

# Progress Report Link Light Rail Program

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Setting Sound Wall Forms at Mercer Island Station (East Link Extension)

NOVEMBER | 2017

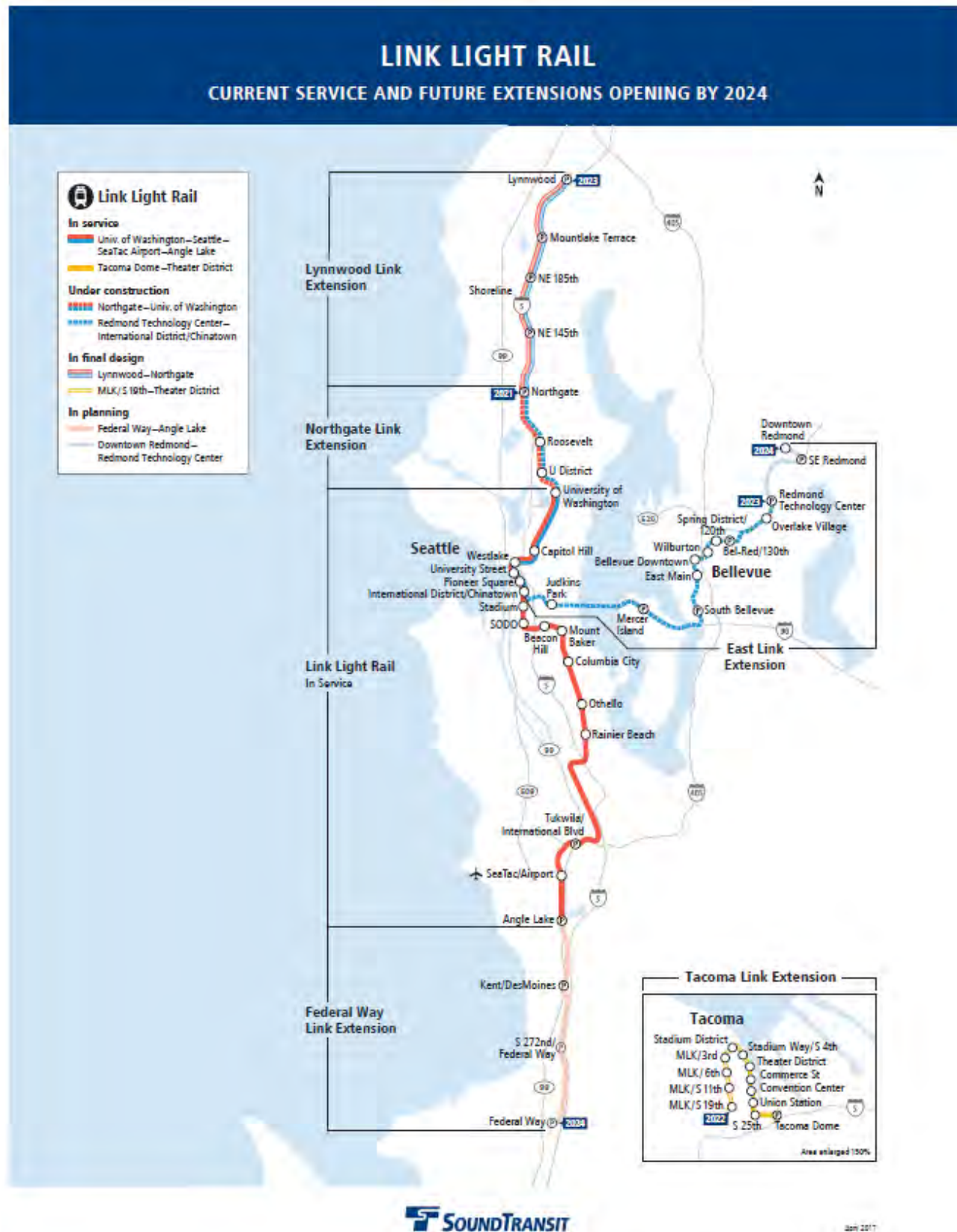






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Map of Sound Transit's current and future light rail projects.



## 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.

**Downtown Redmond Link Extension:** The Downtown Redmond Link Extension builds new light rail from the Redmond Technology Center Station to downtown Redmond by 2024. Light rail will travel along SR-520 with two new stations in southeast Redmond, at Marymoor Park, and downtown Redmond. Preliminary Engineering for the Redmond light rail extension has a budget of \$28.6M.

**West Seattle and Ballard Link Extensions:** The West Seattle & Ballard Link Extensions are voter-approved projects under the ST3 Plan. West Seattle segment includes 4.7 miles of light rail from downtown Seattle to West Seattle's Junction neighborhood. It includes 5 light rail stations. The route will run primarily on elevated guideway with a new rail-only bridge over Duwamish River. The Ballard segment includes 7.1 miles of light rail from downtown Seattle to Ballard's Market Street area. It includes 9 light rail stations. The route will run through a new downtown Seattle rail-only tunnel, elevated guideway, and a rail-only bridge over Salmon Bay. The current budget for these projects through completion of Preliminary Engineering is \$286M.

**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 Extension:** The Tacoma Link Extension 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 Sound Transit Board adopted the baseline capital budget of \$217.3M in September 2017.

**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.

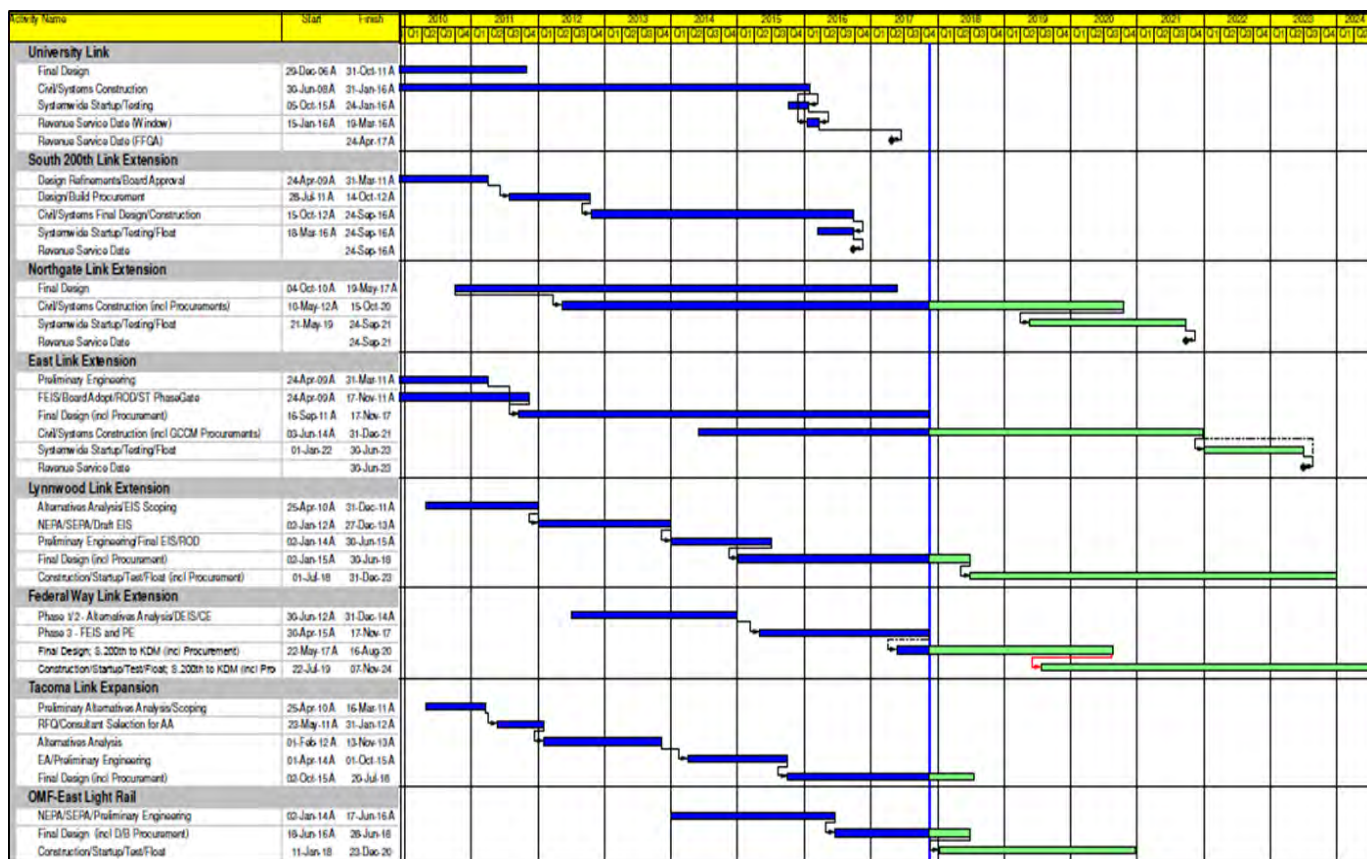
**Light Rail Vehicle (LRV) Fleet Expansion:** This project includes the design, manufacturing, inspection, testing and delivery of 152 low floor LRVs for service requirements of Northgate, East Link and Lynnwood Link Extensions. The Sound Transit Board adopted the baseline capital budget of \$740.7M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

## 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	\$1,513.2	\$1,503.9	\$40.9	\$1,554.1	\$201.9
Northgate Link Extension	\$1,899.8	\$1,599.0	\$1,020.0	\$248.3	\$1,847.4	\$52.4
Lynnwood Link Extension	\$488.4	\$247.7	\$191.9	\$240.7	\$488.4	\$0
East Link Extension	\$3,677.2	\$2,810.6	\$994.0	\$866.6	\$3,677.2	\$0
Downtown Redmond Link	\$28.6	\$15.5	\$9.0	\$13.2	\$28.6	\$0
West Seattle & Ballard Link	\$285.9	\$25.3	\$1.0	\$260.6	\$285.9	\$0
South 200th Link Extension	\$383.2	\$330.9	\$327.6	\$1.8	\$332.6	\$50.6
Federal Way Link Extension	\$412.6	\$57.5	\$54.5	\$355.1	\$412.6	\$0
Tacoma Link Extension	\$217.3	\$24.4	\$21.8	\$192.9	\$217.3	\$0
Link O & M Facility: East	\$449.2	\$337.9	\$114.5	\$111.3	\$449.2	\$0
LRV Fleet Expansion	\$740.7	\$653.7	\$74.1	\$87.0	\$740.7	\$0
<b>Total Link</b>	<b>\$10,338.9</b>	<b>\$7,615.7</b>	<b>\$4,312.2</b>	<b>\$2,418.3</b>	<b>\$10,034.0</b>	<b>\$304.9</b>

Table in millions.

## Program Schedule



## 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) campus near Husky Stadium.
- Tunnels:** Two twin bored tunnels. Two contract segments: 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, traction electrification, and SCADA communications
- Budget:** \$1.948 billion including finance cost (capital subtotal of \$1.756 billion)
- Schedule:** Revenue Service began on March 19, 2016.



## Key Project Issues

- *U830 Systems:* Contractor is currently focusing on punch list on ULINK and systems refinement to achieve optimal operation status. U-Link Systems has encountered some issues related to this infancy period and is working to resolve them.
- *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). Final review of the emergency ventilation systems by the Seattle Fire Department (SFD) is complete and has been accepted by SFD.
- 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. Ongoing review of commercial issues with Systems Contractor.
- Miscellaneous follow-on commitments and restoration work remains. Before and After Study commitment to initiate in 2018.

## 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	Current Adopted Budget	Commitment to Date*	Incurred to Date	Est. Final Cost (EFC)	Adopted Budget vs. EFC
ADMINISTRATION	\$ 115.23	\$ 113.55	\$ 82.44	\$ 81.59	\$ 88.17	\$ 25.38
PRELIMINARY ENGINEERING	\$ 24.39	\$ 24.26	\$ 24.26	\$ 24.26	\$ 24.26	\$ -
FINAL DESIGN	\$ 77.94	\$ 90.31	\$ 87.97	\$ 86.23	\$ 88.66	\$ 1.65
CONSTRUCTION SERVICES	\$ 68.53	\$ 94.81	\$ 86.94	\$ 86.57	\$ 88.71	\$ 6.11
3rd PARTY AGREEMENTS	\$ 18.65	\$ 18.65	\$ 11.65	\$ 11.31	\$ 13.23	\$ 5.42
CONSTRUCTION	\$ 1,180.00	\$ 1,158.18	\$ 994.26	\$ 988.27	\$ 1,022.34	\$ 135.84
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
<b>Capital Total</b>	<b>\$ 1,755.97</b>	<b>\$ 1,756.01</b>	<b>\$ 1,513.16</b>	<b>\$ 1,503.87</b>	<b>\$ 1,554.07</b>	<b>\$ 201.94</b>
FINANCE COST	\$ 191.71	\$ 191.71	\$ 191.71	\$ 174.87	\$ 191.71	\$ -
<b>Project Total</b>	<b>\$ 1,947.68</b>	<b>\$ 1,947.72</b>	<b>\$ 1,704.87</b>	<b>\$ 1,678.74</b>	<b>\$ 1,745.77</b>	<b>\$ 201.94</b>

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

In November, 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 about \$420K and continues to inch the project's Incurred to Date amount above \$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 miscellaneous operational equipment purchases trailing. The Total Incurred to Date for the Construction Phase is about \$988M and LRV is at about \$99.2M. Cost of LRV repairs were excluded from this project and tracked independently.

Construction EFC under the SCC format remains relatively unchanged at about \$998M. Construction SCC expenditures to date is about \$976M this period mostly attributed to Systems' continuing optimization and resolutions to change order work and miscellaneous follow on work. Total capital cost incurred to date including non-construction 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 November 2017 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.

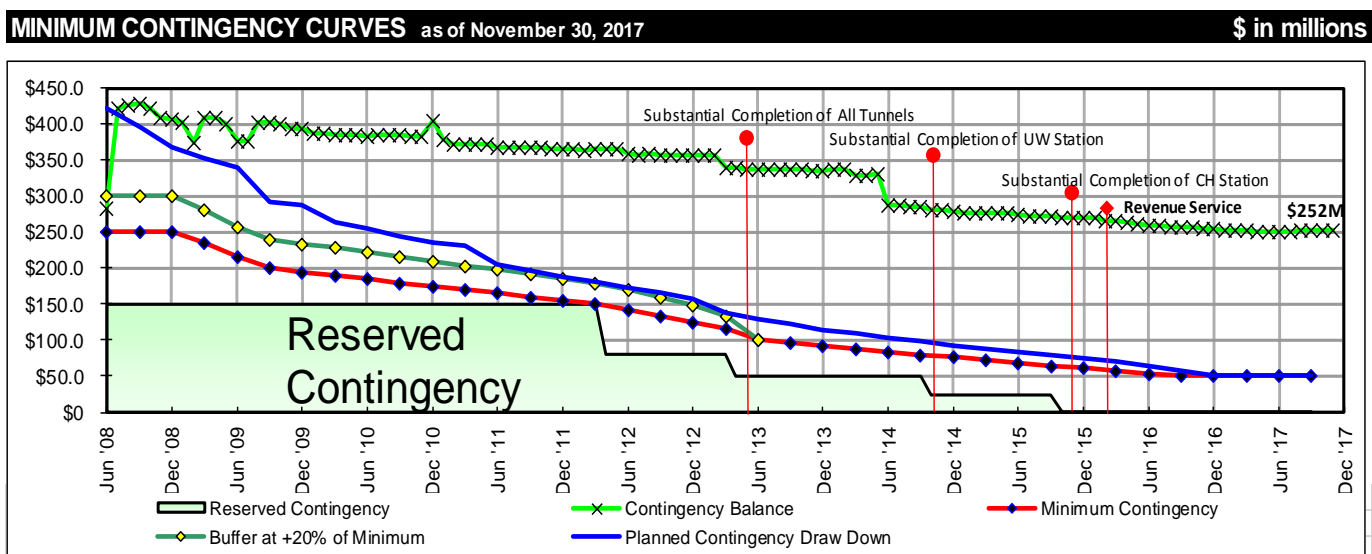
Project Elements by SCC	Baseline Budget	Current Adopted Budget	Commitment to Date*	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
10 Guideway & Track Elements	\$ 626.83	\$ 450.46	\$ 455.56	\$ 455.61	\$ 461.23	\$ (10.77)
20 Stations	\$ 366.33	\$ 350.75	\$ 344.76	\$ 342.97	\$ 353.10	\$ (2.34)
30 Support Facilities: Yards, Shops	\$ 7.01	\$ 24.83	\$ 23.47	\$ 23.34	\$ 24.80	\$ 0.03
40 Sitework & Special Conditions	\$ 59.03	\$ 67.39	\$ 57.14	\$ 54.91	\$ 56.89	\$ 10.50
50 Systems	\$ 69.63	\$ 116.42	\$ 100.28	\$ 99.46	\$ 102.40	\$ 14.02
<b>Construction Subtotal (SCC 10-50)</b>	<b>\$ 1,128.82</b>	<b>\$ 1,009.85</b>	<b>\$ 981.21</b>	<b>\$ 976.29</b>	<b>\$ 998.41</b>	<b>\$ 11.44</b>
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	\$ 305.64	\$ 301.28	\$ 318.24	\$ 28.34
90 Unallocated Contingency	\$ 53.65	\$ 172.81	\$ -	\$ -	\$ 11.48	\$ 161.33
<b>Capital Cost Total (SCC 10-90)</b>	<b>\$ 1,755.97</b>	<b>\$ 1,756.01</b>	<b>\$ 1,513.16</b>	<b>\$ 1,503.87</b>	<b>\$ 1,554.07</b>	<b>\$ 201.94</b>
100 Finance Cost	\$ 191.71	\$ 191.71	\$ 191.71	\$ 174.87	\$ 191.71	\$ -
<b>Project Total</b>	<b>\$ 1,947.68</b>	<b>\$ 1,947.72</b>	<b>\$ 1,704.87</b>	<b>\$ 1,678.74</b>	<b>\$ 1,745.77</b>	<b>\$ 201.94</b>

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



## Cost Contingency Management

At this close out stage of the total project contingencies remains very healthy at approximately \$252M. Multitudes of favorable factors contributed to this positive stage that ranges from construction bidding climate, ROW acquisition cost trends, diligent project risk management practices, to excellent tunneling conditions. In November, overall contingencies decreased due to miscellaneous closed out and follow-on project commitments. While major construction activities are now complete, 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.



## 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.

### Cost Summary

Present Financial Status	Amount
<b>U240 Contractor - Turner Construction Co</b>	
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

## 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

- 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
<b>U250 Contractor - Hoffman Construction Co.</b>	
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

## U810 Contract – *Maintenance of Way*

### Close-out

ST and contractor have settled on a final contract amount.

### Close-out Activities

No more updates.

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

### Close-out

Revenue Service on March 19, 2016. Punchlist and close-out work continue.

### 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 other final project documentation.
- Continue work on commercial closure of the project.

### Closely Monitored Issues

- None to report.

### Cost Summary

Present Financial Status	Amount
<b>U810– Forma Construction (Design/ Build)</b>	
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
<b>U830 GC/CM Contractor - Stacy &amp; Witbeck</b>	
Original Contract Value	\$119,167,433
Change Order Value	\$3,849,463
Current Contract Value	\$123,016,897
Total Actual Cost (Incurred to date)	\$121,998,784
Financial Percent Complete	99.2%
Physical Percent Complete:	99.0%
Authorized Contingency	\$5,958,373
Contingency Drawdown	\$3,849,463
Contingency Index	1.5

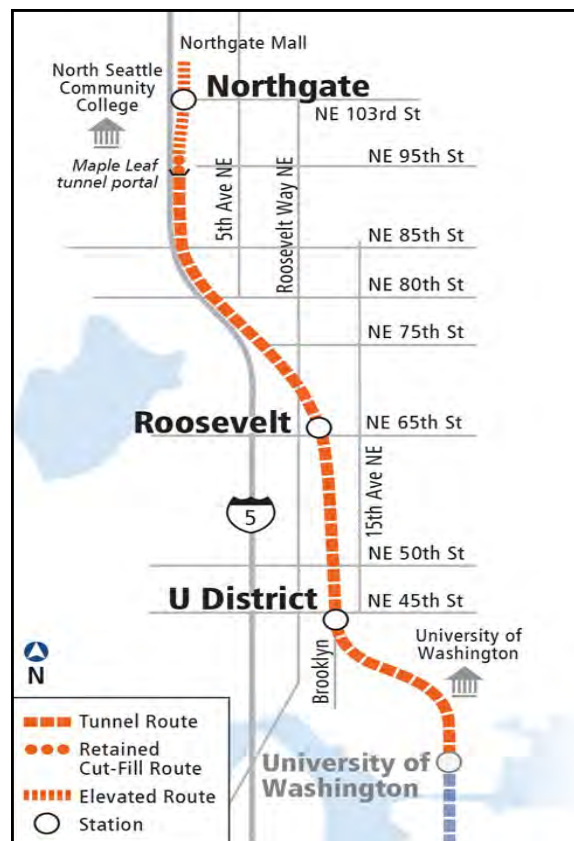
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# Link Light Rail Northgate Link Extension

## 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 <i>U District Station (UDS)</i> is an underground station located on the west side of the UW campus near Brooklyn Ave. and NE 45 <sup>th</sup> St. The <i>Roosevelt Station (RVS)</i> is an underground station located near NE 65 <sup>th</sup> St. and 12 <sup>th</sup> Ave NE. The <i>Northgate Station</i> 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:	Construction



## Key Project Activities

- Held executive partnering session for the N125 contract on November 6<sup>th</sup> followed by a meeting with the Disputes Review Board on November 7<sup>th</sup>.
- The N125 Maple Leaf Portal Milestone 5A- Completion of Tunnel between RVS and UDS (MS-5A) was reached to allow access for the N180 Trackwork Contractor to begin work in the tunnels south of UDS.
- Tunnel, Cross Passages and Maple Leaf Portal (N125):** The electrical installation south of U District is still in progress and commissioning of electrical systems continues. N125 crews are working to remove equipment allowing full access for N180 to tunnels south of U District. Completed instrumentation restoration at three cross passages and began street restoration including construction on new ADA ramps at cross passages along Banner Way NE. Work on permanent structures continues at the Maple Leaf Portal.
- U District Station/UW Campus (N140):** Staff provided UW Vibration Attenuation Estimates (VAE) Phase II final draft work plan. Hoffman Construction placed a total of 277 cubic yards of concrete for the first wall pour and continued installation of waterproofing at various locations in the station box, completing the south headwall.
- Roosevelt Station (N150):** Hoffman Construction commenced formwork and reinforcing for center walls and continued de-tensioning and waterproofing at tie-back locations. Crews commenced mechanical, electrical and plumbing rough-in for basement Level 3 and continued formwork at various location in the station box.
- Northgate Station (N160):** Finalized plan with Northgate Mall for alternate approach to meeting Sound Transit's parking commitments during the 2017 holidays. Consultants finalized the design and provided drawings for the site lighting at the Northgate Mall parking area adjacent to the garage. ST submitted comments on SDOT I-5 pedestrian bridge 60% design. Excellent progress was made on erection of girders for the N160 elevated guideway. *Guideway Substructure/ Superstructure:* Crews continued night shift work on girders and continued constructing columns and gaps. *Station:* crews continue night shift work erecting falsework over NE 103rd Street. Crews placed the B3 deck (730 cubic yards).

## Key Activities, continued

- **Trackwork (N180):** The production of 5 Hz floating slabs continues at the Columbia Precast facility in Woodland, WA. The facility has produced 48% of the 3'-10" floating slabs and 3% percent of the 7'-10" floating slabs. The Contractor gained limited site access to the tunnels with full site access set for January 2018; will survey tunnels, install temporary ventilation systems and assist with Vibration Attenuation Estimate testing.
- **Traction Electrification, Signals and Communications (N830):** Mass. Electric Construction Company (MEC) awarded their signal technology subcontract to Innovative Solutions and their communications package to MSC Construction.

## Closely Monitored Issues:

- The MS-5A milestone occurred as the electrical contractor is still completing work in the tunnels between UDS and UWs. The N140, N125 and N180 CM teams are coordinating with the contractors to attempt to mitigate any impacts.

## Project Cost Summary

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

### Cost Summary by Phase

Project Phase	Baseline Budget	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
ADMINISTRATION	\$147.9	\$147.9	\$52.8	\$52.5	\$133.2	\$14.7
PRELIMINARY ENGINEERING	\$15.1	\$15.1	\$15.1	\$15.1	\$15.1	\$0.0
FINAL DESIGN	\$129.2	\$129.2	\$116.7	\$107.3	\$134.4	\$(5.3)
CONSTRUCTION SERVICES	\$118.3	\$118.3	\$97.7	\$59.8	\$110.9	\$7.5
3rd PARTY AGREEMENTS	\$11.8	\$11.8	\$10.0	\$6.5	\$12.4	\$(0.6)
CONSTRUCTION	\$1,343.0	\$1,343.0	\$1,212.8	\$685.1	\$1,335.5	\$7.6
ROW	\$112.3	\$112.3	\$94.0	\$93.6	\$106.0	\$6.3
PROJECT CONTINGENCY	\$22.2	\$22.2	\$0.0	\$0.0	\$0.0	\$22.2
<b>Total</b>	<b>\$1,899.8</b>	<b>\$1,899.8</b>	<b>\$1,599.0</b>	<b>\$1,020.0</b>	<b>\$1,847.4</b>	<b>\$52.4</b>

The Estimated Final Cost (EFC) for the project as of this reporting period is \$1,847.4M, which is \$52.4M below the current project budget. This period approximately \$26.2M was incurred, of which \$23.8M was for the ongoing major construction contracts including the N125 tunneling contract, the N140, N150, and N160 Station Finishes contracts, the N180 Trackwork contract and N830 Systems contract, and other miscellaneous construction; \$0.5M was incurred for civil and systems final design and design support during construction; and \$1.3M was for construction management. The remaining expenditures were for 3rd 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	\$508.7	\$412.5	\$537.5	\$10.1
20 STATIONS	\$376.1	\$429.0	\$415.8	\$132.6	\$445.8	(\$16.8)
30 SUPPORT FACILITIES: YARD, SHOP	\$5.3	\$5.3	\$6.4	\$5.4	\$6.4	(\$1.1)
40 SITEWORK & SPECIAL CONDITIONS	\$140.8	\$225.1	\$165.0	\$116.4	\$217.5	\$7.6
50 SYSTEMS	\$110.9	\$95.1	\$106.8	\$9.8	\$102.8	(\$7.7)
<b>Construction Subtotal (SCC 10 - 50)</b>	<b>\$1,228.7</b>	<b>\$1,302.1</b>	<b>\$1,202.6</b>	<b>\$676.8</b>	<b>\$1,310.1</b>	<b>(\$8.1)</b>
60 ROW, LAND, EXISTING IMPROVEMENTS	\$119.9	\$110.9	\$94.0	\$93.6	\$105.5	\$5.4
80 PROFESSIONAL SERVICES	\$420.7	\$429.1	\$302.4	\$249.6	\$426.3	\$2.7
90 CONTINGENCY	\$130.4	\$57.8	\$0.0	\$0.0	\$5.4	\$52.3
<b>Capital Total (SCC 10 - 90)</b>	<b>\$1,899.8</b>	<b>\$1,899.8</b>	<b>\$1,599.0</b>	<b>\$1,020.0</b>	<b>\$1,847.4</b>	<b>\$52.4</b>

## Cost Contingency Management

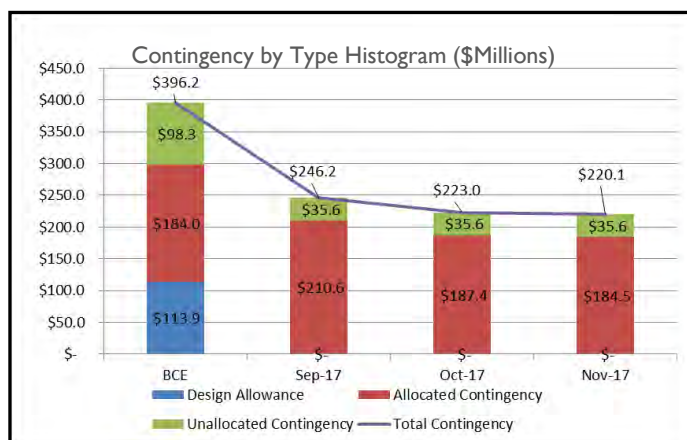
Compared to the baseline amount of \$396.2M, the Total Contingency has decreased by \$176.1M to \$220.1M, which is 26.6% of project work remaining. During this reporting period, a decrease of \$2.9M in the overall project contingency occurred. Detailed information is provided below.

**Design Allowance** – The baseline Design Allowance of \$113.9M has been fully depleted and all major contracts have been awarded.

**Allocated Contingency** – Compared to the baseline amount of \$184.0M, Allocated Contingency has increased by \$0.5M to \$184.5M. During this reporting period, a decrease of \$2.9M occurred due to the execution of change orders on the N125 Tunnel Contract, the N150 and N160 Station Finishes contracts, and the N180 Trackwork contract.

**Unallocated Contingency** – 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.

Contingency Status	Baseline		Current	
	Amount	% of Total	Amount	% of Work Remaining
Design Allowance	\$113.9	5.3%	\$ -	0.0%
Allocated Contingency	\$184.0	8.6%	\$184.5	22.3%
Unallocated Contingency	\$98.3	4.6%	\$35.6	4.3%
<b>Total</b>	<b>\$396.2</b>	<b>18.6%</b>	<b>\$220.1</b>	<b>26.6%</b>



## Project Schedule

The N125 Tunneling Contractor (JCM) achieved Milestone 5A Completion of Tunnels between RVS & UDS, on the scheduled date of November 15. Punchlist work is ongoing between UWS and RVS. JCM continues to forecast a 12 day late achievement of Milestone 6 Substantial Completion on February 23, 2018 (includes 27 days of ST controlled float), with a January 26, 2018 completion of work.

The N140 U District Station contractor, Hoffman Construction, continues with wall waterproofing, basement Level 3 walls and columns. The south basement Level 3 suspended slab is scheduled to pour in mid-December.

At Roosevelt Station (RVS), the N150 contractor, Hoffman Construction, is preparing the south basement Level 3 slab to be poured in early December. Center wall pours are continuing. At the north end of the station, the last of the basement Level 2 walls have been poured. Work will begin on the basement level will start in December.

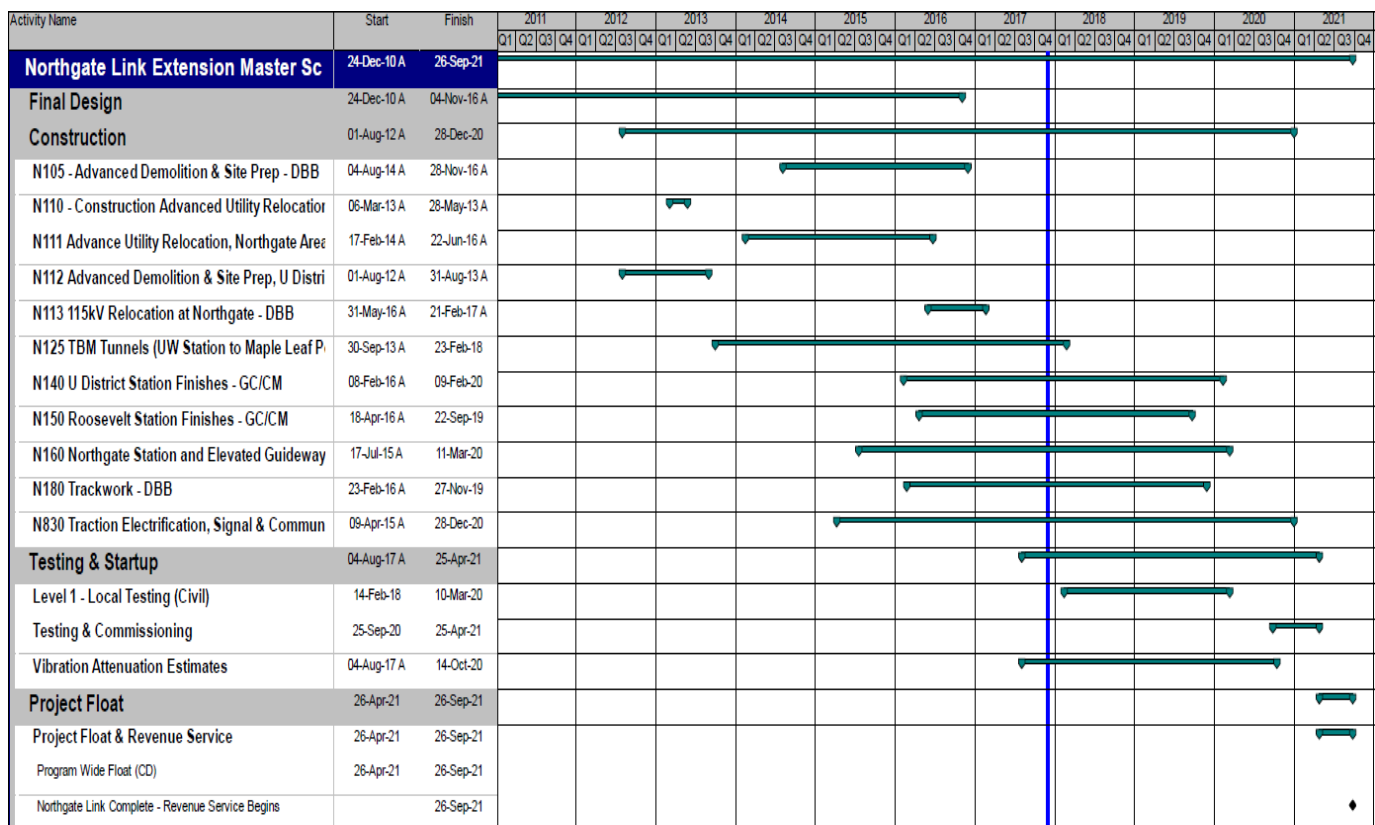
The N160 Contractor, Absher is continuing cap and girder erection north of the Station, and column construction south of the station. Deck and beam construction continue at the station, along with post-tensioning. The north half of the Garage Level 3 slab has been poured. Absher is preparing to pour the south portion of the Level 3 slab, as well as advancing the columns supporting the north Level 2 slab.

The N180 Trackwork contract is currently in production casting of the 3'10" slabs (40/week) and production of the 7'10" slabs has begun. The reformulated isolation pads are currently in testing. ST is in the process of finalizing the change resulting from schedule impact of the extended Ultra-Straight rail welding.

The N830/E750 Systems Contractor, Mass Electric, is continuing to work on early engineering. The work at Convention Place Station is continuing under a provisional sum. Mass Electric is in the process of finalizing the selection of major subcomponent suppliers.

The Teamster Union strike impacts are being evaluated by ST's Construction Manager for the N140 contract.

Revenue Service date for Northgate Link Extension is scheduled in September 2021.





