Link Risk and Contingency Management Plan (RCMP) will be completed in 2nd QTR 2017. This establishes a risk management and oversight process for identifying, assessing, and monitoring risks and develops risk reduction/mitigation plans. It will provide a tool for the project team to proactively manage risks on the project. It is Sound Transit's responsibility for continuously monitoring project status and associated risks, taking mitigation actions for known risks identified on the risk register, and effectively responding in a timely manner to those risks that pose a significant impact to the project cost or schedule forecast.

The Tacoma Link Quarterly Risk Review Meeting was held in March 2017. The baseline risk assessment was conducted in May 2017.

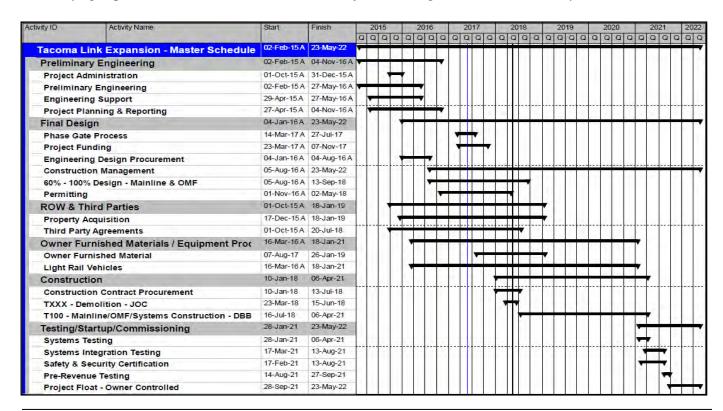
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# Link Light Rail Tacoma Link Expansion



## **Project Schedule**

The Master Schedule has been revised based on the Risk Workshop and modeling conducted in May. The Project Float has been increased from 4 months to 8 months. In addition, interface float has been added between the completion of the OCS and the start is Systems Integration Testing. The schedule end date is now May 23, 2022. LRV proposals were received in May and will be evaluated and interviews held in June, BAFO still scheduled for August. NTP for car manufacturing remains December 2017. The City of Tacoma issued the Declaration of Public Works on May 25, notifying impacted utilities of the need to relocate. Project baselining is still scheduled for July 2017.



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

Motion Number	Description	Date
	None to report.	

## **Community Outreach**

 Met with Stadium District business owners to discuss station area parking.

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# Link Light Rail Tacoma Link Expansion - Final Design

## Final Design

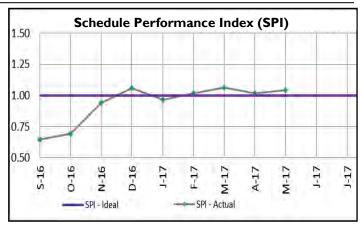
In July 2016 Sound Transit executed a contract with HDR Engineering, Inc. to provide civil and systems final design services for Tacoma Link.

### Final Design Key Activities

- The consultant submitted the 60% mainline and OMF design packages for ST and stakeholder review. Reviews of the mainline package were complete and the consultant commenced dispositioning comments.
- Continued coordination meetings with the City of Tacoma regarding TPSS locations.
- Continued work order development with the City of Tacoma for construction services as identified in the Construction Services Agreement.
- Received three proposals from interested LRV manufacturers.

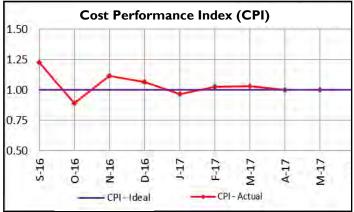
## Final Design Schedule Performance

The cumulative Schedule Performance Index (SPI) for the Final Design contract is 1.04 through May, indicating that the contract work performed is slightly ahead of the original plan.



## **Final Design Cost Performance**

Based on Actuals, the Contract expenditures through May totaled \$4.5M, approximately 59% of the Final Design contract total. The Final Design contract percent complete reported at the end of May is 59%, with an earned value of \$4.5M. The cumulative Cost Performance Index (CPI) through May is 1.00; indicating expenditures in line with the Budgeted Cost for Work Performed.



Phase 3 Performance	Cumulative To-Date
Amount Invoiced	\$4.5M
% Spent	59%
Earned Value	\$4.5M
% Complete	59%
SPI	1.04
CPI	1.00

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## Link Light Rail Link Operations and Maintenance Facility: East



## **Project Summary**

**Scope**: The Link Operations and Maintenance Facili-

ty: East (OMFE) project, located in the City of Bellevue, includes a 160,000 sq. ft. operations and maintenance facility that will maintain, store and deploy and expanded light rail fleet, including seven LRV service bays, a LRV wash facility and storage for up to 96 LRVs.

**Budget**: \$449.2 Million (Baselined July 2016) **Schedule**: Project completion December 2020

**Phase:** Proceed to Construction



Illustration of OMFE site

### **Key Activities**

- Continue to collaborate with City of Bellevue regarding: surplus property disposition, TOD decision making process, and Men's Shelter and transitional housing site alternative evaluation matrix.
- City of Bellevue continues to review critical areas permit.
- ST Board approved the M200 Design Build (DB) construction contract with Hensel Phelps in May 2017; NTP in mid June 2017.
- Meetings continue with Hensel Phelps: Master Development Plan review with City of Bellevue, design development meeting with ST, coordination with PSE on power services, application process and points of contact.
- DB Project Management Contract with KBA was executed in May 2017 and anticipates NTP in June 2017.
- Discussions continue with King County (KC) regarding betterment to upsize interceptor sewer. An agreement with KC to replace sewer in-kind is on hold.
- ST meeting with KC to discuss East Rail Corridor trail coordination.
- Project team reviewing PMOC recommendations for additional edits to draft PMP.
- Continued possession and use of remaining properties.

## **Closely Monitored Issues**

- Property acquisition and relocation schedule is on critical path. Condemnation process timeline are being monitored closely.
- Contribution to OMFE budget from the Lynnwood Link Extension depends on FTA issuing Letter of No Prejudice (LNOP) before M200 DB contract is awarded.

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## Link Light Rail Link Operations and Maintenance Facility: East

## **Project Cost Summary**

The Adopted Capital Budget for the OMFE is \$449.2M. The OMFE cost is summarized into two cost tables. The first table is in accordance with Sound Transit's Work Breakdown Structure (WBS) displaying the cost summary by phase. The second table summarizes project cost by SCC, in accordance to the FTA Standard Cost Categories (SCC) format. Both tables show figures in millions.

