

# Progress Report

## Link Light Rail Program

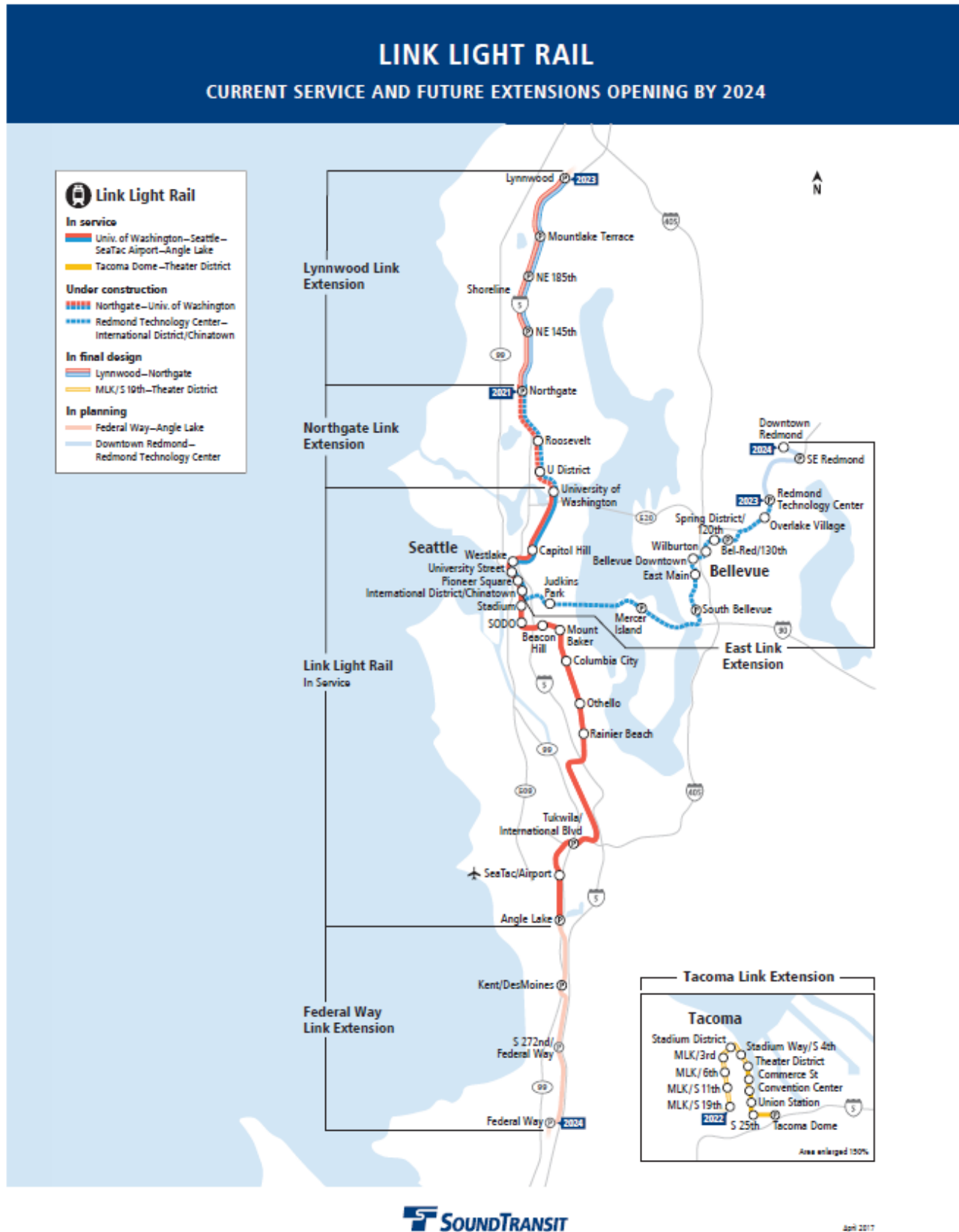
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Roosevelt Station Site

JUNE | 2017





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.

**South 200th Link Extension:** S. 200th Link Extension consists of a 1.6-mile extension of the light rail from the SeaTac/Airport Station to an elevated station at South 200th Street. The Project was developed through a design-build (DB) delivery strategy. The Sound Transit Board adopted the baseline capital budget of \$383.2M in 2011. Revenue Service began on September 24, 2016.

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

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

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

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

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

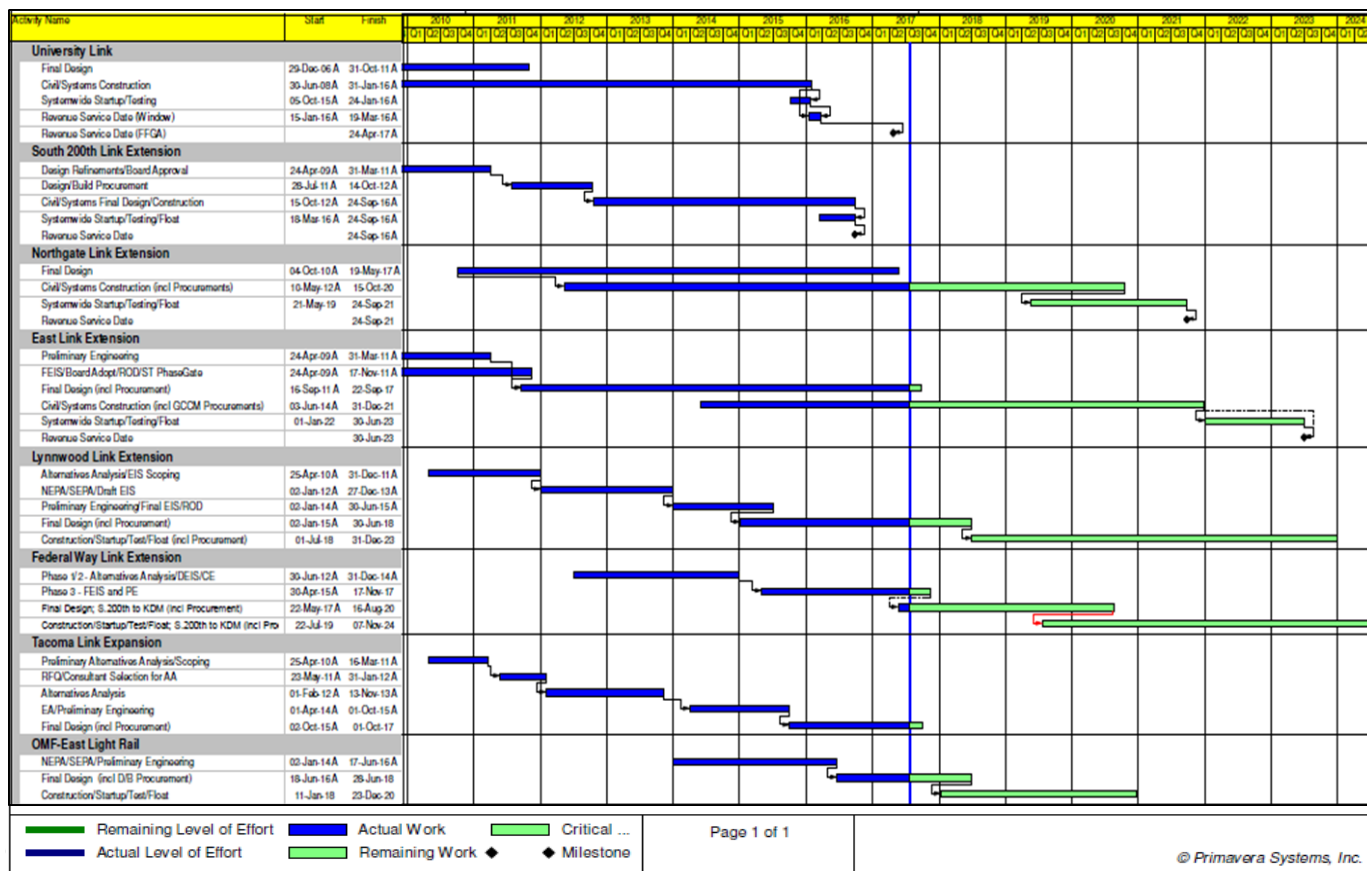
## Program Budget

Project	Adopted Budget	Committed to Date	Incurred to Date	Forecast to Complete	Estimated Final Cost	Adopted Budget vs. EFC
University Link	\$1,756.0	\$1,514.7	\$1,502.5	\$39.4	\$1,554.1	\$201.9
Northgate Link Extension	\$1,899.8	\$1,566.7	\$893.4	\$333.1	\$1,899.8	\$0
Lynnwood Link Extension	\$488.4	\$213.6	\$146.1	\$274.7	\$488.4	\$0
East Link Extension	\$3,677.2	\$2,704.1	\$778.6	\$973.2	\$3,677.3	\$0
South 200th Link Extension	\$383.2	\$332.0	\$326.9	\$9.3	\$341.2	\$42.0
Federal Way Extension	\$412.6	\$53.3	\$43.7	\$359.3	\$412.6	\$0
Tacoma Link Expansion	\$34.6	\$21.6	\$16.7	\$13.0	\$34.6	\$0
Link O & M Facility: East	\$449.2	\$288.3	\$55.3	\$161.0	\$449.2	\$0
ST2 LRV Expansion	\$740.7	\$653.6	\$10.4	\$87.2	\$740.7	\$0
Downtown Redmond Link Ext.	\$28.6	\$13.8	\$3.3	\$14.9	\$28.7	\$0
<b>Total Link</b>	<b>\$9,870.3</b>	<b>\$7,361.7</b>	<b>\$3,776.9</b>	<b>\$2,264.9</b>	<b>\$9,626.6</b>	<b>\$243.9</b>

Table in millions.

## Program Schedule

Schedules for active projects are summarized below.

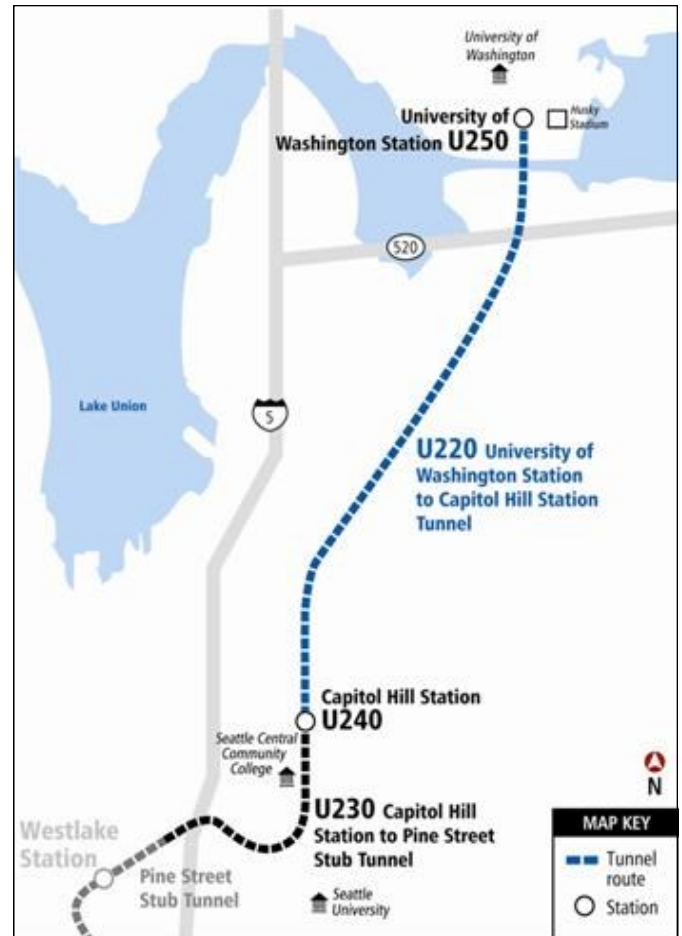




# Link Light Rail University Link Extension

## Scope

- Limits:** 3.15-mile extension of the Initial Segment light rail transit (LRT) system from the Pine Street Stub Tunnel (PSST) in downtown Seattle to University of Washington (UW) 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

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

## 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	\$ 82.04	\$ 81.23	\$ 88.17	\$ 25.38
PRELIMINARY ENGINEERING	\$ 24.39	\$ 24.26	\$ 24.26	\$ 24.26	\$ 24.26	\$ -
FINAL DESIGN	\$ 77.94	\$ 90.31	\$ 87.98	\$ 86.16	\$ 88.66	\$ 1.65
CONSTRUCTION SERVICES	\$ 68.53	\$ 94.81	\$ 86.91	\$ 86.49	\$ 88.71	\$ 6.11
3rd PARTY AGREEMENTS	\$ 18.65	\$ 18.65	\$ 11.65	\$ 11.30	\$ 13.23	\$ 5.42
CONSTRUCTION	\$ 1,180.00	\$ 1,158.18	\$ 996.21	\$ 987.42	\$ 1,022.37	\$ 135.82
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>\$ 1,514.68</b>	<b>\$ 1,502.50</b>	<b>\$ 1,554.09</b>	<b>\$ 201.92</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>\$ 1,706.39</b>	<b>\$ 1,677.37</b>	<b>\$ 1,745.80</b>	<b>\$ 201.92</b>

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

In June, the projected Estimated Final Cost (EFC) including Finance Cost remains at about \$1.75B. As the project inches closer to close out, the timing for expenditure becomes less predictable. This period, after some cost adjustments the project expenditure net approximately \$940K and continues to inch the project's Incurred to Date amount above to \$1.5B (Finance Cost excluded). Direct construction activities pertain to close out and miscellaneous follow on work. The construction EFC continues to be approximately \$1B. The trend continues to hold as the project is essentially completed with only miscellaneous follow on scope and commercial issues remaining. Systems (U830) continues optimization process with some operational equipment purchases trailing. The Total Incurred to Date for the Construction Phase is about \$987M and LRV is at about \$99.2M. Cost of repairs are excluded from this project and tracked independently.