## Critical Path Analysis

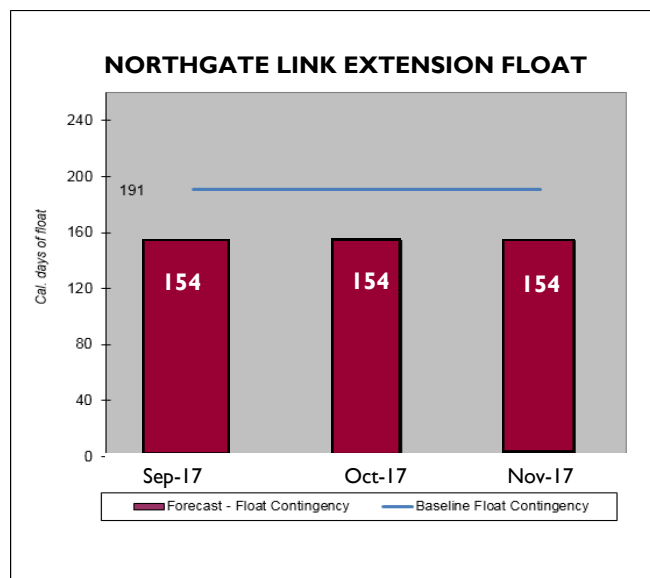
The critical path for the Northgate Link Extension is unchanged and driven by the N140 UDS contract through handover of the tunnels to the N180 Trackwork contractor. Hoffman construction is currently working a 10-hour day at the UDS site and has added a second shift in November. Contract interface meetings between the N140 and N180 teams are ongoing and have been successful in coordinating early work. The completion of N125 work at the Maple Leaf Portal remains critical to allowing the N180 Trackwork contractor access to the tunnels for Trackwork construction between UDS and MLP. ST is looking at allowing N180 access to MLP in mid-to-late February, ahead of the March contract access date.

Activity Name	Start	Finish	2017			2018				2019				2020				2021			
			Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Northgate Link Extension Master Schedule - V12c</b>	20-Dec-18	26-Sep-21																			
<b>Construction</b>	20-Dec-18	26-Dec-20																			
N140 U District Station Finishes - GC/CM	17-Jan-19	17-Jan-19																			
N180 Trackwork - DBB	20-Dec-18	17-Sep-19																			
N830 Traction Electrification, Signal & Communications - GC/CM	18-Sep-19	26-Dec-20																			
<b>Testing &amp; Startup</b>	26-Sep-20	25-Apr-21																			
Testing & Commissioning	26-Sep-20	25-Apr-21																			
Project Float	26-Apr-21	26-Sep-21																			
Project Float & Revenue Service	26-Apr-21	26-Sep-21																			

## Critical Path Float

The Northgate Link Project currently retains 154 days of unallocated project float. The N40 baseline schedule has been accepted and the CPM Schedule is unchanged.

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



## Construction Safety

Data/ Measure	November 2017	Year to Date	Project to Date
Recordable Injury/Illness Cases	2	23	77
Days Away From Work Cases	0	2	6
Total Days Away From Work	38	178	397
Restricted or Modified Work Cases	0	11	34
Total Days Restricted or Modified Work	2	133	1,030
First Aid Cases	7	41	92
Reported Near Mishaps	5	27	81
Average Number of Employees on Worksite	526	-	-
<b>Total # of Hours (GC &amp; Subs)</b>	<b>202,354</b>	<b>1,354,667</b>	<b>3,327,539</b>
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	1.98	3.40	4.63
DART (Days Away, Restricted or Modified) Rate	0.00	1.92	2.40
<i>Recordable National Average</i>	<i>3.50</i>	<i>3.50</i>	<i>3.50</i>
<i>DART National Average</i>	<i>2.00</i>	<i>2.00</i>	<i>2.00</i>
<i>Recordable WA State Average</i>	<i>7.00</i>	<i>7.00</i>	<i>7.00</i>
<i>DART WA State Average</i>	<i>3.90</i>	<i>3.90</i>	<i>3.90</i>

*Note: Due to the timing of contractor's reporting periods, the current month's numbers above are a combination of actuals and estimates. All previous months' numbers are reconciled and replaced with actuals.*

## 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 are complete with the exception of one remaining parcel at the Northgate Station area which was forecast to settle in the 2nd QTR 2017 but has been moved out to 4th QTR 2017 to accommodate King County's Board schedule. The right-of-way program status is summarized in the following table.

	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
<b>Total</b>	<b>235</b>	<b>233</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>231</b>	<b>42</b>	<b>42</b>

## Community Outreach

- Published monthly electronic newsletter.
- Distributed various construction alerts which included the following:
  - Restoration along the Northgate alignment.
  - Street restoration work.
  - Early morning concrete pours.
  - 24-hour work at the U District Station site in late November.
- Noise Variance Public meeting held on November 16 which was required to renew the noise variance permit.
- Responded to complaints from U Manor residents concerning noise on the U District Station site.

## Sound Transit Board Actions

Board Action	Description	Date
M2017-140	Increase the contingency for the Northgate Link civil construction management consultant services contract with North STAR, in the amount of \$1,800,000 for a new total authorized contract amount not to exceed \$84,830,456.	Nov 16

## Environmental

- None to report.

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## 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)

**N111 Advanced Utility Relocation at Northgate Area** - Relocation of 26kV and communication lines at the Northgate Station vicinity. (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
N111-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	Feb 2018
N140-U District Station Finishes	Oct 2013A (GC/CM-Precon)	April 2017A (construction)	Jan 2020
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)	Jun 2017A (construction)	Dec 2020

A = Actual

## Contract N125 – TBM Tunnels

### Current Progress

The N125 contractor, JCM, is continuing work toward completion of the Cross Passages, and Maple Leaf Portal (MLP) Structure. The tunnel segment between U District Station (UDS) and Roosevelt Station (RVS) has been completed and punchlist work is underway.

*UDS*—JCM continues to access the cross passages between UW Station (UWS) and UDS via UDS. The focus of the work is on completing the electrical scope.

*Tunnel Finishes* – Crews continue installing fire stand pipe, handrail, electrical and completing punchlist items.

*Cross Passage Construction*—Work in progress at the end of this period includes: surface restorations at cross passage locations, continuing firestand pipe installation, and electrical installations. Installation of tunnel signage and handrailing is underway. Punchlist work continues between UDS and RVS, as well as UWS and UDS.

*MSE Wall*—Construction of the walls and cross braces continues at MLP.

### Schedule Summary

JCM has not submitted an updated schedule for November. The October schedule maintains a Milestone No. 6 Substantial Completion date of February 23, 2018, 13 days behind schedule. This date is inclusive of the ST controlled float. Completion of construction is still expected to be in late January to mid-February 2018. Milestone No. 5A Completion of Tunnels Between RVS and UWS was achieved on 15-Nov-17, with JCM performing punchlist work at this time. The longest path through the schedule still consists of the work to complete the Maple Leaf Portal.

Activity Name	OD	RD	Start	Finish	2017	2018
					Q4	Q1
<b>N125 Schedule Update Nov-17</b>	1044	58	01-Feb-14 A	26-Feb-18		
<b>N125</b>	1044	58	01-Feb-14 A	26-Feb-18		
Construction	1044	58	01-Feb-14 A	26-Feb-18		
Payment Triggers - Project Demobilization	19	19	30-Jan-18	26-Feb-18		
Submittals - Prepare	20	20	01-Dec-17	29-Dec-17		
Submittals - Review & Approve	84	59	24-Feb-14 A	28-Jan-18		
Station Work MLP	22	5	01-Feb-14 A	07-Dec-17		
Station Work UW	72	10	30-Aug-17 A	14-Dec-17		
Tunneling	452	41	05-Jul-16 A	31-Jan-18		
Cross Passages - MLP - RVS	197	26	06-Mar-17 A	09-Jan-18		
Cross Passages - UDS - UW	2	0	12-Jun-17 A	01-Dec-17		
Cross Passages - Additional SEM Measures	422	0	01-Mar-16 A	01-Dec-17		
MLP Final Work	69	39	20-Jul-17 A	29-Jan-18		

## Key Activities

### Current Period

- Continued post-construction building surveys at surface along tunnel alignment.
- Continued electrical tie-in conduit installations and welding of fire standpipe tie-ins at cross passages.
- Continued installation of tunnel handrails and overhead electrical.
- Continued pulling feeder cables.
- Continued repairing walkway and cable trough concrete defects.
- Continued installation of rebar and formwork for east and west wall fascia panels and sound wall barrier at MLP.

### Next Period

- Continue final surface restoration at remaining cross passage locations.
- Continue electrical and fire standpipe tie-ins in tunnels.
- Continue electrical systems testing and commissioning in tunnels.
- Continue tunnel segment/walkway/cable trough repairs and tunnel segment patching.
- Continue rebar, formwork, and concrete pours for east retaining/sound/barrier walls at MLP.

## Closely Monitored Issues

- Milestone 6 Substantial Completion (MS-6): JCM is required to complete its work by January 16, 2018 to accommodate the 26 remaining days of ST-controlled float. It is expected that Elcon's work will be critical to achieving MS-6. Elcon has made significant progress between MLP and RVS, but much work remains to be completed, and progress will be hampered by Elcon's ongoing commitments between UDS and UWS, and their ongoing punch list work between RVS and UDS.

## Cost Summary

Present Financial Status	Amount
<b><i>NI25 Contractor - JCM Northlink</i></b>	
Original Contract Value	\$440,321,000
Change Order Value	\$58,098,993
Current Contract Value	\$498,419,993
Total Actual Cost (Incurred to date)	\$487,168,556
Financial Percent Complete:	97.7%
Physical Percent Complete:	97.9%
Authorized Contingency	\$66,048,150
Contingency Drawdown	\$58,098,993
Contingency Index	1.11



UDS-UWS: Welding fire standpipe tie-in section for CP37 SB tunnel.

## Contract N140 – U District Station Finishes

### Current Progress

The N140 Contractor, Hoffman Construction (HCC), is currently constructing the center area walls and columns from the platform level to support the basement Level 2 slab. The south basement Level 2 walls and columns are in progress. The north walls and columns from the platform level to the basement Level 3 Slab are also underway.

### Schedule

The November update continues to indicate negative float. ST is continuing to analyze the impact of the Teamster Strike. HCC is working to recover time on interim milestones that could impact follow-on contracts. HCC has met the early access date for allowing the N180 Trackwork contractor to begin survey and ventilation work in the tunnel between UDS and UWS.

Activity Name	OD	RD	Start	Finish	2017				2018				2019				2020
					Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>N140 - U-District Station Finishes</b>	772	577	10-Feb-17 A	10-Mar-20													
<b>CONSTRUCTION</b>	772	577	10-Feb-17 A	10-Mar-20													
Structure	539	344	10-Feb-17 A	09-Apr-19													
EXTERIOR SHELL / SKIN	193	193	28-Sep-18	02-Jul-19													
INTERIORS	335	335	23-Aug-18	18-Dec-19													
ELEVATORS	155	155	17-Dec-18	26-Jul-19													
ESCALATORS	103	103	11-Oct-18	08-Mar-19													
STAIRS	171	171	14-Aug-18	16-Apr-19													
SITWORK	357	357	12-Jun-18	05-Nov-19													
START-UP & COMMISSIONING	225	225	22-Apr-19	10-Mar-20													



# Link Light Rail

## Northgate Link Extension - Construction

### Key Activities

#### Current Period

- Continued to prepare and process submittals and RFIs.
- Placed concrete at the south headwall and at columns and pedestals.
- Continued installation of waterproofing at various locations in the station box.
- Commenced stripping formwork and Styrofoam block outs from the north and south headwalls.
- Continued installation of waterproofing for north headwall; side wall areas.
- Continued installation of wall rebar mats for exterior side wall areas.
- Commenced installation of the scaffolding and decking for the south end of basement level 3.
- Continued rebar installation at the south headwall as well as prefabrication of vertical reinforcing steel.

#### Next Period

- Continue to process submittals and RFIs.
- Place concrete at the north headwall and at columns and pedestals.
- Continue installation of the scaffolding, decking and prefabrication of rebar cages.
- VAE consultant to commence vibration monitoring work.

- Commence formwork installation for the east wall area.
- Commence electrical conduit and plumbing installation at the south BL-3 area.
- Commence installation of scaffolding and decking components for the north BL- 3 area. Continue installation of waterproofing for side walls and south headwall.
- Continue installation of wall rebar mats for side walls and south headwall.
- Continue rebar and formwork for columns.
- Continue installation of temporary power.
- Continue elevator shear wall install rebar mats, formwork, and place concrete.

### Closely Monitored Issues

- Teamsters strike caused some delays with concrete deliveries due to backlog in the market. HCC is working on a time impact analysis and reviewing options to recover time, including Saturday work.
- Internet services for the CM offices were originally planned to be installed by March 2017. Century Link expects to get their permit by next month.

### Cost Summary

Present Financial Status	Amount
<b><i>NI40 Contractor - Hoffman Construction</i></b>	
Original Contract Value	\$159,836,688
Change Order Value	\$0
Current Contract Value	\$159,836,688
Total Actual Cost (Incurred to date)	\$24,957,186
Financial Percent Complete:	15.63%
Physical Percent Complete:	15.97%
Authorized Contingency	\$7,991,834
Contingency Drawdown	\$0
Contingency Index	N/A



U District Station – North Platform job progress.

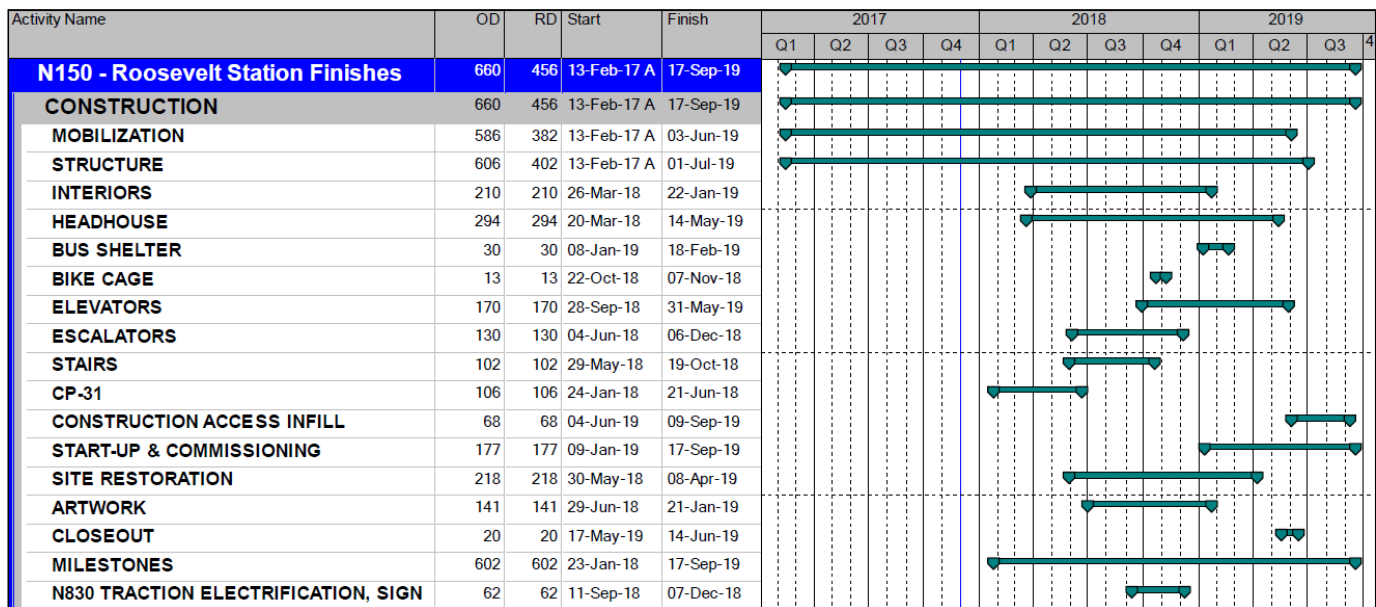
## Contract N150 – Roosevelt Station Finishes

### Current Progress

Hoffman Construction (HCC) has completed the south platform level walls, and embeds in the station center. The south basement Level 3 slab is complete, as is the basement Level 2 south cross bracing. At the north end of the station the basement Level 2 walls are complete and formwork is underway for the Basement Level 1 beams and slabs.

### Schedule

The project schedule continues to show the project nine days behind schedule, with no change from the last month. Basic structure completion is twelve days behind schedule. ST and HCC are working to improve the date.



# Link Light Rail Northgate Link Extension - Construction

## Key Activities

### Current Period

- Continued to prepare and process submittals and RFIs.
- Continued formwork at various locations in the station box.
- Placed concrete for the beams, elevated deck and north and center walls on basement level 2
- Began top mat rebar for the south basement level 3 elevated deck.
- Relocated the man lift to the center platform area.
- Placed concrete for the north and center basement level 2 walls.
- Placed concrete for the south basement level 3 elevated deck.
- Commenced MEP rough-in for basement level 3.
- Placed the following concrete: vault hatch frame on the south platform, escalator column and north walls.
- Completed de-tensioning and waterproofing at tieback locations.

### Next Period

- Continue to prepare, review and respond to submittals and RFIs.
- Place bottom rebar mat for north BL-1 elevated deck.
- Form rebar and place keyed wall extensions for BL-1.

- Place concrete for center walls C1 and C2 on Monday, December 4th.
- Continue with forming, rebar and place for south columns from BL-3 to BL-2.
- Commenced forming and rebar for center beams B207 and B208.
- Place concrete for center Lift 1 walls at Manlift.

## Closely Monitored Issues

- Notice of Impact of Concrete Supply time impact analysis is \$0 cost and 12 additional calendar days to the critical path milestones. HCC has updated the time impact analysis request for 12 days to MS 2a and 2b and 9 days for MS 3 and is being prepared for CCB approval.
- Design team has received comments back from for added escalator control room. Corrections are being incorporated by Design team and expected to be complete next month.

## Cost Summary

Present Financial Status	Amount
<b><i>N150 Contractor - Hoffman Construction</i></b>	
Original Contract Value	\$152,291,184
Change Order Value	\$ 914,315
Current Contract Value	\$153,205,499
Total Actual Cost (Incurred to date)	\$42,063,663
Financial Percent Complete:	27.46%
Physical Percent Complete:	22.97%
Authorized Contingency	\$7,614,559
Contingency Drawdown	\$914,315
Contingency Index	1.9



*View of Roosevelt Station box from north headwall.*

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

### Current Progress

The N160 Contractor is continuing work on the station platform level decks, joists, and beams. Form, rebar, and pours for the Unit 1 guideway columns are ongoing. Unit 2 guideway bents are also ongoing. Absher completed the installation of the pre-cast girders on the northern end of the guideway. Installation of detention vault FC-1 is underway.

At the Parking Garage, the basement Level 3 south deck has been poured, striped, and stressed. Work is progressing for the BL3 north deck, and the BL2 south supporting walls.

### Schedule

The N160 Contractor's November schedule update forecasts a completion of March 11, 2020, 12 days behind schedule. The improve is due in part to incorporation of the agreed upon impact of the Teamster strike and post-tensioning change. The Parking Garage completion, Milestone No. 3, is now shown as completing on August 14, 2018, slipping from the October update, due to resource issues. Absher is still ahead of the Systems Access date designated in the N830 Systems contract. The critical path for the project is in the station structure, finishes, and site restoration.

Activity Name	OD	RD	Start	Finish	2017				2018				2019				2020
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
<b>N160 - Northgate Station Finishes</b>	894	578	31-Aug-16 A	11-Mar-20													
1.00 - General Requirements	894	578	31-Aug-16 A	11-Mar-20													
2.00 - Procurement	780	466	02-Sep-16 A	01-Oct-19													
3.00 - Preparatory Work	821	578	17-Oct-16 A	11-Mar-20													
4.00 - Earthwork & Utilities	808	578	04-Jan-17 A	11-Mar-20													
5.00 - Guideway (inc. Station Unit)	506	266	03-Jan-17 A	18-Dec-18													
6.00 - Station Finishes	446	446	06-Feb-18	05-Nov-19													
7.00 - Garage	282	173	27-Jun-17 A	06-Aug-18													
8.00 - At-Grade Restoration	585	498	22-Sep-17 A	14-Jan-20													



# Link Light Rail Northgate Link Extension - Construction

## Key Activities

### Current Period

- *General Project Progress:* Continued processing and reviewing of submittals and RFIs; Readiness review meeting held for drainage structures. Held Quality Task Force and Systems Coordination meetings.
- *Guideway:* Setting brackets and decking for girder installation on B line. Set girders to B1; Continued columns and caps on A line; Continued falsework, rebar, PT and concrete placement for B-line caps.
- *Station:* Continued shoring towers for station platform decking and beams. Continued forming and rebar for C-span deck and beams.
- *Parking Garage:* Continued conduit, piping, and rebar installation and began concrete placement for interior & exterior columns and walls; Continued shotcrete at B2 level; Completed rebar, electrical and PT for B3 south and continued same at north deck.
- *Utility & Drainage Work:* TESC Maintenance ongoing; Began vault excavation and relocation of WSDOT conduits in conflict with FC-1 drainage vault.
- *Offsite Fabrication:* Girder fabrication ongoing; Continued pre-cast stair and curb fabrication; Continued structural steel and handrails fabrication; Continued FC-1 segments.

### Next Period

- *General Project Process:* Continue processing and reviewing of submittals and RFIs.
- *Guideway:* Substructure/Superstructure: Continue formwork, rebar and concrete placement for columns/caps; Continue girder erection on B-line; Continue placing overhang brackets, walkway and edge forms, and intermediate diaphragms; Continue girder erection on B-line.
- *Station:* Continue decking platform spans and rebar/PT in deck and beams.
- *Parking Garage:* Continue wall and column rebar and concrete placement; Continue setting shoring and deck for Level B3 floor and beams, and begin concrete placement of L3 deck.
- *Utility & Drainage Work:* Continue prep work for installation of FC-1 drainage vault.

## Closely Monitored Issues

- Girder end clearances under review to ensure spec compliance is met for expansion joint.
- Schedule slippage on elevated structure – Contractor to provide means of recovery.
- Labor shortages for skilled tradespeople may impact schedule.

## Cost Summary

Present Financial Status	Amount
<b>NI60 Contractor - Absher Construction</b>	
Original Contract Value	\$174,000,000
Change Order Value	\$ 4,037,764
Current Contract Value	\$178,037,764
Total Actual Cost (Incurred to date)	\$68,893,329
Financial Percent Complete:	38.7%
Physical Percent Complete:	38.9%
Authorized Contingency	\$17,400,000
Contingency Drawdown	\$ 4,037,764
Contingency Index	1.68



Absher Truss shoring crossing I03rd street

### 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. Milling of the Ultra-Straight Rail (USR) is set to begin in December at the British Steel facility in France. ST is currently settling the impact of the longer USR welding process on the schedule. The pre-cast yard in Woodland continues in production casting of the 3'10" slabs at a rate of 40/week. The test sections of the 7'10" slabs have been completed and the slabs are now in production status. The isolation pads are nearing the completion of testing. The N180 Contractor has been meeting with the N140, N160, and N150 contractors to work on the interface and access coordination at the station locations.

#### Schedule Summary

Below is the latest schedule for N180.

Activity Name	OD	RD	Start	Finish	2016	2017				2018				2019				U
						Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
<b>N180 - Trackwork</b>	<b>794</b>	<b>478</b>	<b>25-Aug-16 A</b>	<b>27-Oct-19</b>														
<b>Construction</b>	<b>794</b>	<b>478</b>	<b>25-Aug-16 A</b>	<b>27-Oct-19</b>														
Mobilization	685	478	25-Aug-16 A	27-Oct-19														
Submittals	1102	639	25-Aug-16 A	01-Sep-19														
Procurement	534	366	07-Oct-16 A	18-May-19														
Work Area 1 (N06 - UWS to UDS Tunnels)	327	315	13-Nov-17 A	07-Mar-19														
Work Area 2.1 and 2.2 (N07 - U-District Station)	331	321	15-Nov-17 A	15-Mar-19														
Work Area 3 (N08 - UDS to RVS Tunnels)	173	173	11-Jan-18	17-Sep-18														
Work Area 4 (N09 - Roosevelt Station)	141	141	12-Mar-18	27-Sep-18														
Work Area 5 (N10 - RVS to MLP Tunnels)	294	294	22-Mar-18	21-May-19														
Work Area 6 (MLP and At Grade Guideway)	329	329	12-Mar-18	28-Jun-19														
Work Area 7 (Elevated Guideway South of NGS)	147	147	02-Jan-19	30-Jul-19														
Work Area 7.1 (N11 - Northgate Station)	104	104	02-Jan-19	29-May-19														
Work Area 7.2 (Elevated Guideway North of NGS)	132	132	04-Jan-19	11-Jul-19														



# Link Light Rail Northgate Link Extension– Construction

## Key Activities

### Current Period

- Columbia Precast Products (CPP) continued casting forty 3'-10" floating slabs per week and six of the 7'-10" floating slabs including six trench caps. Total cast to date: 3'-10": 686 of 1366 slabs (50%); 7'-10": 7 of 252 slabs (3%)
- Scougal Rubber Corporation (SRC) continued production of tapered side shim pads.
- Progress Rail completed testing of Hi-resilience direct fixation (DF) fasteners.
- British Steel completed Ultra Straight Rail (USR) verification testing. Shipment of USR is set for 12/13/17.
- Contractor's surveyors continued to set control in the NB tunnel, between UWS and UDS.
- Contractor began installing temporary ventilation system at UDS.

### Next Period

- Continue installation of their control survey in the tunnels between UWS and UDS.
- CPP to continue casting 3'-10" and 7'-10" floating slabs, and trench caps.

- SRC to continue producing tapered side shim pads.
- Progress Rail to continue qualification testing of Hi-resilience fasteners.
- Okonite to continue production of 26kV cable.
- Kelley Engineered Equipment continuing fabrication and assembly of Floating Slab Gantry.

## Closely Monitored Issues

- SCR has achieved one passing Long Term Creep test on the main bearing pads using their 3rd party testing lab, Dynamark. The LTC test has a fourteen day duration and testing on two additional pads will be completed in early December 2017. The fabrication schedule still shows adequate float between fabrication and the installation of the floating slab segments.

## Cost Summary

Present Financial Status	Amount
<b>N180 Contractor - Stacy and Witbeck, Inc.</b>	
Original Contract Value	\$71,455,950
Change Order Value	\$1,781,023
Current Contract Value	\$73,236,973
Total Actual Cost (Incurred to date)	\$13,525,996
Financial Percent Complete:	18.5%
Physical Percent Complete:	14.0%
Authorized Contingency	\$10,718,393
Contingency Drawdown	(\$1,781,023)
Contingency Index	1.11



Verification of the rail-end straightness at British Steel Facility in Hayange, France.

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# Link Light Rail Lynnwood Link Extension

## Scope

<b>Limits:</b>	North Seattle to Shoreline, Mountlake Terrace, and Lynnwood Transit Center
<b>Alignment:</b>	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.
<b>Stations:</b>	Shoreline South/145th, Shoreline North/185th, Mountlake Terrace, Lynnwood City Center
<b>Systems:</b>	Signals, traction power, and communications (SCADA).
<b>Budget:</b>	\$488.4 Million Pre-baseline Budget; excludes Construction (Year of Expenditure Dollars)
<b>Phase:</b>	Final Design
<b>Const. Starts:</b>	2018
<b>Service:</b>	Mid 2024



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; reviews completed in April 2017.
- L800 60% systems design submitted in June 2017; reviews completed in August 2017.
- Design Advancement paused in July 2017 to pursue cost reduction strategies.
- Conducted Cost Reduction reviews with 3rd party jurisdictions in September 2017.
- WSDOT completed engineering review of L200 Temporary Construction Air Space Lease (TCAL) and Air Space Lease (ASL); review began on August 7, 2017; L300 submitted to WSDOT on July 3, 2017.
- Continuing right of way acquisition and pre-construction planning.
- Resumed Civil Design activities on October 9, 2017, and currently working to incorporate cost savings ideas into design.

## 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	\$19.2	\$18.9	\$88.3	\$0.0
Preliminary Engineering	\$42.0	\$39.1	\$39.1	\$42.0	\$0.0
Final Design	\$111.5	\$82.5	\$47.6	\$111.5	\$0.0
Construction Services	\$104.9	\$19.6	\$8.3	\$104.9	\$0.0
3rd Party Agreements	\$17.4	\$7.2	\$3.1	\$17.4	\$0.0
Construction	\$0.5	\$0.2	\$0.2	\$0.5	\$0.0
Light Rail Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$123.8	\$79.9	\$74.9	\$123.8	\$0.0
<b>Total</b>	<b>\$488.4</b>	<b>\$247.7</b>	<b>\$191.9</b>	<b>\$488.4</b>	<b>\$0.0</b>

### Cost Summary by SCC

SCC Element	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	\$0.5	\$0.2	\$0.2	\$0.5	\$0.0
50 Systems	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
<b>Construction Subtotal (10 - 50)</b>	<b>\$0.5</b>	<b>\$0.2</b>	<b>\$0.2</b>	<b>\$0.5</b>	<b>\$0.0</b>
60 Row, Land	\$123.8	\$79.9	\$74.9	\$123.8	\$0.0
80 Professional Services	\$364.1	\$167.6	\$116.9	\$364.1	\$0.0
90 Unallocated Contingency	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
<b>Total (10 - 90)</b>	<b>\$488.4</b>	<b>\$232.2</b>	<b>\$191.9</b>	<b>\$488.4</b>	<b>\$0.0</b>

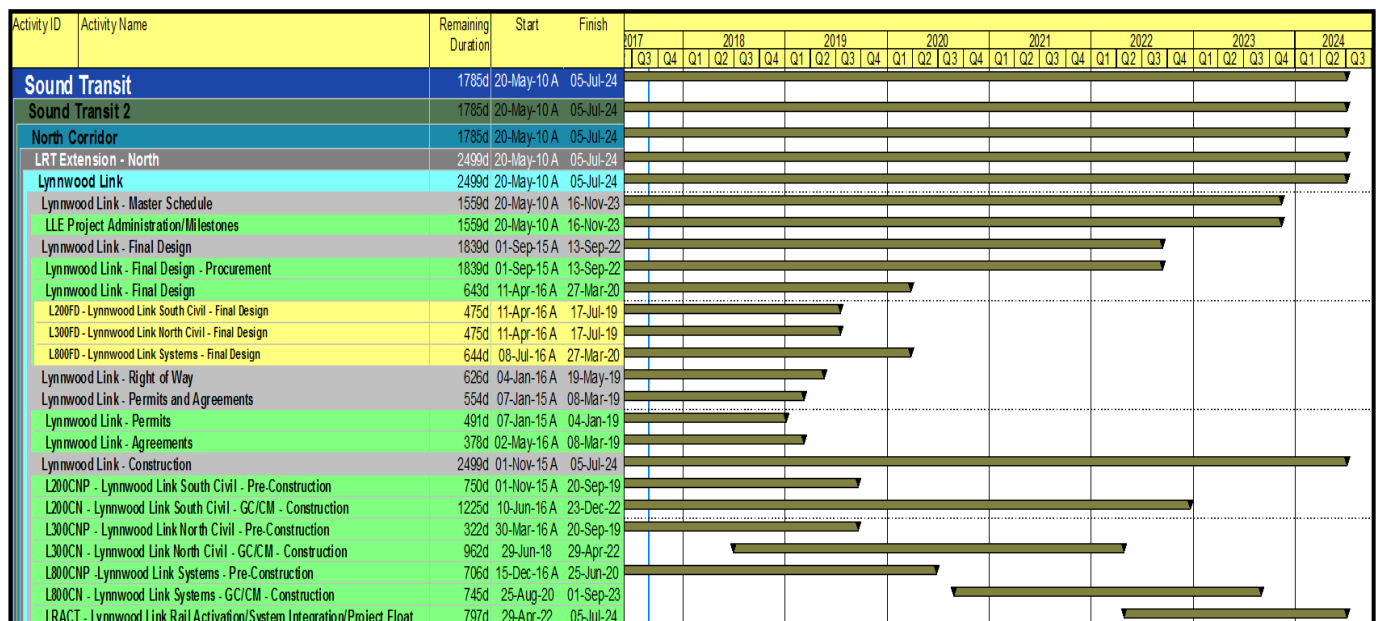
## Risk Management

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 held in May 2017. The project completed a full quantitative risk assessment workshop in November 2017, and anticipates draft results in January 2018.

## Project Schedule

The project schedule is shown below.



## 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	Offers Made/In Negotiations	Signed Agreements	Possession and Use	Admin Settlement	Closings to date	Relocations Required	Parcels Vacated
L200— South Segment	190	78	9	0	0	42	174	78
L300—North Segment	43	12	0	1	0	9	23	4
<b>Total*</b>	233	90	9	0	0	51	197	82

\*Note— number of totals may differ from other reports due to the timing of reporting periods.

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

8 additional Parcels approved by the Board; 4 additional offer signed; 2 additional parcels closed; 8 additional relocation identified; 11 additional relocations vacated.

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

2 additional Parcels approved by the Board; 1 additional parcel P & U

## Sound Transit Board Actions

Board Action	Description	Date
M2017-141	Execute a Transitway Agreement with the City of Lynnwood to grant Sound Transit non-exclusive use of a light rail transitway within City right-of-way to construct, operate, maintain and own a light rail transit system for the Lynnwood Link Extension.	Nov 16

## Community Outreach

- Various property owners were contacted about survey work on their property.
- Coordinated with field work staff and Contractor for upcoming work at the Shoreline Fire Department and at the Nile Shrine Golf Center.
- Met with Real Property and project staff to determine a path forward on updating property owners potentially impacted by planned temporary parking at the Mountlake Terrace Transit Center during construction.



## Civil Final Design Overview

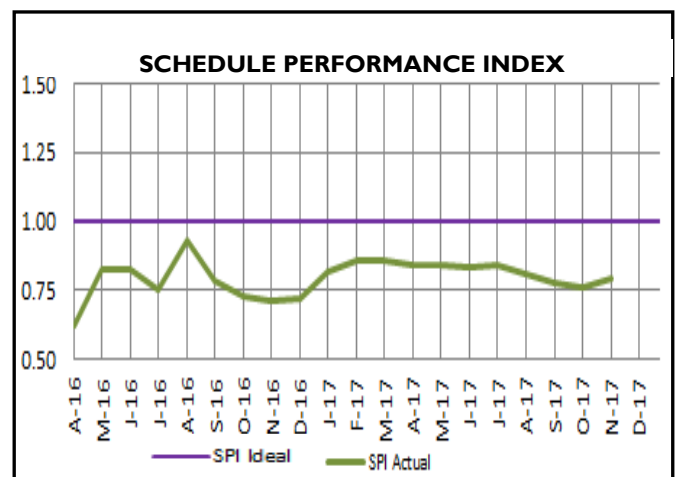
Sound Transit executed a professional services contract with HNTB Jacobs in April 2016 to perform Civil Final Design Services.

### Civil Final Design Activities

- Cost Savings Ideas Development completed.
- Civil Final Design activities have restarted on October 9, 2017.
- Current focus is on incorporating costs savings ideas, advancing concepts to achieve concurrence and lock the track alignment and guideway column locations so follow on disciplines (Systems Final Design) can resume design activities.