#### Cost Summary by Phase

WBS Phase Elements	Baseline Budget	Current Adopted Budget	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
Administration	\$17.6	\$17.6	\$2.7	\$2.7	\$17.6	\$0.0
Preliminary Engineering	\$9.5	\$9.5	\$9.0	\$8.6	\$9.5	\$0.0
Final Design	\$0.4	\$0.4	\$0.0	\$0.0	\$0.4	\$0.0
Construction Services	\$19.3	\$19.3	\$17.6	\$0.1	\$19.3	\$0.0
3rd Party Agreements	\$3.1	\$3.1	\$0.2	\$0.0	\$3.1	\$0.0
Construction	\$264.8	\$264.8	\$0.0	\$0.0	\$264.8	\$0.0
ROW	\$134.5	\$134.5	\$39.6	\$38.6	\$134.5	\$0.0
Total	\$449.2	\$449.2	\$69.0	\$49.9	\$449.2	\$0.0

The Estimated Final Cost (EFC) for this reporting period is \$449.2M, which is equal to the current project budget. This period approximately \$0.2M was incurred, of which \$0.1M was Administration and PE, and remaining expenditures of \$0.1M shared by Third Party and Construction Services. Commitments increased by nearly \$17.6M, of which \$17.5M for new DB Project Management contract and balance of \$0.1M for ROW and Administration.

#### Cost Summary by SCC

Project Elements by Phase	Baseline Budget	Current Adopted Budget	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
10 Guideway & Track Elements	\$2.6	\$2.6	\$0.0	\$0.0	\$2.6	\$0.0
20 Stations	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
30 Support Facilities: Yards, Shops	\$140.1	\$140.1	\$0.0	\$0.0	\$140.3	-\$0.2
40 Sitework & Special Conditions	\$43.6	\$43.6	\$0.0	\$0.0	\$43.6	\$0.0
50 Systems	\$43.0	\$43.0	\$0.0	\$0.0	\$43.0	\$0.0
Construction Subtotal (SCC 10-50)	\$229.3	\$229.3	\$0.0	\$0.0	\$229.5	-\$0.2
60 Row, Land, Improvements	\$134.5	\$134.5	\$39.6	\$38.6	\$134.5	\$0.0
70 Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
80 Professional Services	\$71.6	\$71.6	\$29.4	\$11.4	\$71.4	\$0.2
90 Unallocated Contingency	\$13.8	\$13.8	\$0.0	\$0.0	\$13.8	\$0.0
Project Total (SCC 10-90)	\$449.2	\$449.2	\$69.0	\$49.9	\$449.2	\$0.0

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## **Risk and Contingency Management**

#### Risk Management

The Risk Contingency Management Plan (RCMP) established a risk management and oversight process for identifying, assessing, and monitoring risk and develop risk reduction/mitigation plans. It provides a tool for the project team to proactively manage risks on the project. Sound Transit (ST) continuously monitors project status and associated risks, taking mitigation actions for known risks identified on the risk register, and effectively responding in a timely manner to those risks that pose a significant impact to the project cost and/or schedule forecast. The most recent OMFE quarterly risk register review meeting was held March 2017 and the top five actively managed are shown below. The next planned quarterly risk review meeting is scheduled to be held in June 2017.

- Volatility in property values around the Bel-Red area.
- Third Party requesting additional site improvements not included in the agreements.
- Authorities Having Jurisdiction not fully communicating all of their requirements to Sound Transit.
- Interface point of E335/OMFE and ST3 leads to change in track, systems, signals and utilities.
- Third Party not satisfied with progress on Master Development Plan causing reconsideration for use of a development agreement process and late permits.

#### **Contingency Status**

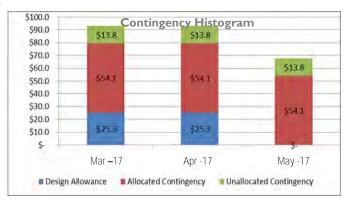
The OMFE was approved by the Sound Transit Board in July 2016 for a total baseline budget of \$449.2M, and contained a total contingency budget of \$93.2M comprised of Design Allowance, Allocated Contingency and Unallocated Contingency. The contingency drawdown plan (shown below) excludes the Design Allowance amount as it will be absorbed by the design builder responsible for design, therefore the starting contingency drawdown balance is \$67.8M. Currently, the total contingency balance remains unchanged at \$67.8M.

**Design Allowance (DA)** – The baseline DA of \$25.3M reflects no changes this period.

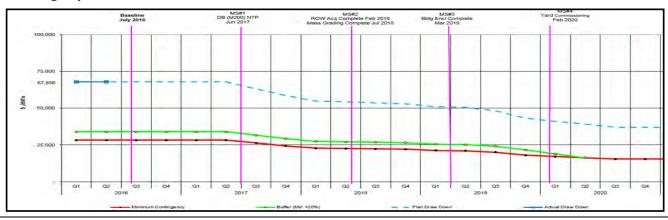
Allocated Contingency (AC) - Compared to the baseline amount of \$54.1M, AC reflects no changes this period.

*Unallocated Contingency (UAC)* – The baseline UAC amount

Contingency		Bas	seline	Current			
Status	Amount		% of Total	Amount		% of Work Remaining	
Design Allowance	\$	25.3	5.6%	\$		0.0%	
Allocated Contingency	\$	54.1	12.0%	\$	54.1	13.5%	
Unallocated Contingency	\$	13.8	3.1%	\$	13.8	3.5%	
Total	\$	93.2	20.7%	\$	67.9	17.0%	



#### **Contingency Drawdown**

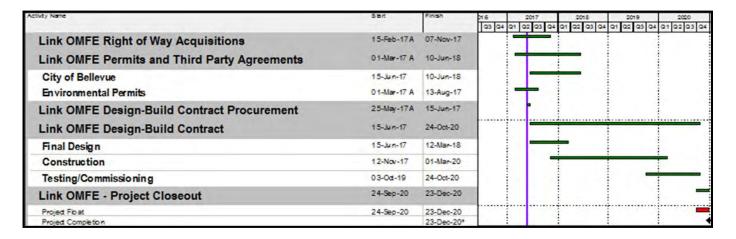


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# Link Light Rail Link Operations and Maintenance Facility: East

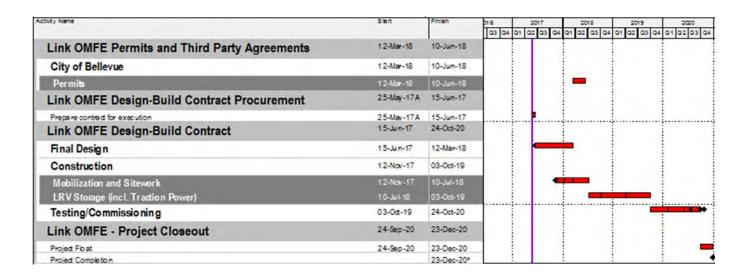
# **Project Schedule**

The project schedule is presented below and reflected in the baseline. The ST Board approved the contract in May 2017 and Notice to Proceed is anticipated in mid-June. 2017. Property acquisitions are trending ahead of schedule to be completed in late 2017, in time for construction to start as planned.