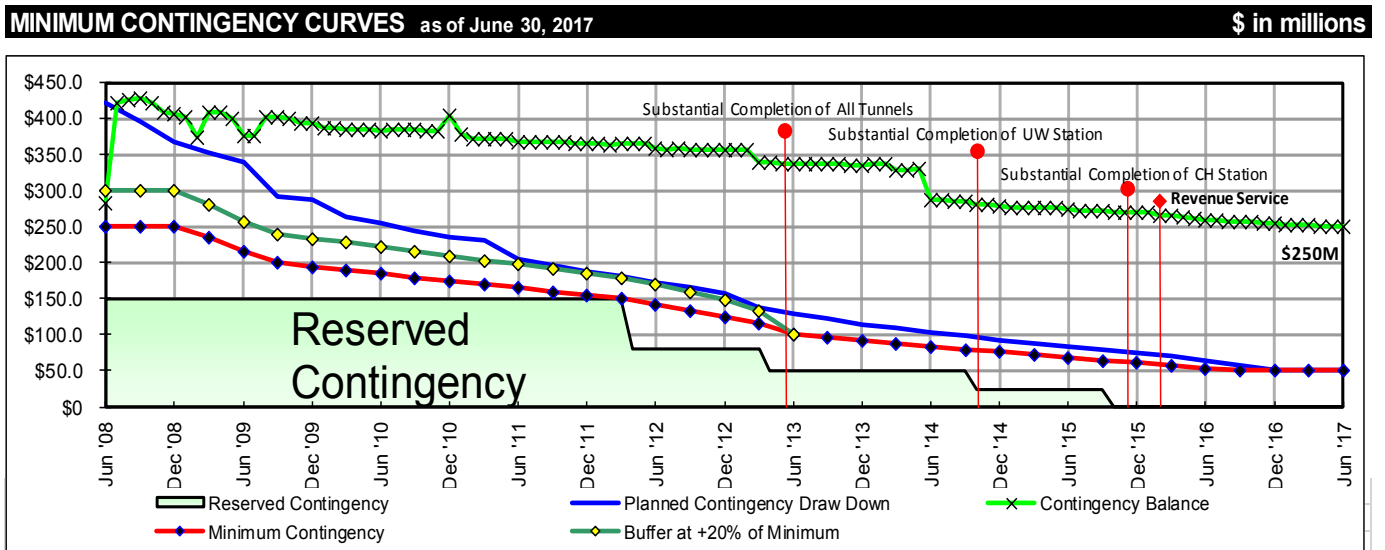
Construction EFC under the SCC format remains relatively unchanged at about \$1B. Construction SCC expenditures to date at about \$975M an increase of about \$0.1M—mostly attributed to Systems' continuing optimization and resolutions to change order work and miscellaneous follow on work. Total capital cost incurred to date including 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 June 2017 close including Finance Cost is at \$1.67B. The financing cost incurred to date is about \$175M. University Link EFC continues to be projected to close out with at least \$200M under budget excluding financing cost.

Project Elements by SCC	Baseline Budget	Current Adopted Budget	Commitment to Date*	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
10 Guideway & Track Elements	\$ 626.83	\$ 450.46	\$ 456.22	\$ 455.73	\$ 461.23	\$ (10.77)
20 Stations	\$ 366.33	\$ 350.75	\$ 344.88	\$ 343.04	\$ 353.09	\$ (2.34)
30 Support Facilities: Yards, Shops	\$ 7.01	\$ 24.83	\$ 23.43	\$ 23.30	\$ 24.80	\$ 0.03
40 Sitework & Special Conditions	\$ 59.03	\$ 67.39	\$ 57.08	\$ 54.73	\$ 56.91	\$ 10.48
50 Systems	\$ 69.63	\$ 116.42	\$ 101.55	\$ 98.26	\$ 102.40	\$ 14.03
<b>Construction Subtotal (SCC 10-50)</b>	<b>\$ 1,128.82</b>	<b>\$ 1,009.85</b>	<b>\$ 983.16</b>	<b>\$ 975.05</b>	<b>\$ 998.42</b>	<b>\$ 11.43</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	\$ 305.22	\$ 301.15	\$ 318.26	\$ 28.33
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>\$ 1,514.68</b>	<b>\$ 1,502.50</b>	<b>\$ 1,554.09</b>	<b>\$ 201.92</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>\$ 1,706.39</b>	<b>\$ 1,677.37</b>	<b>\$ 1,745.80</b>	<b>\$ 201.92</b>

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

## Cost Contingency Management

At this close out stage of the project, contingencies remains very healthy at approximately \$250M. 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 June, overall contingencies notched down by about \$320K due to miscellaneous change orders 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

Processing outstanding commercial issues.

### Close-out Activities

#### Current Period

- Continued processing outstanding commercial issues.

#### Next Period

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

### Closely Monitored Issues

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

### 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

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

### Closely Monitored Issues

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

### Cost Summary

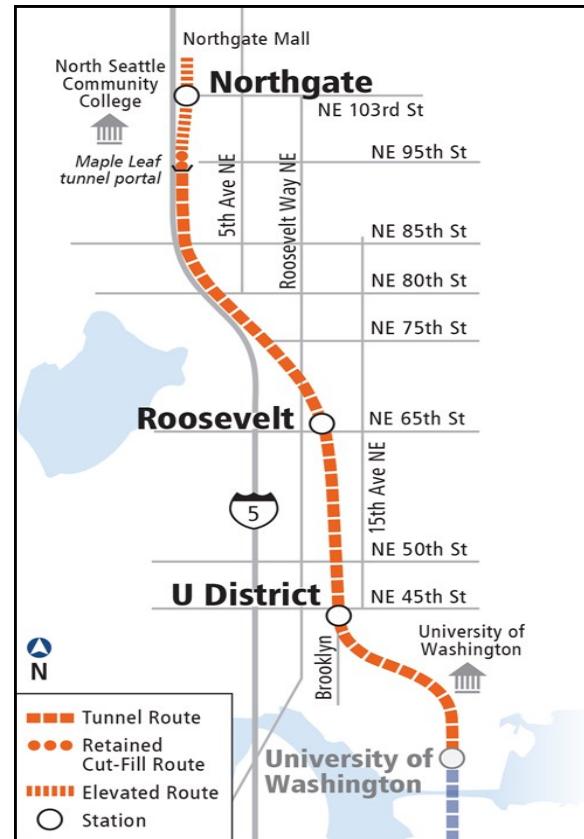
Present Financial Status	Amount
<b>U830 GC/CM Contractor - Stacy &amp; Witbeck</b>	
Original Contract Value	\$119,167,433
Change Order Value	\$5,582,860
Current Contract Value	\$124,750,293
Total Actual Cost (Incurred to date)	\$121,602,934
Financial Percent Complete	97.5%
Physical Percent Complete: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

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# 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 *U District Station* is an underground station located on the west side of the UW campus near Brooklyn Ave. and NE 45<sup>th</sup> St. The *Roosevelt Station* is an underground station located near NE 65<sup>th</sup> St. and 12<sup>th</sup> Ave NE. The *Northgate Station* is an elevated station located at the southwest edge of the Northgate Mall property.
- Systems:** Include Signals, track electrification, and SCADA communications.
- Budget:** \$1.899 Billion
- Service:** September 2021
- Phase:** Final Design and Construction



Map of Northgate Link Extension route and stations.

## Key Project Activities

- An agreement is in progress with N125 Contractor (JCM) to handover UDS shaft by mid-July and to complete all outstanding work between UDS and UWS by mid-November 2017.
- CCB approved the change order with JCM settling the remaining N125 budget and schedule impacts associated with Cross Passage 23 ground freezing work.
- *For N125 TBM Tunnels*, JCM continued post-construction building surveys in the Roosevelt Station Area.
- *For N150 Roosevelt Station*, Contractor (Hoffman) continued rebar installation and invert pours and began station work for ground cables, embeds and system grounding.
- *For N160 Northgate Station*, Contractor (Absher) maintained dewatering, continued tieback and lagging installation at the garage site, and continued drilled shafts and girder erection for the elevated station.
- *For N180 Trackwork*, Design team evaluated weights of the first 20 production floating slabs.

## Closely Monitored Issues

- Design changes on the Lynnwood Link Extension tail track will result in additional costs incurred on the N160 Northgate Station contract. Interface coordination is ongoing.

## Project Cost Summary

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

### Cost Summary by Phase

Project Phase	Baseline Budget	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
ADMINISTRATION	\$147.9	\$147.9	\$47.7	\$48.7	\$147.9	\$0.0
PRELIMINARY ENGINEERING	\$15.1	\$15.1	\$15.1	\$15.1	\$15.1	\$0.0
FINAL DESIGN	\$129.2	\$129.2	\$116.6	\$104.6	\$129.2	\$0.0
CONSTRUCTION SERVICES	\$118.3	\$118.3	\$86.2	\$53.1	\$118.3	\$0.0
3rd PARTY AGREEMENTS	\$11.8	\$11.8	\$10.0	\$6.3	\$11.8	\$0.0
CONSTRUCTION	\$1,343.0	\$1,343.0	\$1,197.2	\$572.2	\$1,343.0	\$0.0
ROW	\$112.3	\$112.3	\$93.9	\$93.4	\$112.3	\$0.0
PROJECT CONTINGENCY	\$22.2	\$22.2	\$0.0	\$0.0	\$22.2	\$0.0
<b>Total</b>	<b>\$1,899.8</b>	<b>\$1,899.8</b>	<b>\$1,566.7</b>	<b>\$893.4</b>	<b>\$1,899.8</b>	<b>\$0.0</b>

The Estimated Final Cost (EFC) for the project as of this reporting period is \$1,899.8M, which is equal to the current project budget. This period approximately \$21.9M was incurred, of which \$18.6M was for the N125 tunneling contract, the N140, N150, and N160 Station Finishes contracts, the N180 Trackwork and N830 Systems contracts, and other miscellaneous construction; \$0.4M was incurred for civil and systems final design and design support during construction; and \$1.2M was for construction management. The remaining expenditures were for third party coordination, permits, staff, legal, right-of-way and other direct charges.