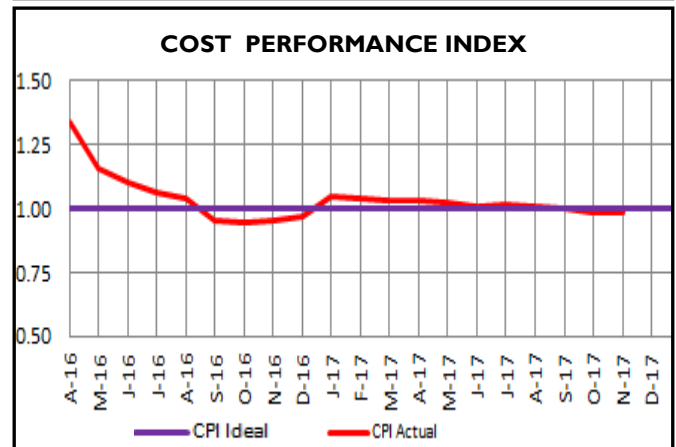
### Civil Final Design Schedule Performance Index

The cumulative Schedule Performance Index (SPI) trends at 0.79 through November 2017, which means that cumulative work accomplished is less than work originally planned. The Civil Final Design cost savings ideas development was completed on October 9, 2017. While schedule performance is trending negatively, it is expected to increase over the next couple of reporting periods as civil design activities have restarted and cost savings ideas will be incorporated into the project design.



### Civil Final Design Cost Performance Index

\$44.2M of the total contract amount, 61%, has been spent through November 2017. The Civil Final Design percent complete is 60%, with an earned value of \$43.3M. The cumulative Cost Performance Index (CPI) through November is 0.98 indicating that expenditures are slightly higher than the earned value of work performed.



Final Design Performance	Cumulative To-date
Amount Invoiced	\$44.2M
% Spent	61%
Earned Value	\$43.3M
% Complete	60%
<b>SPI</b>	<b>0.79</b>
<b>CPI</b>	<b>0.98</b>

## Systems Final Design Overview

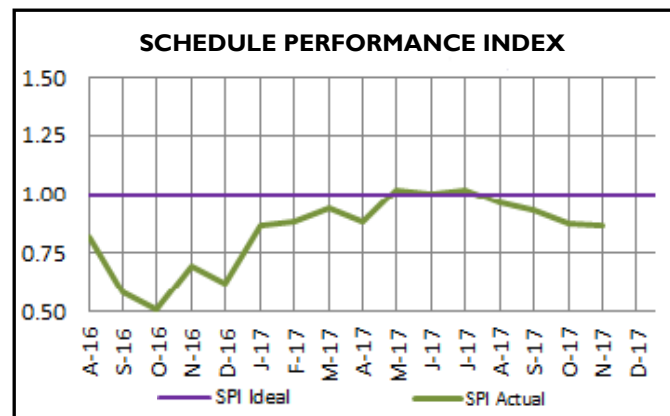
Sound Transit executed a professional services contract with LTK Engineering in July 2016 to perform Systems Final Design Services.

### Systems Final Design Activities

- L800 60% cost estimate submitted to Sound Transit on August 25, 2017.
- L800 60% cost estimate reconciliation was completed on September 27, 2017.
- Systems Design currently on hold awaiting Civil Final Design track alignment and guideway column locations so design activities can resume.

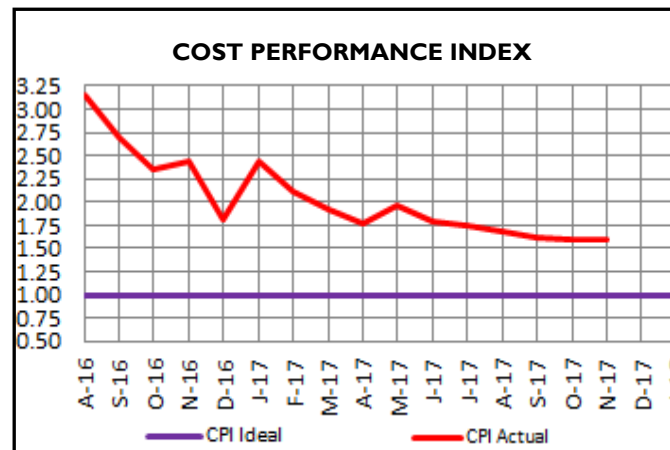
### Systems Final Design SPI

The cumulative Schedule Performance Index (SPI) trends at 0.87 through November 2017, which means that cumulative work accomplished is behind the work originally planned. This is directly attributed to the design hold due to cost savings ideas development. As the Systems Final Design team is provided updated civil information, it is expected that SPI will start to trend positive as design ramps back up.



### Systems Final Design Cost Performance

\$2.8M of the total contract amount, 30%, has been spent through November 2017. The Systems Final Design percent complete is 47%, with an earned value of \$4.5M. The cumulative Cost Performance Index (CPI) through November is 1.59 indicating that expenditures are significantly lower than the earned value of work performed.



Final Design Performance	Cumulative To Date
Amount Invoiced	\$2.8M
% Spent	30%
Earned Value	\$4.5M
% Complete	47%
<b>SPI</b>	<b>0.87</b>
<b>CPI</b>	<b>1.59</b>

## 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

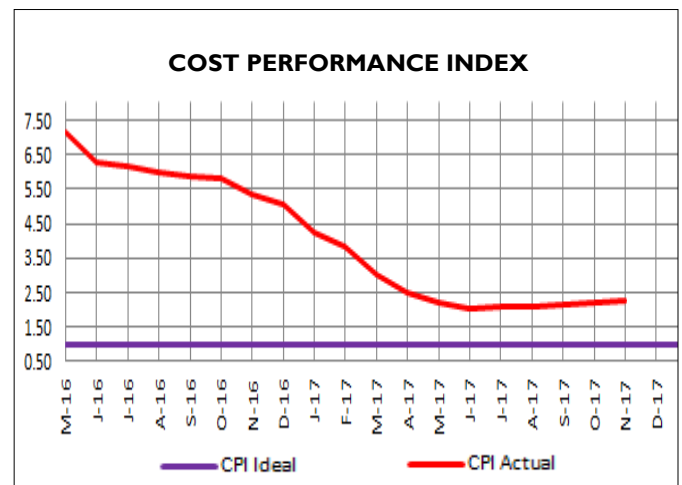
- Coordinating meetings with design, GC/CM, and ST teams.
- Coordination on various preconstruction activities including cost estimates, schedule, and constructability.
- Coordinating GC/CM review of 60% submittals and Project wide effort towards value engineering.

### Civil Construction Management Schedule Performance Index

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 Index

\$3.0M of the total contract amount, 40%, is spent through November 2017, with an earned value of \$6.7M. The cumulative Cost Performance Index (CPI) through November is 2.24; 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. Planned Values will be re-aligned with an extension to the Pre-Construction Schedule; CPI is anticipated to trend closer to 1.0 in the future.



Civil CM Performance	Cumulative To-date
Amount Invoiced	\$3.0M
% Spent	40%
Earned Value	\$6.7M
<b>CPI</b>	<b>2.24</b>

## 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

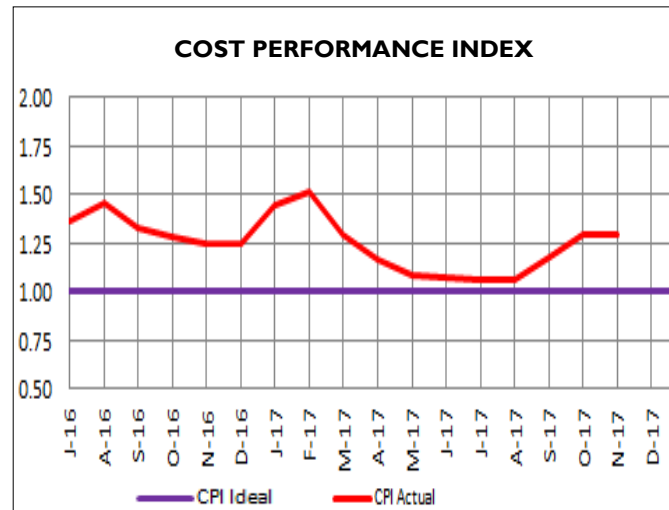
- Coordinating meetings with design, CM, and ST teams.
- Progress on various preconstruction activities including cost estimates, schedule, and constructability.
- Project wide effort towards value engineering.

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

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 Index

\$2.8M of the total contract amount, 55%, is spent through November 2017, with an earned value of \$3.6M. The cumulative Cost Performance Index (CPI) through November is 1.29; indicating actual costs are slightly lower than planned. Planned Values will be re-aligned with an extension to the Pre-Construction Schedule; CPI is anticipated to trend closer to 1.0 in the future.



L200 GC/CM Performance	Cumulative To-date
Amount Invoiced	\$2.8M
% Spent	55%
Earned Value	\$3.6M
<b>CPI</b>	<b>1.29</b>

## 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

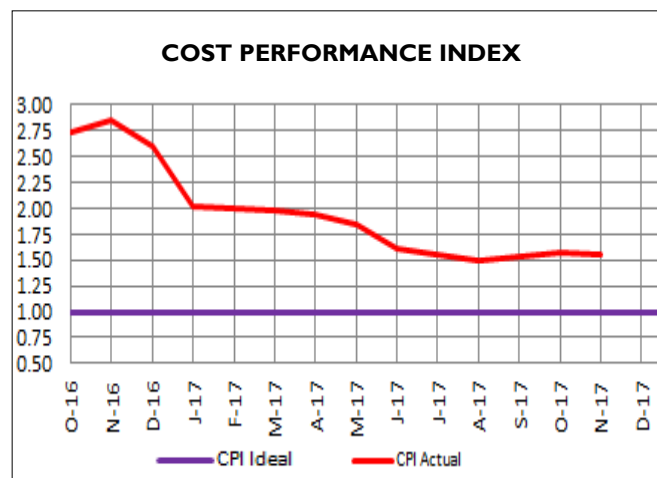
- Coordinating meetings with design, CM, and ST teams.
- Progress on various preconstruction activities including cost estimates, schedule, and constructability.
- Project wide effort towards value engineering.

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

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 Index

\$2.2M of the total contract amount, 41%, has been spent through November 2017, with an earned value of \$3.4M. The cumulative Cost Performance Index (CPI) through November is 1.55; indicating actual costs are lower than planned. Planned Values will be re-aligned with an extension to the Pre-Construction Schedule; CPI is anticipated to trend closer to 1.0 in the future.



L300 GC/CM Performance	Cumulative To-date
Amount Invoiced	\$2.2M
% Spent	41%
Earned Value	\$3.4M
<b>CPI</b>	<b>1.55</b>

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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 provides approximately four miles of the HOV lanes in each direction of the outer roadway between 80<sup>th</sup> Avenue South on Mercer Island and Rainier Avenue in Seattle. The project includes upgrades and retrofits to the fire, life, safety, and other systems in the Mount Baker and Mercer Island/First Hill tunnels. The project also includes remaining dowel bar retrofit work on the west side of Lake Washington, and the installation of screening on the shared-use pathway on the I-90 floating bridge.

**Budget:** \$225.6 Million  
**Phase:** Construction  
**Construction Start:** January 2015  
**Construction Complete:** First Quarter 2018



Since June 2017, the project has provided 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

- *Work outside the tunnels:* Continue resolving punch list items, clean up and demobilize from work areas, complete final O & M manuals.
- *Mercer Island Tunnel:* Continue cleanup and warranty work, continue resolving punch list items including IR camera programming, SCADA programming, Switch-gear #2 programming and testing, network redundancy/tunnel staff training.
- *Mount Baker Ridge Tunnel:* Continue demobilization and clean up of work sites, continue resolving punch list items including IR camera programming, SCADA programming, tunnel staff training.
- Continue video camera interface, punch list, and final miscellaneous SCADA testing.
- Continue final Simplex documentation submittals, continue resolving punch list items, conduct select IR camera programming.

## Closely Monitored Issues

While the center roadway turnover to Sound Transit was completed, Substantial Completion continues to slip; achievement of Substantial Completion is anticipated for 1st Quarter 2018, due to the following:

- Challenges continue with network programming tasks for Phase 3 commissioning and Simplex / SCADA video interface and integration. Additional testing is required.

## Project Cost Summary

The following tables summarize the cost information for the I-90 Two-way Transit and HOV Operations (Stage 3) project. WSDOT's latest invoice did not include construction contract costs due to reconciliation of their Biennium close, resulting in an over accrual. Due to this over accrual, Total Project Costs during this period is \$184.3M (\$0.3M less than last period). Tables in millions.

### Cost Summary by Phase

Project Elements by Phase	Baseline Budget	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
Administration	\$3.6	\$3.6	\$2.2	\$2.2	\$3.6	\$0.0
Preliminary Engineering	\$1.5	\$1.5	\$1.5	\$1.5	\$1.5	\$0.0
Final Design	\$22.1	\$22.1	\$18.7	\$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	\$171.9	\$162.5	\$198.3	\$0.0
<b>Total</b>	<b>\$225.6</b>	<b>\$225.6</b>	<b>\$194.4</b>	<b>\$184.3</b>	<b>\$225.6</b>	<b>\$0.0</b>

### 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	\$172.0	\$162.3	\$180.6	\$0.0
80 Professional Services	\$26.3	\$26.3	\$22.5	\$21.8	\$26.3	\$0.0
90 Unallocated Contingency	\$18.7	\$18.7	\$0.0	\$0.0	\$18.7	\$0.0
<b>Project Total (SCC 10-90)</b>	<b>\$225.6</b>	<b>\$225.6</b>	<b>\$194.4</b>	<b>\$184.3</b>	<b>\$225.6</b>	<b>\$0.0</b>

## Cost Contingency Management

In the table below, the Allocated Contingency includes both WSDOT-controlled construction contingency and the total ST-controlled allocated contingencies.

Contingency Status	BCE		Current Status	
	Amount	% of Total Budget	Remaining Amount	CTG % of Work Remaining
Design Allowance	\$0.0	0.0%	\$0.0	0.0%
Allocated Contingency	\$17.0	7.5%	\$8.1	19.6%
Unallocated Contingency	\$18.7	8.3%	\$18.7	45.2%
<b>Total:</b>	<b>\$35.7</b>	<b>15.8%</b>	<b>\$26.8</b>	<b>64.8%</b>

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 a portion of WSDOT-controlled contingency & ST-controlled Contingency.

# Link Light Rail

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

### Project Schedule

Project Milestones for construction are indicated below; changes indicated in red were submitted by WSDOT as anticipated dates, but have not at this time been accepted:

Contract	Final Tunnel Commissioning Complete		Substantial Completion		Center Roadway Turnover		Physical Completion	
	Baseline	Forecast / Actual	Baseline	Forecast / Actual	Baseline	Forecast / Actual	Baseline	Forecast / Actual
I-90 Two-Way Transit & HOV Operations Stage 3	2/16/2017	9/1/2017	2/20/2017	Q1/2018	5/31/2017	6/14/2017 A	5/31/2017	Q1/2018

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



Testing switchgear in Mercer Island Tunnel

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# Link Light Rail

## East Link Extension

### 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 retro-fitted tunnels.

**Stations:** Judkins Park, Mercer Island, South Bellevue, East Main, Bellevue Downtown, Wilburton, Spring District/120th, Bel-Red/130th, Overlake Village and Redmond Technology Center (RTC).

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

**Budget:** \$3.677 Billion (Baseline April 2015)

**Schedule:** Revenue Service - June 2023



Map of East Link Extension Alignment.

## Key Project Activities

### Seattle to South Bellevue

- *Floating Bridge Retrofit:* Continued pontoon wall coring for post tensioning ducts; ongoing electrical power modifications; ongoing west approach seismic retrofit.
- *Mercer Island:* Continued utility work and sound wall construction, commenced installation of the overhead catenary line foundations.

### South Bellevue to Redmond

- *E320 South Bellevue:* Completed parking garage mass excavation, duct bank and water line work. Continued installation of aerial structure large diameter shafts. Work is continuing on Cement Deep Soil Mixing (CDSM).
- *E330 Downtown Bellevue Tunnel:* Tunneling and excavation has now past the half way point with advances of about 173 feet this period, a total of approximately 1,003 total feet of excavation has been completed to date. Continued monitoring of the strain gauges in the Skyline garage walls.
- *E335 Downtown Bellevue to Spring District:* Began demolition of the Carriage Hills Condominiums, commenced excavation at north portal and continued temporary CMU wall construction, continued with formwork and rebar fabrication for drilled shafts and columns.
- *E340 Bel-Red:* Removal of the abandoned gas pipeline under the existing roadway completed. Commercial connections at various locations has begun. Commenced column transition pours and form work for crossbeams.
- *E360 SR520 to Redmond Technology Center:* Continuing with starter casing installation for guideway caissons, commenced with early site work construction of temporary access roads, storm drains infrastructure for preparation of caisson and utilities contractors mobilization.

## Closely Monitored Issues

- Completing remaining property acquisitions and easements.
- Timely submissions and issuance of construction permits.
- With ongoing construction in all segments, construction safety and environment compliance are priorities.
- Unidentified commercial utility connections within roadways and private properties continues to be challenging.
- Completing the stations' procurements for Downtown Bellevue to Spring District.

## 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 Estimated Final Cost (EFC) continues to be projected at approximately \$3.68B. This period's expenditure is about \$38.2M, increasing the total project cost from \$955.8M to \$994.0M. This period's project commitments remained the same of approximately \$2.81B from last months of \$2.81B primarily driven by a resolution to the Spring District real estate acquisition and normal construction change orders.

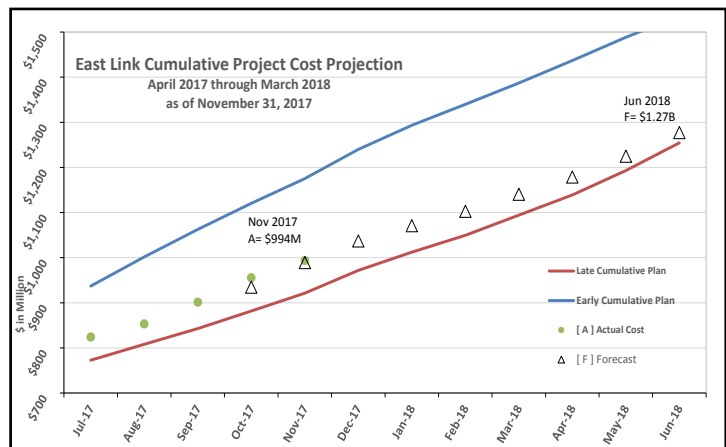
### Cost Summary by Phase

Project Phase	Baseline Budget	Current Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Current Budget vs. EFC
Administration	\$186.2	\$186.2	\$64.2	\$63.5	\$186.2	\$0.0
Preliminary Engineering	\$55.9	\$55.9	\$54.8	\$54.7	\$55.9	\$0.0
Final Design	\$283.0	\$283.0	\$244.4	\$199.3	\$283.0	\$0.0
Construction Services	\$257.5	\$257.5	\$196.8	\$42.7	\$257.5	\$0.0
3rd Party Agreements	\$52.2	\$52.2	\$35.9	\$13.9	\$52.1	\$0.0
Construction	\$2,544.3	\$2,544.3	\$1,958.7	\$367.1	\$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	\$255.8	\$252.7	\$298.2	\$0.0
<b>Total</b>	<b>\$3,677.2</b>	<b>\$3,677.2</b>	<b>\$2,810.6</b>	<b>\$994.0</b>	<b>\$3,677.2</b>	<b>\$0</b>

### Cost Summary by SCC

SCC Element	Baseline Budget	Current Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Current Budget vs. EFC
10 Guideway & Track	\$744.6	\$747.6	\$879.8	\$178.3	\$964.9	(\$217.4)
20 Stations	\$397.7	\$397.7	\$262.9	\$47.6	\$432.3	(\$34.6)
30 Support Facilities	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$808.5	\$806.0	\$450.6	\$117.1	\$589.8	\$216.2
50 Systems	\$353.8	\$353.8	\$344.2	\$18.5	\$328.4	\$25.4
<b>Construction Subtotal (10 - 50)</b>	<b>\$2,304.6</b>	<b>\$2,305.1</b>	<b>\$1,937.4</b>	<b>\$361.5</b>	<b>\$2,315.5</b>	<b>(\$10.4)</b>
60 Row, Land	\$288.5	\$288.5	\$255.8	\$252.7	\$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	\$617.4	\$379.8	\$889.1	\$10.6
90 Unallocated Contingency	\$182.9	\$181.0	\$0.0	\$0.0	\$181.2	(\$0.2)
<b>Total (10 - 90)</b>	<b>\$3,677.2</b>	<b>\$3,677.2</b>	<b>\$2,810.6</b>	<b>\$994.0</b>	<b>\$3,677.2</b>	<b>(\$0.0)</b>

The East Link (EL) cost projection continues to progress back to within the planned expenditure as construction activities continue to accelerate. This period's project expenditure topped out at approximately \$38.1M where Construction Phase is responsible for almost 83% or \$31.6M of November's cost. Total project cost incurred to date is now about \$994M to which about \$367M recorded in the Construction Phase. The June 2018 lifetime project cost is predicted to be around \$1.3B reflecting continued active construction through winter and spring.





## Risk and Contingency Management

### Risk Management

The Risk 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. 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, ST commenced the quarterly risks update for each of the major contract package. ST included participation of construction management consultants and construction contractors 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 November 2017, excepting the E335 Stations, all major construction contracts have been procured, the total contingency balance stands at \$473.2M (previously \$473.0M). The current contingency balance is consistent with the project's planned contingency drawdown.

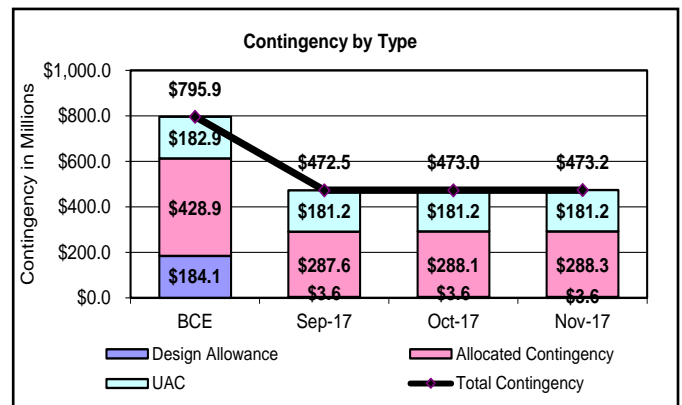
**Design Allowance (DA)** was established to account for unquantified scope at the time of the cost estimate. DA is unchanged this period with a balance at \$3.6M. DA balance is expected to be fully drawn when all construction scope are executed.

**Allocated Contingency (AC)** is used to address risks, complexity and unforeseen conditions during the execution of work, including procurement. This period, AC increased by \$0.2M from \$288.1M to \$288.3M. This net increase is due to a construction change orders and largely influenced by a large credit from the tunneling contractor.

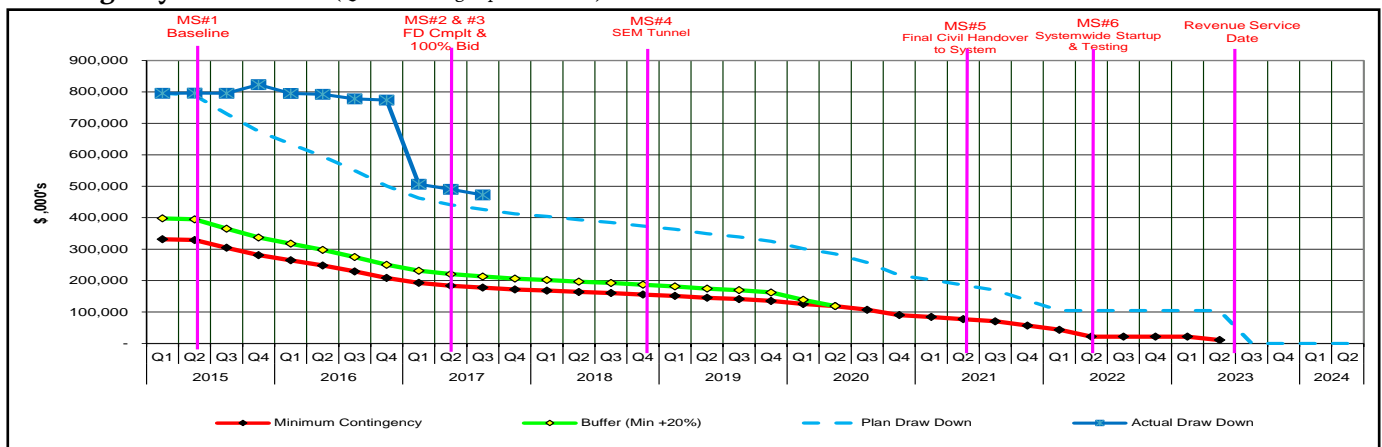
**Unallocated Contingency (UAC)** is used to address general project-wide cost risks and uncertainties. The UAC balance of \$181.2M continues to be stable compared to the initiation balance of \$182.9M at Baseline Cost Estimate (BCE).

Contingency Status	BCE		Current Status	
	Amount	% of Total Budget	Remaining Amount	% of Work Remaining
Design Allowance	\$184.1	5.0%	\$3.6	0.1%
Allocated Contingency	\$428.9	11.7%	\$288.3	10.7%
Unallocated Contingency	\$182.9	5.0%	\$181.2	6.8%
<b>Total:</b>	<b>\$795.9</b>	<b>21.6%</b>	<b>\$473.2</b>	<b>17.6%</b>

Dollar figures on this page are displayed in millions.



### Contingency Drawdown (Quarter Ending September 2017)



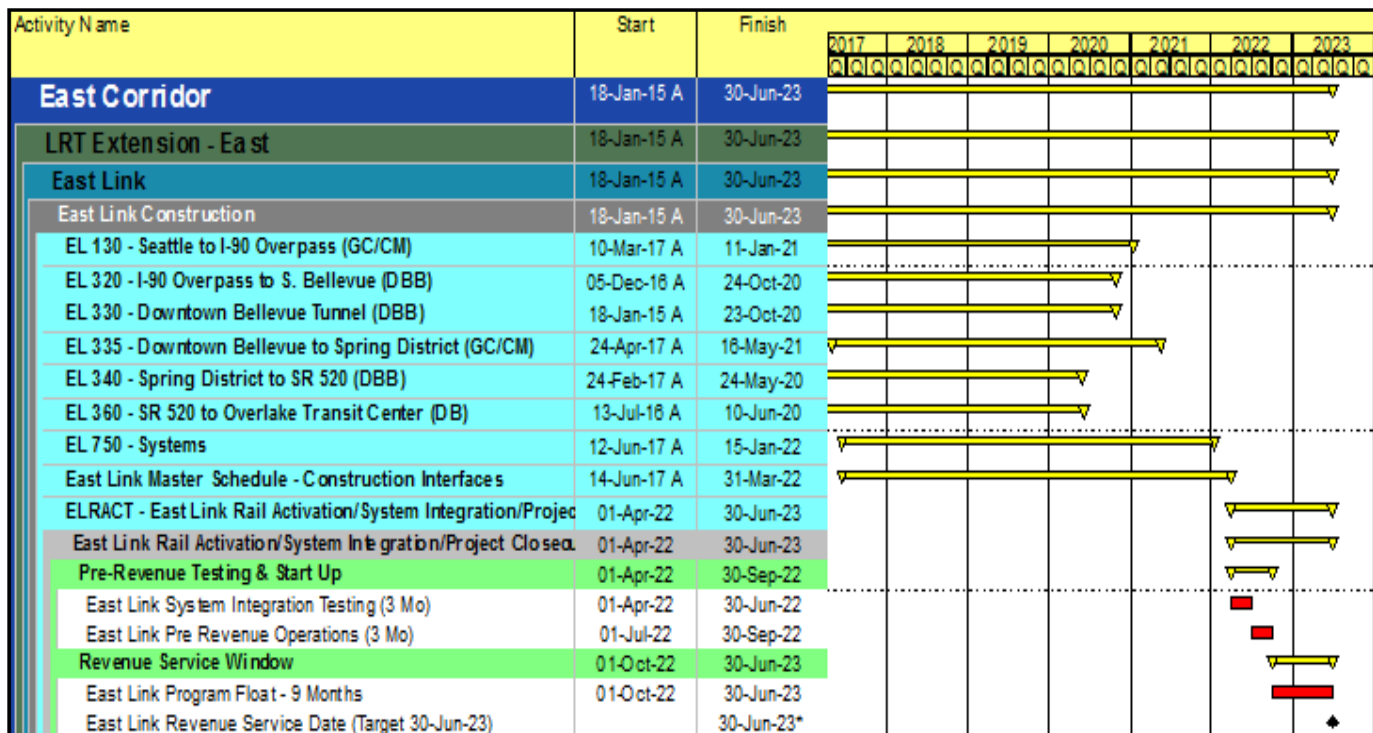
## Project Schedule

Baseline schedules have been approved for all contracts and current updates have been incorporated into the Integrated Master Schedule below.

E130 began preparations to install reaction frames in Pontoon E. They continued civil work at Mercer Island Station and utility relocations on the eastern part of the project. E320 continued drilling shafts for the aerial guideway, relocating utilities, and continued excavation for the parking garage. E330 continues to make good progress in tunneling and is anticipated to catch up with their baseline projection in December. E335 continued placing columns for the aerial guideway, placing retaining walls, and shoring the North Portal. E340 continues relocating utilities and placing columns. E360 continued drilling shafts for the aerial guideway and pouring decks and walls for OVS. E750 Systems contractor continued product and component designs. They will complete this phase of work within the next two years and will begin physical construction in Northgate Link before commencing on East Link. Systems construction in East Link is anticipated to start on the eastern segment of E130 in Summer of 2019.

This period's schedule graphic excludes November updates for E320, E340, and E750. These schedule updates were rejected due to non-compliance with ST specifications. Contract scope continues on each project and updated schedules are anticipated by the December 2017 cycle.

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



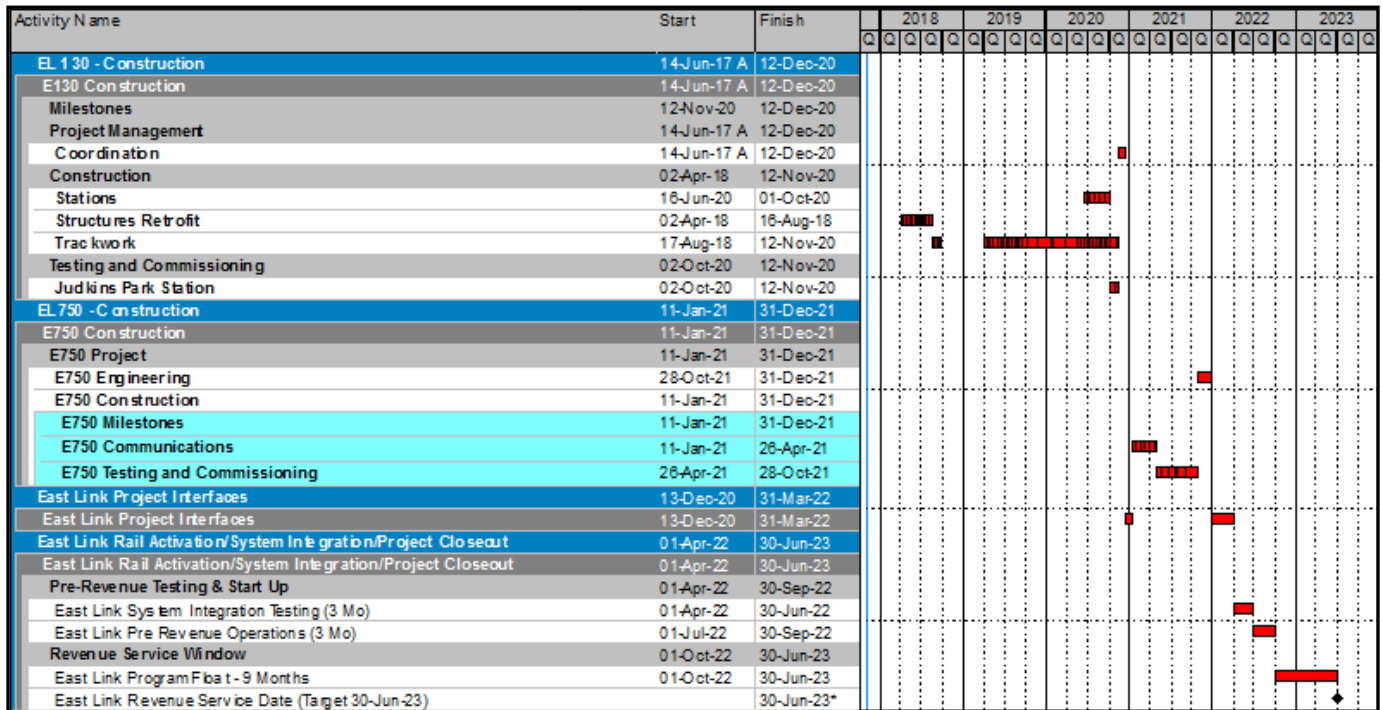
# Link Light Rail

## 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 which accounts for 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 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 Approved	Offers Made/In Negotiations	Signed Agreements	Possession and Use	Admin Settlement	Closings to date	Relocations Required	Parcels Vacated
Total	244	236	3	18	0	201	244	203

Note: Number totals may differ from other reports due to the timing of reporting periods.

## Right of Way, continued

*E130 Seattle to South Bellevue* - No new activity.

*E320 South Bellevue* - No new activity.

*E330 Downtown Bellevue* - No new activity.

*E335 Downtown Bellevue to Spring District* - One parcel closed.

*E340 Bel-Red* - Two parcels closed.

*E360 SR 520 to Redmond Technology Center* - Two parcels closed and two offers made for City of Bellevue parcels.

## Construction Safety

Data/ Measure	November 2017	Year to Date	Project to Date
Recordable Injury/Illness Cases	2	13	13
Days Away From Work Cases	0	1	1
Total Days Away From Work	0	2	2
Restricted or Modified Work Cases	1	8	8
Total Days Restricted or Modified Work	62	85	85
First Aid Cases	2	25	29
Reported Near Mishaps	7	65	78
Average Number of Employees on Worksite	845	-	-
<b>Total # of Hours (GC &amp; Subs)</b>	<b>102,019</b>	<b>580,558</b>	<b>616,395</b>
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	3.92	4.48	4.22
DART (Days Away, Restricted or Modified) Rate	1.96	3.10	2.92
<i>Recordable National Average</i>	<i>3.50</i>	<i>3.50</i>	<i>3.50</i>
<i>DART National Average</i>	<i>2.00</i>	<i>2.00</i>	<i>2.00</i>
<i>Recordable WA State Average</i>	<i>7.00</i>	<i>7.00</i>	<i>7.00</i>
<i>DART WA State Average</i>	<i>3.90</i>	<i>3.90</i>	<i>3.90</i>

Note: Due to the timing of contractor's reporting periods, the current month's numbers above are a combination of actuals and estimates. All previous months' numbers are reconciled and replaced with actuals.

## Sound Transit Board Actions

Board Action	Description	Date
	None to report.	

## Environmental

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

## Community Outreach

- Ongoing coordination with Mercer Island residents regarding construction activities and alerts.
- Continued 2018 outreach planning and finalizing Mercer Island agreement outreach component plan.
- Distributed information to downtown Bellevue stakeholders regarding upcoming traffic impacts.
- Provided multiple East Link construction update meetings; including Bellevue Chamber Public Affairs Committee, Eastside Transportation Partnership and Bellevue Network Group.
- Provided East Link project information to Microsoft representatives for distribution.
- Responded to questions of various individuals/business regarding construction in their neighborhood; noise and stormwater management were primary topics.
- Hosted a project open house on Thursday, Nov. 16 at the Old Redmond School House Community Center. Approximately 140 people attended.



Removing south barrier at I-90.