## Critical Path Analysis

With all approvals in place to issue Notice to Proceed to the DB Contractor, the remaining critical path is the design and construction of the facility. The current conceptual construction plan shows a critical path through the foundation design and subsequently the construction of the LRV storage yard. The critical path of construction is subject to change upon award of the DB contract.



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# Link Light Rail Link Operations and Maintenance Facility: East



# Right of Way

Filed condemnations and requested Possession and Use of all properties. ST responded to second counter offer for one property. One parcel vacated. The right - of-way program status of the OMFE as of this period is summarized below:

Link OMFE Property Acquisition Status										
Board Ap- proved Signed Agree- tions Signed Agree- s ments					Admin Settle- ment	Closings to date	Reloca- tions Required	Parcels Vacated		
Total*	11	9	0	2	0	1	30	5		

<sup>\*</sup>Number totals may differ from other reports due to the timing of reporting periods.

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

Board motions and resolutions directly related to OMFE is summarized in the table below.

Motion Number	Description	Date
M2017-72	Execute a contract with Hensel Phelps Construction Co. to provide design-build construction services for the Link Operations and Maintenance Facility: East project in the amount of \$218,912,000, with a 10% contingency of \$21,891,200 for a total authorized contract amount not to exceed \$240,803,200.	May 25

# **Community Outreach**

- Preparations for public meetings underway. Confirmed Outreach schedule next period: City Council Meeting on June 12, Stakeholder Meeting on June 15 and open house on June 22.
- Response to 57 public inquiries and comments regarding City of Bellevue's men's shelter siting with ST Board Administration.
- TOD link on projects and plans website still in development.

#### **Environmental**

• None to report.

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# Link Light Rail Link Operations and Maintenance Facility: East

# Phase 2 Preliminary Engineering and FEIS

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

# Phase 2 Key Activities

- Continued working on draft agreement with King County regarding mainline sewer replacement.
- JARPA approval received, awaiting City of Bellevue review of CAR prior to implementing fee in lieu program.
- Finalized conformed RFP documents.
- Final design build M200 proposals received and evaluated. Announcement of highest scoring team imminent.
- Received last Phase 2 environmental report from cooperating properties.
- Coordinated permit support services payment concurrence with the City of Bellevue.

#### Phase 2 Schedule Performance

The cumulative Schedule Performance Index (SPI) trends at 0.97 through May 2017, which means that cumulative work accomplished is slightly less than work planned.



#### Phase 2 Cost Performance

\$4.9M of the total Phase 2 contract amount, approximately 93.3%, was spent through May 2017. The Phase 2 percent complete is 97%, with an earned value of \$5.2M. The cumulative Cost Performance Index (CPI) is 1.04, indicating that expenditures are slightly less than the earned value.



Phase 2 Performance	Cumulative To Date
Amount Invoiced	\$4.9M
% Spent	93.3%
Earned Value	\$5.2M
% Complete	97%
SPI	0.97
CPI	1.04

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# Link Light Rail Light Rail Vehicle Fleet Expansion



## **Project Summary**

**Scope**: Design, manufacturing, assembly, inspection,

testing and delivery of 152 low floor light rail vehicles for service requirements of Northgate, East Link and Lynnwood Link Extensions.

**Budget**: \$740.7 Million (Baseline September 2015)

Schedule: Project completion 3rd QTR 2024



Graphic simulation of the new light rail vehicles.

# **Key Activities**

- Engineering continues on car shells and systems.
- Continued Preliminary Design Reviews and submittals of Contract Deliverables Requirements List.
- ST executed change order to add 30 vehicles to this contract to support ST3 projects.

## **Project Cost Summary**

The LRV Fleet Expansion 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) at the Phase Level. The second table summarizes the project in accordance with the FTA's Standard Cost Category (SCC) format. Both tables below are shown in millions.

To date, approximately \$10.1M has been expended. Siemens Industry submitted preliminary engineering design packages. This period LTK reviewed preliminary engineering design packages. The change order for additional vehicles and spare parts was executed this month for the Siemen's contract.

#### Cost Summary by Phase

Project Phase	Baseline Budget	Current Adopted Budget	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget Vs. EFC
Administration	\$6.4	\$6.4	\$0.4	\$0.4	\$6.4	\$0.0
Construction Services	\$18.0	\$18.0	\$4.8	\$2.1	\$18.0	\$0.0
Vehicles	\$716.3	\$716.3	\$648.2	\$7.7	\$716.3	\$0.0
Total	\$740.7	\$740.7	\$653.4	\$10.1	\$740.7	\$0.0

Totals may not equal column sums due to rounding of line entries.

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

SCC Element	Baseline Budget	Current Adopted Budget	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget Vs. EFC
Construction Subtotal (SCC 10-50)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
60 ROW, Land, Existing Improvements	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
70 Vehicles	\$702.8	\$702.8	\$653.0	\$9.8	\$702.8	\$0.0
80 Professional Services	\$6.1	\$6.1	\$0.4	\$0.4	\$6.1	\$0.0
90 Contingency	\$31.7	\$31.7	\$31.7	\$0.0	\$31.7	\$0.0
Capital Total (SCC 10-90)	\$740.7	\$740.7	\$653.4	\$10.1	\$740.7	\$0.0

Totals may not equal column sums due to rounding of line entries.

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## **Cost Contingency Management**

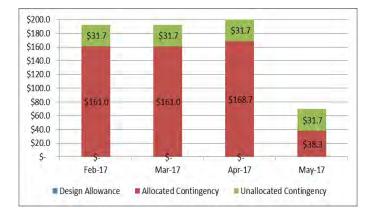
The project's baseline budget approved by the ST Board in September 2015 contained a total of \$78.0M of Total Contingency. The project's Total Contingency is currently at \$70.1or about 10.9% of remaining work in the project.