### Cost Summary by SCC

SCC Element	Baseline Budget	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
10 GUIDEWAY & TRACK	\$595.6	\$547.6	\$493.8	\$370.5	\$548.7	(\$1.2)
20 STATIONS	\$376.1	\$429.0	\$414.8	\$78.8	\$430.5	(\$1.5)
30 SUPPORT FACILITIES: YARD, SHOP	\$5.3	\$5.3	\$6.4	\$5.3	\$6.4	(\$1.1)
40 SITEWORK & SPECIAL CONDITIONS	\$140.8	\$225.1	\$165.3	\$105.1	\$218.9	\$6.1
50 SYSTEMS	\$110.9	\$95.1	\$106.7	\$4.2	\$97.4	(\$2.3)
<b>Construction Subtotal (SCC 10 - 50)</b>	<b>\$1,228.7</b>	<b>\$1,302.1</b>	<b>\$1,187.1</b>	<b>\$564.0</b>	<b>\$1,302.1</b>	<b>\$0.0</b>
60 ROW, LAND, EXISTING IMPROVEMENTS	\$119.9	\$110.9	\$93.9	\$93.4	\$110.9	\$0.0
80 PROFESSIONAL SERVICES	\$420.7	\$429.1	\$285.8	\$236.0	\$429.0	\$0.1
90 CONTINGENCY	\$130.4	\$57.8	\$0.0	\$0.0	\$57.8	(\$0.1)
<b>Capital Total (SCC 10 - 90)</b>	<b>\$1,899.8</b>	<b>\$1,899.8</b>	<b>\$1,566.7</b>	<b>\$893.4</b>	<b>\$1,899.8</b>	<b>\$0.0</b>

## Cost Contingency Management

Compared to the baseline amount of \$396.2M, the Total Contingency has decreased by \$158.7M to \$237.5M, which is 23.6% of project work remaining. During this reporting period, an increase of \$15.8M in the overall project contingency occurred. Detailed information is provided below.

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



# Link Light Rail Northgate Link Extension

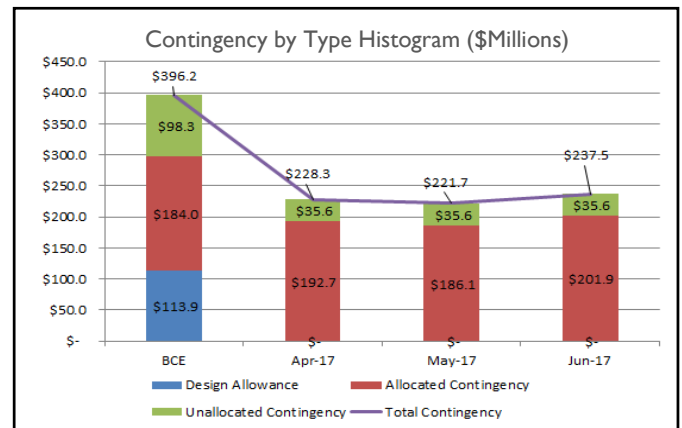


## Cost Contingency Management, continued

**Allocated Contingency (AC)**– Compared to the baseline amount of \$184.0M, Allocated Contingency has increased by \$17.9M to \$201.9M. During this reporting period, a net increase of \$15.8M occurred in the AC following execution of the N830 Systems contract and award of additional contingency on the Systems CMC contract which added a total of \$17.7M, but was offset by a \$1.9M decrease due to change orders on the N125, N160 and N180 construction contracts.

**Unallocated Contingency (UAC)** – Compared to the baseline amount of \$98.3M, Unallocated Contingency has decreased 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%	\$ 201.9	20.1%
Unallocated Contingency	\$ 98.3	4.6%	\$ 35.6	3.5%
<b>Total</b>	<b>\$ 396.2</b>	<b>18.6%</b>	<b>\$ 237.5</b>	<b>23.6%</b>



## Project Schedule

The N113 115kV Transmission Line work is completed. This completes all of the advanced utility relocation contracts for the Northgate Link Extension.

The N125 Tunneling Contractor (JCM) is continuing work on cross passages and tunnel finishes. As of June 30, JCM has not submitted June's schedule. The latest schedule update (May) separates completion of the tunnel work between UWS and UDS (Milestone 5) from the handover of the UDS site. The schedule indicates handover of the station site in August 2017, and achievement of Milestone 5 in October 2017. ST is pushing for an earlier turn-over of the UDS Station box in mid-July. Turn-over on this date would still push back all of the N140 milestones and absorb all of the contract interface float between N125 and N140, as well as the interface float between N140 and N180. JCM continues to forecast a 14 day late achievement of Milestone 6 Substantial Completion.

The N140 U District Station Contractor, Hoffman Construction, is continuing to set up the construction offices at the Key Bank site. Review of submittals and the Preliminary Construction Schedule submittal has been completed. ST informed Hoffman to expect site access by mid-July 2017.

At Roosevelt Station (RVS), the N150 contractor, Hoffman Construction, is continuing with the invert pours and has begun preparations for wall pours within the box. Work at RVS remains on schedule.

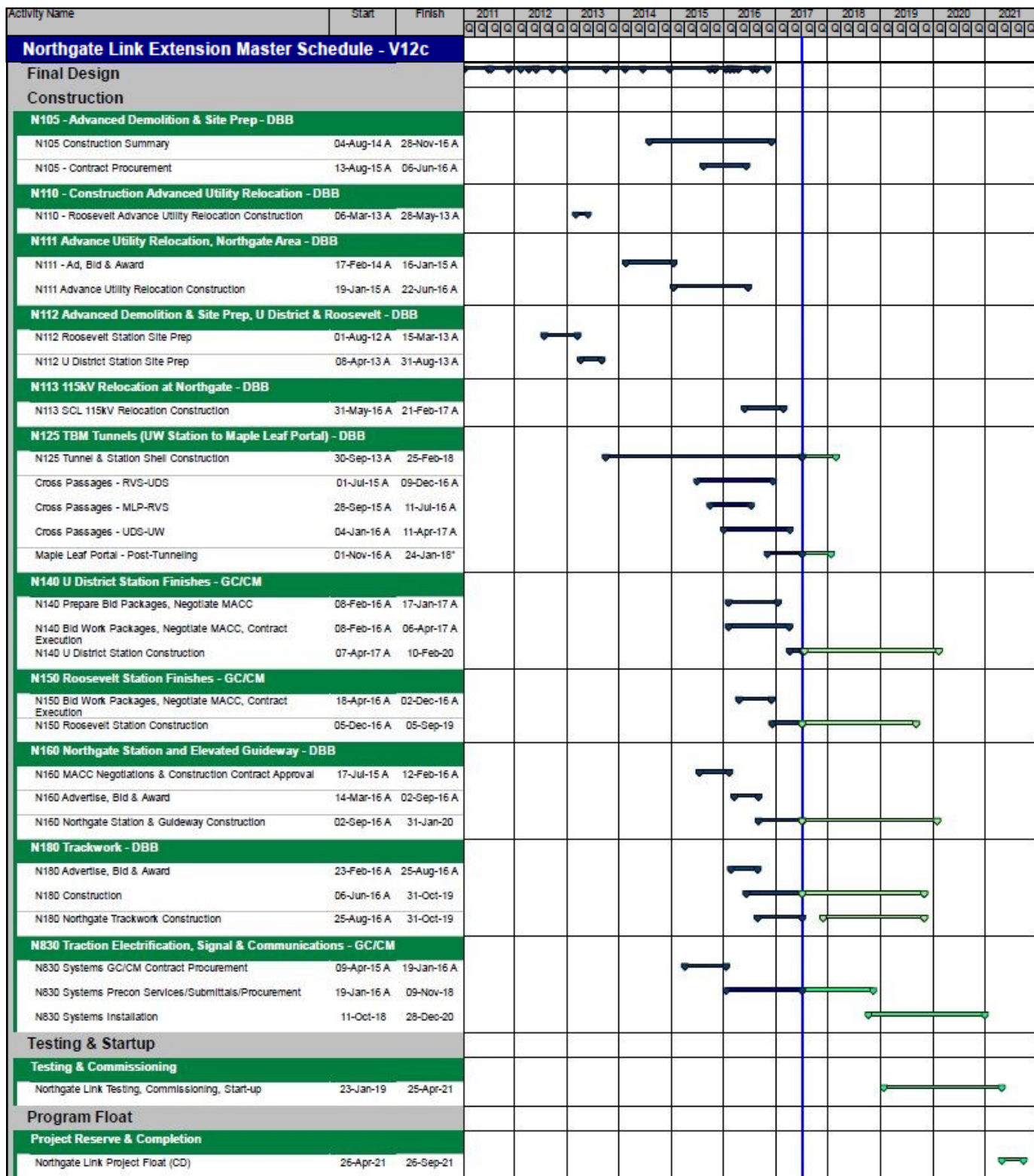
The N160 Contractor, Absher has begun installation of the pre-cast girders at the station. Drilling is proceeding at the "A" series shafts south of the station for Guideway units 1 & 2. Columns are being constructed north of the station for Guideway Unit 4. At the Parking Garage site the contractor is continuing mass excavation, installation of soil nails, timber lagging and soldier piles. Relocation of the storm sewer on 1st Ave. is underway.

The N180 Trackwork contract is currently casting the initial 3'10" test slabs and receiving the forms for the 7' slabs. Isolation pad production for the 5Mhz pads is continuing. The Contractor is finalizing the order with British Steel for the Ultra-Straight Rail.

The N830/E750 Systems contract was issued the NTP on June 2, 2017. Mass Electric is currently working on submission of early submittals and the Preliminary Schedule.

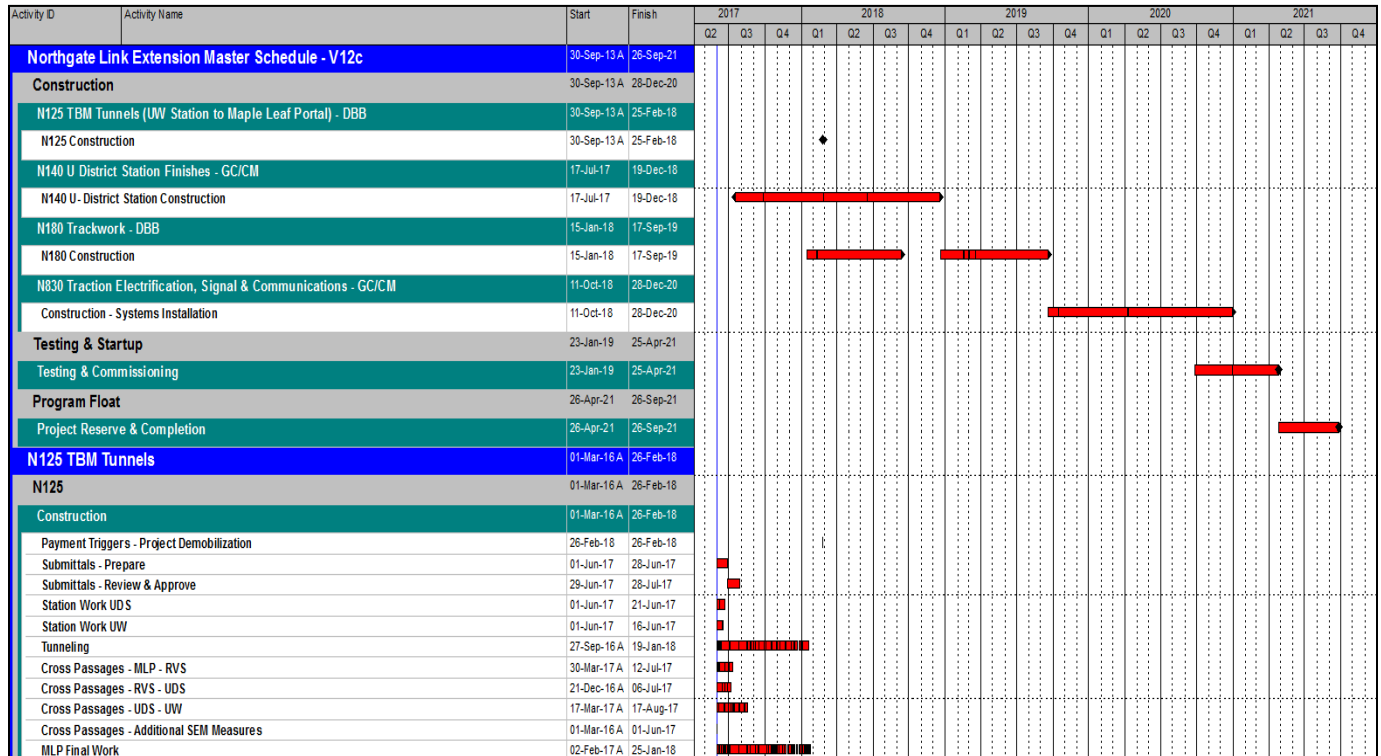
Revenue Service date for Northgate Link Extension is scheduled in September 2021. See schedule on the following page.