## 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: See following pages under Contract 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 continues site preparation on I-90, sheet piling along the slough, trenching and ductbank work along Bellevue Way SE, drilled shafts in the park and ride.*

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

*Status: See following pages under E330.*

**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: See following pages under Contract E335.*

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

*Status: See following pages under Contract E340.*

**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: Contractor continues with critical submittal, reviews of plans and component and product designs.*



## Contract E130 – Seattle to South Bellevue Heavy Civil GC/CM

### Current Progress

- West Side - D2 Structure & Mt. Baker Tunnel:* Ongoing review and verification of structure as-builts; stair tower erection; ongoing installation of temporary lighting.
- HMH Floating Bridge - Bridge and Approaches Retrofit:* Ongoing pontoon wall coring for post tensioning ducts; ongoing electrical power modifications; ongoing west approach seismic retrofit.
- East Side - Mercer Island:* Ongoing utility work and sound wall construction in the Mercer Island Station vicinity; installation of overhead catenary line foundations.

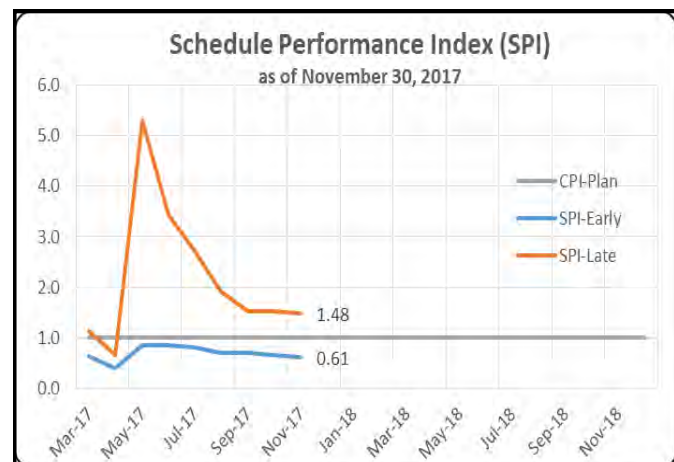
### Schedule Summary

The primary critical path for this project goes through the Post-tensioning Retrofit work, constrained by the WSDOT-imposed work window; work activities are limited on the floating bridge from October 1, 2017 through March 31, 2018. The 'Restricted Window' is currently in effect, so all large-scale construction on the floating bridge has ceased until Spring 2018. The Contractor continues working inside the pontoons to install reaction frames. Civil work is ongoing at Mercer Island Station; utility relocations are underway on the East Channel Bridge; and advanced preparation is underway for work on the D2 roadway.

Activity Name	Start	Finish	2018	2019	2020
<b>E130 Construction</b>	20-Mar-17 A	11-Jan-21			
<b>Milestones</b>	12-Jul-19	11-Jan-21			
<b>Major Project Completion Milestones</b>	12-Jul-19	11-Jan-21			
16. MS#02 - Substantial Completion Mercer Island Sta to West Mercer Island Lid (29-Jan-20)		12-Jul-19*			
16. MS#01 - Substantial Completion Mercer Island Station to East End Of Project (17-Jul-19)		17-Jul-19*			
16. MS#03 - Substantial Completion of IDS Conversion (27-Feb-20)		23-Feb-20*			
16. ST E130 Work Complete		12-Nov-20			
16. MS#04 - Substantial Completion All Work (12-Dec-20)		12-Dec-20*			
16. Acceptance		11-Jan-21			
<b>Construction</b>	20-Mar-17 A	12-Nov-20			
Preliminary Activities	03-Apr-17 A	25-Jun-20			
Sitework	23-Aug-17 A	26-Oct-18			
Demolition	20-Jul-17 A	21-Dec-18			
Tunnel Modifications	18-Sep-17 A	14-Jun-19			
Stations	15-Sep-17 A	01-Oct-20			
OCS Bases/Frames	11-Dec-17	10-Aug-20			
Civil/Utilities	05-Jul-17 A	25-Jun-20			
Electrical	20-Mar-17 A	27-Jul-20			
Structures Retrofit	20-Mar-17 A	10-Nov-20			
Trackwork	02-Apr-18	12-Nov-20			
Systems	26-Jun-17 A	02-Nov-20			
IDS Modification	16-Sep-19	23-Feb-20			

### Schedule Performance Index

This period, the SPI early is 0.61, SPI late is 1.48. The early index indicates that the Contractor is behind their early finish plans; meanwhile, the late index shows that the Contractor is on target with their late finish plan. These figures support the fact that the Contractor has encountered challenges in the initial phases of the post-tensioning scope and has proceeded with only half of the reaction frames for this winter's for the post tensioning work in the pontoons. Contractor anticipates loading the rest of the reaction frames into the pontoons during Spring and complete the post tension in Summer of 2018.





# Link Light Rail East Link Extension - Construction

## Next Period's Activities

- *West Side:* Continue installing temporary lighting and supply fan demo in Mt. Baker Tunnel; layout and sawcut for dowel bar retrofit; continue ITS survey and electrical
- *HMM Floating Bridge:* Continue preparation work for post-tension scope - layout and coring of pontoon interior walls; continue scanning and drilling of crossbeams at West elevated structure in preparation for restrainer bearing replacement.
- *East Side:* OCS pole drilled shafts and grounding; Mercer Island Station materials slab and sound wall footing concrete.

## Closely Monitored Issues

- Half of the PT anchor reaction frames were not loaded into pontoons. The Contractor anticipates loading the remaining anchor reaction frames in Spring of 2018. Working to minimize impacts to Summer 2018 work that is dependent upon the completion of this post tensioning scope.

## E130 Construction Activities



## Cost Summary

Present Financial Status	Amount
<b>E130 Contractor - Kiewit-Hoffman, East Link Constructors</b>	
Original Contract Value (includes Phase 2 MACC Negotiated)	\$665,000,000
Change Order Value:	\$1,020,000
Current Contract Value:	\$666,020,000
Total Actuals to Date:	\$88,577,777
Financial Percent Complete:	13.30%
Physical Percent Complete:	13.26%
Authorized Contingency:	\$46,660,541
Contingency Drawdown:	\$1,020,000
Contingency Index:	6.1



Systems duct bank installation ongoing.

## Contract E330 – Downtown Bellevue Tunnel

### Current Progress

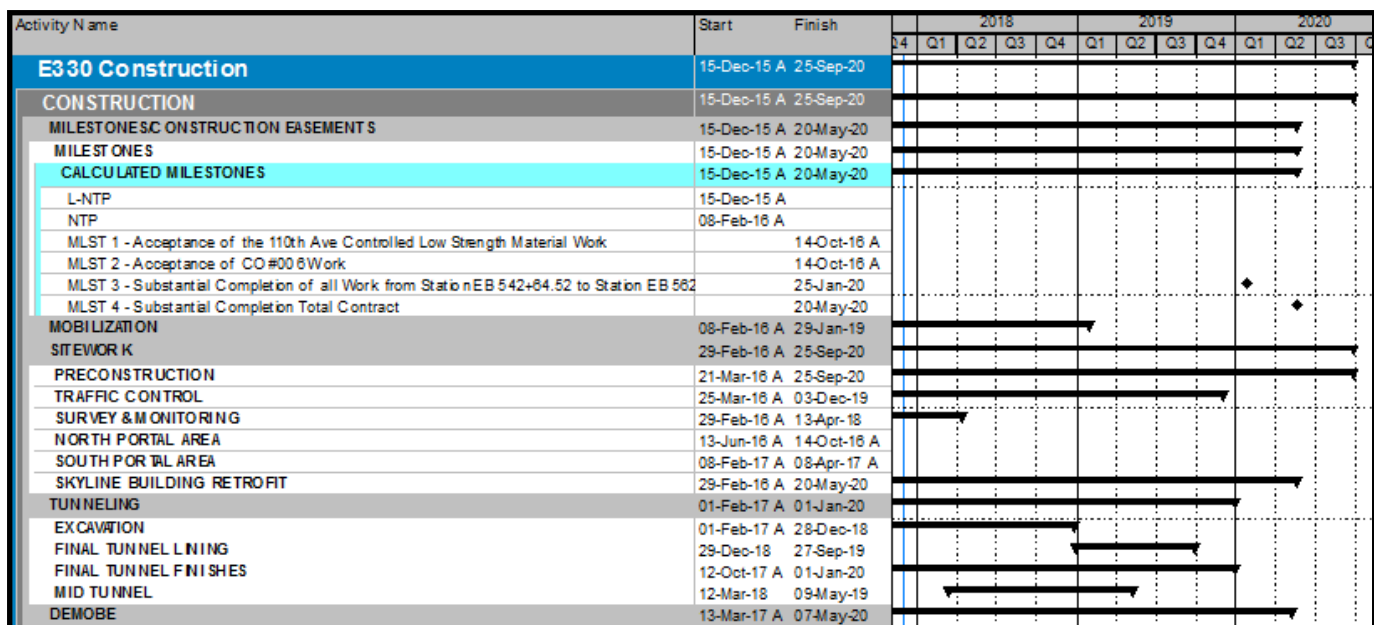
**South Portal:** The Contractor continued tunneling throughout November and excavation progressed approximately 173 feet this period, which is approximately 1,003 total feet of excavation to date. Good ground conditions being encountered decreases the need for ground spiles and has helped maintain the increased excavation rate at or around the 5ft/day mark compared to the base assumption of 3.3ft/day. Hauling of spoils offsite continues.

**North Portal:** Continued monitoring the strain gages in the Skyline garage wall and the piezometers in the immediate area in preparation of the grouting program. Grouting of voids to be performed once a Right of Entry (ROE) is approved by the Skyline building management.

**Between Portals:** Continue to install and monitor instrumentation along tunnel alignment.

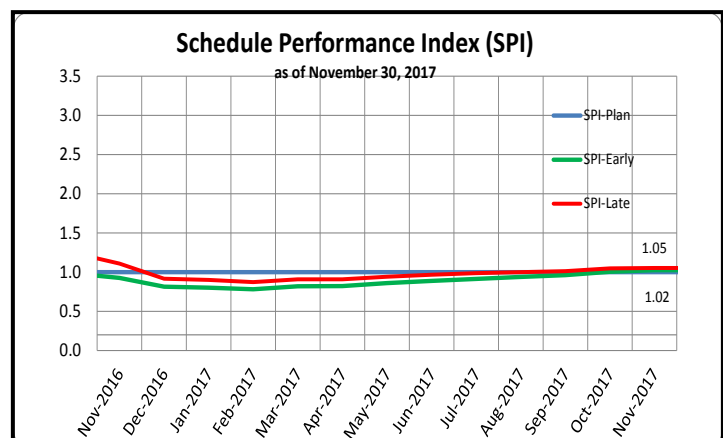
### Schedule Summary

The critical path for this contract follows the tunnel excavation and the completion of the South Portal structure. Tunneling continues to exceed estimated production rates. The contractor is currently tunneling at a rate of 4.7 LF/Day. Production rates are expected to decrease by the end of 2017 as the excavation begins to transition to a wider section of the tunnel. The Contractor is now forecast to finish excavating in December 2018 and to achieve Substantial Completion on time.



### Schedule Performance Index

This period, the SPI early is at 1.02 and the SPI late is at 1.05. Both early and late index greater than 1 indicates that the Contractor is performing slightly ahead of planned work. This trend continues to be positive due to advanced tunnel excavation progress. The good ground conditions have also afforded the contractor to reduce and in some cases eliminate some of the required spiles. Contractor anticipates maintaining this improved tunneling production rate until they move into the wider segment of the tunneling production.



# Link Light Rail East Link Extension - Construction

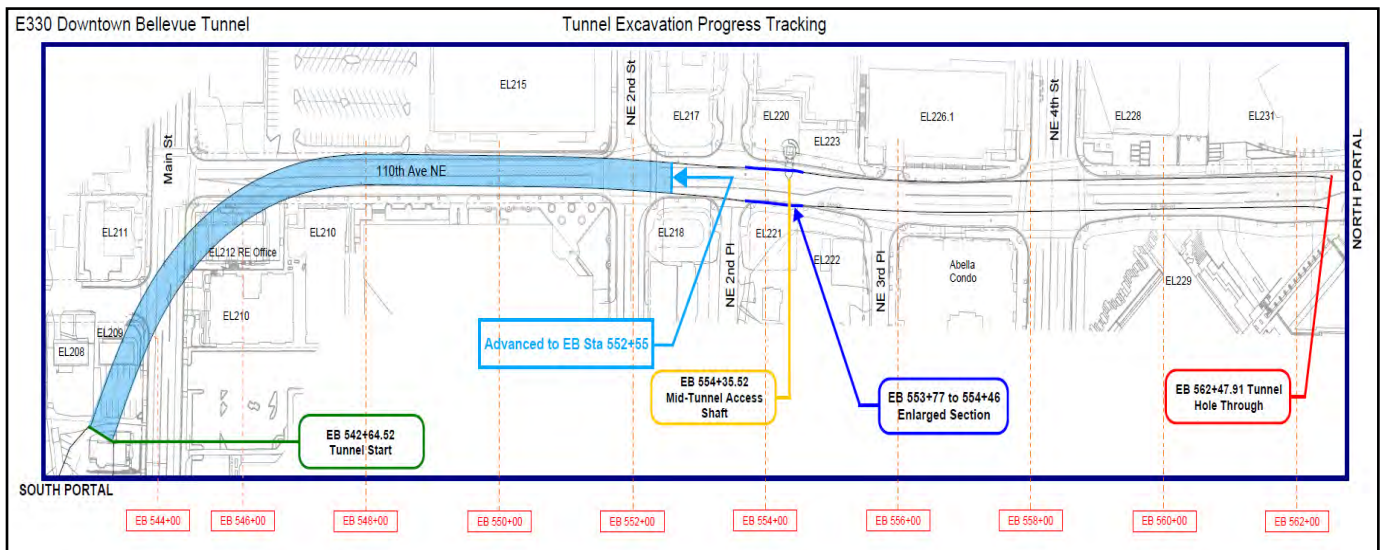
## Next Period's Activities

- Continue tunnel excavation and extend ventilation lines. Begin preparing for changing excavation from 3 drift headings to 6 drift headings. Tunnel production is expected to be reduced during the transition to six headings.
- Working with Skyline building management and contractor to begin grouting program to address voids behind the East basement walls.

## Closely Monitored Issues

- Working with Skyline building management and the contractor to begin grouting voids behind Skyline basement lagging and execute Right Of Entry (ROE) to perform work.
- Contractor's revised Sequential Excavating Method (SEM) tunnel dewatering plan foregoes surface dewatering in lieu of dewatering only from inside the tunnel. ST will continue monitoring water intrusion in the tunnel as the Contractor is responsible for the cost and time impact to the work.

## E330 Tunnel Excavation Progress Tracking



As of November 30, 2017

## Cost Summary

Present Financial Status	Amount
<b>E330 Contractor– Guy F Atkinson Construction, LLC.</b>	
Original Contract Value	\$121,446,551
Change Order Value	\$1,274,414
Current Contract Value	\$122,720,965
Total Actual Cost (Incurred to date)	\$56,318,906
Financial Percent Complete:	45.9%
Physical Percent Complete:	45.9%
Authorized Contingency	\$12,144,655
Contingency Drawdown	\$1,274,414
Contingency Index	4.4



1,000 feet of tunnel completed.



## Contract E335 – Bellevue to Spring District Heavy Civil GC/CM

### Current Progress

**Area 1 – South Portal/East Main Station:** Began demolition of the Carriage hill condominiums.

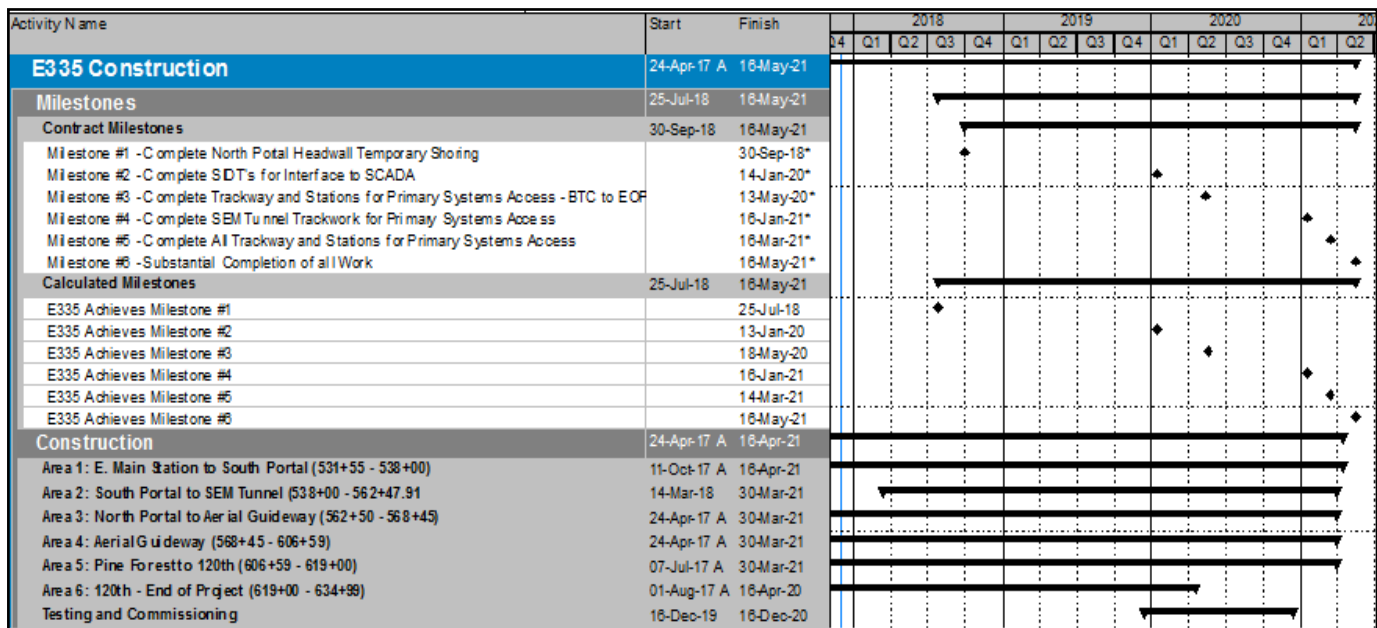
**Area 3 – North Portal/City Garage/BTC Station:** Commenced excavation and lagging installation at the north portal, and continued temporary CMU wall construction at the City Hall Garage. Continued with formwork and rebar prefabrication for drilled shafts, and columns, and continued with demolition of the City Hall Plaza.

**Area 5 – Pine Forest Wall construction & Earthwork:** Continued with excavation and installation of soldier pile wall.

**Area 6 – 120th-124th Trench/Station:** Continued trenching excavation for the 120th Station site.

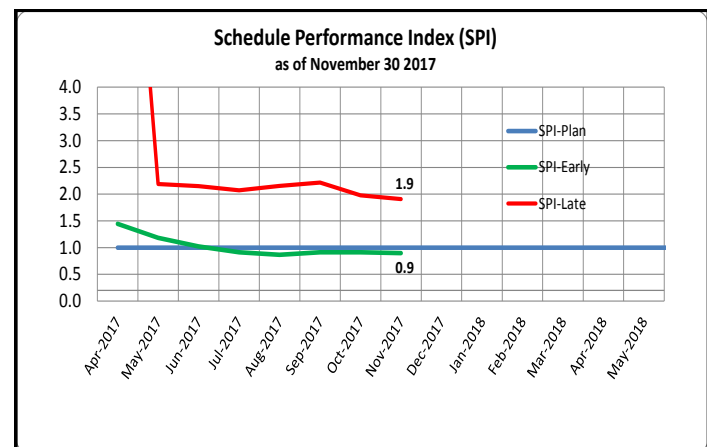
### Schedule Summary

There are two primary critical paths for this project—one runs through the North Portal and BTC station work in Area 3, and the other follows access to the SEM tunnel (E330 contract) in Area 2 and goes through the South Portal and the South Portal Electrical Building. Work in November included placing columns for the aerial guideway, demolition and shoring at the north portal, and continued civil work for the 120th Station.



### Schedule Performance Index

This period, the SPI early is at 0.90 and the SPI late is at 1.91. The numbers indicate that the Contractor is behind the early curve, but well ahead of the late curve when compared to the baseline work plan. The contractor variance is mainly due to drilled shaft foundations, utilities, and self-performed building work. Specifically, installation of drilled shafts continue to lag which consequentially delays installation of the aerial guideway, as it follows after the shaft foundation.



# Link Light Rail East Link Extension - Construction

## Next Period's Activities

- Install precast girder Spans 1 and 2, including crossing of 112th Ave NE
- Continued temporary CMU wall construction at the City Hall Garage.
- Continue formwork and rebar cage prefabrication for drilled shafts and columns in Area 3.
- Complete demolition work at Carriage Hills condominium buildings.
- Continue excavation, lagging, and steel installation for north portal.
- Continue trench excavation in the 120th Station area and begin installation of secant piles.
- Complete asphalt demolition and commence excavation and lagging installation for north portal.

## Closely Monitored Issues

- Work continues on the City of Bellevue Zone 1B Project in Area 5, complicating access to wall construction and grading operations. Coordination by the GC/CM with the City's contractor is actively underway, and although minor in nature, prolonged impacts are contributing to inefficiencies in completing work in the area.
- Station re-procurement status has been discussed with executive management this period. Negotiations with the GC/CM to determine the final cost for the scope, inclusive of Negotiated Support Services are proceeding.
- Other projects have reported that King County Industrial Waste Program permit conditions have become more stringent since issuance of E335's discharge authorizations. While notice has not been received regarding a reduction in discharge volumes or tightened discharge parameters to sanitary sewer for E335, such revisions if implemented have the potential to impact the project's TESC and storm / process water handling systems.

## Cost Summary

Present Financial Status	Amount
<b>E335 Contractor– Stacy &amp; Witbeck/ Atkinson Joint Venture (SWA-JV).</b>	
Original Contract Value*	\$228,398,210
Change Order Value	\$921,412
Current Contract Value	\$229,319,622
Total Actual Cost (Incurred to date)	\$55,846,451
Financial Percent Complete:	24.3%
Physical Percent Complete:	24.3%
Authorized Contingency	\$11,419,911
Contingency Drawdown	\$921,412
Contingency Index	3.0

\* Amounts excludes station scope.



120th Station excavation

## Contract E340 – Bel-Red

### Current Progress

Contractor continues with transition pour, form work for crossbeams has begun. Excavation for the installation of detention vaults has commence. Installation of storm drain structures along the west side of 136th Place NE and MGI parcel. Removal of the abandoned gas pipeline under the existing roadway completed. Commercial connections at various locations has begun and will be continue into next month.

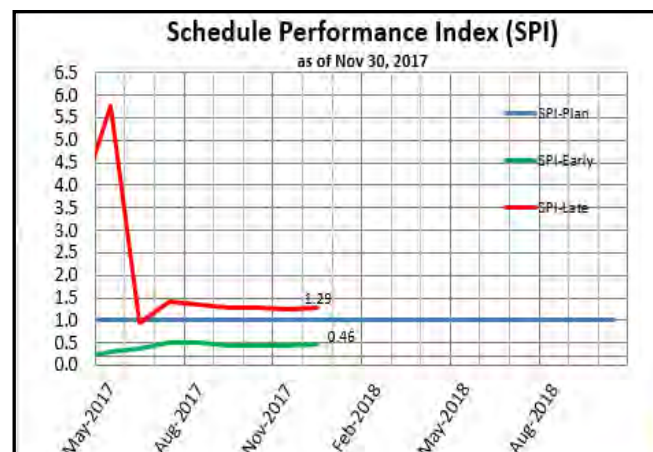
### Schedule Summary

The schedule below is the Contractor's September update. The November schedule submittal was a recovery schedule after October's rejected update; though the Contractor did successfully re-sequence some work to mitigate the time lost, the November's submittal was returned to the Contractor for additional detail on third party utility work. Work in November included continued utility relocation and placing columns for the aerial guideway. The critical path of this project runs through the retaining walls on the west end of the project, followed by trackwork.

Activity Name	Start	Finish	2018					2019					2020
			Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
E340 Construction	24-Feb-17 A	24-May-20											
CONSTRUCTION	24-Feb-17 A	24-May-20											
~MILESTONES/EASEMENTS~	11-Jul-18	24-May-20											
~~Milestones	11-Jul-18	24-May-20											
Calculated Milestones	11-Jul-18	24-May-20											
MS #3 - Actual Acceptance of Systems Interface Data Table (SDIT)	11-Jul-18	12-Jul-18											
MS #1 - Actual Complete Grading & Stabilization of West Tributary Wetland	29-Aug-18	30-Aug-18											
MS #2 - Actual Substantial Completion of West Tributary Wetland	23-Mar-19	24-Mar-19											
MS #4 - Actual Substantial Completion	23-May-20	24-May-20											
~SUBMITTALS/PRELIMINARY ACTIVITIES~	24-Feb-17 A	21-Dec-18											
~MOBILIZATION~	24-Feb-17 A	13-Dec-19											
~SITEWORK~	04-Apr-17 A	23-Apr-20											
~RETAINING WALLS~	21-Nov-17	18-Dec-19											
~AERIAL STRUCTURES~	15-May-17 A	06-Dec-19											
~STATIONS~	05-Oct-17	06-Nov-19											
~ELECTRICAL/ITS~	24-Oct-17	15-Apr-19											
~FINISHES~	07-May-18	26-Dec-18											
~TRACKWORK~	06-Apr-18	23-Apr-20											
~LANDSCAPING/FLATWORK~	18-Jun-18	27-Mar-20											
~TESTING AND COMMISSIONING~	01-Nov-19	10-Dec-19											

### Schedule Performance Index

This period, the SPI early is at 0.46 and the SPI late is at 1.29. The late index indicates that the Contractor continues to be ahead of the Contractor's planned late finish work. The SPI early is indexed behind the Contractor's planned early finish schedule. Both early and late index has remained approximately the same as previous months which is supported by the fact that construction struggles to catch up from the earlier challenges derived from drilled shaft operations and dewatering issues in the summer. The Contractor has also transitioned into the utility relocation phase and continues to face challenges as they now have to coordinate work with multiple private utility companies. Management is monitoring closely.





## Next Period's Activities

- Installation of additional borings and two monitoring wells to verify soil and water conditions for the deep-exaction on the King County 48" Sanitary Sewer line.
- Installation of temporary intercept vaults and conduit connections.

## Closely Monitored Issues

- The complexity of coordination with private utility companies (PSE, CenturyLink and Comcast) is still an ongoing challenge. These are critical to minimize impacts (such as inadvertent strike leads to service interruptions, unidentified utilities leads design revision in turn impacts physical work).
- Disputed Seattle City Light property easements is impacting City of Bellevue's 124th Avenue construction which in turn may impact E340 contractor's early guideway work (soldier pile and retaining walls).
- Potential contamination of soil and ground water during excavation to relocate King County Sewer.
- Commercial utility connections were not identified in contract , working with private utilities to restore connections.

## Cost Summary

Present Financial Status	Amount
<b>E340 Contractor– Max J Kuney</b>	
Original Contract Value	\$93,170,012
Change Order Value	\$998,349
Current Contract Value	\$94,168,360
Total Actual Cost (Incurred to date)	\$18,802,645
Financial Percent Complete:	20.00%
Physical Percent Complete:	20.00%
Authorized Contingency	\$9,317,000
Contingency Drawdown	\$998,348
Contingency Index	1.7



Setting of D11 column form.

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

### Current Progress

**Design:** Advanced design packages for the following areas: Overlake Village Station (OVS) Pedestrian Bridge - prepared re-submittal of 100% design package; Stations - 100% design package for Redmond Technology Center (RTC) and OVS have been submitted; Civil & Vaults - 60% design packages for Civil/SR520 and Landscaping continue to be developed; and Electrical Systems - IFC Package submittal preparation is ongoing.

**Construction:** Continued with starter casing installation for guideway caissons and has proceeded with caisson rebar fabrication. Park Place vault construction continued with slab on grade and wall construction. Early site work construction continued with installation of temporary access roads, storm drain infrastructure at RTC in preparation for follow-on structures work at the adjacent station/garage and mobilization of the caisson and utilities contractors.

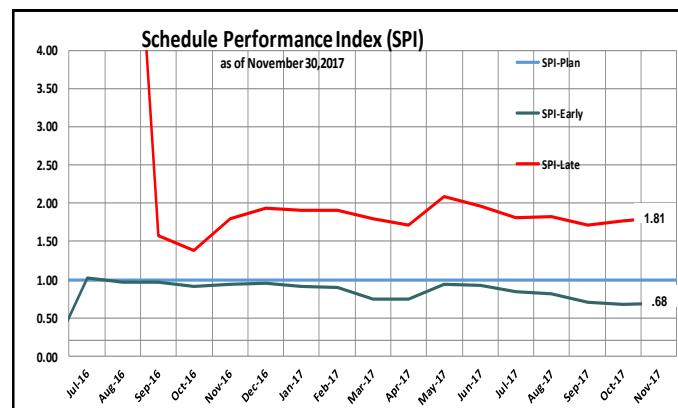
### Schedule Summary

The Contractor has issued several IFC design packages and is approaching 100% on the rest. Construction continued in November with temporary access roads, temporary retaining walls, storm drain infrastructure at Overlake Transit Center, and decks and walls at Overlake Village Station. 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.

Activity Name	Start	Finish	2018	2019
E360 Construction	13-Jul-16 A	13-Dec-19	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
<b>Base Contract</b>	13-Jul-16 A	13-Dec-19		
<b>Design</b>	13-Jul-16 A	19-Oct-18		
Design Milestones	03-Oct-16 A	17-Apr-18		
Design Submittals Start		03-Oct-16 A		
30% Design Submittals Complete		28-Oct-16 A		
60% Design Submittals Complete		04-Jan-18		
100% Design Submittals Complete		22-Feb-18		
IFC Design Submittals Complete		17-Apr-18		
<b>Design Overhead</b>	13-Jul-16 A	18-Jul-17 A		
<b>Design and Engineering</b>	13-Jul-16 A	19-Oct-18		
<b>Construction</b>	14-Jul-16 A	13-Dec-19		
<b>General</b>	10-Apr-17 A	13-Dec-19		
<b>Project Milestones</b>	10-Apr-17 A	13-Dec-19		
Civil/Systems 100% Design Submittal (NTP+300d) (09-May-2017)		10-Apr-17 A		
Substantial Completion		16-Oct-19		
Actual Acceptance of all Work		13-Dec-19		
WA #1 -Track Slab Guideway	22-May-17 A	25-Sep-19		
WA #2 -Aerial Guideway	01-Jun-17 A	02-Oct-19		
WA #3 -Ballasted Guideway Block #1	08-Jun-17 A	12-Jul-19		
WA #4 -Overlake Village Station	14-Jul-16 A	16-Jul-19		
WA #5 -Ballasted Guideway Block #2	15-Aug-17 A	22-Jul-19		
WA #6 -Overlake Transit Center	01-May-17 A	15-Oct-19		
WA #7 -OVS Pedestrian Bridge	23-Mar-18	01-Oct-19		

### Schedule Performance Index

This period, the SPI early is 0.68 and SPI late is 1.81. The early SPI value continues to reflect slippage of early finishes of baseline planned work along with the ST directed stoppage of RTC Ped Bridge design which has not been deleted. Construction start has been somewhat slowed by design slippage. The DB team continues progress the design with RTC Station/Garage IFC package submittal planned for December 2017.



# Link Light Rail East Link Extension - Design– Build

## Next Period's Activities

- *Design* - Finalize Civil Systems IFC package for ST review; Civil SR520 60% design package submittal; OVS facilities 100% submittal and preparing OVS Ped Bridge 100% re-submittal.
- Continue OVS vault construction with drainage mat installation and backfill. Vault topping slab ongoing with hatch wall construction. Storm drainage and water line installation proceeding.
- Continue casing installation in Work Area 2 (Aerial Guideway). Caisson rebar fabrication proceeding and column/cap form delivery. Malcom mobilizing to begin caisson work.
- Park Place Vault walls ongoing and setting pre-casts panels at the end of the month.

## Closely Monitored Issues

- *Alternative RTC Ped Bridge* - Contractor and Microsoft are working on 60% designs for an alternative RTC Ped Bridge.
- Contractor, Sound Transit and City of Redmond continue to work out permitting issues.
- ST and the Contractor must resolve and negotiate changes related to Sales Tax Increase, Track/Fasteners/Clips, and OVS Infiltration Vault base modification.
- Implementation of Safety Certification for mitigating hazards. Development of Safety and Security Certification Plan (SSCP).

## Cost Summary

Present Financial Status	Amount
<b>E360 Contractor— Kiewit-Hoffman</b>	
Original Contract Value	\$225,336,088
Change Order Value	\$295,579
Current Contract Value	\$225,631,667
Total Actual Cost (Amount Billed)	\$55,005,603
Financial Percent Complete:	24.4%
Physical Percent Complete:	24.4%
Authorized Contingency	\$23,071,580
Contingency Drawdown	\$580,638
Contingency Index*	9.1



OVS Infiltration Vault CIP Wall Placement

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# Link Light Rail Downtown Redmond Link Extension

## Scope

The Downtown Redmond Link Extension builds new light rail from the Redmond Technology Center Station to downtown Redmond by 2024. Light rail will travel along SR-520 with two new stations in southeast Redmond, at Marymoor Park, and downtown Redmond. The current budget for this project through completion of PE is \$28.6M, excluding real estate acquisitions.

## Key Project Activities/Issues

- Continued preparation of procurement documents for the project Design/Build Project Management Services Contract. Advertisement of RFQ is anticipated in January 2018.
- Working with the design and construction industries on the Design/Build procurement outreach and information efforts.
- Continued working on the refinement of the project alignment in the SE and Downtown Redmond Segments.
- Continued negotiation with PE consultant to augment the scope of work to support Design/Build procurement and project delivery method.
- Prepared amendment to the 2018 budget proposal to include additional real estate related budget in anticipation of commencing properties acquisition process in 2018.



Map of Downtown Redmond Link Extension.