Design Allowance - This project contains \$0 design allowance.

Allocated Contingency – The project baseline's allocated contingency was \$46.3M. Due to a successful vehicle procurement and a lower than anticipated contract value the allocated contingency was realized at \$167.3M in October 2016. The current available allocated contingency is \$38.3M after executing a change order to add additional vehicles and spare parts to Siemen's contract.

*Unallocated Contingency* – The project baseline's unallocated contingency remained unchanged at \$31.7M.

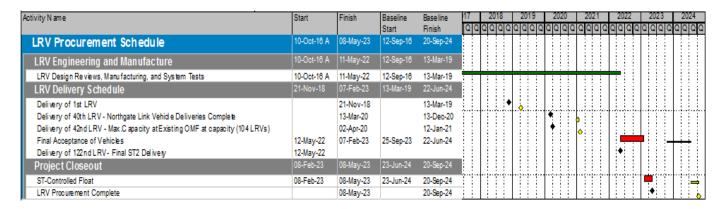
Contingency Status		Base	eline	Current			
	A	mount	% of Total	A	Amount	% of W ork Remaining	
Design Allowance	\$	-	0.0%	\$	-	0.0%	
Allocated Contingency	\$	46.3	6.4%	\$	38.3	6.0%	
Unallocated Contingency	\$	31.7	4.3%	\$	31.7	0.0%	
Total	\$	78.0	10.7%	\$	70.1	10.9%	



Totals may not equal column sums due to rounding of line entries.

# **Project Schedule**

The ST2 LRV Expansion project schedule is shown below.



# **Sound Transit Board Actions**

Motion Number	Description	Date
	None to report.	

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# Project Staffing - Link Light Rail Program - APRIL 2017

Staffing variance reported in the following section is relative to the April 2016 Agency Staffing Plan (Version 6). During this period, the following positions were filled to support the Link capital program:

Position	Project Assignment	Planned Hire Date		
Design Technology Specialist	Civil and Structural Engineering	2016 Attrition*		
Design Technology Specialist	Civil and Structural Engineering	2016 Attrition		
Construction Manager	Systems	2017 Attrition		
Sr. Leasing Property Coordinator	Property Management	2017 Attrition*		
Electrical Engineer	Civil/Systems Integration	2017 Attrition*		
Deputy Director	East Link Extension	February 2017		
Project Coordinator	Tacoma/Federal Way Link Ext.	March 2017		

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

Position	Project Assignment	Planned Hire Date		
Sr. Project Manager	Sounder Capital Program	2016 Attrition*		
Civil Engineer	East Link Extension	2016 Attrition*		
Principal Architect	Federal Way Link Extension	2016 Attrition*		
Corridor Design Manager	Systems	2016 Attrition*		
Deputy Director	Construction Management	2016 Attrition*		
Construction Contracts Claims Sp.	Construction Management	2016 Attrition*		
Sr. Systems Engineer	LRV Procurement and Testing	2016 Attrition		
Sr. Project Manager	Operations and Maintenance Facility: East	2016 Reclass		
Executive Project Director	Executive Director's Office	2016 Reclass		
Engineering Manager	Standard Specifications/Design Criteria	2017 Reclass		
Director	Civil and Structural Engineering	2017 Attrition*		
Leasing Document Coordinator	Property Management	2017 Attrition*		
Community Outreach Specialist	South Corridor	2017 Attrition*		
Config. and Change Mgt. Spec.	Project Controls	2017 Attrition*		
Chief of Staff	Executive Director's Office	2017 Attrition		
Sr. Systems Engineer	Operations Technology	January 2017		
Sr. Systems Engineer	Operations Technology	January 2017		

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

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#### Project Staffing - Link Light Rail Program continued

Position	Project Assignment	Planned Hire Date		
Sr. Civil Engineer	Non-Corridor Projects – Operations	February 2017		
Project Control Supervisor	Tac./Fed. Way –Tac Link Extension	February 2017		
Construction Manager	Systems	February 2017		
Construction Manager	Lynnwood Link Extension	February 2017		
Project Manager	Public Art (ST <i>art</i> )	February 2017		
Chief Systems Engineer	Traction Power	April 2017		
Scheduling Engineer	Right-of-Way	April 2017		
Construction Manager	Systems	April 2017		

There were 596.6 (95% of plan) consultant and internal staff full time equivalents (FTE) participating in the on-going planning, design and construction of Link light rail extensions in April. Staffing was within 10% of plan for the Northgate, East and Lynnwood Link Extensions. Staffing for the Tacoma, and Federal Way Link Extensions was 112% and 63% of plan respectively; staffing for the Link Operations & Maintenance Facility: East was 24% of plan.

Staffing variance to plan for the month and year to date summary by project follows.

					April	2017 Staffi	ng PlanVa	riance				
	Consultant Staff					Sound Transit Staff				Total (A	VG. YTD)	
	FT	'E	Vari	ance	FT	'E	Var	iance	F	ΓE	Var	iance
Project	Planned	Actual	FTE	% of Plan	Planned	Actual	FTE	% of Plan	Planned	Actual	FTE	% of Plan
Federal Way Link Extension	42.0	31.5	-10.5	75%	37.9	19.0	-18.9	50%	79.9	57.1	-22.8	71%
Northgate Link Extension	71.1	87.9	16.8	124%	44.2	38.5	-5.6	87%	115.3	130.0	14.7	113%
OMF East	6.6	0.1	-6.5	2%	16.7	5.5	-11.2	33%	23.3	7.3	-16.0	31%
East Link Extension	66.8	83.6	16.9	125%	72.1	63.1	-8.9	88%	138.8	143.9	5.1	104%
Lynnwood Link Extension	178.0	176.8	-1.2	99%	51.9	43.4	-8.6	84%	229.9	242.0	12.1	105%
Tcoma Link Expansion	24.0	31.3	7.3	130%	18.1	15.9	-2.2	88%	42.1	47.5	5.4	113%
Total	388.5	411.1	22.6	106%	240.9	185.4	-55.4	77%	629.3	627.9	-1.4	100%