## Project Schedule, continued



## Critical Path Analysis

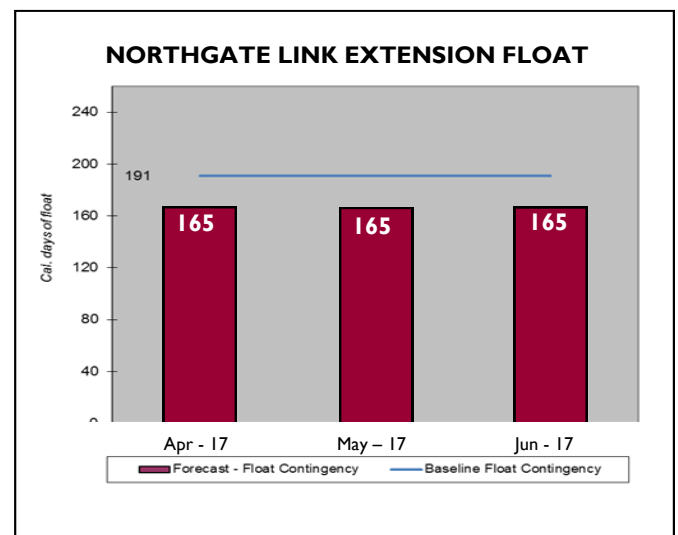
The critical path for the Northgate Link Extension remains the completion of cross passage work in the UWS to UDS segment, to a degree sufficient to allow turnover of the UDS station to the N140 contractor. ST CM is continuing to negotiate with JCM regarding this turnover. A turnover in mid-July is likely and will result in the loss of contract interface float, but does not alter the overall critical path of N125 turnover to N140, N140 turnover to N180 for trackwork, and subsequently to the N830 Systems contract. An access date of mid-July for N140 will result in the loss of 30 days of interface float, as well as the potential loss of 11 days of project float. ST is working with both JCM and Hoffman in an effort to mitigate the impacts to the project schedule.



## Critical Path Float

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

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



## Construction Safety

Data/ Measure	June 2017	Year to Date	Project to Date
Recordable Injury/Illness Cases	4	14	68
Days Away From Work Cases	0	0	4
Total Days Away From Work	0	0	219
Restricted or Modified Work Cases	0	4	27
Total Days Restricted or Modified Work	0	81	978
First Aid Cases	0	4	55
Reported Near Mishaps	1	4	58
Average Number of Employees on Worksite	426	-	-
<b>Total # of Hours (GC &amp; Subs)</b>	<i>120111</i>	<i>53,6450</i>	<i>2,509,322</i>
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	6.66	5.22	5.42
DART Rate	0.00	1.49	2.47
<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>

## Right of Way

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

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

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

**Northgate Station** - All parcels have been acquired.

### Tunnel Easements:

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

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

Line Section	Total Parcels Certified	Offers Made	Signed Agree- ments	Admin. Settle- ments	Posses- sion and Use (P&U)	Closings to date	Baseline Relocations Required	Relocations Completed
U District Station	15	15	0	0	0	15	3	3
Roosevelt Station	19	19	0	0	0	19	26	26
Tunnel Easements	190	188	0	0	0	188	0	0
Northgate Station	11	11	0	0	0	9	13	13
<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 includes the following:
  - Street restorations (1) along 12th Ave NE above CP31; (2) along Banner Way NE above CP37 & 38; and along NE 69th Street above CP34.
  - Work at UDS site.
- Prepared signage and volunteered at the Roosevelt Neighborhood Association's Weed-in Place Planting Party.
- Briefed North Seattle Community Council and Maple Leaf Community Council on Northgate Station construction.

## Sound Transit Board Actions

Board Action	Description	Date
	None to report.	

## Environmental

- None to report.

### Major Construction Contract Packages

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

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

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

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

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

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

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

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

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

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

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

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

### Construction Schedule Highlights

Package	Bid Advertisement	NTP	Substantial Completion
N105-Advance Demolition & Site Prep	Mar 2016A	May 2016A	Nov 2016A
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	Jan 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

# Link Light Rail Northgate Link Extension - Construction



## Contract N113– 115kv Relocation at Northgate Station

### Close-out

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

Care and custody of the line has been transferred to Seattle City Light. This project is in the process of final payment and close-out.

*No further updates will be made on this contract.*

### Cost Summary

Present Financial Status	Amount
<b>N113 Contractor - Potelco, Inc</b>	
Original Contract Value	\$2,811,926
Change Order Value	\$ 55,943
Current Contract Value	\$2,755,983
Total Actual Cost (Incurred to date)	\$2,755,983
Financial Percent Complete:	100%
Physical Percent Complete:	100%
Authorized Contingency	\$281,194
Contingency Drawdown	\$ 55,943
Contingency Index	5.03

## Contract N125 – TBM Tunnels

### Current Progress

JCM is continuing work on the Cross Passages (CP), tunnel inverts, troughs, electrical, and fire standpiping. UDS - Removal of temporary invert slab underway.

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

*Cross Passage Construction*—Work in progress at the end of this period: surface restorations at cross passage locations, completed cross passage 23 concrete; continuing fire standpipe installation, and electrical installations. Installation of tunnel signage and handrailing underway.

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

### Schedule Summary

As of June 30, Sound Transit has not received this period's schedule update from JCM. JCM's latest schedule is the May update indicating a late achievement of Milestone No. 6 Substantial Completion of February 25, 2018, 14 calendar days behind schedule. Milestone No. 5 – Completion of the Tunnels between UDS and UWS is shown as having a negative 180 days of float, with a completion of October 29, 2017. JCM has added a separate activity for the turnover of the UDS site with date of August 8, 2017. Sound Transit has not accepted this turnover date and continues to work with JCM on achieving a turnover in early to mid-July.

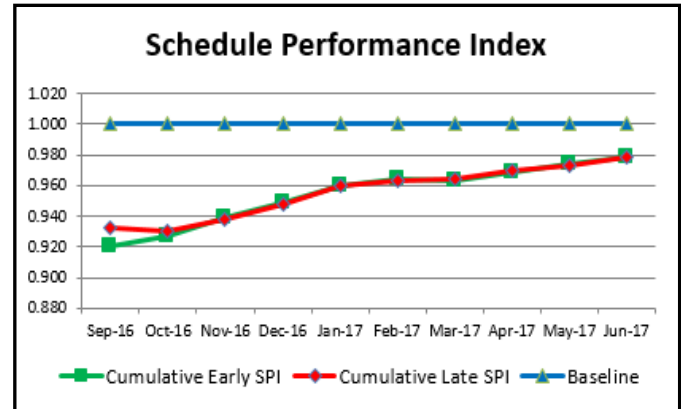
Activity ID	Activity Name	Start	Finish	2017												2018		
				May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar				
N125 Schedule Update May-17		26-Aug-13 A	26-Feb-18															
N125		26-Aug-13 A	26-Feb-18															
Construction		26-Aug-13 A	26-Feb-18															
Payment Triggers - Project Mobilization		26-Aug-13 A	30-Apr-14 A															
Payment Triggers - TBM #1 TBM Mobilization		07-Apr-15 A	11-May-15 A															
Payment Triggers - TBM #2 TBM Mobilization		13-May-15 A	16-Jun-15 A															
Payment Triggers - TBM #3 TBM Mobilization		01-Mar-16 A	31-Mar-16 A															
Payment Triggers - Project Demobilization		26-Jan-18	26-Feb-18															
Submittals - Prepare		26-Aug-13 A	28-Jun-17															
Submittals - Review & Approve		28-Aug-13 A	28-Jul-17															
Procurement Tasks		26-Aug-13 A	12-Aug-16 A															
Construction / Sound Wall - Construction		31-Oct-13 A	12-Feb-15 A															
Station Work MLP		30-Sep-13 A	07-Jun-17															
Station Work Roosevelt		07-Oct-13 A	30-Nov-16 A															
Station Work UDS		10-Dec-13 A	21-Jun-17															
Station Work UW		15-Dec-16 A	16-Jun-17															
UW Campus EMI System		01-Sep-15 A	31-Oct-15 A															
Tunneling		06-Mar-14 A	19-Jan-18															
Cross Passages - MLP - RVS		13-Jan-15 A	26-Jul-17															
Cross Passages - RVS - UDS		19-Jun-15 A	06-Jul-17															
Cross Passages - UDS - UW		24-Nov-15 A	17-Aug-17															
Cross Passages - Additional SEM Measures		01-Mar-16 A	01-Jun-17															
MLP Final Work		01-Jul-15 A	25-Jan-18															
Trench Safety Systems		01-Apr-14 A	30-Jun-14 A															



# Link Light Rail Northgate Link Extension - Construction

## Schedule Performance Index

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



## Key Activities

### Current Period

- Continued post-construction building surveys along alignment.
- Continued permanent surface restoration at multiple cross passage locations.
- Completed wiring for lighting fixtures; completed priming door frames for painting at multiple cross passages.
- Continued installation of tunnel signage and handrails.
- Continued segment patching and leak repairs.
- Continued concrete pours for electrical utility trenches in tunnels.
- Began electrical systems testing & commissioning.
- Continued installation of permanent fire standpipe and overhead electrical.
- Continued breaking out temporary invert slab, removal of concrete debris, and excavation down to shaft permanent slab elevation at UDS.
- Completed concrete pour for the east retaining stem wall and east portal lower fascia wall at MLP.

### Next Period

- Continue permanent surface restoration.
- Continue final electrical wiring at cross passages.
- Resume installation of fire standpipe in cross passages.
- Continue installation of walkway electrical conduit duct bank and tunnel handrails.
- Continue electrical systems testing and commissioning.
- Continue installation of rebar/formwork and concrete pour for the MSE moment slab barrier wall and fascia walls at MLP.
- Complete handover of UDS to follow-on contractor.

## Closely Monitored Issues

- The SB tunnel overhead electrical work from UWS to UDS has been progressing at a very slow pace. Electrical subcontractor, Elcon, has now added some resources and will move teams from UDS-RVS tunnels to this critical area.

## Cost Summary

Present Financial Status	Amount
<b>NI25 Contractor - JCM Northlink</b>	
Original Contract Value	\$440,321,000
Change Order Value	\$ 48,339,370
Current Contract Value	\$488,660,370
Total Actual Cost (Incurred to date)	\$461,075,399
Financial Percent Complete:	94.4%
Physical Percent Complete:	95.0%
Authorized Contingency	\$66,048,150
Contingency Drawdown	\$48,339,370
Contingency Index	1.30



MLP: Installing rebar for east retaining wall before forming and concreting.

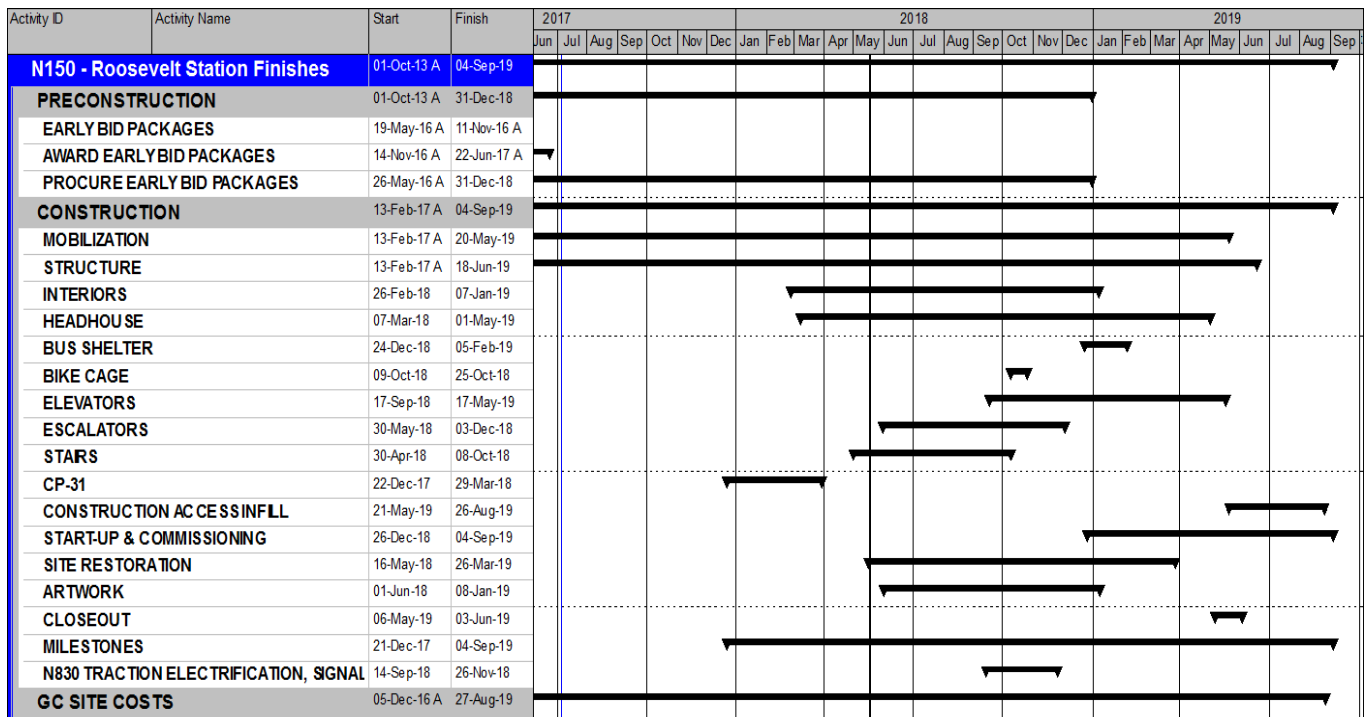
## Contract N150 – Roosevelt Station Finishes

### Current Progress

Hoffman Construction is continuing with forming and pouring of the invert slabs. The north invert slabs are 100% complete, the south invert slabs are 94% complete. Wall and pilaster pours at the Platform Level will begin in July.