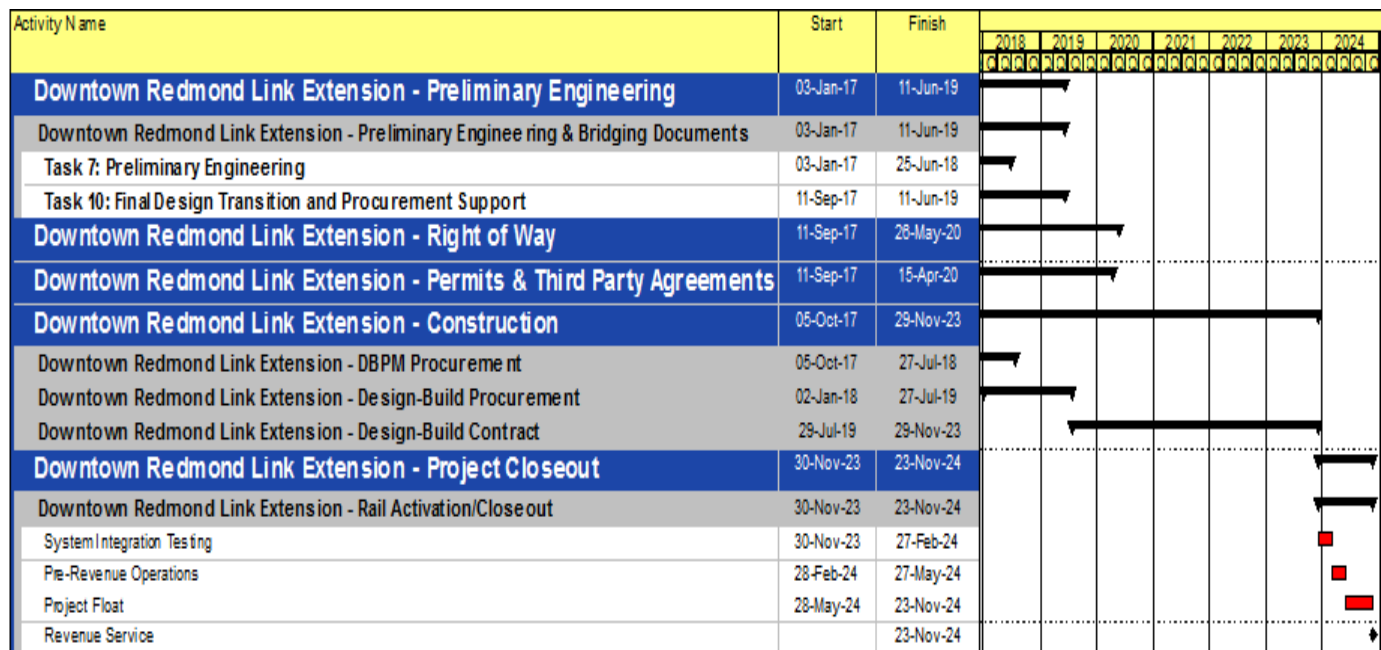
## Project Cost Summary

Voters approved funding for preliminary engineering for the Redmond Link extension in the 2008 in the Sound Transit 2 ballot measure. In response to the 2007-2009 recession, the ST Board suspended the project. In February 2016, the ST Board restored funding to support preliminary engineering of the project prior to funding approval for Final Design and Construction as part of the Sound Transit 3 Plan. Table (below) figures in millions.

Project Phase	Current Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Current Budget versus EFC
Administration	\$5.3	\$1.2	\$1.2	\$5.3	\$0.0
Preliminary Engineering	\$19.8	\$13.7	\$7.5	\$19.8	\$0.0
Final Design	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Construction Services	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
3rd Party Agreements	\$2.5	\$0.3	\$0.1	\$2.5	\$0.0
Construction	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Light Rail Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$1.1	\$0.2	\$0.1	\$1.1	\$0.0
<b>Total</b>	<b>\$28.6</b>	<b>\$15.5</b>	<b>\$9.0</b>	<b>\$28.6</b>	<b>\$0.0</b>

## Project Schedule

The project schedule is presented below. The project is currently undergoing environmental analysis ahead of the ST Board adopting the project to be built. Preparations are underway to begin early property acquisition next year. The PE consultant has begun preparation of bridging documents for the Design-Build procurement. The RFP is anticipated to be issued in 3rd QTR 2018. The project is anticipated to be baselined by 4th QTR 2018. Project is currently forecast for completion near the end of 2024.



## Sound Transit Board Actions

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

Motion Number	Description	Date
	None this period.	

## Community Outreach

- Hosted a neighborhood sidewalk meeting in mid-November along 145th Street in Redmond to answer questions about the project related to design and construction adjacent to residences.
- Hosted a project open house on November 16th at the old Redmond School House Community Center and approx. 140 people attended.
- Continued planning outreach activities to gather public input on project requirements.

## Environmental

- None to report.



# Link Light Rail West Seattle & Ballard Link Extensions

## Scope

The West Seattle segment includes 4.7 miles of light rail from downtown Seattle to West Seattle's Junction neighborhood and also includes five light rail stations. The route will run primarily on elevated guideway with a new rail-only bridge over Duwamish River. Revenue Service begins by 2030.

The Ballard segment includes 7.1 miles of light rail from downtown Seattle to Ballard's Market Street area and also includes nine light rail stations. The route will run through a new downtown Seattle rail-only tunnel, elevated guideway, and a rail-only bridge over Salmon Bay. Revenue Service begins by 2035.

## Key Project Activities

- Continued mobilization of consultant and agency project staff to the co-located, cross-functional project office, as called for in the System Expansion Implementation Plan (SEIP).
- Held a project kick-off and chartering session between consultant and agency project staff.
- The Partnering Agreement between Sound Transit and City of Seattle, are expected to be approved by the City Council and Sound Transit Board in December 2017.
- Continued to meet with the neighborhood groups and key stakeholders of the projects regularly.



Map of West Seattle & Ballard Link Extensions

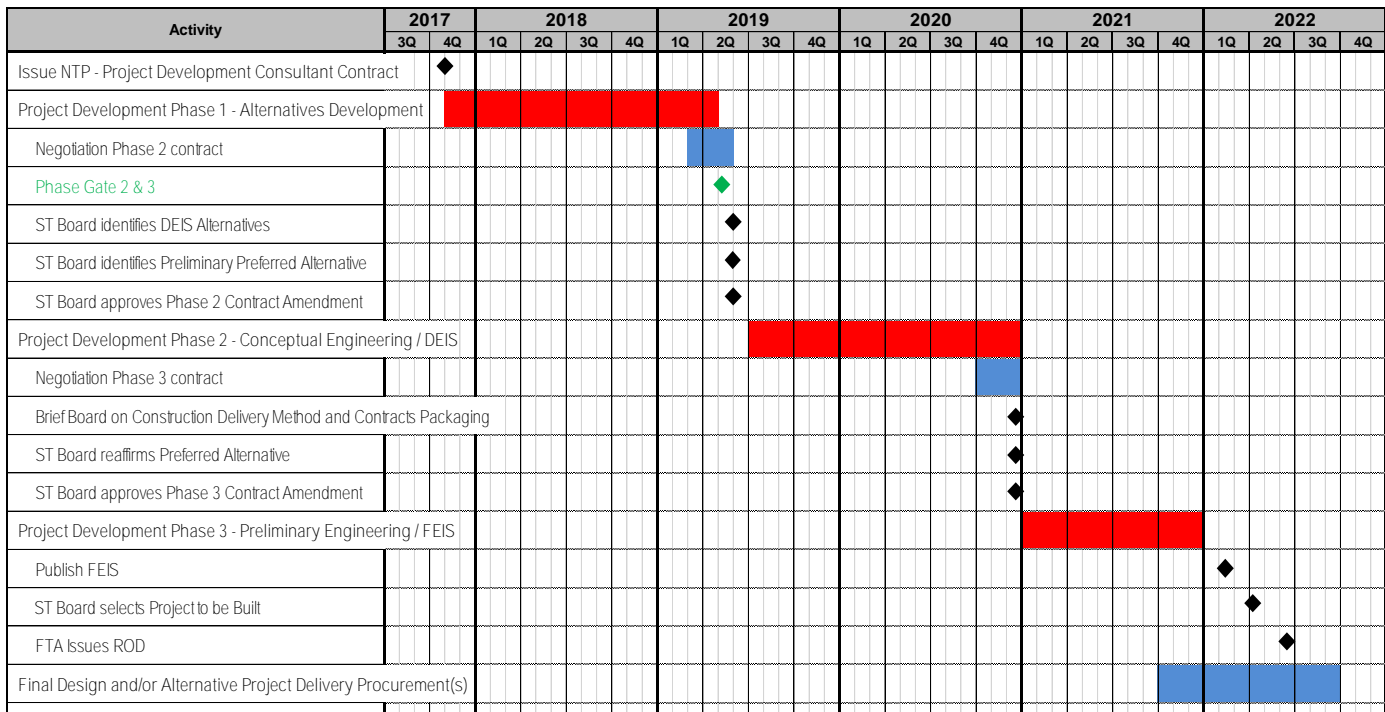
## Project Cost Summary

The West Seattle and Ballard Link Extensions are voter-approved projects under the ST3 Plan. The ST Board approved budget allows staff to retain a consultant team to begin alternatives development, followed by an Environmental Impact Statement, leading to ST Board selection of the project to be built and FTA issuance of a Record of Decision no later than 2022. Table (below) figures in millions.

Project Phase	Current Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Current Budget versus EFC
Administration	\$63.1	\$0.8	\$0.8	\$63.1	\$0.0
Preliminary Engineering	\$205.4	\$24.4	\$0.3	\$205.4	\$0.0
Final Design	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Construction Services	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
3rd Party Agreements	\$11.4	\$0.0	\$0.0	\$11.4	\$0.0
Construction	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Light Rail Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$6.0	\$0.1	\$0.0	\$6.0	\$0.0
<b>Total</b>	<b>\$285.9</b>	<b>\$25.3</b>	<b>\$1.0</b>	<b>\$285.9</b>	<b>\$0.0</b>

## Project Schedule

The preliminary project schedule is presented below.



## Sound Transit Board Actions

Board motions and resolutions directly related to West Seattle & Ballard Link Extensions are summarized in the table below.

Motion Number	Description	Date
	None this period.	

## Community Outreach

The community engagement effort will include the formation of three key stakeholder groups, including an elected leadership group, a stakeholder group and an interagency group. In addition, ST's standard community engagement efforts, including open houses, community meetings, and events, will be conducted as well as one on one coordination with the City of Seattle and other agencies or groups with a key interest in project development. The comments gathered at public sessions will support the decision-making process for the project.

## Environmental

- None to report this period.

# Link Light Rail

## S. 200th Link Extension

### Scope

<b>Limits:</b>	South 200th Link Extension consists of 1.6-mile extension of light rail from the SeaTac/Airport Station to South 200th Street.
<b>Alignment:</b>	The extension continues in an aerial configuration 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.
<b>Station:</b>	Angle Lake Station is located at South 200th Street.
<b>Systems:</b>	Signals, track electrification, and SCADA communications
<b>Budget:</b>	\$383.2 Million
<b>Schedule:</b>	Revenue Service began on September 24, 2016



Map of S. 200th Link Extension.

### Key Project Activities

- *Design Build Guideway and Station (S440):* The project team working with Contractor and Operations to finalize remaining closeout work to achieve Acceptance on the contract.
- *Design Build Parking Garage (S445):* The project team working toward achieving Acceptance on the contract.
- *Roadway Improvements (S447):* Closeout complete.
- *Military Road/South 200th Intersection (S446):* WSDOT finalizing closeout activities.
- *Project Wide:* Goal to conclude all closeout and follow-on work by end of 4<sup>th</sup> QTR 2017.

### Closely Monitored Issues

- **S440:** Completion of Training, safety certification and as-builts needs to be accomplished.

### 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	Commitment to Date	Incurred to Date	Est. Final Cost (EFC)	Adopted Budget vs. EFC
Administration	\$16.1	\$17.1	\$16.1	\$16.1	\$16.5	\$0.6
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	\$17.1	\$17.1	\$0.2
3rd Party Agreements	\$6.9	\$7.1	\$5.7	\$3.8	\$3.3	\$3.8
Construction	\$275.7	\$282.9	\$239.4	\$238.2	\$243.1	\$39.8
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
<b>Capital Total</b>	<b>\$383.2</b>	<b>\$383.2</b>	<b>\$330.9</b>	<b>\$327.6</b>	<b>\$332.6</b>	<b>\$50.6</b>
Finance Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
<b>Project Total</b>	<b>\$383.2</b>	<b>\$383.2</b>	<b>\$330.9</b>	<b>\$327.6</b>	<b>\$332.6</b>	<b>\$50.6</b>

The overall project Estimated Final Cost (EFC) for this period reflects \$332.6M, a savings projection of \$50.6M. This period incurred cost increased by approximately \$0.7M, of this \$0.4M was in the construction phase for S446 contract followed by \$0.3 in the administration phase.

The EFC grouped by SCC is also reflecting \$332.6M, a savings projection of \$50.6M. The work remaining can be achieved under the adopted budget.

#### Cost Summary by SCC

Project Elements by SCC	Baseline Budget	Current Adopted Budget	Commitment to Date	Incurred to Date	Est. Final Cost (EFC)	Adopted Budget vs. EFC
10 Guideway & Track Elements	\$144.8	\$133.0	\$100.2	\$100.2	\$109.5	\$23.5
20 Stations	\$46.4	\$51.7	\$42.0	\$42.0	\$42.3	\$9.5
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	\$55.6	\$54.4	\$55.0	\$0.3
50 Systems	\$30.8	\$19.9	\$20.4	\$20.3	\$20.4	-\$0.4
<b>Construction Subtotal (SCC 10-50)</b>	<b>\$256.6</b>	<b>\$259.9</b>	<b>\$218.2</b>	<b>\$217.0</b>	<b>\$227.1</b>	<b>\$32.8</b>
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	\$74.6	\$72.6	\$65.6	\$6.8
90 Unallocated Contingency	\$19.0	\$7.3	\$0.0	\$0.0	\$1.8	\$5.5
<b>Project Total (SCC 10-90)</b>	<b>\$383.2</b>	<b>\$383.2</b>	<b>\$330.9</b>	<b>\$327.6</b>	<b>\$332.6</b>	<b>\$50.6</b>
100 Finance Cost	\$0.0	\$0.0				
<b>Project Total (SCC 10-90)</b>	<b>\$383.2</b>	<b>\$383.2</b>	<b>\$330.9</b>	<b>\$327.6</b>	<b>\$332.6</b>	<b>\$50.6</b>

## Cost Contingency Management

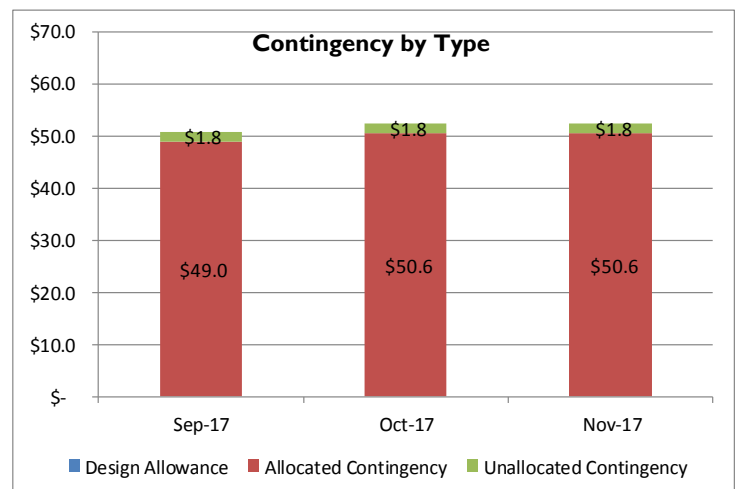
The overall project contingency balance as of this period is \$52.4. Table (below) figures in millions.

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

**Allocated Contingency (AC):** This period the AC balance is \$50.6M, reflecting no change.

**Unallocated Contingency (UAC):** This period the UAC balance is \$1.8M, reflecting no change.

Contingency Status	Baseline		Current	
	Amount	% of Total	Amount	% of Work Remaining
Design Allowance	\$26.7	7.0%	\$ -	0.0%
Allocated Contingency	\$29.8	8.0%	\$50.6	1000.9%
Unallocated Contingency	\$19.0	5.0%	\$ 1.8	35.6%
<b>Total</b>	<b>\$75.5</b>	<b>20.0%</b>	<b>\$52.4</b>	<b>1036.5%</b>



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

#### Close-out

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

#### Close-out Activities

##### Current Period

- Continue coordination for replacement of E-clips on guideway.
- Completed work arounds and one safety certification remains open.
- Continued closeout activities: finalizing last few change orders, Station As-Built, and Safety Certification.

##### Next Period

- Start replacement work for E-clips.
- Continue closeout activities.
- Issue Final Acceptance to Contractor.

#### Closely Monitored Issues

- The Contractor has submitted a Notice of Intent to Claim in regards to a Station Control Unit.

### Cost Summary

Present Financial Status	Amount
<b>S440 Contractor—PCL Civil Contractors, Inc.</b>	
Original Contract Value	\$169,000,000
Change Order Value	\$6,758,490
Current Contract Value	\$175,758,490
Total Actual Cost (Amount Billed)	\$175,753,406
Financial Percent Complete:	99.2%
Physical Percent Complete:	100%
Authorized Contingency	\$13,520,000
Contingency Drawdown	\$6,758,490
Contingency Index*	2.0

### S445 Contract—Design -Build Parking Garage

#### Close-out

Substantial Completion issued on December 21, 2016.

#### Close-out Activities

##### Current Period

- No further work is required by Contractor.

##### Next Period

- Issue Final Acceptance to Contractor.

#### Closely Monitored Issues

- None to report.

### Cost Summary

Present Financial Status	Amount
<b>S445 Contractor—Harbor Pacific/Graham</b>	
Original Contract Value	\$29,978,000
Change Order Value	\$2,607,828
Current Contract Value	\$32,585,828
Total Actual Cost (Amount Billed)	\$32,582,606
Financial Percent Complete:	100%
Physical Percent Complete:	100%
Authorized Contingency	\$2,798,240
Contingency Drawdown	\$2,607,828
Contingency Index*	1.0



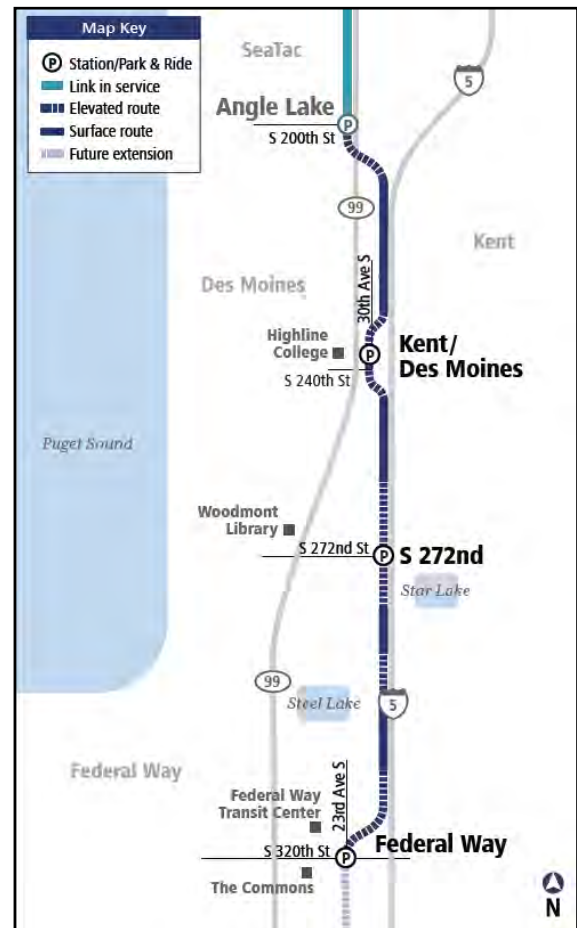
# Link Light Rail Federal Way Extension

## 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 –and-Ride and the Federal Way Transit Center. The current budget for this project is \$412.6M.

## Key Project Activities/Issues

- Continued to work with FTA & PMOC in preparations for Entry to Engineering and Full Grant Funding Agreement applications.
- Planning a VE study workshop, with City partners, incorporating lessons learned from Lynnwood and East Link Extensions.
- ROW properties (full and partial) continues to be certified and approved by Board in stages.
- Continued to work with each of the cities staff to coordinate code changes required to build the project and include changes in future development agreements.
- Coordination continues with WSDOT regarding project needs, WSDOT's SR509 project, air space leases and temporary construction easements.
- ST/King County/Federal Way Public Schools staff working together to evaluate land exchange feasibility on Mark Twain Elementary school and Redondo Park & Ride.



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 May 2018. 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	8.7	8.5	6.2	14.9	\$0.0
Preliminary Engineering	\$40.4	39.1	39.9	1.2	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	3.3	1.8	15.4	18.6	\$0.0
Construction	\$25.5	0.0	0.0	25.5	25.5	\$0.0
Right of Way	\$265.1	6.4	4.2	258.7	265.1	\$0.0
<b>Total</b>	<b>\$412.6</b>	<b>\$57.5</b>	<b>\$54.5</b>	<b>\$355.1</b>	<b>\$412.6</b>	<b>\$0.0</b>

## Project Schedule

The project schedule is presented below. ROD was received in March 2017. ST will issue an RFQ for potential Design-Build contractors in 1st QTR 2018. Real Estate acquisitions are now underway and additional detail has been added to the master schedule to monitor any impacts to the project. Project Baseline has been delayed to 3rd QTR 2018 to allow time for completion of independent cost estimate and risk assessment.

Activity Name	Remaining Duration	Start	Finish	2018	2019	2020	2021	2022	2023	2024	2025
<b>Sound Transit</b>	2618d	01-Jul-16	31-Dec-24								
<b>Sound Transit 2</b>	2618d	01-Jul-16	31-Dec-24								
<b>South Corridor</b>	2618d	01-Jul-16	31-Dec-24								
<b>Federal Way - Master Schedule</b>	2618d	01-Jul-16	31-Dec-24								
<b>Federal Way Link Extension - Master Schedule</b>	2618d	01-Jul-16	31-Dec-24								
Preliminary Engineering	296d	01-Jul-16	23-Aug-18								
ROW/Property Acquisition	815d	30-Sep-16	24-Jan-20								
TCAL/ASL	273d	18-Mar-17	31-Jul-18								
Property Acquisition	815d	30-Sep-16	24-Jan-20								
Third Party Agreements and Permitting	735d	01-Jul-16	05-Nov-19								
Federal Way Link - Design-Build Construction Management Consultant - Con	2618d	14-Nov-16	31-Dec-24								
Federal Way Link - Construction Management Consultant - Bid/Solicitation	87d	14-Nov-16	26-Jan-18								
Construction Management Consultant - Contract Duration	2531d	27-Jan-18	31-Dec-24								
Federal Way Design/Build Contract	2288d	11-Mar-17	05-Feb-24								
Federal Way Link Extension - Design/Build Contract - Procurement	555d	11-Mar-17	10-May-19								
Design	472d	10-May-19	23-Aug-20								
Construction	1511d	18-Dec-19	05-Feb-24								
Rail Activation	2536d	22-Jan-18	31-Dec-24								
Systems Integration & Testing	90d	06-Feb-24	05-May-24								
Safety and Security Certification	2536d	22-Jan-18	31-Dec-24								
Pre-Revenue Service	60d	06-May-24	04-Jul-24								
Pre-Revenue Service	60d	06-May-24	04-Jul-24								
Revenue Service/Project Float	180d	05-Jul-24	31-Dec-24								
ST-controlled Float	180d	05-Jul-24	31-Dec-24								
Revenue Service (12/31/2024)	0d		31-Dec-24*								

## Right-of-Way

The Right-of-Way project for Federal Way Link Extension involves the acquisition, including owner and tenant relocations as appropriate, of a range of property interests. Property interests includes compensable (e.g. fee acquisitions, permanent and temporary construction easements and non-compensable rights - e.g. rights of entry). As of this period, 283 parcels are certified for the project and approximately, 246 owners, tenants and businesses will need to be relocated.

Federal Way Link Extension Property Acquisition Status								
	Board Approved	Offers Made/In Negotiations	Signed Agreements	Possession and Use	Admin Settlement	Closings to date	Relocations Required	Parcels Vacated
<b>Total</b>	283	25	5	0	0	4	246	0

\*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 Federal Way Link Extension is summarized in the table below.

Motion Number	Description	Date
R2017-39	Acquire certain real property interests, including acquisition by condemnation to the extent authorized by law, and to reimburse eligible relocation and reestablishment expenses incurred by affected owners and tenants as necessary for the project.	Nov 16

## Community Outreach

- Met with Federal Way Chamber of Commerce to discuss relocation with impacted businesses.
- Met with King County Housing Authority to discuss strategies for relocating residents along the corridor.
- Continued meeting with property owners regarding the ST Board decision on the project's route, profile and station areas as well as impacts to their property.

## Phase 3 Preliminary Engineering (PE)

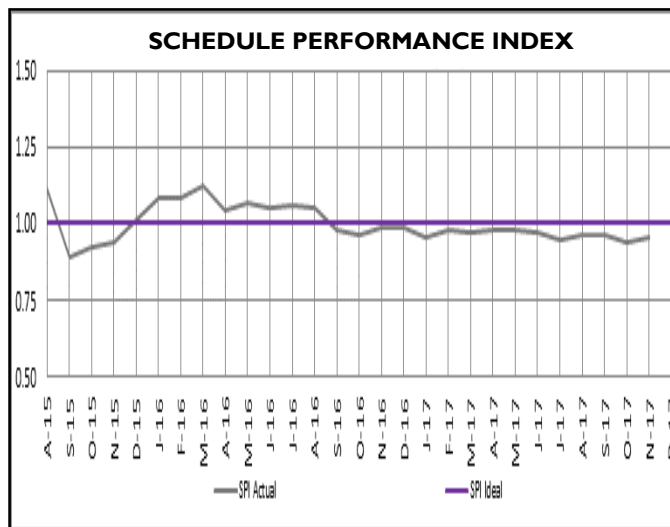
In July 2015, Sound Transit executed an amendment to the professional services agreement with HDR Engineering, Inc. for Phase 3 professional services, including completion of a Final Environmental Impact Statement (FEIS) using the preferred alternative and the other alternatives in the Draft EIS, preliminary 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 discussion with FTA regarding New Starts requirements for Entry to Engineering.
- Agreements setup with affected cities for design review and RFP preparation.
- Ratings submittal package submitted in September.
- Continued property acquisition.

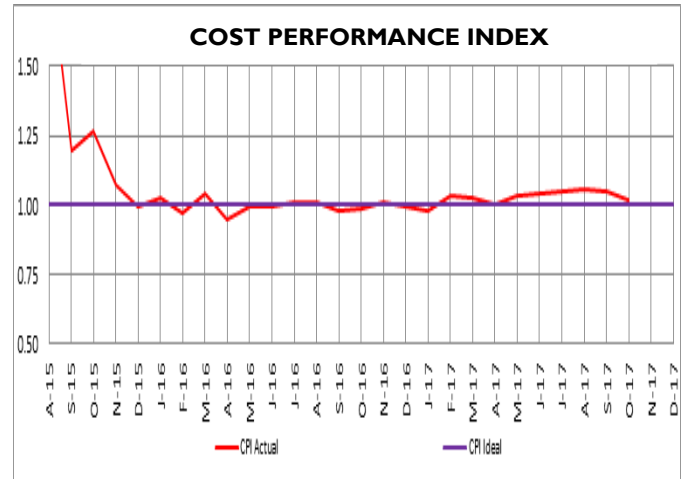
### Phase 3 Schedule Performance

The cumulative Schedule Performance Index (SPI) is 0.95 through November 2017, indicating the overall amount of work accomplished is near planned. A new plan has been developed to incorporate new scope to extend the consultant contract for assistance in RFP process of DB contract and in ROW acquisition support.



## Phase 3 Cost Performance

Phase 3 expenditures through November 2017 totaled \$28.2M, approximately 94% of the total contract. The Phase 3 percent complete is reported at 95%, with an earned value of \$28.3M. The cumulative Cost Performance Index (CPI) is 1.00 indicating costs are on track with work accomplished.



Phase 3 Performance	Cumulative To Date
Amount Invoiced	\$28.2M
% Spent	94%
Earned Value	\$28.3M
% Complete	95%
<b>SPI</b>	<b>0.95</b>
<b>CPI</b>	<b>1.00</b>

# Link Light Rail Tacoma Link Extension

## Scope

**Limits:** City of Tacoma

**Alignment:** The Tacoma Link Extension project 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 in street with traffic along Stadium Way, North 1<sup>st</sup>. Street, Division Avenue, and Martin Luther King Jr. Way.

**Stations:** Old City Hall, S. 4<sup>th</sup>, Stadium District, Tacoma General, , 6<sup>TH</sup> Avenue, Hilltop District, and St. Joseph.

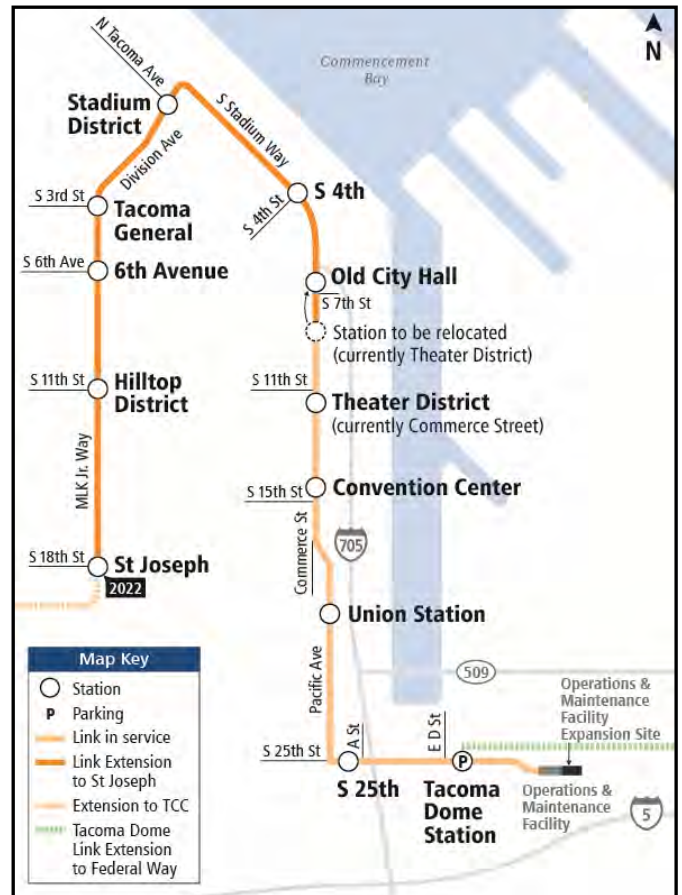
**Systems:** Expansion of the Operations and Maintenance Facility; The at-grade alignment will include additional signals, OCS, traction power, and communications infrastructure.

**Budget:** \$217.3 Million Phase Gate 5

**Phase:** Final Design and Construction

**Const. Starts:** 2018

**Service:** May 2022



Map of Tacoma Link Extension.

## Key Project Activities

### Final Design

- Design consultant continued comment resolution of ST and Third Party reviewers of the 90% design package.
- ST design staff and consultant continued work on contract Special Conditions.
- Continued work with City of Tacoma identification of betterment scope.

### Pre-Construction Services

- CMC Resident Engineer and ST staff continue to support maintenance of traffic plans with design consultant and City of Tacoma.
- ST staff continued work on development of Division 01 specifications.

### Third Parties

- Amended the Funding Agreement with the City of Tacoma to reflect the city's contribution of \$47.7M to project based on the baseline cost estimate of \$217.3M.

### Right of Way

- Right of way property acquisition activities continued as they relate to required temporary construction easements (TCE) along the alignment.

### Vehicles

- Received ST Board approval to award the light rail vehicle contract to Brookville Equipment Corporation. NTP will be issued in early December 2018.

## Project Cost Summary

In September 2017, Sound Transit Board adopted the Tacoma Link Extension baseline schedule and budget by increasing the authorized project allocation from \$34.6M to \$217.3M. 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	\$16.9	\$5.4	\$5.3	\$16.9	\$0.0
Preliminary Engineering	\$5.6	\$5.6	\$5.6	\$5.6	\$0.0
Final Design	\$10.8	\$7.8	\$8.2	\$10.8	\$0.0
Construction Services	\$9.9	\$0.5	\$0.2	\$9.9	\$0.0
3rd Party Agreements	\$1.4	\$1.1	\$0.5	\$1.4	\$0.0
Construction	\$127.1	\$0.0	\$0.0	\$127.1	\$0.0
Vehicles	\$35.4	\$2.0	\$0.3	\$35.4	\$0.0
ROW	\$3.5	\$2.0	\$1.6	\$3.5	\$0.0
Contingency	\$6.5	\$0.0	\$0.0	\$6.5	\$0.0
<b>Total</b>	<b>\$217.3</b>	<b>\$24.4</b>	<b>\$21.8</b>	<b>\$217.3</b>	<b>\$0.0</b>

### 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	\$21.9	\$0.0	\$0.0	\$21.9	\$0.0
20 Stations	\$1.8	\$0.0	\$0.0	\$1.8	\$0.0
30 Support Facilities	\$26.6	\$0.0	\$0.0	\$26.6	\$0.0
40 Sitework & Special Conditions	\$40.0	\$0.0	\$0.0	\$40.0	\$0.0
50 Systems	\$25.0	\$0.0	\$0.0	\$25.0	\$0.0
<b>Construction Subtotal (10 - 50)</b>	<b>\$115.4</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$115.4</b>	<b>\$0.0</b>
60 Row, Land	\$3.5	\$2.0	\$1.6	\$3.5	\$0.0
70 Vehicles (non-revenue)	\$35.7	\$2.0	\$0.3	\$35.7	\$0.0
80 Professional Services	\$56.1	\$20.4	\$19.8	\$56.1	\$0.0
90 Unallocated Contingency	\$6.5	\$0.0	\$0.0	\$6.5	\$0.0
<b>Total (10 - 90)</b>	<b>\$217.3</b>	<b>\$24.4</b>	<b>\$21.8</b>	<b>\$217.3</b>	<b>\$0.0</b>

## Risk Management

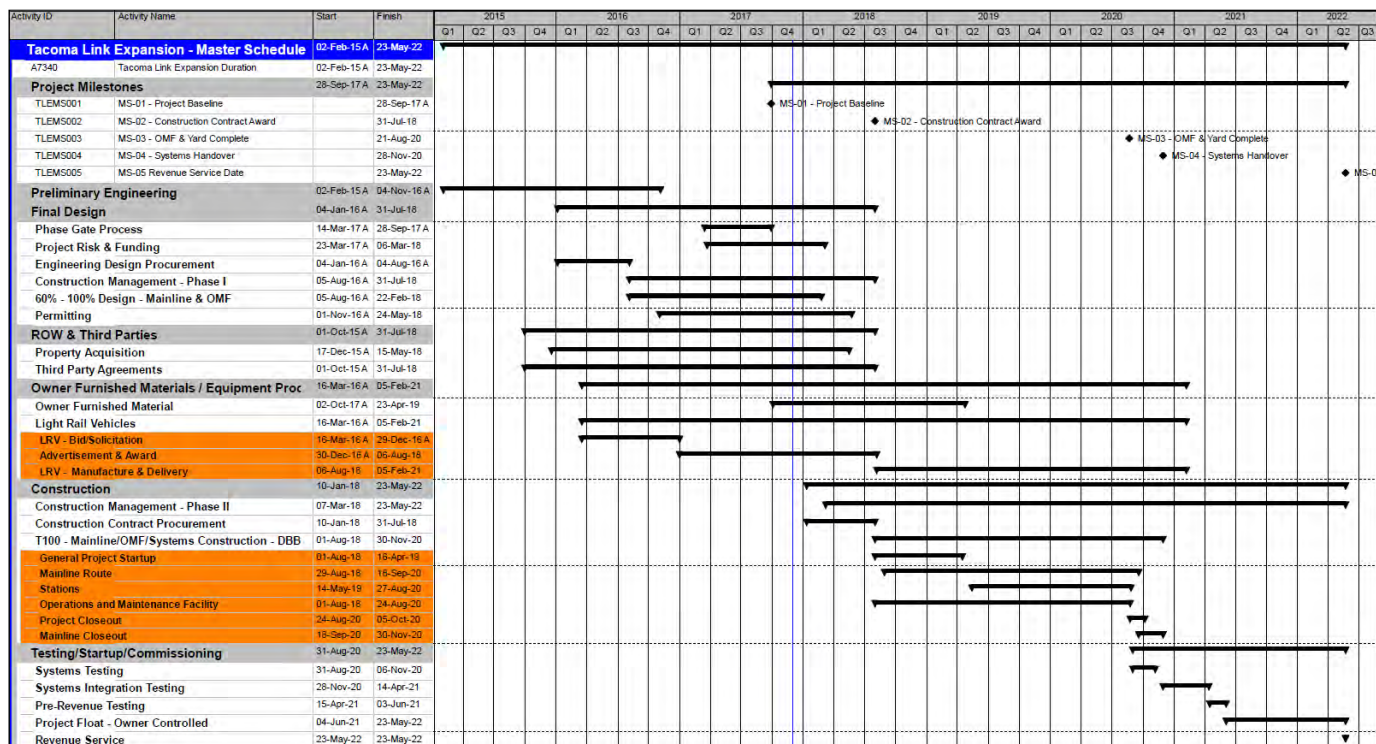
The Tacoma Link Risk and Contingency Management Plan (RCMP) was completed in 2nd QTR 2017. This establishes a risk management and oversight process for identifying, assessing, and monitoring risks and develops risk reduction/mitigation plans. It will provide a tool for the project team to proactively 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 Baseline Risk Assessment was conducted in May 2017. The 3rd QTR 2017 Risk Review Meeting was held in August 31, 2017. The 4th QTR 2017 Risk Review Meeting is scheduled for December 2017.