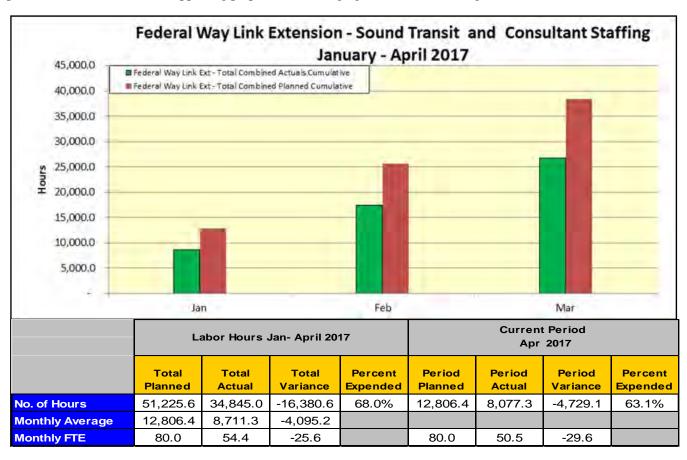
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#### Federal Way Link Extension Staffing

#### Total Internal and External Staffing - Federal Way Link Extension

There were 50.5 (63% of plan) consultant and internal staff on the Federal Way Link Extension in April including 31.5 consultant FTE (75% of plan) and 19 internal FTE (50% of plan). Average year-to-date (YTD) internal staffing (19.1 FTE/mo.) is 29% (19.1 FTE/mo.) below plan; YTD consultant staffing (35.6 FTE/mo.) is 15.4% (6.4 FTE/mo.) below plan. All consultant staff is supporting preparation of bridging documents for Design-Build (DB) contract.



#### Operations & Maintenance Facility: East Staffing

#### Total Internal and External Staffing - OMFE

There were 5.5 internal and 0.1 consultant FTE participating in the Operations & Maintenance Facility: East project in April. This is 28% (2.2 FTE) below March staffing and 24% of plan Average year-to-date staffing (7.3 FTE/mo.) is 69% (16 FTE/mo.) below plan. All consultant staff are participating in concept validation of the selected DB contractor.

	Labor Hours to Date				Current Period Apr 2017			
	Total Planned	Total Actual	Total Variance	Percent Expended	Period Planned	Period Actual	Period Variance	Percent Expended
No. of Hours	14,905.6	4,669.9	-10,235.7	31.3%	3,726.4	900.7	-2,825.7	24.2%
Monthly Average	3,726.4	1,167.5	-2,558.9					
Monthly FTE	23.3	7.3	-16.0		23.3	5.6	-17.7	

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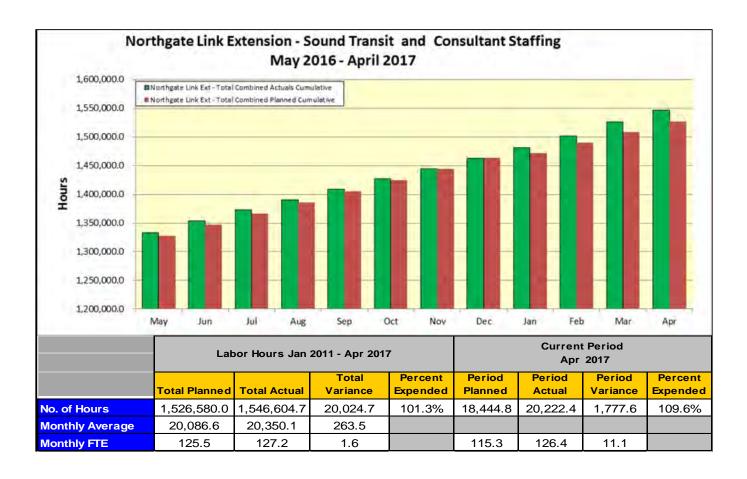
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#### Total Internal and External Staffing - Northgate Link Extension

During April, 38.5 internal and 87.9 consultant FTE were assigned to the Northgate Link Extension. This is 19% (29.2 FTE) below March staffing and is 10% (11.1 FTE) above plan. Average year-to-date staffing (130 FTE/mo.) is 13% (14.7 FTE/mo.) above plan; cumulatively since January 2011 average monthly staffing is trending with plan.

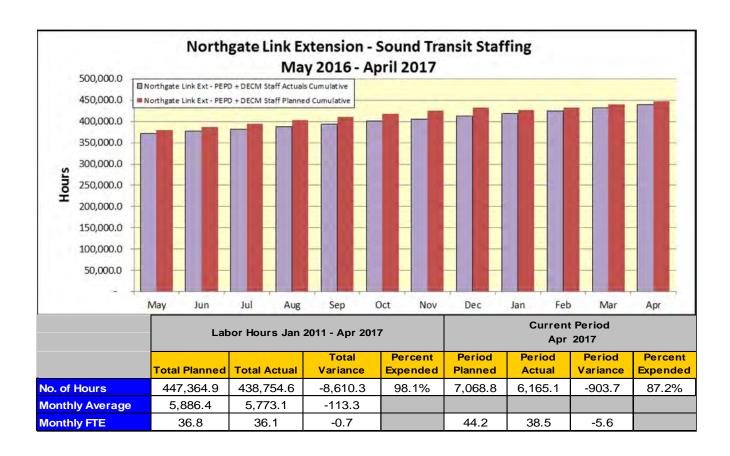


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#### Internal Resource Commitments to Northgate Link Extension

Internal staffing in April (38.5 FTE) decreased 21% (8 FTE) from March and was 13% (5.6 FTE) below plan. Cumulatively, since January 2011, average monthly internal staffing (36 FTE/mo.) is 1.9% (0.7 FTE/mo.) below plan.

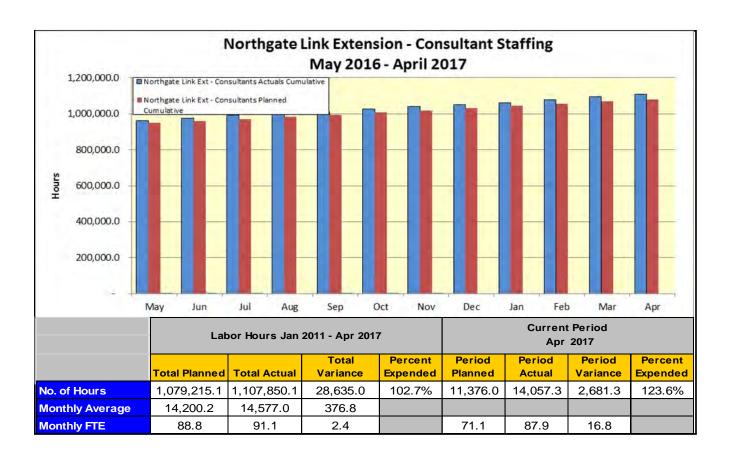


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#### Consultant Resource Commitments to Northgate Link Extension