### Schedule

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



# Link Light Rail Northgate Link Extension - Construction

## Key Activities

### Current Period

- Continued to prepare and process submittals and RFIs.
- ST approved BP3 for vertical transportation for Hoffman to award Schindler the elevators and escalators.
- Continued with the invert slabs and wall pours through the south of the station.
- In slab conduits and drain piping were installed.
- Wall rebar and pilaster rebar was installed in the north, center, and south sections of the site.
- Continued pilaster steel installation.
- Continued center station work for ground cables, embeds and systems grounding.
- Began installation of grounding cables to OCS embeds in center station walls.

### Next Period

- Continue to prepare, review and respond to submittals and RFIs.
- Continue work on rebar installation, working north to south.
- Final invert slab will be poured.
- Continue 2-3 wall pours a week.
- Continue center station grounding, embeds and system grounding.
- Begin wall and pilaster pours at platform level.

## Closely Monitored Issues

- RFC 002 was received indicating a code requirement that escalator controllers require a stand-alone escalator machine room. This may cause a longer fabrication time for the escalators and may have cost and schedule impacts. The potential impact is currently under review by ST and Design.

## Cost Summary

Present Financial Status	Amount
<b><i>N150 Contractor - Hoffman Construction</i></b>	
Original Contract Value	\$152,291,184
Change Order Value	\$ 280,960
Current Contract Value	\$152,572,144
Total Actual Cost (Incurred to date)	\$22,546,459
Financial Percent Complete:	14.8%
Physical Percent Complete:	11.7%
Authorized Contingency	\$7,614,559
Contingency Drawdown	\$280,960
Contingency Index	3.17



Setting the DOKA wall form for wall.

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

### Current Progress

The N160 Contractor, Absher Construction, is currently preparing the formwork for the track slab and girder installation between columns C1 and C5, placing concrete for columns B7 and B8, as well as placing the drilled shafts for Units 1 and 2. Absher has installed a bypass at Thornton Creek, allowing them to work within the “Fish Window”.

At the Parking Garage, Absher is continuing mass excavation and installation of tie-backs and lagging. ST has approved the use of shotcrete for the initial wall placement and the test panel has been completed. Waterproofing is underway, as is preparation for installation of the tower crane.

### Schedule

Absher’s June schedule update forecasts an on time achievement of Substantial Completion. The Parking Garage completion, Milestone No. 3, has improved from 10 days behind schedule to 3 days behind schedule. Milestone No. 1, completion of Guideway Units 1-3 continues to exhibit negative 14 days of float. Absher has asserted this is due to delays in the utility relocations in 1st Ave. NE. that resulted in the drilled shaft subcontractor sending their crews offsite for a period of approximately 1 week. ST is developing an independent analysis of delays, including inefficiencies on the Contractor’s part.

Activity ID	Activity Name	OD	RD	Start	Finish	2017				2018				2019				2020				2021														
						J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
N160 - Northgate Station Finishes																																				
3.10.1000	MOT 1 - Advance Notification Devices, Pedestrian Detour, Traffic Control, surveys, signage (36 month, 30K)	57	656	17-Oct-16 A	03-Feb-20	MOT 1 - Advance Notification Devices, Pedestrian Detour, Traffic Control																														
3.10.1010	MOT 2 - Setup Outside NB Closure/Lane Shift (A10-B8) (2MB/1SB)	327	243	24-Oct-16 A	15-Jun-18	MOT 2 - Setup Outside NB Closure/Lane Shift (A10-B8) (2MB/1SB)																														
3.10.1040	MOT 5 - Setup for A1-A9/Shoulder Closure-Lane Shift (1NB/1SB)	423	295	28-Oct-16 A	29-Aug-18	MOT 5 - Setup for A1-A9/Shoulder Closure-Lane Shift (1NB/1SB)																														
3.10.1001	Construction Fencing & TESC Maintenance	5	656	07-Dec-16 A	03-Feb-20	Construction Fencing & TESC Maintenance																														
1.05.1070	Parking Garage	401	315	03-Jan-17 A	27-Sep-18	Parking Garage																														
4.70.1015	WA 4.3 - Dewatering (Summary Duration period)	128	138	04-Jan-17 A	18-Jan-18	WA 4.3 - Dewatering (Summary Duration period)																														
1.05.1047	Station Unit - Concrete Structure	297	180	12-Jan-17 A	19-Mar-18	Station Unit - Concrete Structure																														
1.05.1040	Unit 3 - Concrete Structure	214	221	21-Mar-17 A	15-May-18	Unit 3 - Concrete Structure																														
1.05.1030	Unit 2 - Concrete Structure	346	295	30-Mar-17 A	29-Aug-18	Unit 2 - Concrete Structure																														
1.05.1060	Unit 5 - Concrete Structure	181	148	12-Apr-17 A	01-Feb-18	Unit 5 - Concrete Structure																														
1.05.1050	Unit 4 - Concrete Structure	246	243	25-Apr-17 A	15-Jun-18	Unit 4 - Concrete Structure																														
3.10.1030.01	MOT 4 - Setup for 1st Avenue Utilities (1SB)	489	446	01-May-17 A	04-Apr-19	MOT 4 - Setup for 1st Avenue Utilities (1SB)																														
3.10.1050	MOT 6 - Setup for Nighttime Girder Setting (Temp Closures/Deletions)	240	226	31-May-17 A	22-May-18	MOT 6 - Setup for Nighttime Girder Setting (Temp Closures/Deletions)																														
3.10.1020	MOT 3 - Setup for Span C3 Over 103rd (Closure & Signal Mode)	247	228	02-Jun-17 A	24-May-18	MOT 3 - Setup for Span C3 Over 103rd (Closure & Signal Mode)																														
1.05.1020	Unit 1 - Concrete Structure	224	214	16-Jun-17 A	04-May-18	Unit 1 - Concrete Structure																														
1.30.1190	Affected by HPA In-Water Calendar (2017 Season) - WA 1.1 Impacted Elevated Guideway, Bents A04-A07W Substructure	119	117	23-Jun-17 A	18-Dec-17	Affected by HPA In-Water Calendar (2017 Season) - WA 1.1 Impacted Elevated Guideway, Bents A04-A07W Substructure																														
1.05.1120	Utilities, BMP/Fence maintenance, Misc to closeout activities	369	369	30-Oct-17	12-Apr-19	Utilities, BMP/Fence maintenance, Misc to closeout activities																														
1.05.1065	Unit 5 - Guideway Finishes	74	74	02-Feb-18	16-May-18	Unit 5 - Guideway Finishes																														
3.10.1030	MOT 8 - Setup for 1st Avenue Utilities (1NB)	51	51	01-Mar-18	10-May-18	MOT 8 - Setup for 1st Avenue Utilities (1NB)																														
1.05.1090	North Signal Bungalow	120	120	05-Mar-18	21-Aug-18	North Signal Bungalow																														
1.05.1048	Station Unit - Guideway Finishes	23	23	20-Mar-18	19-Apr-18	Station Unit - Guideway Finishes																														
1.05.1067	Station Finishes	391	391	20-Mar-18	01-Oct-19	Station Finishes																														
1.05.1025	Unit 1 - Guideway Finishes	92	92	07-May-18	14-Sep-18	Unit 1 - Guideway Finishes																														
1.05.1044	Unit 3 - Guideway Finishes	67	67	23-May-18	27-Aug-18	Unit 3 - Guideway Finishes																														
1.05.1055	Unit 4 - Guideway Finishes	72	72	18-Jun-18	27-Sep-18	Unit 4 - Guideway Finishes																														
1.05.1080	North TPSS & Signal Bungalow	157	157	30-Jul-18	12-Mar-19	North TPSS & Signal Bungalow																														
1.30.1200	Affected by HPA In-Water Calendar (2018 Season) - WA 1.1 Impacted At-Grade Work, Utilities, Foundations/Retaining Walls	29	29	15-Aug-18	25-Sep-18	Affected by HPA In-Water Calendar (2018 Season) - WA 1.1 Impacted At-Grade Work, Utilities, Foundations/Retaining Walls																														
1.05.1035	Unit 2 - Guideway Finishes	70	70	30-Aug-18	10-Dec-18	Unit 2 - Guideway Finishes																														
1.05.1110	Maple Leaf Portal North	87	87	01-Mar-19	02-Jul-19	Maple Leaf Portal North																														
1.05.1100	Maple Leaf Portal South	83	83	01-Apr-19	26-Jul-19	Maple Leaf Portal South																														
1.30.1210	Affected by HPA In-Water Calendar (2019 Season) - WA 1.1 Impacted At-Grade Work, ID & V	25	25	28-Jun-19	02-Aug-19	Affected by HPA In-Water Calendar (2019 Season) - WA 1.1 Impacted At-Grade Work, ID & V																														
3.10.1060	MOT 7 - WSDOT Shoulder Closures for Landscaping	49	49	02-Oct-19	11-Dec-19	MOT 7 - WSDOT Shoulder Closures for Landscaping																														



# Link Light Rail Northgate Link Extension - Construction

## Key Activities

### Current Period

- *Guideway:* Continued planning and submittals for the north end design changes; Completed girder erection from C1 to C5 and began setting track slab decking, formwork, diaphragms and handrails; Continued drilling, rebar cages and concrete placement for drilled shafts on A and B lines; Continued CSL testing; Continued formwork, starter frames, rebar installation, and concrete placement for line B transition zones and columns; Began tying rebar and placing post-tensioning in line C caps.
- *Parking Garage:* Maintained dewatering for shoring and excavation; Continued tiebacks and lagging; Continued soldier pile installation and lagging for excavation shoring at the north side; Completed shotcrete test panels and coring, and began waterproofing placement; Excavated crane foundation.
- *Offsite Fabrication:* Continued girder and structural steel fabrication.

### Next Period

- Continue guideway activities including excavation, formwork, falsework and girder erection.
- Complete excavation and placement of drilled shafts.
- Continue falsework and concrete for mezzanine beams/bents.
- Continue girder erection.
- *Parking Garage:* Continue mass excavation within the building footprint; Continue lagging and tie-back installation; Continue waterproofing installation; Erect tower crane.

## Closely Monitored Issues

- Interface coordination associated with the Lynnwood Link track re-alignment design changes continue.
- Elevator supply and installation subcontract remains under review.
- Permanent power needs at Station and Garage/transformer sizing under review.

## Cost Summary

Present Financial Status	Amount
<b><i>N160 Contractor - Absher Construction</i></b>	
Original Contract Value	\$174,000,000
Change Order Value	\$ 688,249
Current Contract Value	\$174,688,249
Total Actual Cost (Incurred to date)	\$37,624,997
Financial Percent Complete:	21.5%
Physical Percent Complete:	22.7%
Authorized Contingency	\$17,400,000
Contingency Drawdown	\$ 688,249
Contingency Index	5.73



Girders placed from Bent C1 to Bent C5.