## Project Schedule

The Master Schedule has been updated through the end of November. Review of the 90% Final Design package is complete and the 100% Design Package has been rescheduled for 28-Dec-17. Building and Conditional Use Permits for the project are under review by the City. Offers on TCE Batch No. 1 were sent out in November to both City of Tacoma and Private owners. ST expects to issue Notice to Proceed for the LRVs in early December. LRV manufacturing is still scheduled to start in early January of 2018. The 90% construction schedule has been integrated in the Project Master schedule. Float is now 11 months. The Revenue Service date remains May 23, 2022.



## Right of Way

The Tacoma Link Extension involves the acquisition of a range of property interests including fee acquisitions for the OMF, TPSS locations, as well as permanent or temporary easements for construction. The OMF acquisition has been executed. ROW Acquisitions are being prioritized to support the construction schedule. The right-of-way program status for this period is summarized in the following table.

Tacoma Link Extension Property Acquisition Status							
Line Section	Board Approved	Offers Made	Signed Agreements	Possession and Use	Closings to date	Relocations Required	Relocations Completed
OMF Site	1	1	1	0	1	1	1
TCE—Needed	19	4	0	0	0	0	0
TCE—Optional	33	4	0	0	0	0	0
<b>Total</b>	<b>53</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>

## Community Outreach

- Provided early open house briefings to the Tacoma Link Extension Roundtable Group and the Tacoma City Council Study Session
- Provided project updates to community groups to include Hilltop and Stadium business districts, Multi-Care and Franciscan hospitals, and the Hilltop Engagement Committee
- Staffed City of Tacoma project office weekly .

## Sound Transit Board Actions

Motion Number	Description	Date
M2017-136	Amend the contract with HDR Engineering, Inc. for the Tacoma Link Extension by (1) increasing the contract contingency for Final Design services in the amount of \$306,414, and (2) amending the contract for Design Services During Construction in the amount of \$2,045,317, for a combined total amount of \$2,351,731, for a new total authorized contract amount not to exceed \$10,325,177.	Nov 16
M2017-137	Execute a contract with Brookville Equipment Corporation to provide five light rail vehicles for the Tacoma Link Extension in the amount of \$26,544,074 with an allocated contract contingency of \$1,000,000, for a total authorized contract amount not to exceed \$27,544,074, plus applicable tax.	Nov 16

# Link Light Rail Tacoma Link Extension - Final Design



## Final Design

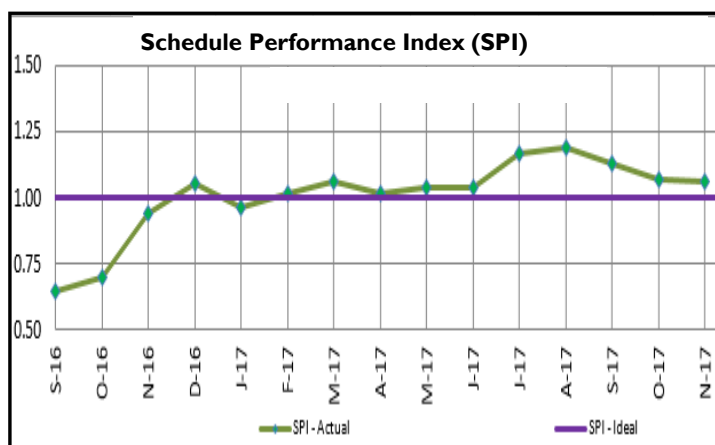
In July 2016 Sound Transit executed a contract with HDR Engineering, Inc. to provide civil and systems final design services for Tacoma Link.

### Final Design Key Activities

- Civil/Track/Station Design. Civil and track design activities continued to focus on the design of 90% and resolution and incorporation of review comments.
- Continued coordination meetings with the City of Tacoma.
- Finalized work order development with the City of Tacoma for construction services as identified in the Construction Services Agreement.
- Finalized effort on BAFO proposals from LRV manufacturers and selected a manufacturer.

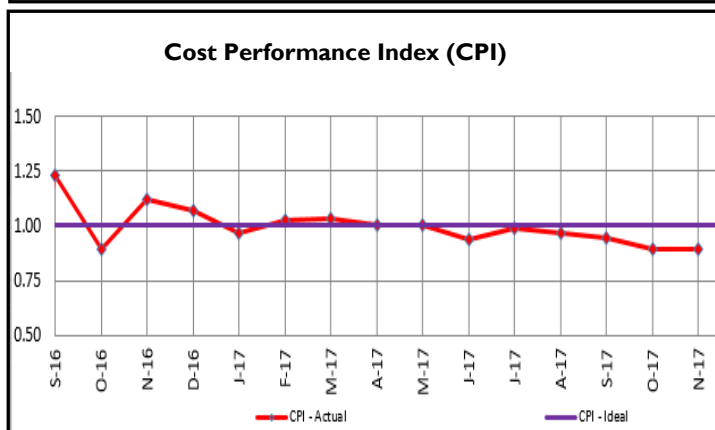
### Final Design Schedule Performance

The cumulative Schedule Performance Index (SPI) for the Final Design contract is 1.06 through November, indicating that the contract work performed is ahead of the original plan. The consultant is scheduled to complete the design submittals earlier than originally anticipated.



### Final Design Cost Performance

Based on Actuals, the contract expenditures through November totaled \$8.1M (Accrual Based), approximately 97% of the Final Design contract total. The Final Design contract percent complete reported at the end of November is 95%, with an earned value of \$7.2M. The cumulative Cost Performance Index (CPI) through November is 0.90; indicating expenditures greater than the budgeted cost for work performed. Additional scope in the Civil/Track/Station Design tasks are the greatest driver of the negative CPI along with the consultant accelerated schedule to complete the design submittals earlier than anticipated. There is one change request that was executed and another one in process. The combination of these two requests is anticipated to be sufficient for HDR to compete the Final Design contract.



Phase 3 Performance	Cumulative To-Date
Amount Invoiced	\$8.1M
% Spent	97%
Earned Value	\$7.2M
% Complete	95%
<b>SPI</b>	<b>1.06</b>
<b>CPI</b>	<b>0.90</b>

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# Link Light Rail

## Link Operations and Maintenance Facility: East

### Project Summary

**Scope:** The Link Operations and Maintenance Facility: East (OMF East) 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



Map of OMF East site.

### Key Activities

- Received the move out plans from both remaining tenants which satisfy the project schedule requirements. Real Estate is now tracking as a low risk item.
- Held partnering workshop with City of Bellevue's permitting staff. Outlined approaches to achieve permit matrix commitments and processes to address concerns and issues.
- Received the Design Builders cost proposal for the King county sewer betterment. Shared the document with King county, awaiting King County comments.
- Submitted the JARPA permit to the Corp of Engineers.
- Received CCB approval to proceed with the In-Lieu Fee Agreement for Wetland mitigation with King County.
- Three or four 30% design package have been provided by the Design Build contractor. These packages are under review by Sound Transit.

### Closely Monitored Issues

- Permit schedule for the Master Development Plan (MDP) by City Of Bellevue is still pending approval and is a schedule risk.
- King County Sewer betterment is now a closely monitored item since scope increments and cost escalations require capital committee board review .
- King County betterment scope and schedule variance now being defined, requires additional property right which will be obtained by the County.
- Elements of DB Contractor's proposal (shear wall elimination for future development) may require MOU amendment with City of Bellevue.

### Project Cost Summary

The Adopted Capital Budget for the OMF East is \$449.2M. The OMF East 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	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
Administration	\$17.6	\$17.6	\$3.4	\$3.4	\$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	\$1.0	\$19.3	\$(0.0)
3rd Party Agreements	\$3.1	\$3.1	\$0.3	\$0.1	\$3.1	\$0.0
Construction	\$264.8	\$264.8	\$220.5	\$15.1	\$264.8	\$0.0
ROW	\$134.5	\$134.5	\$87.1	\$86.3	\$134.5	\$(0.0)
<b>Total</b>	<b>\$449.2</b>	<b>\$449.2</b>	<b>\$337.9</b>	<b>\$114.5</b>	<b>\$449.2</b>	<b>\$(0.0)</b>

The Estimated Final Cost (EFC) for this reporting period is \$449.2M, which is equal to the current project budget. This period approximately \$3.98M was incurred, of which \$0.1M was Administration, ROW was \$0.5M, Construction Services was \$0.2M and Construction phase incurred \$3.0M on the M200 contract for design and construction activities.

#### Cost Summary by SCC

Project Elements by Phase	Baseline Budget	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
10 Guideway & Track Elements	\$2.6	\$2.6	\$4.0	\$0.1	\$4.0	-\$1.5
20 Stations	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
30 Support Facilities: Yards, Shops	\$140.1	\$140.1	\$123.4	\$4.4	\$145.8	-\$5.7
40 Sitework & Special Conditions	\$43.6	\$43.6	\$38.3	\$1.5	\$41.3	\$2.3
50 Systems	\$43.0	\$43.0	\$38.3	\$1.4	\$38.3	\$4.7
<b>Construction Subtotal (SCC 10-50)</b>	<b>\$229.3</b>	<b>\$229.3</b>	<b>\$204.0</b>	<b>\$7.4</b>	<b>\$229.5</b>	<b>-\$0.2</b>
60 Row, Land, Improvements	\$134.5	\$134.5	\$87.1	\$86.3	\$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	\$46.8	\$20.8	\$71.4	\$0.2
90 Unallocated Contingency	\$13.8	\$13.8	\$0.0	\$0.0	\$13.8	\$0.0
<b>Project Total (SCC 10-90)</b>	<b>\$449.2</b>	<b>\$449.2</b>	<b>\$337.9</b>	<b>\$114.5</b>	<b>\$449.2</b>	<b>\$0.0</b>

### 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 OMF East quarterly risk register review meeting for 3rd QTR was held in September 2017. The current top actively managed risks are listed below.

- Third Party requesting additional site improvements not included in the agreements.
- Third Party not satisfied with progress on Master Development Plan causing reconsideration for use of a development agreement process and late permits.



# Link Light Rail

## Link Operations and Maintenance Facility: East



### Risk Management, continued

- Third Party could potentially impose additional work by holding up the permitting process, resulting in potential schedule delays.
- ST internal stakeholders may have additional requirements that could impact scope.

### Contingency Status

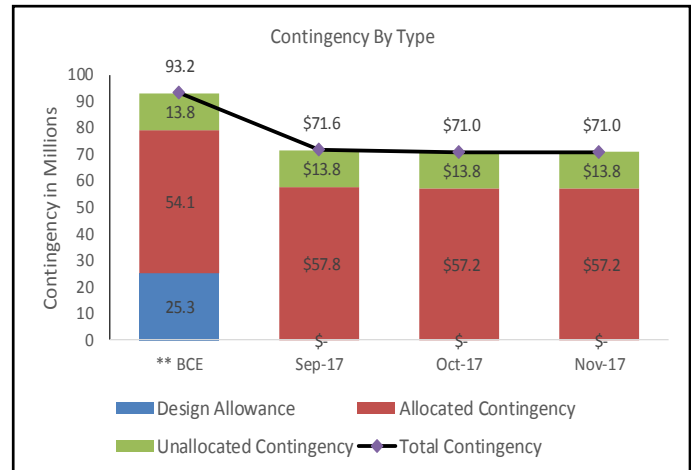
The Link Operations and Maintenance Facility East was baselined and approved by Sound Transit Board in July 2016 with a total contingency of \$93.2M. The contingency drawdown plan (shown below) excludes the Design Allowance amount as it was used when the design build contract was executed, therefore the starting contingency drawdown balance began at \$67.9M. As of this period, the total contingency balance remains at \$71.0M and is consistent with the project's planned contingency drawdown. Details are provided below.

**Design Allowance (DA)** – The baseline DA of \$25.3M has been fully depleted based on recent award of Design Build construction contract (M200).

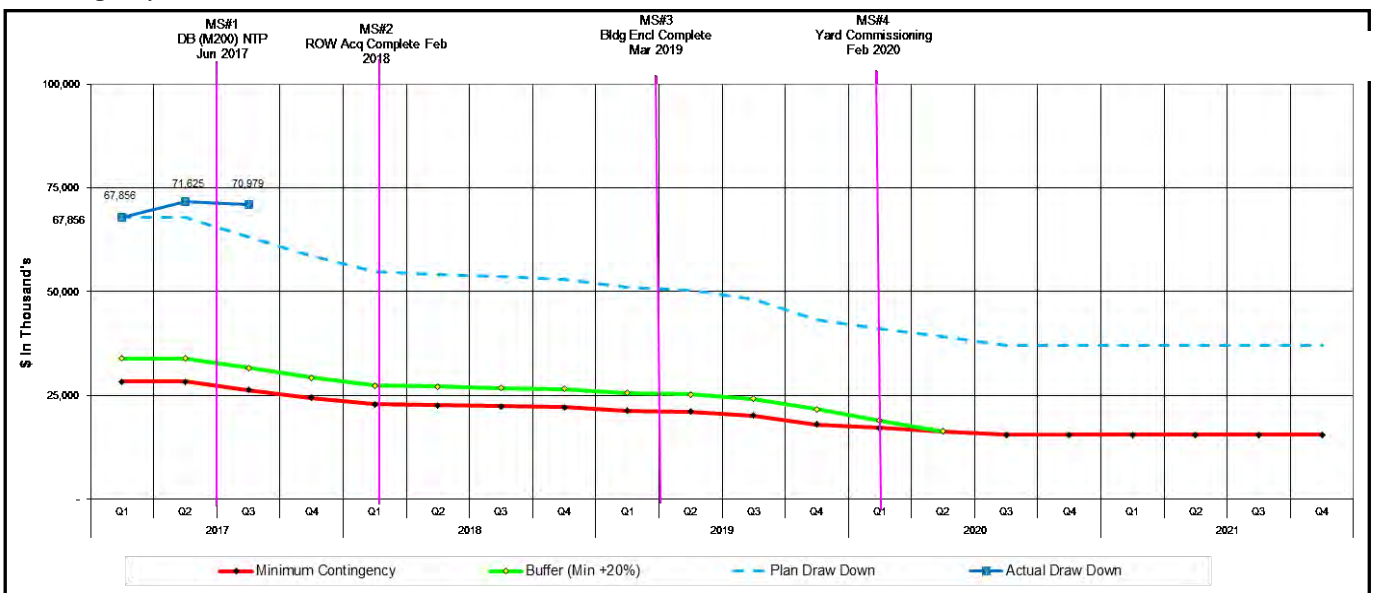
**Allocated Contingency (AC)** – Contingency dollars amounting to \$662K have been drawn down as of November 20017. This resulted in a drop of the remaining allocated contingency to \$57.2M.

**Unallocated Contingency (UAC)** – The baseline UAC amount of \$13.8M reflects no changes this period.

Contingency Status	Baseline		Current	
	Amount	% of Total	Amount	% of Work Remaining
Design Allowance	\$25.3	5.6%	\$ -	0.0%
Allocated Contingency	\$54.1	12.0%	\$57.2	17.1%
Unallocated Contingency	\$13.8	3.1%	\$13.8	4.1%
<b>Total</b>	<b>\$93.2</b>	<b>20.7%</b>	<b>\$71.0</b>	<b>21.2%</b>

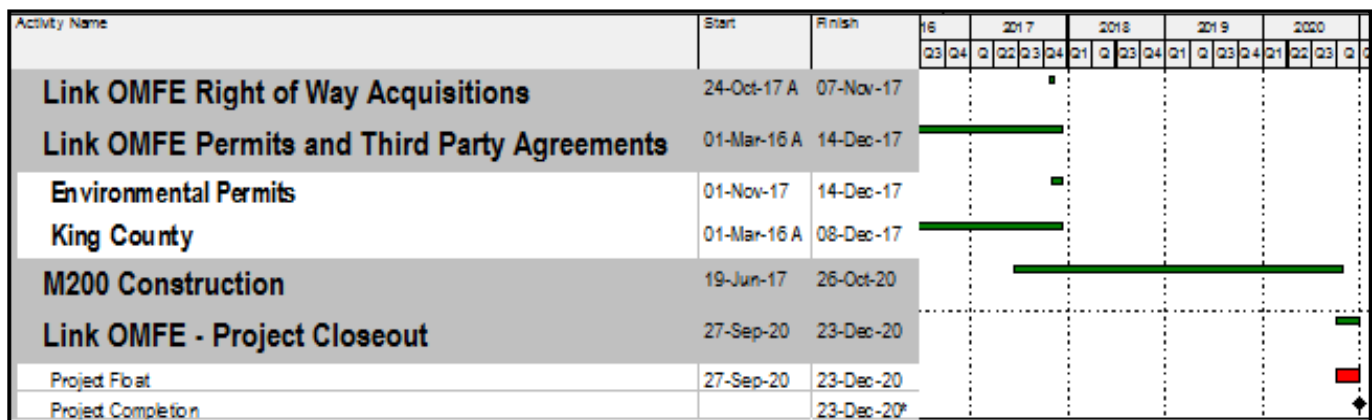


### Contingency Drawdown



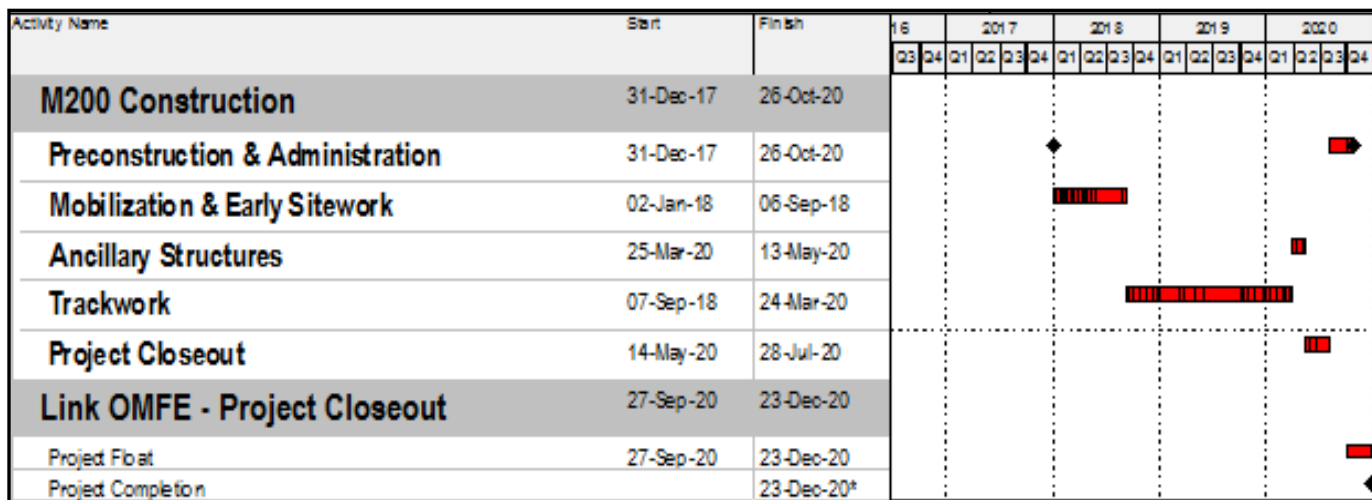
## Project Schedule

The project schedule is presented below and reflected in the baseline. In November the contractor continued setting up office space and placing Temporary Erosion & Sediment Control. They submitted Revision 1 of the Master Development Plan to the City of Bellevue. They continue work on design and permit packages ahead of construction. Property acquisitions and relocations will all be completed in December 2017, in time for construction to start as planned in January 2018.



## Critical Path Analysis

The critical path is now fully within the M200 contract. It runs through site preparation, including demo and abatement of existing structures. After grading is complete, the trackwork in the yard is the critical path, leading into signalization and testing at the end of the project.



### Right of Way

Filed condemnations and requested Possession and Use of all properties. Continued relocations of tenants and settling acquisitions. This period, two additional parcels vacated. The right-of-way program status is summarized below:

Link OMF East Property Acquisition Status								
	Board Approved	Offers Made/In Negotiations	Signed Agreements	Possession and Use	Admin Settlement	Closings to date	Relocations Required	Parcels Vacated
<b>Total*</b>	11	10	0	2	0	6	32	13

\*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 OMF East is summarized in the table below.

Motion Number	Description	Date
	None to report.	

### Community Outreach

- Planning for OMF East groundbreaking with an early 2018 timeframe.
- Finalizing project informational signage.
- Looking into periodically posting contractor drone footage of project progress.

### Environmental

- Wetland Mitigation Permit is under review by the City of Bellevue.

## 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 in September 2014.

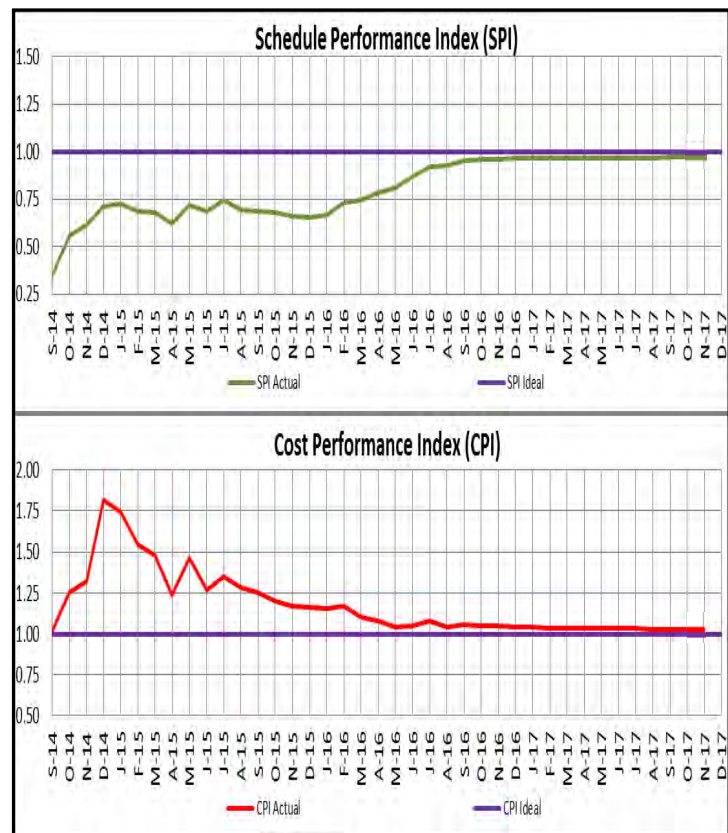
*Phase 2 PE and FEIS scope is effectively completed. This section will be discontinued starting next reporting period.*

## Phase 2 Key Activities

- No PE work scheduled for the month. The consultant is currently supporting the project on an as needed bases.

## Phase 2 Schedule Performance

The cumulative Schedule Performance Index (SPI) trends at 0.97 through November 2017.



## Phase 2 Cost Performance

\$5.0M of the total Phase 2 contract amount, approximately 94.2%, was spent through November 2017. The Phase 2 percent complete is 96.9%, with an earned value of \$5.2M. The cumulative Cost Performance Index (CPI) is 1.03.

Phase 2 Performance	Cumulative To Date
Amount Invoiced	\$5.0M
% Spent	94.2%
Earned Value	\$5.2M
% Complete	96.9%
<b>SPI</b>	<b>0.97</b>
<b>CPI</b>	<b>1.03</b>

## Contract M200 - OMF East Design Build

### Scope

Design and construct an O&M facility with offices and furnishings, storage yard for 96 LRVs, vehicle maintenance facility, Maintenance of Way (MOW) facility, bike trail, and light rail system elements [Traction Power Substation (TPSS), Overhead Catenary System (OCS), Communications and Supervisory Control & Data Acquisition (SCADA)] in Bellevue, WA.

### Current Progress

The M200 Contractor continued to work on the early design and permit packages. Building demolition permits along with the interim trail work permits were received by the Contractor. Continued mobilization work at the trailer complex by setting up the temporary trailer utilities and the deck construction. Demolition and earthwork subcontractors mobilized to site during this period. Temporary trail grading work started this period and all track demolition work was completed during the period. The project team provided comments on 30% design packages nos. 2, 3 and 4.

### Schedule Summary

The Contractor's preliminary baseline schedule is presented below. This schedule has not been formally approved; however, it is unlikely that any major work elements will change prior to approval. The Master Development Permit application has been submitted to the City of Bellevue and is now in the review and comments process. Working with the City to establish a clear timeline of all permit submittals and anticipated turnaround times. Design continues with construction at the end of 2017, primarily to demolish existing buildings and construct the interim trail. Major sitework is planned for early 2018.

Activity Name	Start	Finish	2017				2018				2019				2020			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>M200 Construction</b>	19-Jun-17 A	26-Oct-20																
<b>Preconstruction &amp; Administration</b>	19-Jun-17 A	26-Oct-20																
<b>Milestones</b>	19-Jun-17 A	26-Oct-20																
Contractual Milestones	19-Jun-17 A	26-Oct-20																
Milestone 1 - Substantial Completion	19-Jun-17 A	26-Sep-20																
Notice to Proceed (6/19/2017)	19-Jun-17 A																	
Milestone 1 - Substantial - Scheduled		26-Sep-20																
Milestone 1 - Contractual (1196 CD after NTP)		26-Sep-20*																
Milestone 2 - Final Completion	19-Jun-17 A	26-Oct-20																
Design Milestones	23-Jan-18	29-Jun-18																
Interim Construction Milestones	01-Sep-17 A	26-Sep-20																
Two Year Energy Performance Guarantee	27-Sep-20	01-Oct-20																
<b>Administration</b>	19-Jun-17 A	31-Jan-20																
<b>Coordination of Work by Others</b>	22-Nov-17 A	19-Mar-20																
<b>Design</b>	19-Jun-17 A	10-Jun-19																
Design Packages	19-Jun-17 A	29-Jun-18																
Permit Packages	19-Jun-17 A	12-Jun-18																
Design Administration	19-Jun-17 A	10-Jun-19																
Submittals & Procurement	05-Dec-17	22-Oct-19																
<b>Construction</b>	19-Jun-17 A	20-Aug-20																
Mobilization & Early Sitework	19-Jun-17 A	10-Dec-18																
Maintenance & Shop Building	26-Jul-18	04-Jun-20																
Maintenance of Way Building	15-Feb-19	21-May-20																
Ancillary Structures	31-May-19	13-May-20																
Trackwork	07-Sep-18	27-Mar-20																
Site Surfacing & Finishes	17-Oct-18	01-Jun-20																
Project Closeout	09-Nov-18	20-Aug-20																

## Next Period's Activities

- Continue working on the temporary trail construction, hazardous material abatement, construction perimeter fencing.
- Finish track demolition and removal on the site.
- Demolition activities to start in December, the paper mill demolition is expected to start this period.
- Slab on grade activities will begin on the Loading area (Phase 2) and West Shop Area (Phase 3).
- The contractor and the project team will be volunteering at the Forgotten Children's Fund Charity.
- Expecting King County to take the Sewer Betterment Agreement for internal review.
- Revise the MDP with comments from City of Bellevue.

## Closely Monitored Issues

- None to report.

## Cost Summary

Present Financial Status	Amount
<b>M200 Contractor – Hensel Phelps</b>	
Original Contract Value	\$218,912,000
Change Order Value	\$662,050
Current Contract Value	\$219,574,050
Total Actuals (Incurred to Date)	\$14,160,890
% of Authorized Billed to Date	6.45%
Physical Percent Complete	0%
Authorized Contingency	\$21,891,200
Contingency Drawdown	\$662,050
Contingency Index	NA



Temporary bike trail construction.



# 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

- Milestone C5 - Approval of Preliminary Design Review (PDR). All but one PDR packages have been submitted, the lone exception of the carbody PDR that has not been submitted to Sound Transit due to open issues involving the carbody design.

## Project Cost Summary

The LRV Fleet Expansion Project has an approved baseline budget of \$740.7M. The 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.

In November, the project incurred to date costs have increased approximately \$120K from \$74.0M to \$74.1M mostly attributed to Administrative and Construction Services in the support of document reviews for the preliminary design review (PDR) and final design review (FDR).

### 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	\$6.4	\$6.4	\$0.7	\$0.7	\$6.4	\$0.0
Construction Services	\$18.0	\$18.0	\$4.8	\$2.5	\$18.0	\$0.0
Vehicles	\$716.3	\$716.3	\$648.2	\$70.9	\$716.3	\$0.0
<b>Total</b>	<b>\$740.7</b>	<b>\$740.7</b>	<b>\$653.7</b>	<b>\$74.1</b>	<b>\$740.7</b>	<b>\$0.0</b>

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

### Cost Summary by SCC

SCC Element	Baseline Budget	Current Adopted Budget	Commitment	Incurred to Date	Estimated Final Cost	Adopted Budget
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	\$73.4	\$702.8	\$0.0
80 Professional Services	\$6.1	\$6.1	\$0.7	\$0.7	\$6.1	\$0.0
90 Contingency	\$31.7	\$31.7	\$0.0	\$0.0	\$31.7	\$0.0
<b>Capital Total (SCC 10-90)</b>	<b>\$740.7</b>	<b>\$740.7</b>	<b>\$653.6</b>	<b>\$74.1</b>	<b>\$740.7</b>	<b>\$0.0</b>

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

## 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 \$70.1M or about 12% of remaining work in the project.

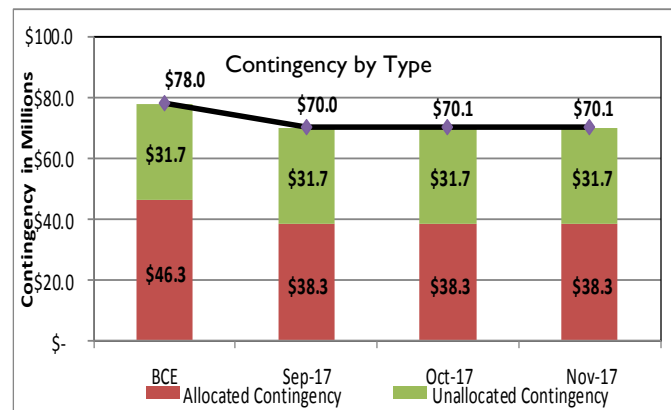
*Design Allowance* – This project contains \$0 design allowance.

*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 Siemens's contract.

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

Contingency Status	Baseline		Current	
	Amount	% of Total	Amount	% of Work Remaining
Design Allowance	\$ -	0.0%	\$ -	0.0%
Allocated Contingency	\$ 46.3	6.4%	\$ 38.3	6.6%
Unallocated Contingency	\$ 31.7	4.3%	\$ 31.7	0.0%
<b>Total</b>	<b>\$ 78.0</b>	<b>10.7%</b>	<b>\$ 70.1</b>	<b>12.0%</b>

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



## Project Schedule

The LRV Fleet Expansion project schedule is shown below. Siemens has completed the preliminary design review (with the exception of the carbody design) and is currently working on Final Design Review.

Activity Name	Start	Finish	17	2018	2019	2020	2021	2022	2023	2024
<b>LRV Procurement Schedule</b>	10-Oct-16 A	28-Aug-24								
<b>LRV Engineering and Manufacture</b>	10-Oct-16 A	11-May-22								
LRV Design Reviews, Manufacturing, and System Tests	10-Oct-16 A	11-May-22								
<b>LRV Delivery Schedule</b>	21-Nov-18	28-Aug-24								
LRV #1-122 (122 LRV Base Order)	21-Nov-18	14-Nov-22								
Delivery of 1st LRV		21-Nov-18								
Delivery of 40th LRV - Northgate Link Vehicle Deliveries Complete		13-Mar-20								
Delivery of 42nd LRV - Max Capacity at Existing OMF at capacity (104 LRVs)		02-Apr-20								
Final Acceptance of Vehicles		14-Nov-22								
Delivery of 122nd LRV - Final ST2 Delivery		12-May-22								
LRV #123 - 152 (30 LRV Options) - Change Order #4	28-Feb-24	28-Aug-24								
Delivery of 152nd LRV - Final Delivery		28-Feb-24								
Final Acceptance of Vehicles		28-Aug-24								
<b>Project Closeout</b>	14-Nov-22	28-Aug-24								
LRV #1-122 - Base Order	14-Nov-22	11-Feb-23								
ST-Controlled Float	14-Nov-22	11-Feb-23								
LRV Procurement Complete - LRV #1 - #122		11-Feb-23								
LRV #123 - #152 - CO #4	28-Aug-24	28-Aug-24								
LRV Procurement Complete - LRV #123 - #152		28-Aug-24								

# Link Light Rail Staffing Report



## Project Staffing – Link Light Rail Program – October 2017

Staffing variance reported in the following section is relative to the May 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
Deputy Director	Construction Management	2016 Attrition
Config. and Change Mgt. Coordinator	Project Controls	2017 Attrition
Sr. Systems Engineer	Operations	January 2017
Systems Engineer	SCADA	2017 Attrition
Sr. Real Property Agent	Real Property	October 2017
Project Manager	STart	October 2017
Program Manager	Progress Reporting and Training	October 2017
Sr. Civil Engineer	Northgate Link Extension	October 2017
Project Control Specialist	North Corridor	October 2017
Train Control Engineering Manager	Signals	October 2017*
Deputy Director	Federal Way Link Extension	October 2017*

\*Internal Promotion

Recruiting is ongoing for the following DECM staff:

Position	Project Assignment	Planned Hire Date
Sr. Project Manager	Sounder Capital Program	2016 Attrition*
Sr. Project Manager	OMF East	2016 Attrition*
Construction Contracts Claims Sp.	Construction Management	2016 Attrition*
Executive Project Director	Executive Director's Office	2016 Reclass
Sr. Systems Engineer	Signals	2017 Attrition*
Sr. Mechanical Engineer	Systems Integration	2017 Attrition*
Deputy Project Director	Northgate Link Extension	2017 Attrition*
Civil Engineer	East Link Extension	2017 Attrition*
Civil Engineer	East Link Extension	2017 Attrition*
Corridor Design Manager	Federal Way Link Extension	2017 Attrition*
Principal Construction Manager	South Corridor	2017 Attrition*
Principal Construction Manager	East Link Extension	2017 Attrition*
Principal Construction Manager	Northgate Link Extension	2017 Attrition*
Community Outreach Specialist	East Link Extension	2017 Attrition*
Project Coordinator	Non-Corridor Projects	2017 Attrition
Risk Engineer Program Manager	Project Controls	2017 Attrition

## Project Staffing – Link Light Rail Program continued

Position	Project Assignment	Planned Hire Date
Sr. Architect	East Link Extension	2017 Attrition
Sr. Project Coordinator	East Link Extension	2017 Attrition
Design Technology Specialist	System Expansion Program	2017 Attrition
Deputy Construction Manager	Rail	2017 Attrition
Supervisor Community Outreach	South Corridor	2017 Attrition
Manager	Systems Testing	2017 Attrition
Sr. Systems Engineer	LRV Fleet Expansion	2017 Attrition
Deputy Construction Manager	South Corridor	2017 Attrition
Sr. Systems Engineer	Operations Technology	January 2017
Sr. Civil Engineer	Northgate Link Extension	February 2017
Engineering Stds. Program Mgr.	Civil and Structural Engineering	April 2017
Sr. Scheduling Engineer	Right-of-Way	April 2017
Traction Electrification Engineering Mgr.	Signals	April 2017
Communications & SCADA Engin. Mgr.	Communications	May 2017
Manager	LRV Procurement and Testing	July 2017
Project Director	Bus Rapid Transit	July 2017
Manager	Civil Systems Integration	September 2017
Project Coordinator	East Link Extension	October 2017
Project Manager	East Link Extension	October 2017
Project Manager	East Link Extension	October 2017
HCT Development Manager	East Link Extension	October 2017
Engineering Standards Program Mgr.	Civil & Structural Design	October 2017
Manager	Civil-Systems Integration	October 2017
Program Manager – Cost Engineering	Project Controls	October 2017
Manager, Project Controls	South Corridor	October 2017
Project Control Supervisor	Down Redmond Link Extension	October 2017
Construction Manager	Systems	October 2017
Principal Construction Manager	West Seattle-Ballard Link Ext.	October 2017
Administrative Specialist	Construction Management	October 2017
Community Outreach Specialist	West Seattle-Ballard	October 2017
Sr. Architect	Lynnwood Link Extension	October 2017

# Link Light Rail Staffing Report



There were 644 (102% 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 October. Staffing was within 10% of plan for the Tacoma and Federal Way Link Extensions. Staffing for the Northgate and East Link Extensions was 112% and 171% of plan respectively; staffing for the Operations and Maintenance Facility: East (OMF East) and Lynnwood Link Extension was 80% and 57% of plan respectively.