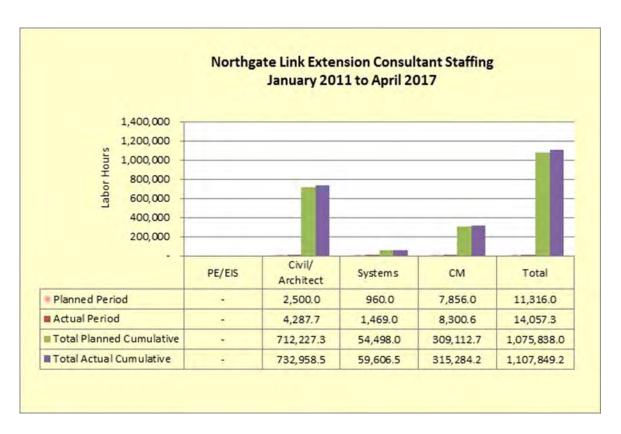
In April 87.9 consultant FTE were assigned to the Northgate Link Extension; consultant staffing was 19% (21.2 FTE) below March staffing and was 24% (16.8 FTE) above plan. Cumulatively, since January 2011, average monthly consultant utilization (91.1 FTE/mo.) is trending 2.7% (2.4 FTE/mo.) above plan.



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Consultant Resource Commitments to Northgate Link Extension



Consultant utilization by discipline follows:

- Civil/architecture consultant utilization in April (26.8 FTE) was 13.1% (4.1 FTE) below March staffing and was 67% (10.8 FTE) above plan. Cumulatively since January 2011, average civil engineering/architecture consultant staffing of 60.3 FTE/mo. is trending within 3% of plan.
- Systems consultant utilization in April (9.2 FTE) was 6.6% (0.6 FTE) below March staffing and was 53% (3.2 FTE) above plan. Since January 2011, average monthly Systems consultant staffing (4.9 FTE/mo.) is trending with plan.
- CM consultant staffing in April (51.9 FTE) was 24% (16.5 FTE) below March staffing and was 6% (2.8 FTE) above plan. Cumulatively, since January 2011, average monthly CM consultant staffing (25.9 FTE/mo.) is trending with plan.

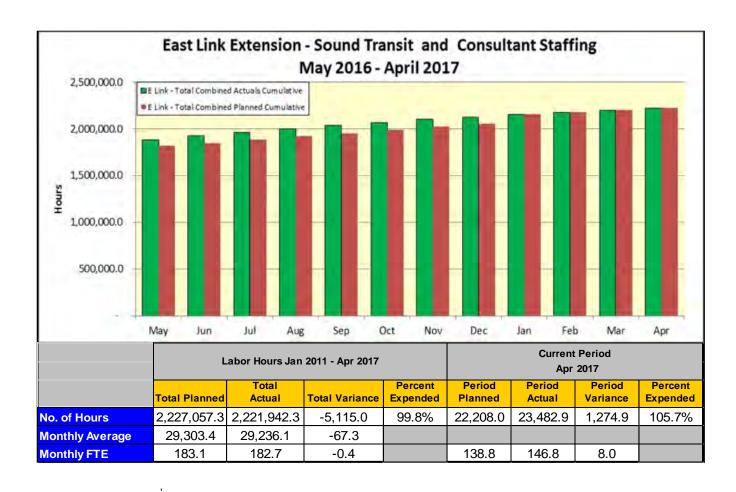
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#### **East Link Extension Staffing**

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

Staffing for the East Link Extension in April (146.8 FTE) decreased 6% (8.9 FTE) from March and was 6% (8 FTE) above plan. Average year-to-date staffing of 143.9 FTE/mo. is trending with plan. Cumulatively since January 2011, average monthly staffing of 182.7 FTE/mo. is also trending with plan.



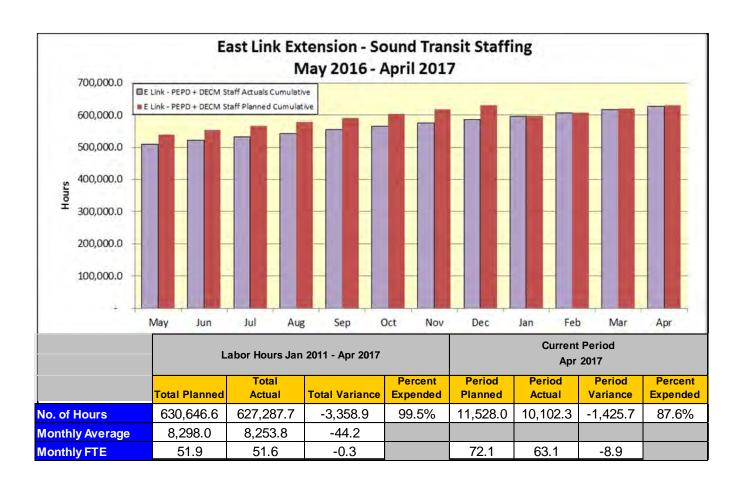
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#### **East Link Extension Staffing**

#### Internal Resource Commitments to East Link Extension

During April internal staffing for the East Link Extension (63.1 FTE) was 14% (8.9 FTE) below March and 12% (8.9 FTE) below plan. Cumulatively, since January 2011, average monthly internal staffing (51.6 FTE/mo.) is also trending with plan.



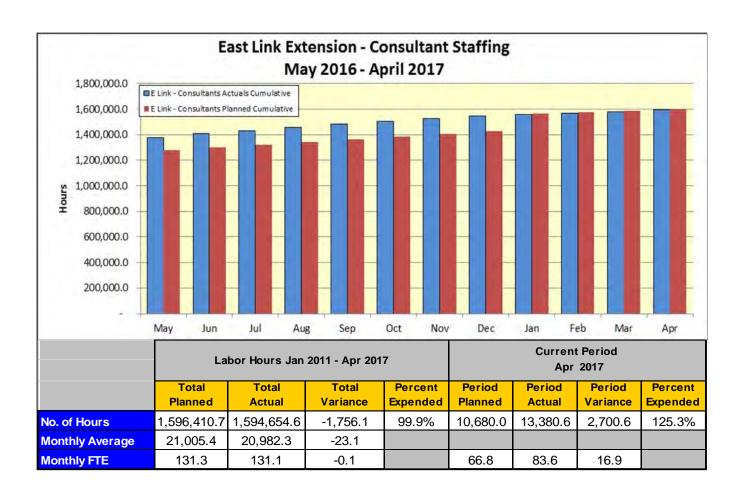
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#### **East Link Extension Staffing**

#### Consultant Resource Commitments to East Link Extension

There were 83.6 consultant FTE assigned to the East Link Extension during April. Consultant staffing trended with levels observed in March. Cumulatively since January 2011, average monthly consultant staffing (131.8 FTE/mo.) is trending with plan.