### Contract N180 – Trackwork UWS to Northgate Station

#### Current Progress

The N180 Contractor continues to focus on procurement, submittals, and manufacturing of the pre-cast floating slabs. The Contractor contracted with British Steel for the Ultra-Straight Rail. The Pre-Cast yard in Woodland is casting the 3'10" slabs and preparing to cast the 7' test slabs. Isolation pad and shim manufacture is underway. To date the work remains on schedule.

#### Schedule Summary

Below is the latest schedule for N180.

Activity ID	Activity Name	Start	Finish	2017												2018												2019											
				Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov						
N180 - Trackwork		25-Aug-16 A	27-Oct-19																																				
Milestones		04-Jun-18	27-Oct-19																																				
Access Dates		01-Oct-17	01-Jan-19																																				
Construction		25-Aug-16 A	27-Oct-19																																				
Mobilization		25-Aug-16 A	27-Oct-19																																				
Submittals		25-Aug-16 A	01-Sep-19																																				
Procurement		07-Oct-16 A	18-May-19																																				
Work Area 1 (N06 - UWS to UDS Tunnels)		06-Nov-17	07-Mar-19																																				
Work Area 2.1 and 2.2 (N07 - U-District Station)		02-Oct-17	15-Mar-19																																				
Work Area 3 (N08 - UDS to RVS Tunnels)		11-Jan-18	17-Sep-18																																				
Work Area 4 (N09 - Roosevelt Station)		12-Mar-18	27-Sep-18																																				
Work Area 5 (N10 - RVS to MLP Tunnels)		22-Mar-18	21-May-19																																				
Work Area 6 (MLP and At Grade Guideway)		12-Mar-18	28-Jun-19																																				
Work Area 7 (Elevated Guideway South of 1)		03-Dec-18	30-Jul-19																																				
Work Area 7.1 (N11 - Northgate Station)		02-Jan-19	29-May-19																																				
Work Area 7.2 (Elevated Guideway North of 1)		02-Jan-19	11-Jul-19																																				
Final Trackwork		28-Sep-18	27-Sep-19																																				
Provisional Sums		01-Jul-17	28-Oct-19																																				



# Link Light Rail Northgate Link Extension– Construction

## Key Activities

### Current Period

- Columbia Precast Plant (CPP) received all chamfer edge modified 5Hz 3'-10" floating slab forms back from Helser. Recommenced casting with setup for production rate of six slabs per day. Total floating slabs cast to date: 68 out of 1,618.
- *Scougal Facility*: Continued fabrication of the 5Hz tapered side shim pads and sample testing of isolation pads.
- SWI received the executed Material Purchase Agreement (MPA) from British Steel for procurement of ultra-straight rail.

### Next Period

- CPP to continue minor slab repairs required to gain acceptance for MOH payment.
- CPP to continue casting 3'-10" floating slabs.
- Scougal to continue qualification testing on the isolation pads.

## Closely Monitored Issues

- ST has confirmed the N140 site access will be in mid-July 2017. The N180 site access would subsequently be 45 days later than anticipated. N180 site access will now be mid-January 2018. A CNRFP will be developed to inform the Contractor of the revised site access date.

## Cost Summary

Present Financial Status	Amount
<b><i>N180 Contractor - Stacy and Witbeck, Inc.</i></b>	
Original Contract Value	\$71,455,950
Change Order Value	\$1,159,501
Current Contract Value	\$72,615,451
Total Actual Cost (Incurred to date)	\$5,835,145
Financial Percent Complete:	8.0%
Physical Percent Complete:	6.2%
Authorized Contingency	\$10,718,393
Contingency Drawdown	\$1,159,501
Contingency Index	0.74



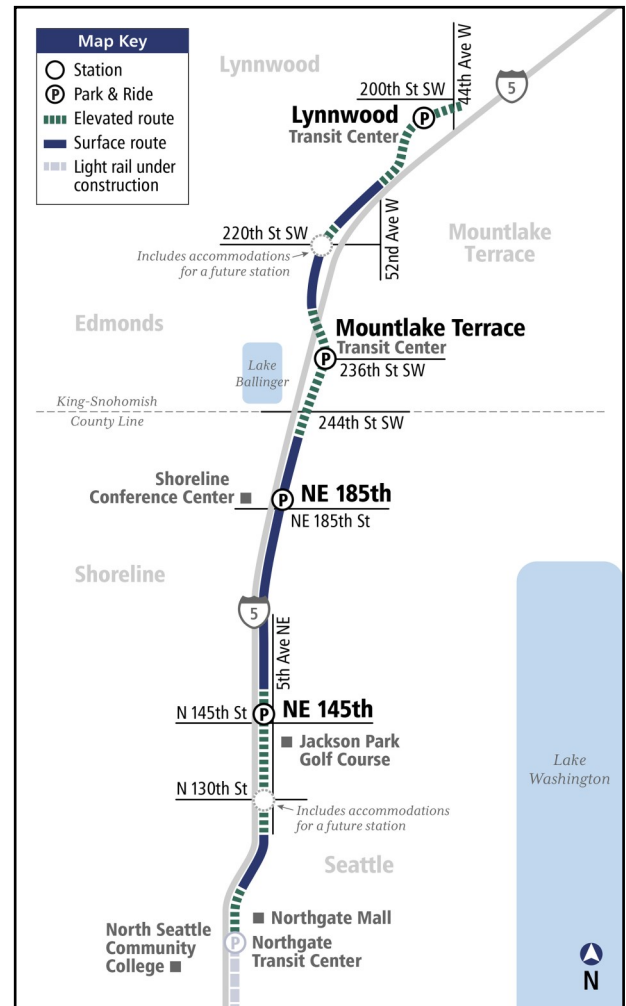
Columbia Precast: 3'-10" floating slab being cast.

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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>	NE 145th (Shoreline), NE185th (Shoreline), Mountlake Terrace Transit Center, Lynnwood Transit 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>	Late 2023



Map of Lynnwood Link Extension Alignment.

## Key Project Activities

- L200 60% civil design submitted in February 2017; reviews completed in March 2017.
- L300 60% civil design submitted in March 2017.
- L800 60% systems design was submitted on June 30, 2017.
- Anticipated NTP in July 2017 for the L800 Systems Construction Management Consultant.
- Continuing right-of-way acquisition and pre-construction planning.

### 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	\$16.2	\$16.2	\$88.3	\$0.0
Preliminary Engineering	\$42.0	\$39.9	\$39.1	\$42.0	\$0.0
Final Design	\$111.5	\$82.4	\$37.4	\$111.5	\$0.0
Construction Services	\$104.9	\$18.1	\$6.3	\$104.9	\$0.0
3rd Party Agreements	\$17.4	\$7.2	\$2.0	\$17.4	\$0.0
Construction	\$0.5	\$0.2	\$0.0	\$0.5	\$0.0
Light Rail Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$123.8	\$49.6	\$45.1	\$123.8	\$0.0
<b>Total</b>	<b>\$488.4</b>	<b>\$213.6</b>	<b>\$146.1</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	\$0.0	\$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>\$0.0</b>	<b>\$0.5</b>	<b>\$0.0</b>
60 Row, Land	\$123.8	\$49.6	\$45.1	\$123.8	\$0.0
80 Professional Services	\$364.1	\$163.8	\$101.0	\$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>\$213.6</b>	<b>\$146.1</b>	<b>\$488.4</b>	<b>\$0.0</b>

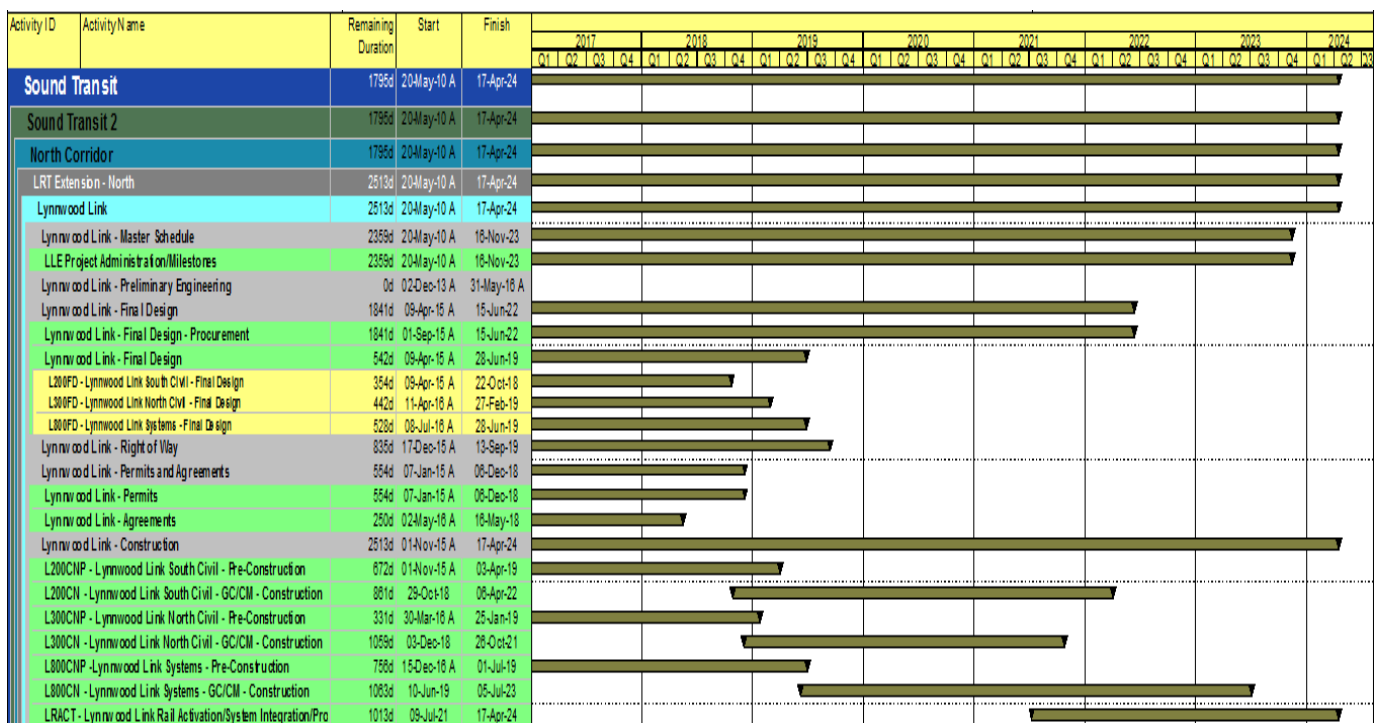
## Risk Management

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 an FTA/PMOC led risk assessment workshop in May 2017.

## Project Schedule

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



## 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	112	63	8	0	0	27	159	50
L300—North Segment	18	12	1	0	0	7	25	1
<b>Total*</b>	<b>130</b>	<b>75</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>34</b>	<b>184</b>	<b>51</b>

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

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

Fifteen additional offers made; Two additional offers signed; One relocation required; Three additional relocations vacated.

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

Two parcels closed.

## Sound Transit Board Actions

Board Action	Description	Date
	None to report.	

## Community Outreach

- Mountlake Terrace 60% Station Design Open House was approximately attended by 160 community members to see the new station designs, get project updates, etc. Over 2000 individuals visited the online open house.
- Continued calls to residents about survey work on their property.
- Posted notices at Scriber Creek for ongoing wetlands work.



## Civil Final Design Overview

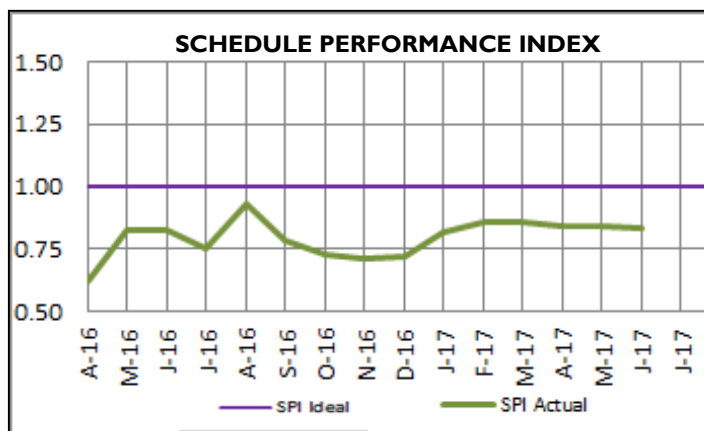
Sound Transit executed a professional services contract with HNTB Jacobs in April 2016 to perform Civil Final Design Services.