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

	Staff Variance October 2017											
	Consultant Staff				Sound Transit Staff				Total (AVG. YTD)			
	FTE		Variance		FTE		Variance		FTE		Variance	
	Planned	Actual	FTE	% of Plan	Planned	Actual	FTE	% of Plan	Planned	Actual	FTE	% of Plan
Federal Way Link Extension	42.0	61.2	19.2	146%	37.9	23.0	-14.9	61%	79.9	66.1	-13.9	83%
Northgate Link Extension	71.1	87.4	16.3	123%	44.2	41.7	-2.5	94%	115.3	123.7	8.4	107%
OMF East	6.6	8.3	1.7	126%	16.7	10.3	-6.4	62%	23.3	10.0	-13.3	43%
East Link Extension	66.8	176.5	109.7	264%	72.1	61.2	-10.8	85%	138.8	160.9	22.1	116%
Lynnwood Link Extension	178.0	91.2	-86.8	51%	51.9	39.8	-12.2	77%	229.9	188.3	-41.6	82%
Tacoma Link Extension	24.0	24.3	0.3	101%	18.1	19.4	1.3	107%	42.1	46.0	3.9	109%
<b>Total</b>	<b>388.5</b>	<b>448.8</b>	<b>60.4</b>	<b>116%</b>	<b>240.9</b>	<b>195.4</b>	<b>-45.5</b>	<b>81%</b>	<b>629.3</b>	<b>594.9</b>	<b>-34.4</b>	<b>95%</b>

## Operations & Maintenance Facility: East Staffing

### Total Internal and External Staffing – OMF East

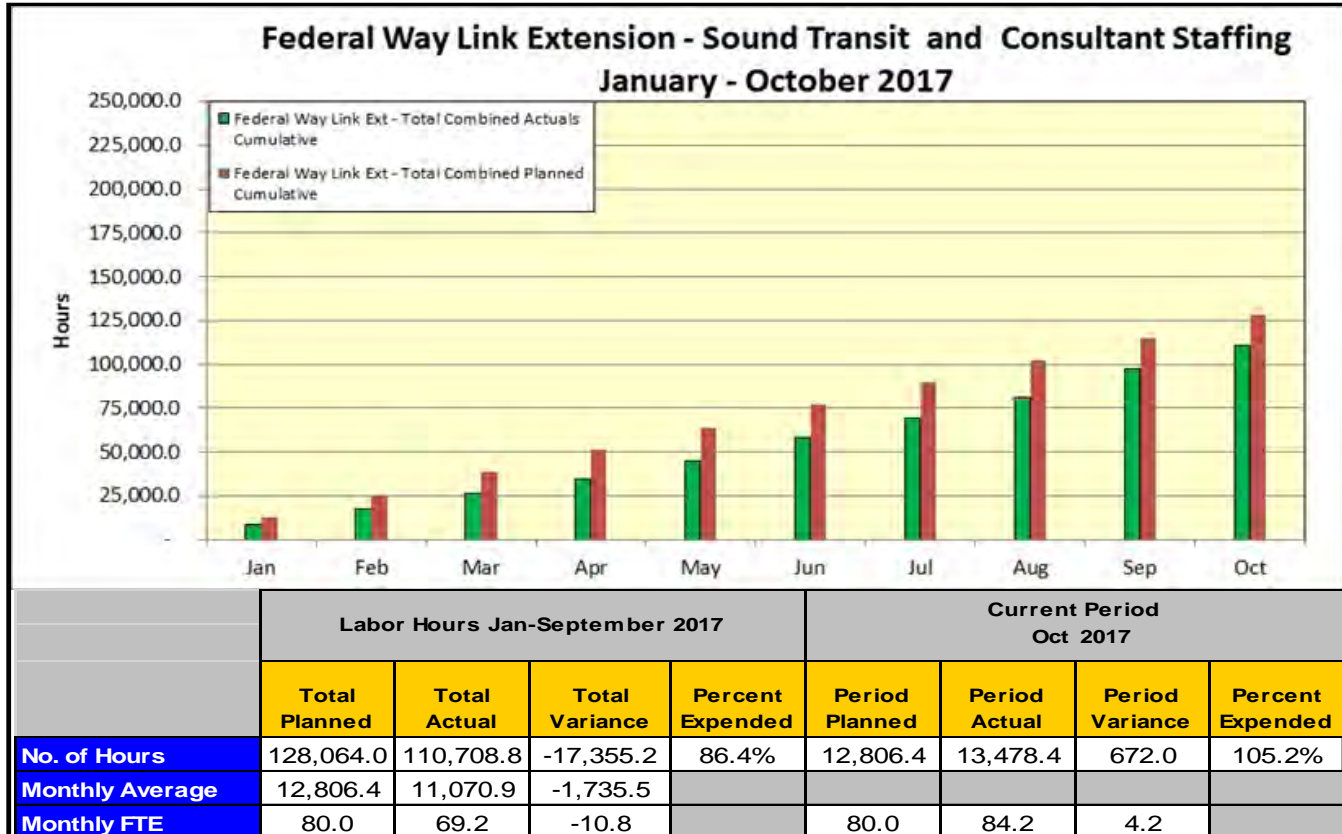
There were 10.3 internal and 8.3 consultant FTE participating in the Operations & Maintenance Facility: East project in October. This is 15% (2.4 FTE) above September staffing and 80% of plan. Average year-to-date staffing (10.7 FTE/mo.) is 54.2% (12.6 FTE/mo.) below plan. All consultant staffing in October was for the design-build project management services.

	Labor Hours to Date				Current Period Oct 2017			
	Total Planned	Total Actual	Total Variance	Percent Expended	Period Planned	Period Actual	Period Variance	Percent Expended
<b>No. of Hours</b>	37,264.0	17,056.5	-20,207.5	45.8%	3,726.4	2,968.6	-757.8	79.7%
<b>Monthly Average</b>	3,726.4	1,705.7	-2,020.8					
<b>Monthly FTE</b>	23.3	10.7	-12.6		23.3	18.6	-4.7	

## Federal Way Link Extension Staffing

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

There were 84.2 (105% of plan) consultant and internal staff on the Federal Way Link Extension in October including 61.2 consultant FTE (146% of plan) and 23 internal FTE (61% of plan). Staffing was 15% (15 FTE) below September staffing; cumulatively from January 2017 average staffing is trending 13.6% (10.8 FTE/mo.) below plan. All consultant staff is supporting preparation of bridging documents for the Design-Build (D-B) contract.





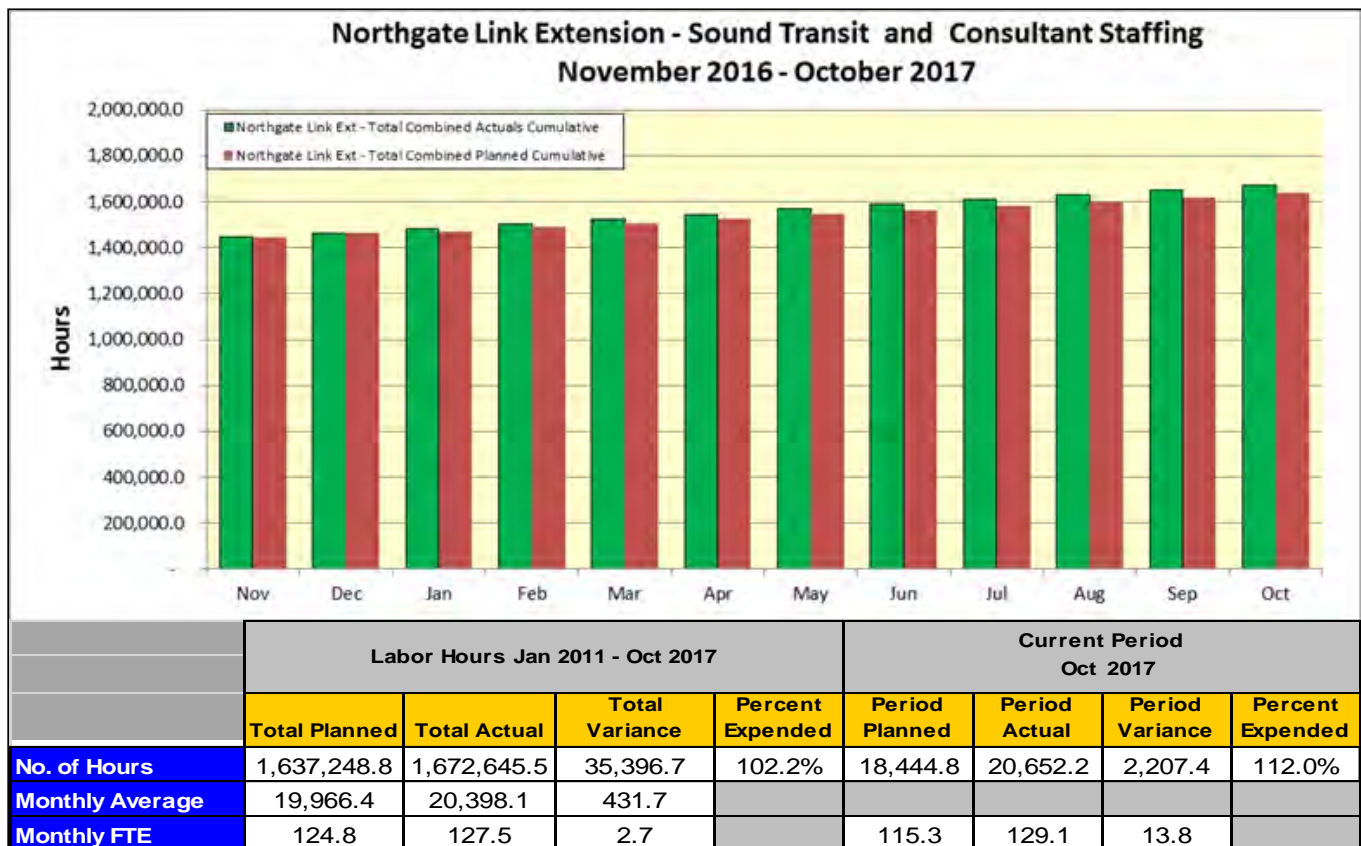
# Link Light Rail Staffing Report



## Northgate Link Extension Staffing

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

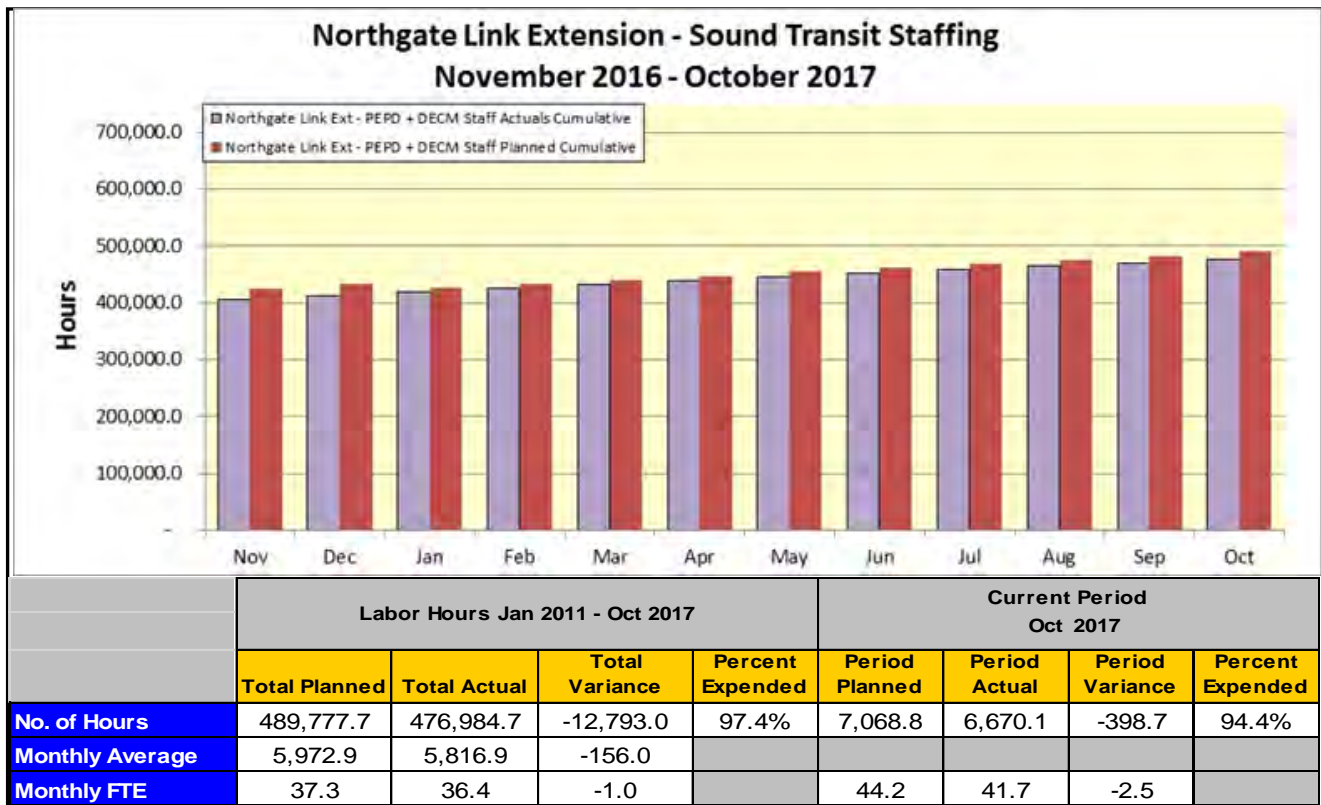
During October 129.1 internal and consultant FTE were assigned to the Northgate Link Extension. This is 4% (5.5 FTE) above September staffing and is 12% (13.8 FTE) above plan. Average year-to-date staffing (123.7 FTE/mo.) is 7% (8.4 FTE/mo.) above plan; cumulatively since January 2011 average monthly staffing is trending with plan.



## Northgate Link Extension Staffing

### Internal Resource Commitments to Northgate Link Extension

Internal staffing in October (41.7 FTE) increased 13% (5.3 FTE) from September and was 6% (2.5 FTE) below plan. Cumulatively, since January 2011, average monthly internal staffing (36.4 FTE/mo.) is 2.6% (1 FTE/mo.) below plan.



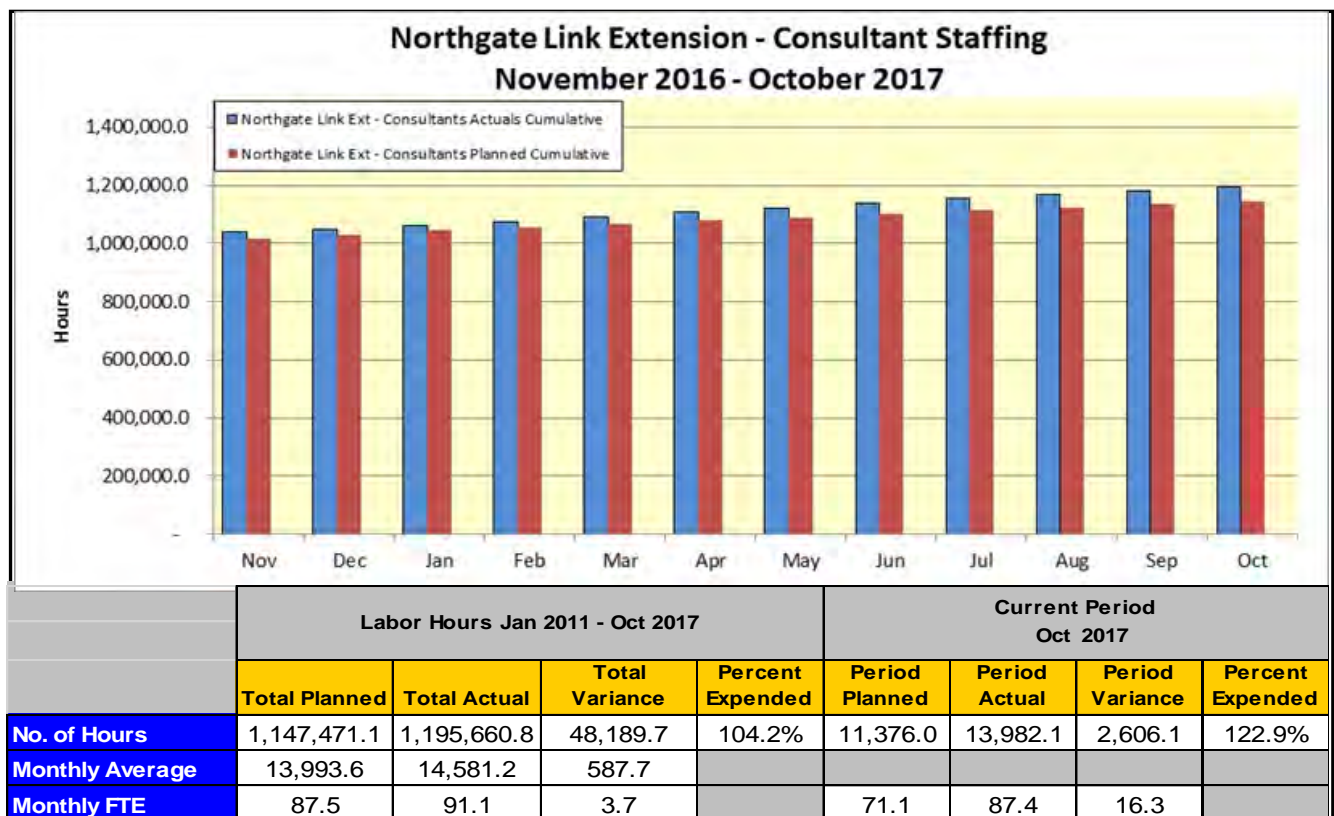
# Link Light Rail Staffing Report



## Northgate Link Extension Staffing

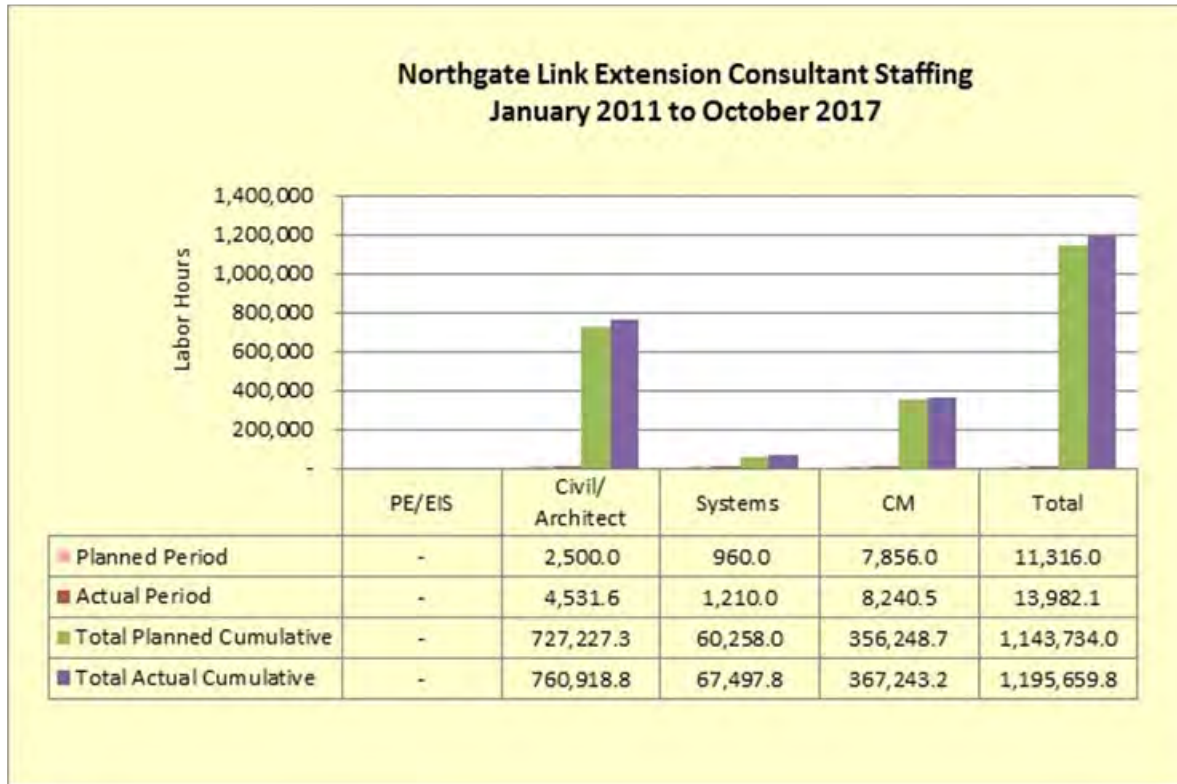
### Consultant Resource Commitments to Northgate Link Extension

In October, 87.4 consultant FTE were assigned to the Northgate Link Extension; consultant staffing was consistent with staffing in September and was 23% (16.3 FTE) above plan. Cumulatively, since January 2011, average monthly consultant utilization (91.1 FTE/mo.) is trending 4% (3.7 FTE/mo.) above plan.



## Northgate Link Extension Staffing

### Consultant Resource Commitments to Northgate Link Extension



Consultant utilization by discipline follows:

- Civil/architecture consultant utilization in October (28.3 FTE) was 7.5% (2.3 FTE) below September staffing and was 77% (12.3 FTE) above plan. Cumulatively since January 2011, average civil engineering/architecture consultant staffing of 58 FTE/mo. is trending 5% above plan.
- Systems consultant utilization in October (7.6 FTE) was 22% (2.1 FTE) below September and was 26% (1.6 FTE) above plan. Cumulatively, since January 2011, average monthly Systems consultant staffing (5.1 FTE/mo.) is trending 6% above plan.
- CM consultant staffing in October (51.56 FTE) was 9.8% (4.6 FTE) above September staffing and was 5% (2.4 FTE) above plan. Cumulatively, since January 2011, average monthly CM consultant staffing (28 FTE/mo.) is 3% (0.8 FTE/mo.) above plan

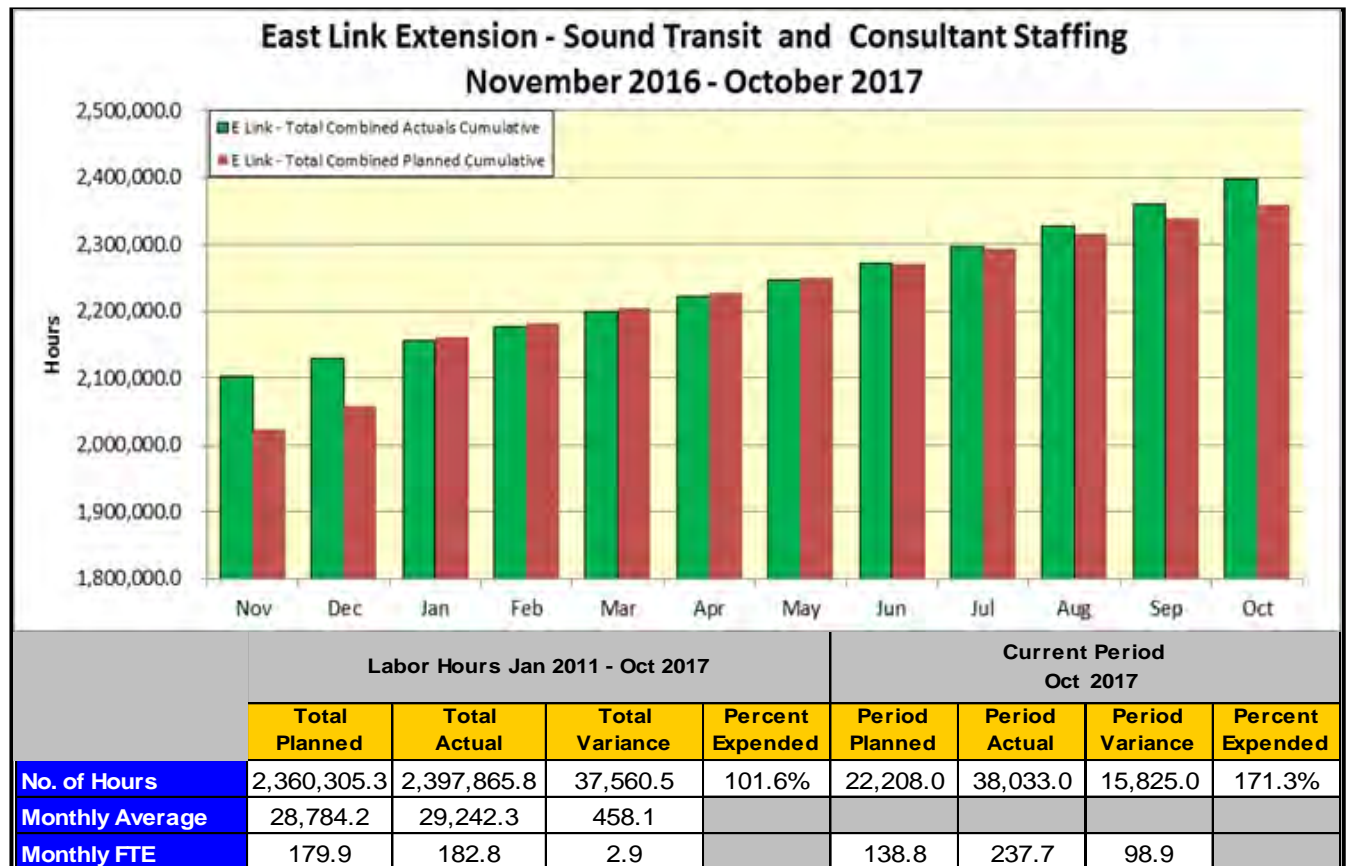
# Link Light Rail Staffing Report



## East Link Extension Staffing

### Total Internal and External Staffing – East Link Extension

Staffing for the East Link Extension in October (237.7 FTE) increased 20% (39.4 FTE) from September and was 71% (98.9 FTE) above plan. Average year-to-date staffing of 160.9 FTE/mo. is 16% (22 FTE) above plan. Cumulatively since January 2011, average monthly staffing of 182.8 FTE/mo. is trending with plan.

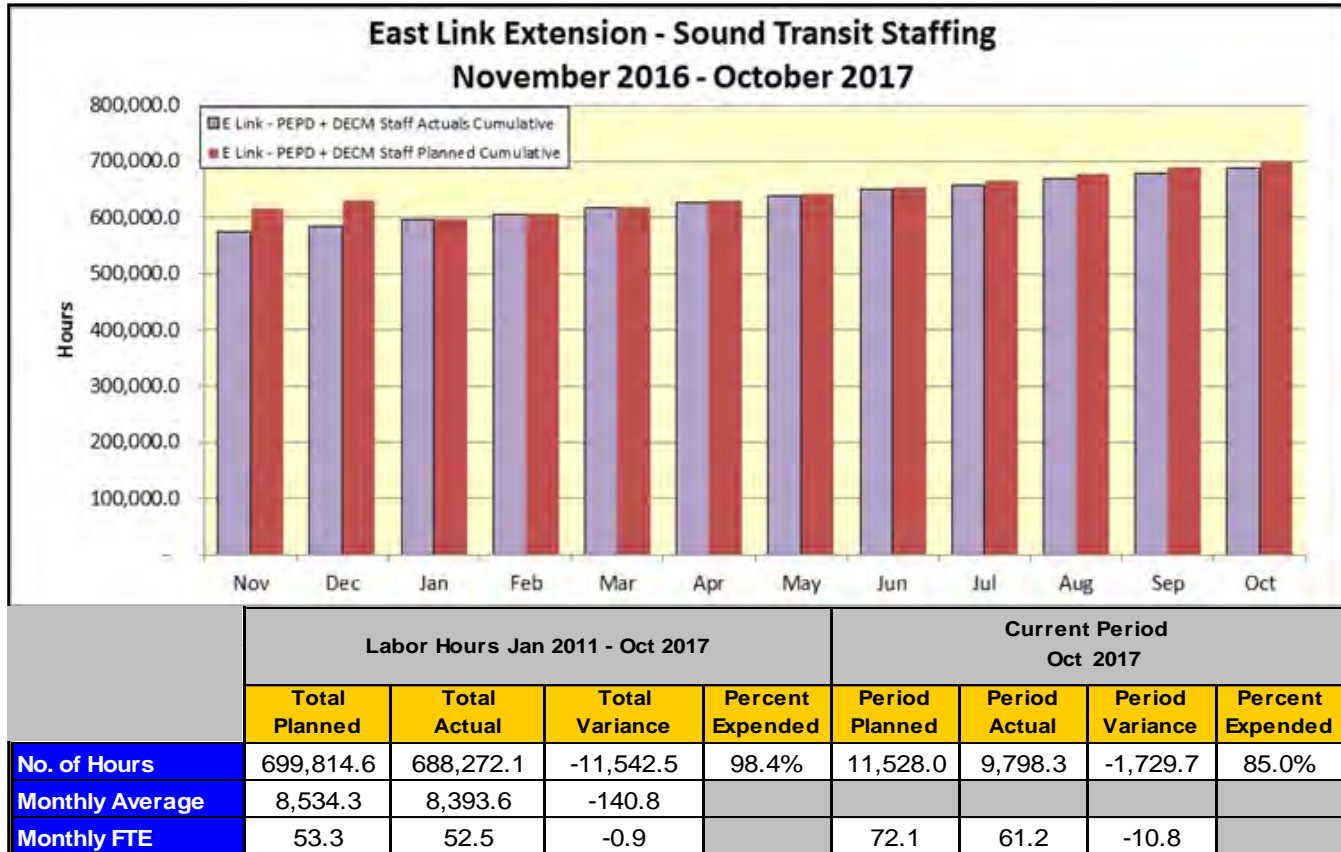




## East Link Extension Staffing

### Internal Resource Commitments to East Link Extension

During October internal staffing for the East Link Extension (61.2 FTE) was 9% (5.6 FTE) above September staffing and was 15% (10.8 FTE) below plan. Cumulatively, since January 2011, average monthly internal staffing (52.5 FTE/mo.) is trending with plan.