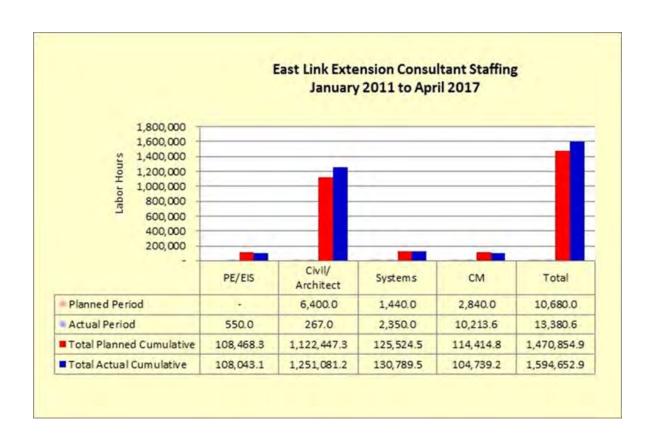
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#### **East Link Staffing**

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

In April construction management consultant staffing (63.8 FTE) was 76% of consultant staffing and was 35% (16.5 FTE) above March construction management staffing. Civil engineering consultant staffing (1.7 FTE) comprised 2% of consultant staffing and was 33% (3.6 FTE) below March staffing and 96% (38.3 FTE) below plan. Systems consultant staffing (14.7 FTE) was 63% (5.7 FTE) above plan and was 33% (3.6 FTE) above March staffing. There were 3.4 consultant FTE performing Preliminary Engineering (PE).



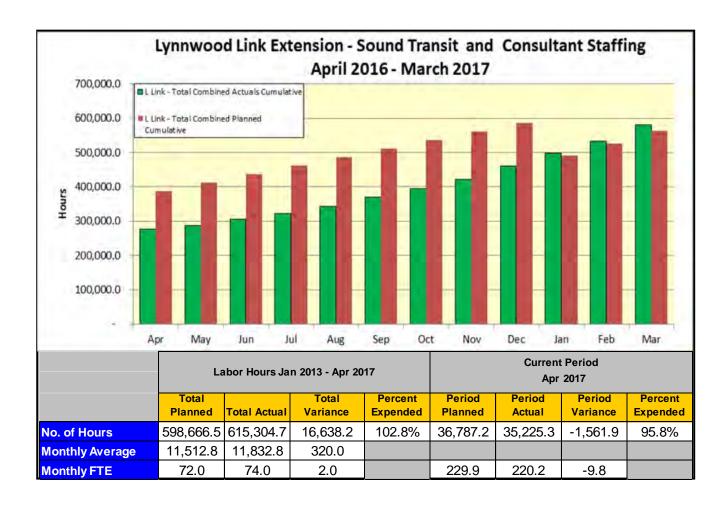
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#### Lynnwood Link Extension Staffing

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

During April Lynnwood Link Extension staffing was 220.2 FTE (4.2% or 9.8 FTE below plan) and included 176.8 consultant FTE (1% below plan) and 43.4 internal FTE (84% of plan). Average year-to-date staffing of 242 FTE/mo is trending 5% (12.1 FTE/mo.) above plan; cumulatively since January 2013 staffing is averaging 74 FTE/mo. and is trending 3% above.



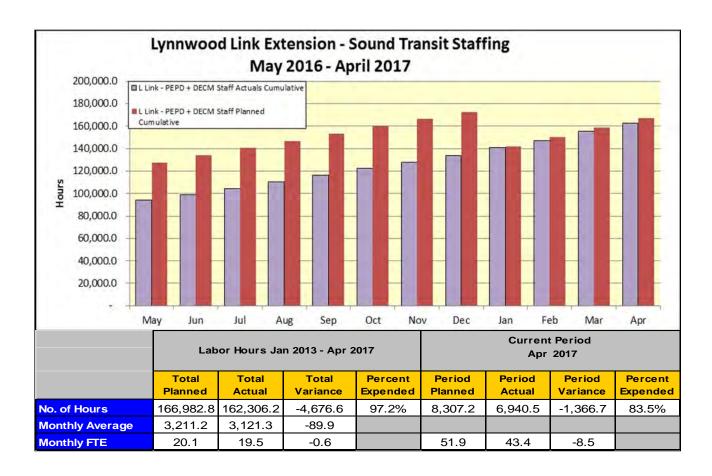
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#### Lynnwood Link Extension Staffing

#### Internal Staffing—Lynnwood Link

During April internal staffing for the Lynnwood Link Extension (43.4 FTE) was 20% (8.8 FTE) below March staffing and 167.5% (8.5 FTE) below plan. Cumulatively, since January 2013, average monthly internal staffing (19.5 FTE/mo.) is trending with plan.



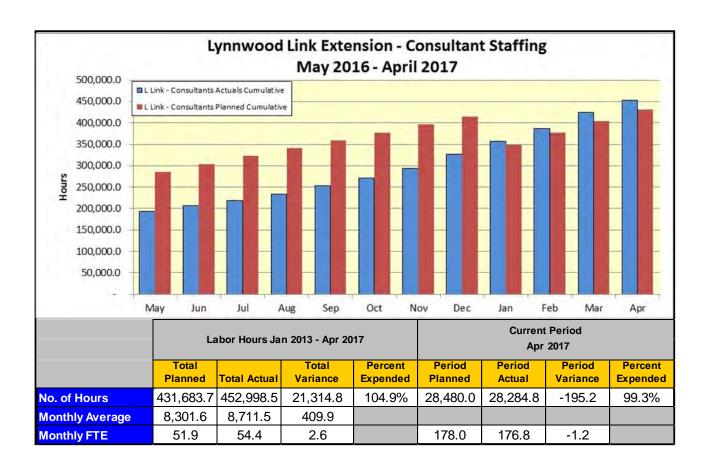
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#### Lynnwood Link Expansion

#### Consultant Staffing—Lynnwood Link

There were 176.8 consultant FTE assigned to the Lynnwood Link Extension during April. Consultant staffing decreased 24% (56.9 FTE) from March and was 1% (1.2 FTE) below plan. Cumulatively since January 2013, average monthly consultant staffing (54.4 FTE/mo.) is trending 5% (2.6 FTE/mo.) above plan.