### Civil Final Design Activities

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

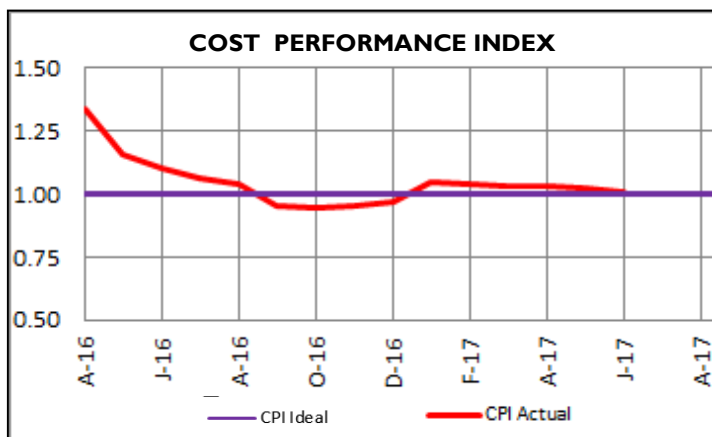
### Civil Final Design Schedule Performance Index

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



### Civil Final Design Cost Performance Index

\$35.5 M of the total contract amount, 49%, has been spent through June 2017. The Civil Final Design percent complete is 49%, with an earned value of \$35.7M. The cumulative Cost Performance Index (CPI) through June is 1.01 indicating that expenditures are slightly less than the earned value of work performed.



Final Design Performance	Cumulative To-date
Amount Invoiced	\$35.5M
% Spent	49%
Earned Value	\$35.7M
% Complete	49%
<b>SPI</b>	0.84
<b>CPI</b>	1.01

### Systems Final Design Overview

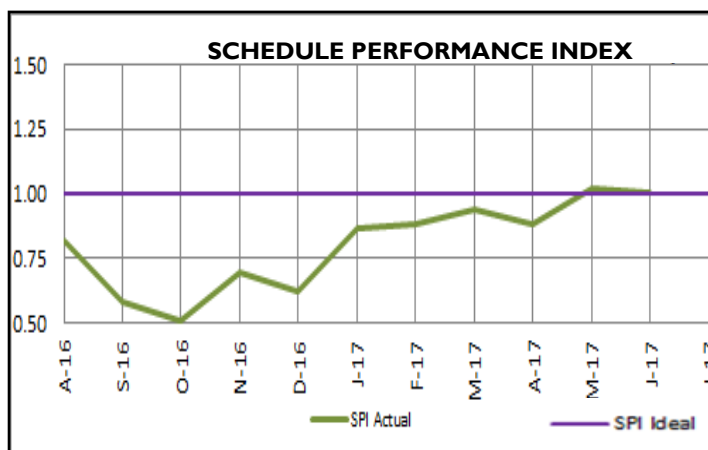
Sound Transit executed a professional services contract with LTK Engineering in July 2016 to perform Systems Final Design Services.

### Systems Final Design Activities

- Working on 60% design deliverable based on civil 60% design.

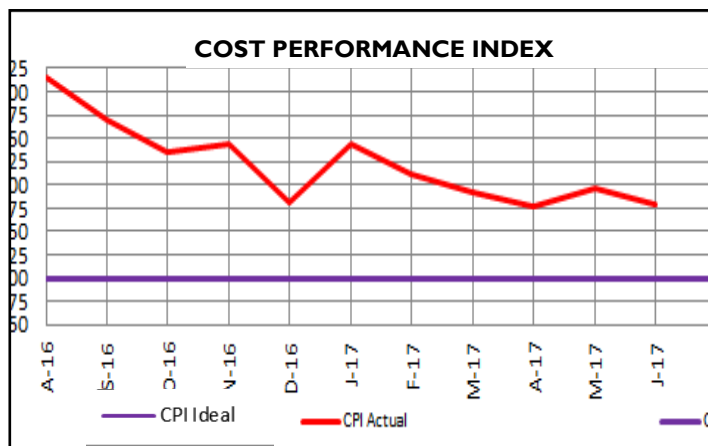
### Systems Final Design SPI

The cumulative Schedule Performance Index (SPI) trends at 1.00 through June 2017, which means that cumulative work accomplished closely matches to the work originally planned. The monthly SPI for June was 0.89, indicating significantly less work accomplished than planned for the month.



### Systems Final Design Cost Performance

\$2.3M of the total contract amount, 24%, has been spent through June 2017. The Systems Final Design percent complete is 43%, with an earned value of \$4.1M. The cumulative Cost Performance Index (CPI) through June is 1.80 indicating that expenditures are significantly lower than the earned value of work performed.



Final Design Performance	Cumulative To Date
Amount Invoiced	\$2.3M
% Spent	24%
Earned Value	\$4.1M
% Complete	43%
<b>SPI</b>	1.00
<b>CPI</b>	1.80

## Civil Construction Management Overview

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

### Civil Construction Management Activities

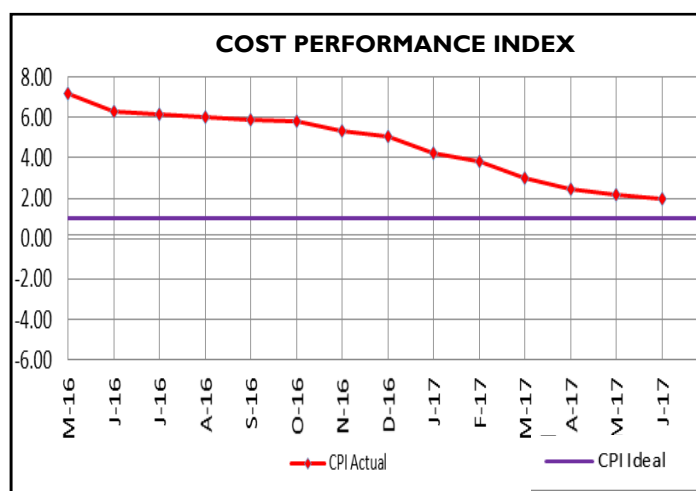
- Coordinating meetings with design, GC/CM, and ST teams.
- Coordination on various preconstruction activities including cost estimates, schedule, and constructability.
- Coordinating GC/CM review of 60% civil plans.

### Civil Construction Management 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

\$2.0M of the total contract amount, 27%, is spent through June 2017, with an earned value of \$4.1M. The cumulative Cost Performance Index (CPI) through June is 2.01; indicating significantly lower costs than expected on the contract. The Consultant assumed more support staff would be required early in the schedule and that has not been the case, leading to a high CPI. Staffing has increased with the 60% deliverables, and CPI is slowly trending closer to an expected value of 1.0.



Civil CM Performance	Cumulative To-date
Amount Invoiced	\$2.0M
% Spent	27%
Earned Value	\$4.1M
<b>CPI</b>	<b>2.01</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

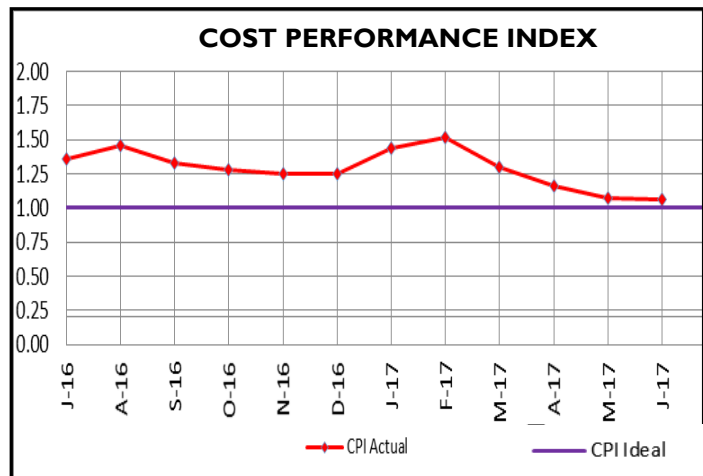
- Coordinating meetings with design, CM, and ST teams.
- Progress on various preconstruction activities including cost estimates, schedule, and constructability.
- Review of 60% civil plans.

#### 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

\$2.3M of the total contract amount, 45%, is spent through June 2017, with an earned value of \$2.5M. The cumulative Cost Performance Index (CPI) through June is 1.07; indicating actual costs are lower than planned.



L200 GC/CM Performance	Cumulative To-date
Amount Invoiced	\$2.3M
% Spent	45%
Earned Value	\$2.5M
<b>CPI</b>	<b>1.07</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

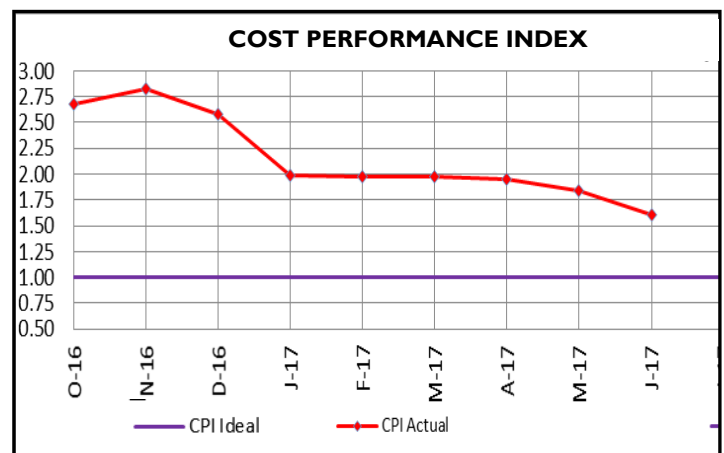
- Coordinating meetings with design, CM, and ST teams.
- Progress on various preconstruction activities including cost estimates, schedule, and constructability.
- Review of 60% civil plans.

### 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

\$1.7M of the total contract amount, 32%, has been spent through June 2017, with an earned value of \$2.7M. The cumulative Cost Performance Index (CPI) through June is 1.61; indicating actual costs are lower than planned.



L300 GC/CM Performance	Cumulative To-date
Amount Invoiced	\$1.7M
% Spent	32%
Earned Value	\$2.7M
<b>CPI</b>	<b>1.61</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 will provide approximately four miles of the HOV lanes in each direction of the outer roadway between 80<sup>th</sup> Avenue South on Mercer Island and Rainier Avenue in Seattle. The project includes upgrades and retrofits to the fire, life, safety, and other systems in the Mount Baker and Mercer Island/First Hill tunnels. The project also includes remaining dowel bar retrofit work on the west side of Lake Washington, the installation of screening on the shared-use pathway on the I-90 floating bridge. Following completion of this project, the center roadway will be closed to allow the construction and operation of East Link Extension.



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

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

### Major Contracts

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

### Key Project Activities

- Completed turnover of Center Roadway to Sound Transit on June 14th.
- WSDOT working on resolution of remaining commercial issues with the Contractor.
- WSDOT scheduled additional Fire-Life-Safety testing in mid to late July.
- Island Crest Way ramp construction is trending on schedule.
- Contractor continues working on commissioning, punchlist items and clean-up at both Mercer Island and Mount Baker Tunnels.

### Closely Monitored Issues

- While the Center Roadway was turned over to Sound Transit, the Substantial Completion continues to slip. The forecast to achieve Substantial Completion is now anticipated for 3<sup>rd</sup> QTR 2017.
- Commissioning is taking longer than anticipated, due to challenges with network programming tasks for phase 3 commissioning and Simplex / SCADA video interface and integration.
- The Contractor is resolving generator issues.

### Project Cost Summary

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

#### 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	\$18.0	\$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	\$165.4	\$198.3	\$0.0
<b>Total</b>	<b>\$225.6</b>	<b>\$225.6</b>	<b>\$194.4</b>	<b>\$187.1</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	\$171.9	\$165.4	\$180.6	\$0.0
80 Professional Services	\$26.3	\$26.3	\$22.5	\$21.7	\$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>\$187.1</b>	<b>\$225.6</b>	<b>\$0.0</b>

ST Board-authorized new work package, Mercer Island Traffic and Pedestrian Enhancements to be funded out of Construction phase Unallocated Contingency.