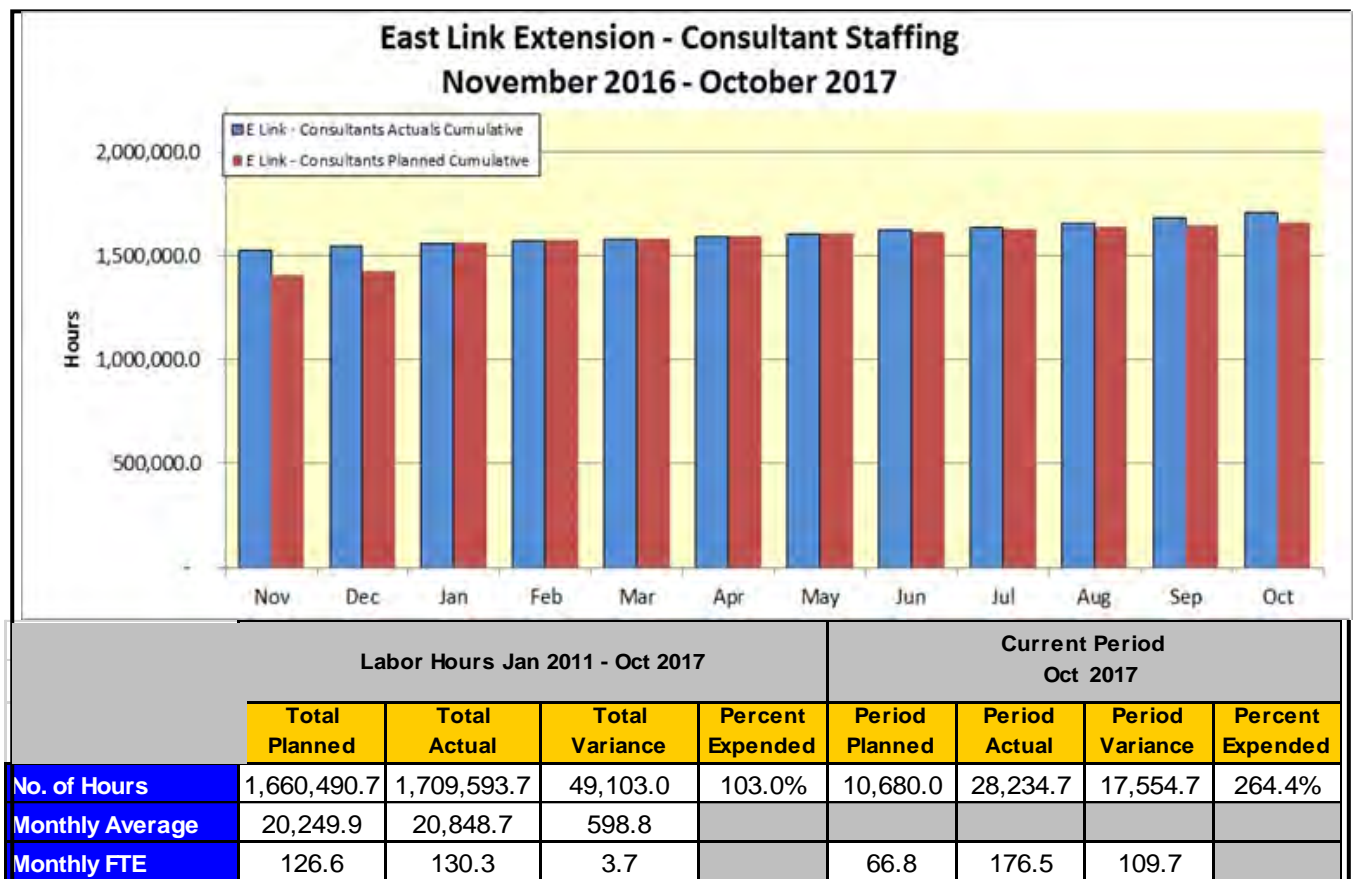
# Link Light Rail Staffing Report



## East Link Extension Staffing

### Consultant Resource Commitments to East Link Extension

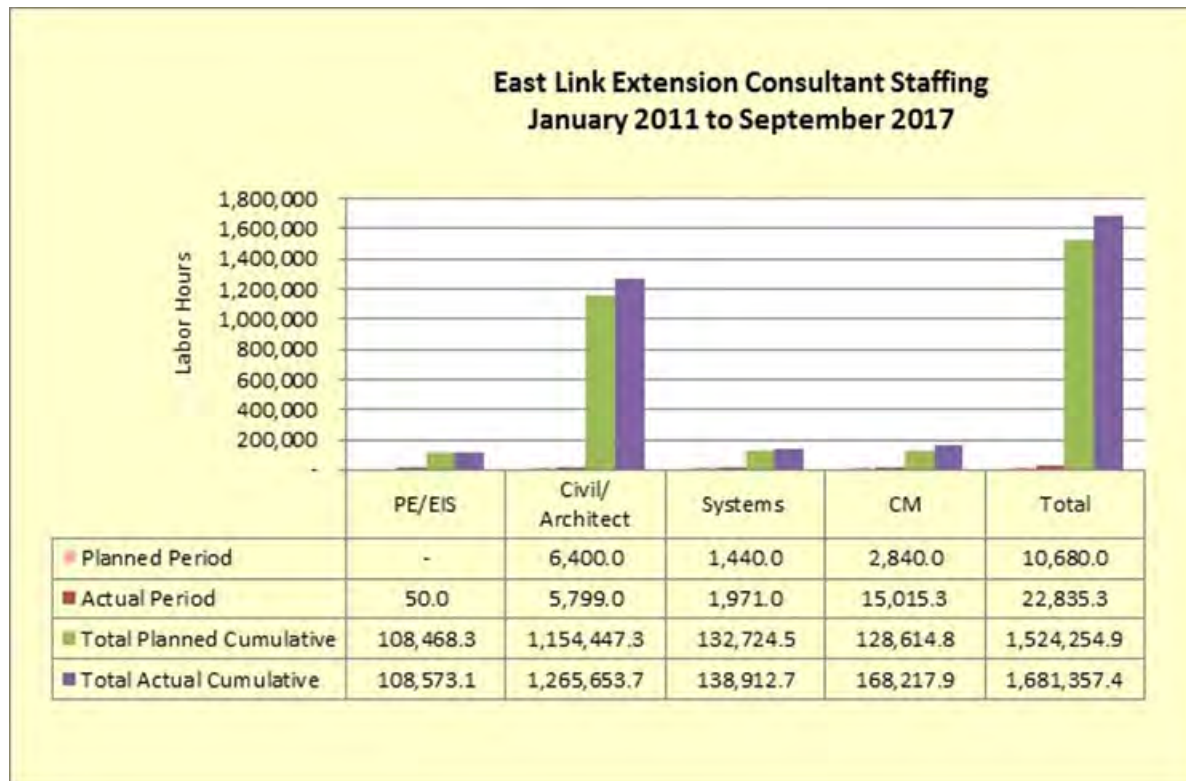
There were 176.5 consultant FTE assigned to the East Link Extension during October. Consultant staffing was 24% (33.7 FTE) above September and 64% (109.7 FTE) above plan. Cumulatively since January 2011, average monthly consultant staffing (130.3 FTE/mo.) is trending with plan.



## East Link Staffing

### Consultant Resource Commitments to East Link, continued

In October construction management consultant staffing (117.3 FTE) on the East Link Extension was 66% of consultant staffing; civil engineering consultant staffing (44.2 FTE) comprised 25% of consultant staffing. There were 14.6 and 0.4 consultant FTE supporting systems design and preliminary engineering, respectively.



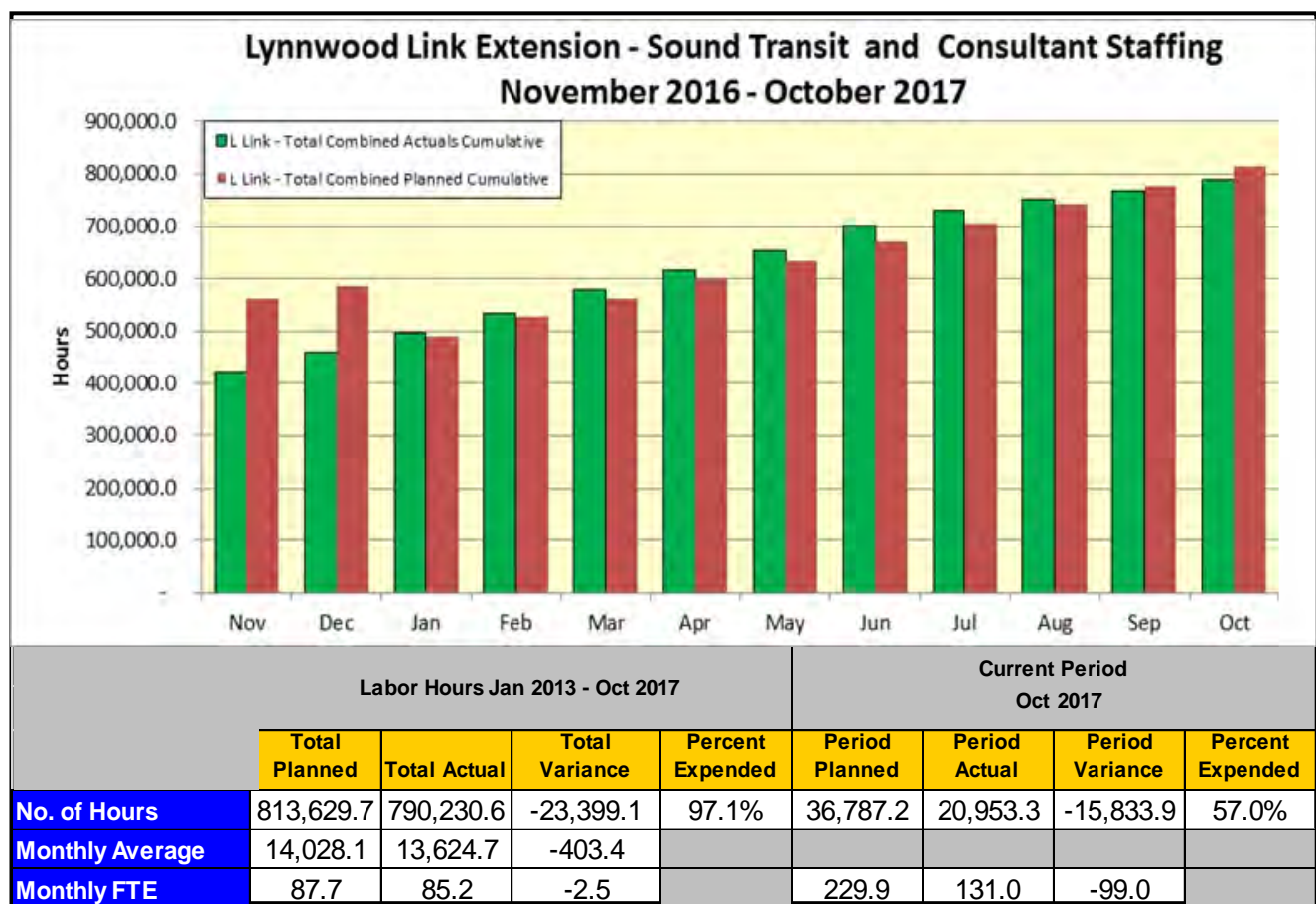
# Link Light Rail Staffing Report



## Lynnwood Link Extension Staffing

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

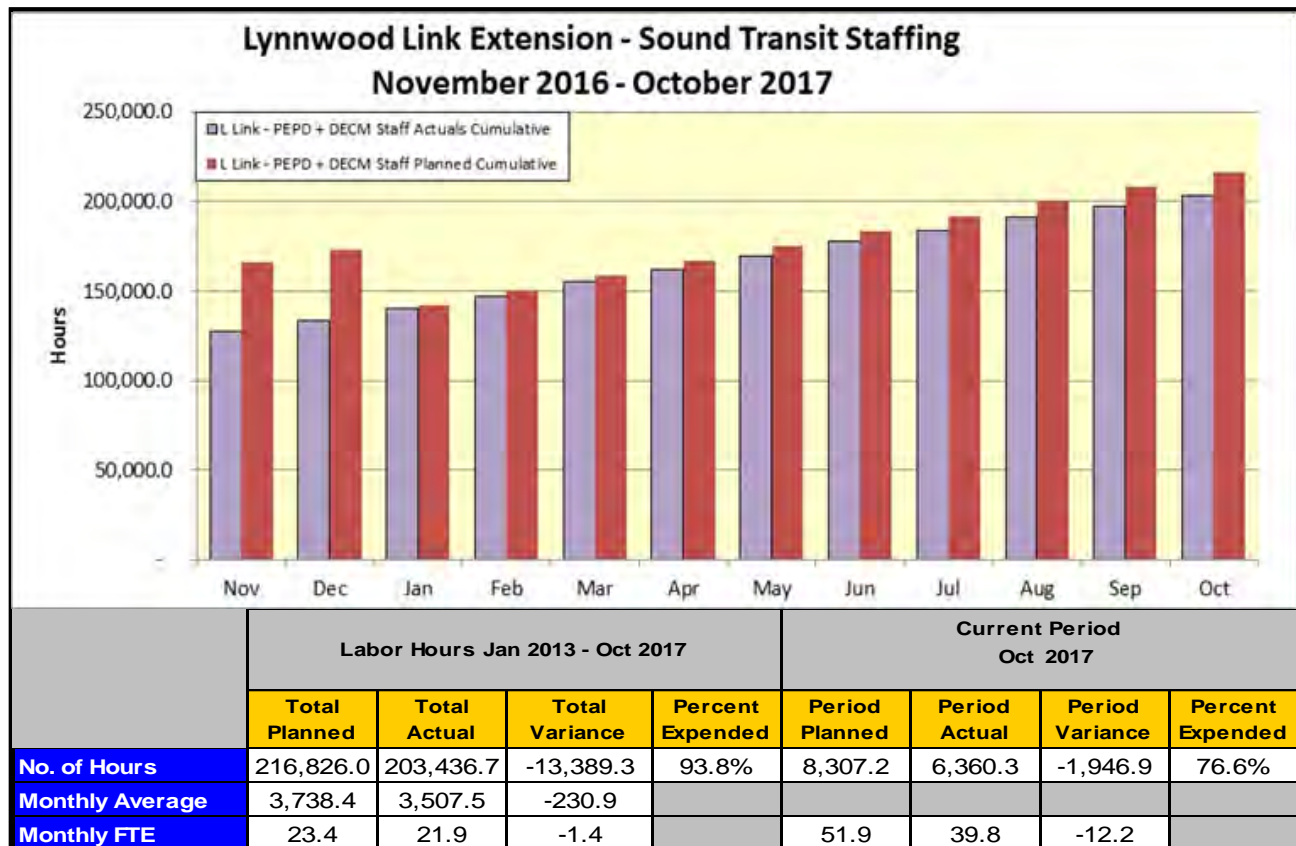
During October Lynnwood Link Extension staffing was 131 FTE (57% of, or 99 FTE below plan). There were 91.2 consultant FTE (49% below plan) and 39.8 internal FTE (77% of plan). Average year-to-date staffing of 188.3 FTE/mo is trending 18% (41.6 FTE/mo.) below plan; cumulatively since January 2013 staffing is averaging 85.2 FTE/mo. and is trending with plan.



## Lynnwood Link Extension Staffing

### Internal Staffing—Lynnwood Link

During October internal staffing for the Lynnwood Link Extension (39.8 FTE) was 8% (3.3 FTE) above September staffing and 23% (12.2 FTE) below plan. Cumulatively, since January 2013, average monthly internal staffing (21.9 FTE/mo.) is trending within 10% of plan.



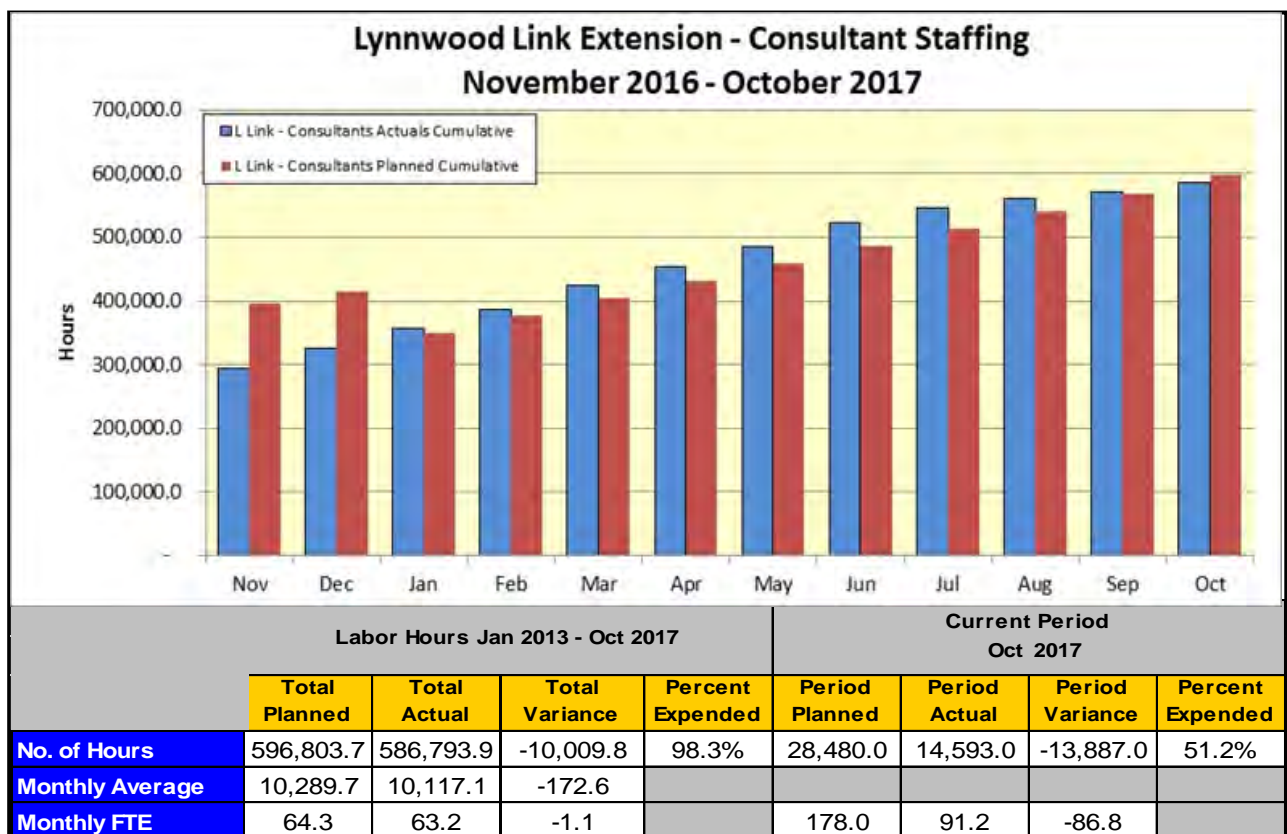
# Link Light Rail Staffing Report



## Lynnwood Link Expansion

### Consultant Staffing—Lynnwood Link

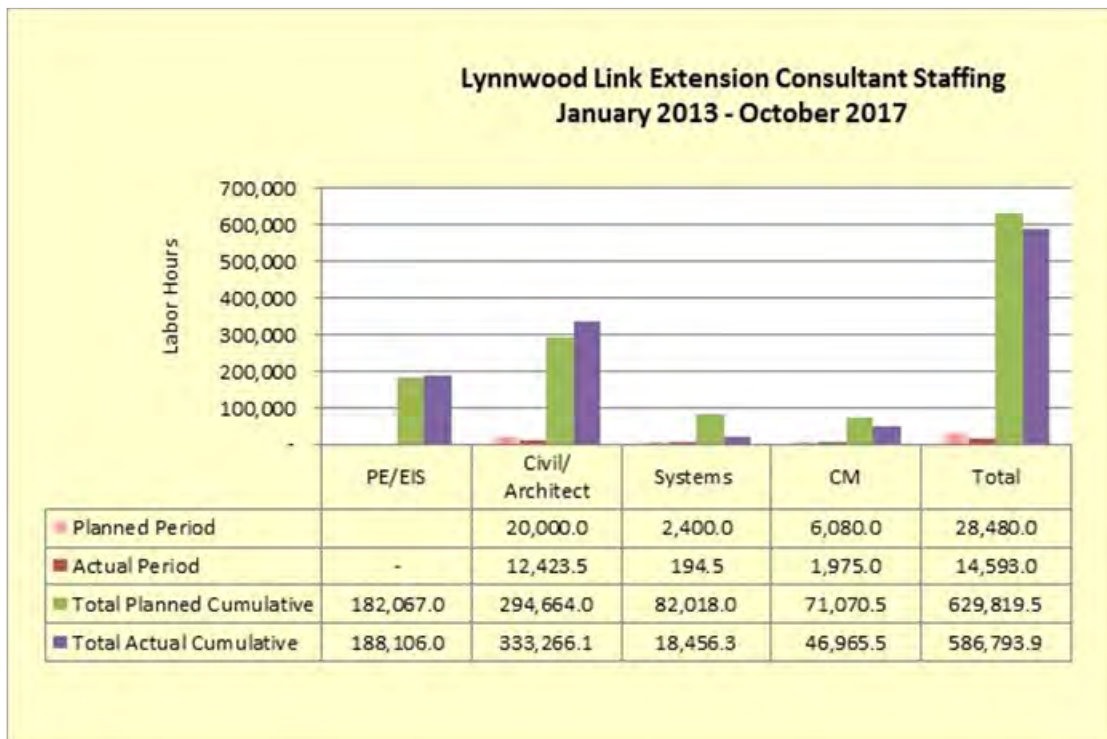
There were 91.2 consultant FTE assigned to the Lynnwood Link Extension during October. Consultant staffing increased 19% (14.8 FTE) from September and was 49% (86.8 FTE) below plan. Cumulatively since January 2013, average monthly consultant staffing (63.2 FTE/mo.) is trending with plan.



## Lynnwood Link Extension Staffing

### Consultant Resource Commitments to Lynnwood Link

Eighty-five percent (77.6 FTE) of the Lynnwood Link consultant staffing were supporting civil final design. Additional consultant staffing (12.3 FTE or 13% of consultant staffing) provided construction management and systems design (1.2 FTE or 6% of consultant staffing) support.





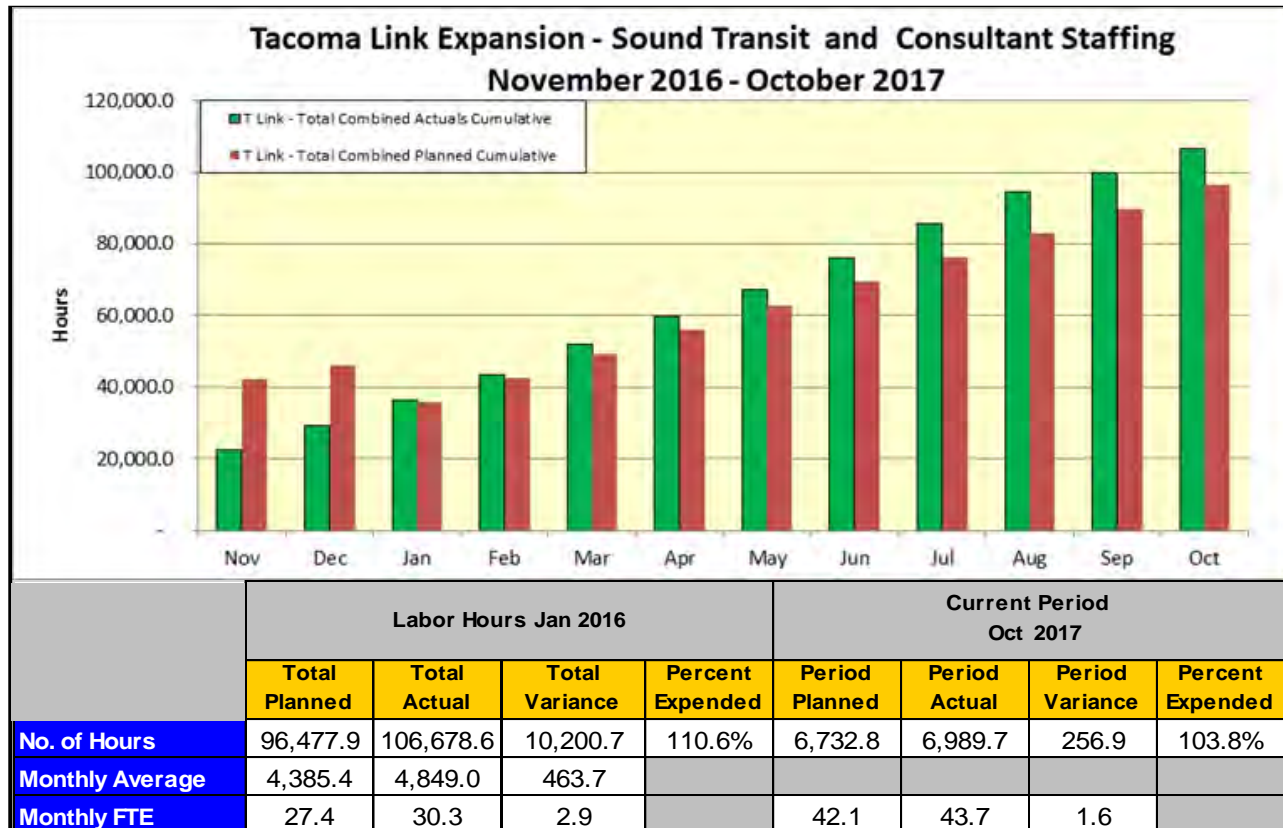
# Link Light Rail Staffing Report



## Tacoma Link Expansion

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

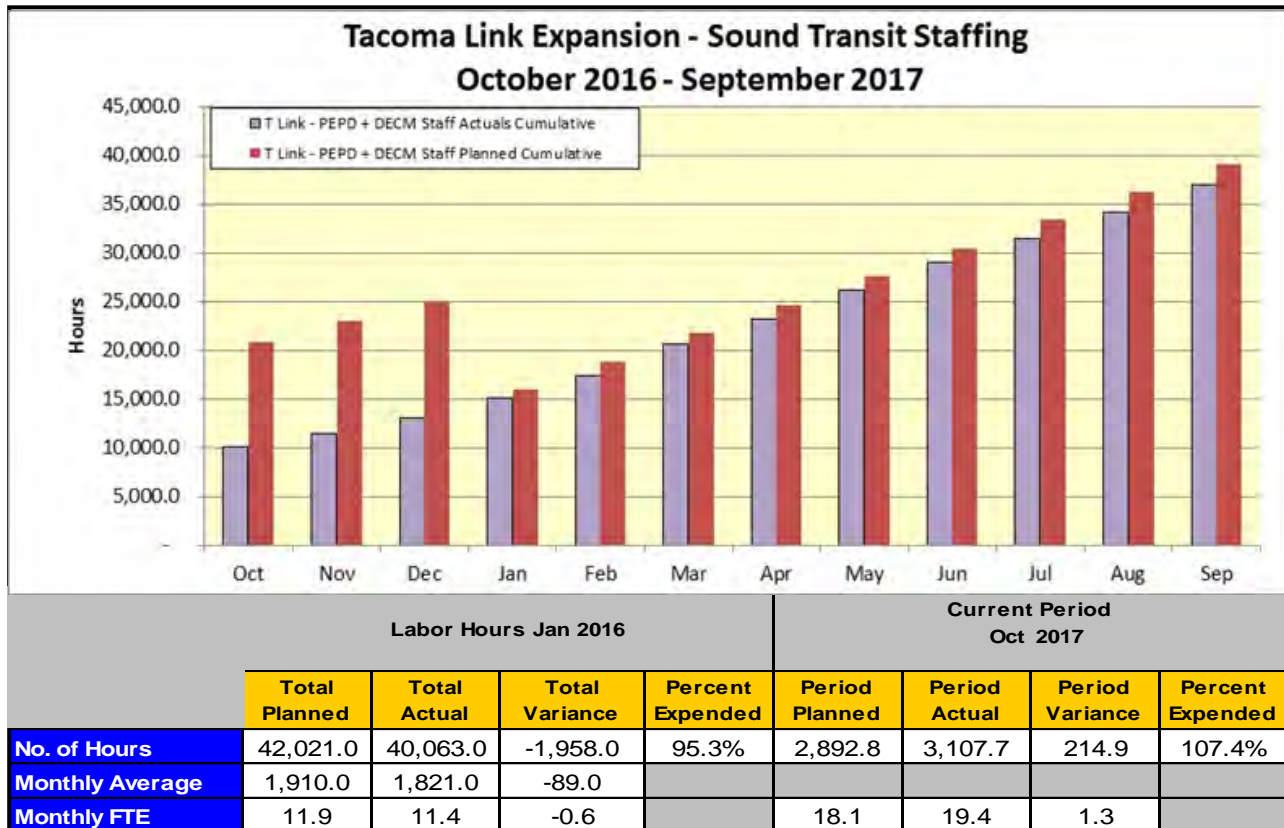
During October there were 43.7 FTE (104% of plan) assigned to the Tacoma Link Expansion including 24.3 consultant FTE (1% above plan) and 19.4 internal FTE (7% above plan). Average year-to-date staffing (46 FTE/mo.) is 9% (3.9 FTE/mo.) above plan; cumulatively since January 2016 staffing (30.3 FTE/mo.) is trending 11% (2.9 FTE/mo.) above plan.



## Tacoma Link Expansion

### Internal – Tacoma Link Expansion

During October internal staffing for the Tacoma Link Extension (19.4 FTE) was 11% (2.2 FTE) above September staffing and was 7% (1.3 FTE) above plan. Cumulatively, since January 2016, average monthly internal staffing (11 FTE/mo.) is trending 4.7% (0.6 FTE/mo.) below plan.



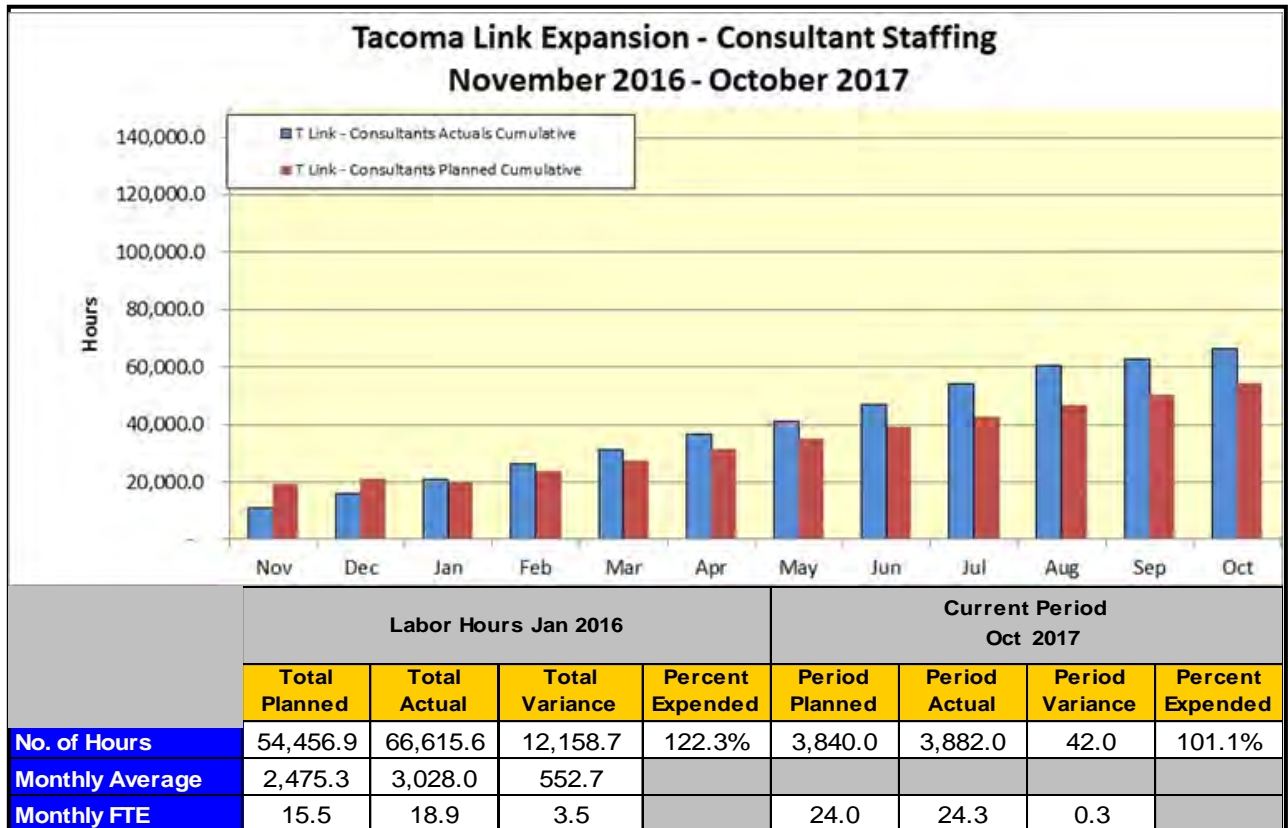
# Link Light Rail Staffing Report



## Tacoma Link Expansion

### Consultant Resource Commitments – Tacoma Link Expansion

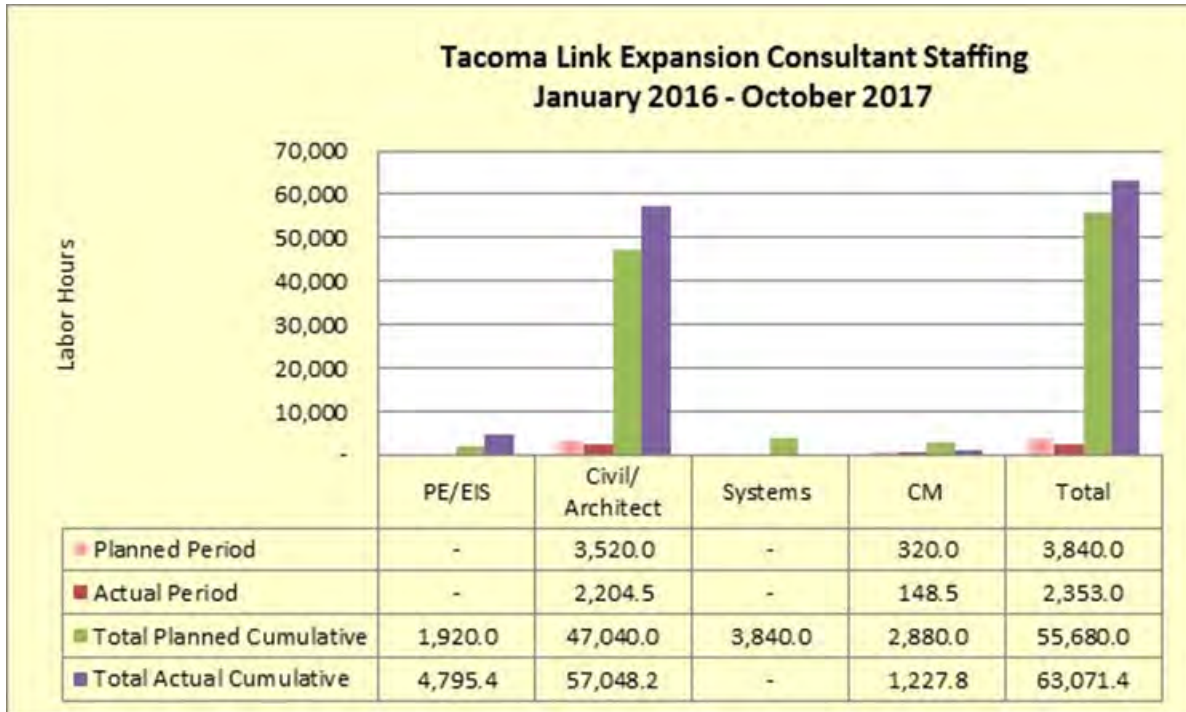
There were 24.3 consultant FTE assigned to the Tacoma Link Extension during October. Consultant staffing was 1% (0.3 FTE) above plan and was 65% (9.3 FTE) above September staffing. Cumulatively since January 2016, average monthly consultant staffing (18.9 FTE/mo.) is trending 22% (3.5 FTE/mo.) above plan.



## Tacoma Link Expansion

### Consultant Resource Commitments to Tacoma Link Expansion

Ninety-one percent of consultant staff assigned to the Tacoma Link Extension (22.9 FTE) were supporting final design; there was 1.4 FTE providing construction management support.



# Link Light Rail

## Acronyms



### ACRONYMS

AA	Alternative Analysis
APE	Area of Potential Impact
BCE	Baseline Cost Estimate
BCWS	Budgeted Cost of Work
BIM	Building Information Modeling
BNSF	Burlington Northern Santa Fe Railway
CCB	Change Control Board
CDF	Controlled Density Fill
CHS	Capitol Hill Station
CM	Construction Management
CMU	Concrete Masonry Unit
CO	Change Order
CPI	Cost Performance Index
CPM	Critical Path Method
DAHP	Department of Archaeology & History Preservation
DART	Days Away, Restricted or Modified
DB	Design -Build
DECM	Design, Engineering and Construction Management
DEIS	Draft Environmental Impact Statement
DPD	Seattle Department of Planning and Development
DSC	Differing Site Conditions
DSDC	Design Support During Construction
DSTT	Downtown Seattle Transit Tunnel
EFC	Estimated Final Cost
EMI	Electro Magnetic Interference
FD	Final Design
FHWA	Federal Highway Administration
FSEIS	Final Supplemental Environmental Impact Statement
FFGA	Full Funding Grant Agreement
FTA	Federal Transit Administration
FTE	Full Time Employee
GC/CM	General Contractor /Construction Management
HVAC	Heating, Ventilation and Air Conditioning
ICD	Integration Control Document
IRT	Independent Review Team
IWP	Industrial Waste Permit
JA	Jacobs Associates
JARPA	Joint Aquatic Resource Permit Application
KCM	King County Metro
LNTF	Limited Notice to Proceed

## ACRONYMS, continued

LRRP	Light Rail Review Panel
LRT	Light Rail Transit
LRV	Light Rail Vehicle
LTK	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



## 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
UDS	University District Station
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