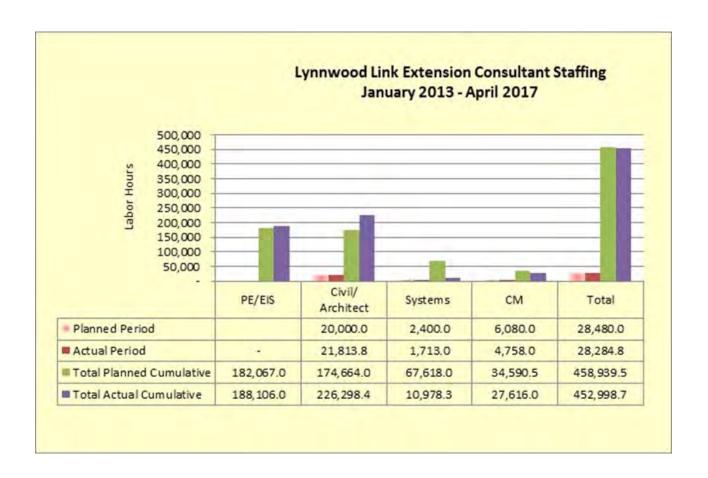
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#### **Lynnwood Link Extension Staffing**

#### Consultant Resource Commitments to Lynnwood Link

77% of the Lynnwood Link consultant staffing (136.3 FTE) were civil engineering consultants. Additional consultant staffing (29.7 FTE) provided construction management and systems design (10.7 FTE) support.



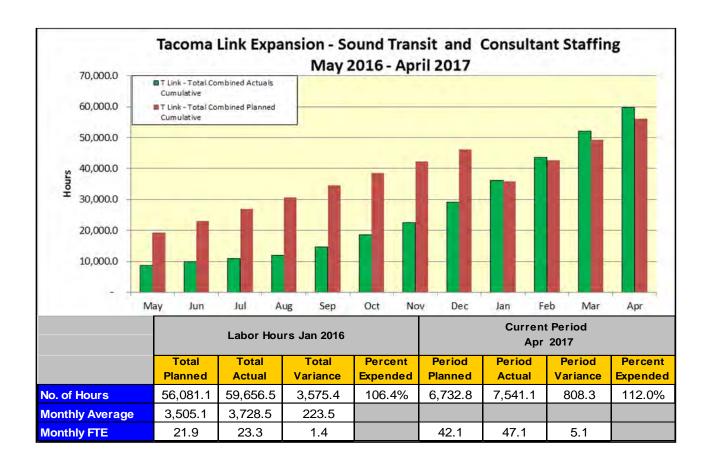
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#### **Tacoma Link Expansion**

#### Total Internal and Consultant Staffing - Tacoma Link Expansion

During April there were 47.1 FTE (112% of plan) assigned to the Tacoma Link Expansion including 31.3 consultant FTE (30% above plan) and 15.9 internal FTE (12% below plan). Average year-to-date staffing (47.5 FTE/mo.) is 13% (5.5 FTE/mo.) above plan; cumulatively since January 2016 staffing is trending 6.4% (1.4 FTE/mo.) above plan.



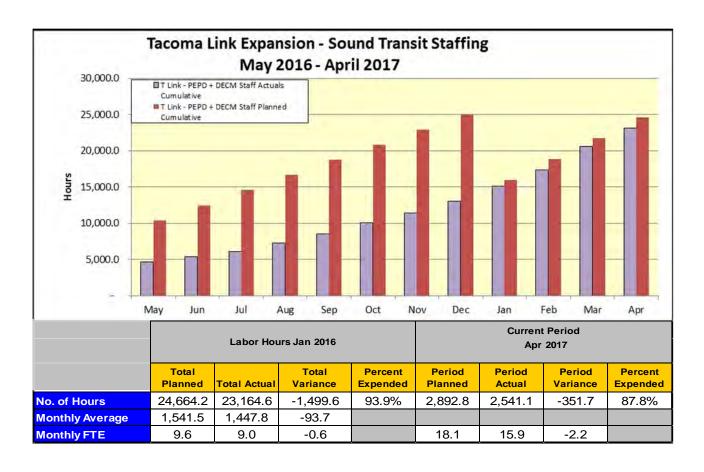
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#### **Tacoma Link Expansion**

#### Internal – Tacoma Link Expansion

During April internal staffing for the Tacoma Link Extension (15.9 FTE) was 20% (8.8 FTE) below March staffing and was 12% (2.2 FTE) below plan. Cumulatively, since January 2016, average monthly internal staffing (9 FTE/mo.) is trending 6.1% (0.6 FTE/mo.) below plan.



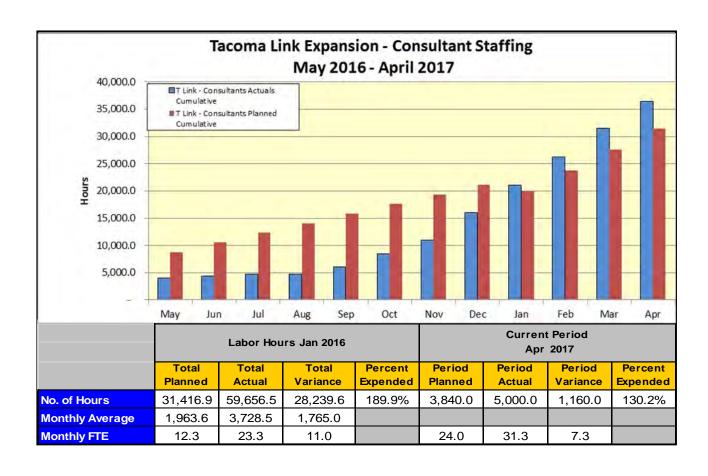
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#### **Tacoma Link Expansion**

#### Consultant Resource Commitments - Tacoma Link Expansion

There were 31.3 consultant FTE assigned to the Tacoma Link Extension during April. Consultant staffing was 30% (7.3 FTE) above plan. Cumulatively since January 2016, average monthly consultant staffing (23.3 FTE/mo.) is trending 90% (11 FTE/mo.) above plan.



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**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

NCR Notification of Change Report

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

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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ACRONYMS, continued

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

SCADA Supervisory Central and Data Acquisition

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
UST Underground Storage Tank

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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