### Cost Contingency Management

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

Contingency Status	Baseline		Current	
	Amount	% of Total	Amount	% of Work Remaining
Design Allowance	\$0.0	0.0%	\$0.0	0.0%
Allocated Contingency	\$17.0	7.5%	\$8.4	21.5%
Unallocated Contingency	\$18.7	8.3%	\$18.7	47.9%
<b>Total</b>	<b>\$35.7</b>	<b>15.8%</b>	<b>\$27.1</b>	<b>69.4%</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 WSDOT-controlled contingency & ST-controlled Contingency.

### Project Schedule

WSDOT executed a change order implementing a schedule recovery plan that preserved the commitment to turn over the Center Roadway to Sound Transit on June 14th which occurred as anticipated. WSDOT is currently working with the Contractor to resolve commercial issues affecting agreement on the Substantial Completion date, now projected to be in the 3rd QTR 2017. Physical Completion has also slipped to 3rd QTR 2017. The E130 Construction Contractor has begun mobilization on the floating bridge.

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	9/1/2017	5/31/2017	6/14/2017 A	5/31/2017	9/1/2017

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

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# Link Light Rail

## East Link Extension

### Scope

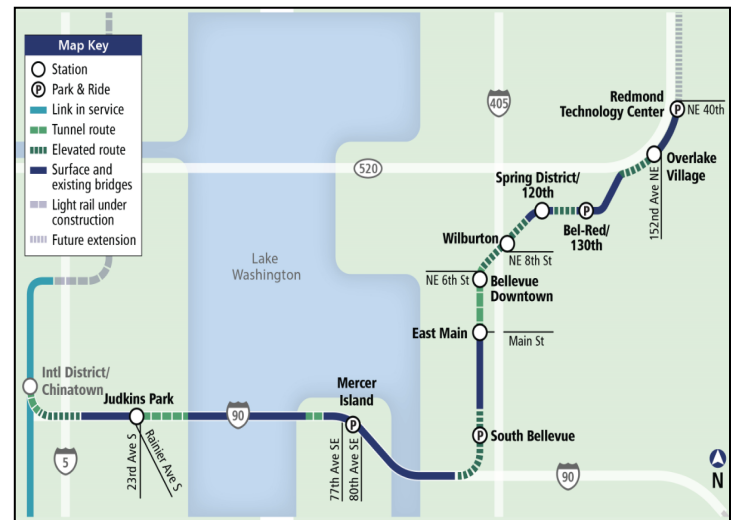
**Limits/Alignment:** Fourteen-mile extension from Downtown Seattle to Mercer Island, Bellevue and the Overlake area of Redmond. The extension includes 10 stations along the alignment that includes at-grade, elevated, bridges, new and retrofitted tunnels.

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

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

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

**Schedule:** Revenue Service - June 2023



Map of East Link Extension Alignment.

## Key Project Activities

### Seattle to South Bellevue

- The I-90 Temporary Construction Air Space Lease became effective on June 14 as planned and the E130 Contractor, commenced mobilization.
- Continuing to coordinate closely with WSDOT and City of Mercer Island on intersection and ramp modifications associated with the closure of the I-90 center roadway.
- Continued coordination with City of Seattle, WSDOT and the GC/CM regarding fence installation around the Dearborn staging area.

### South Bellevue to Redmond

- *E320 South Bellevue:* Site and staging preparations and demolition work ongoing including clearing, grading and constructing access from So. Bellevue P&R to SE 30th.
- *E330 Downtown Bellevue Tunnel:* Tunneling advances to 320Lf without spiles due to sufficient ground conditions; Completed final work on the Skyline Bldg. and received City of Bellevue Fire Dept. inspection sign-off.
- *E335 Downtown Bellevue to Spring Dist.:* Began City Hall garage selective demolition, installed geotechnical instrumentation monitors at 110th/North Portal area, installed City Plaza construction wall; Wright Runstad demolition contractor has begun abatement at the Truck Maintenance and initiating demolitions is scheduled for the next period.
- *E340 Bel-Red:* Demolition continues at Evans Industrial Park; Contractor partnering meeting held mid-June. Baseline schedule received from Contractor.
- *E360 SR520 to Redmond Technology Center:* Continued Site Preparation and completed demolition work at Park Place. Commenced excavation for infiltration vault at OVS.

## Closely Monitored Issues

- Completing remaining property acquisitions.
- Timely submissions and issuance of construction permits.
- E330 Downtown Bellevue Tunnel production rate continues to be monitored closely.
- With the commencement of construction at all segments, construction safety is a priority.

### Project Cost Summary

The East Link project cost is summarized below in two cost categories. In the first table, the cost is summarized in accordance with Sound Transit's Work Breakdown Structure (WBS). The second table summarizes the project in accordance with the FTA's Standard Cost Category (SCC) format. The figures in both tables are shown in millions. The Estimated Final Cost (EFC) continues to be projected at approximately to date \$3,677M in year of expenditure dollars. This period's expenditure is about \$48.2M, increasing the total project cost from \$730.4M to \$778.6M. This period's project commitments increased \$264M from \$2.44B to \$2.70B primarily due to the commitments of E750 system construction contract and real estate activities.

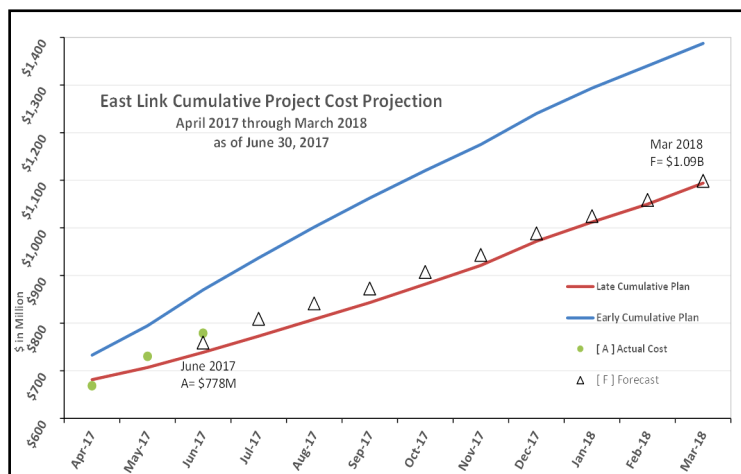
#### Cost Summary by Phase

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	59.8	\$59.4	186.2	\$0.0
Preliminary Engineering	55.9	55.9	54.8	\$54.7	55.9	\$0.0
Final Design	283.0	283.0	232.2	\$193.0	283.0	\$0.0
Construction Services	257.5	257.5	137.6	\$31.9	257.4	\$0.0
3rd Party Agreements	52.2	52.2	34.7	\$11.5	52.1	\$0.0
Construction	2,544.3	2,544.3	1,950.9	\$197.4	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	234.1	\$230.7	298.2	\$0.0
<b>Total</b>	<b>3,677.2</b>	<b>3,677.2</b>	<b>2,704.1</b>	<b>\$778.6</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	\$879.6	\$99.8	944.0	(\$196.5)
20 Stations	\$397.7	\$397.7	\$262.2	\$29.4	365.2	\$32.5
30 Support Facilities	\$0.0	\$0.0	\$0.0	\$0.0	0.0	\$0.0
40 Sitework & Special Conditions	\$808.5	\$806.0	\$443.8	\$57.6	669.9	\$136.2
50 Systems	\$353.8	\$353.8	\$344.1	\$6.8	336.4	\$17.4
<b>Construction Subtotal (10 - 50)</b>	<b>\$2,304.6</b>	<b>\$2,305.1</b>	<b>\$1,929.7</b>	<b>\$193.7</b>	<b>2,315.4</b>	<b>(\$10.3)</b>
60 Row, Land	\$288.5	\$288.5	\$234.1	\$230.7	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	\$540.3	\$354.2	889.2	\$10.5
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>\$2,704.1</b>	<b>\$778.6</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. This period's project expenditure topped out at about \$48.2M where construction phase is responsible for about 90% or \$35.1M of June's cost. This is an indication that construction activities are picking up for the summer period. Total project cost incurred to date has now surpassed \$778M to which about \$197.4M were within the Construction Phase. All civil construction segments have now commenced or mobilizing. Systems contract is a joint East Link and Northgate Link project with Notice to Proceed issued in June 2017.





# Link Light Rail East Link Extension



## Risk and Contingency Management

### Risk Management

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

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

### Contingency Status

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

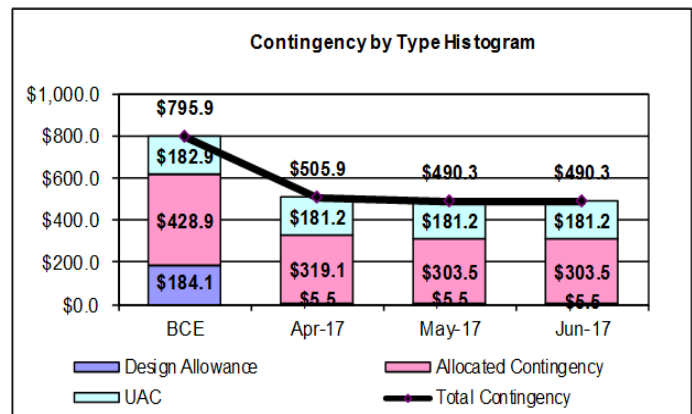
**Design Allowance (DA)** was set up to account for unquantified scope at the time of the cost estimate. This period, DA balance remained the same as the previous period at \$5.5M. DA balance is expected to be fully drawn when all construction scope is executed.

**Allocated Contingency (AC)** is used to address risks, complexity and unforeseen conditions during the execution of work, including procurement. This period AC balance remained the same as the previous period at \$303.5M.

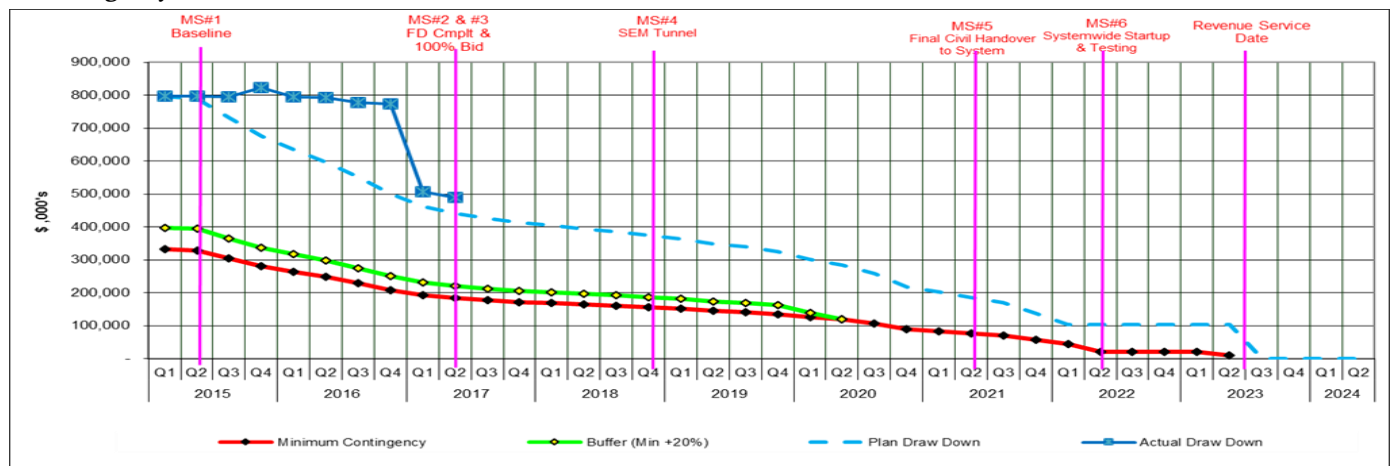
**Unallocated Contingency (UAC)** is used to address general project-wide cost risks and uncertainties. The UAC balance of \$181.2M continues to be stable compared to the initial balance of \$182.9M at Baseline Cost Estimate (BCE).

Contingency Status	BCE		Current Status	
	Amount	% of Total Budget	Remaining Amount	% of Work Remaining
Design Allowance	\$184.1	5.0%	\$5.5	0.2%
Allocated Contingency	\$428.9	11.7%	\$303.5	10.5%
Unallocated Contingency	\$182.9	5.0%	\$181.2	6.3%
<b>Total:</b>	<b>\$795.9</b>	<b>21.6%</b>	<b>\$490.3</b>	<b>16.9%</b>

Dollar figures on this page are displayed in millions.



### Contingency Drawdown

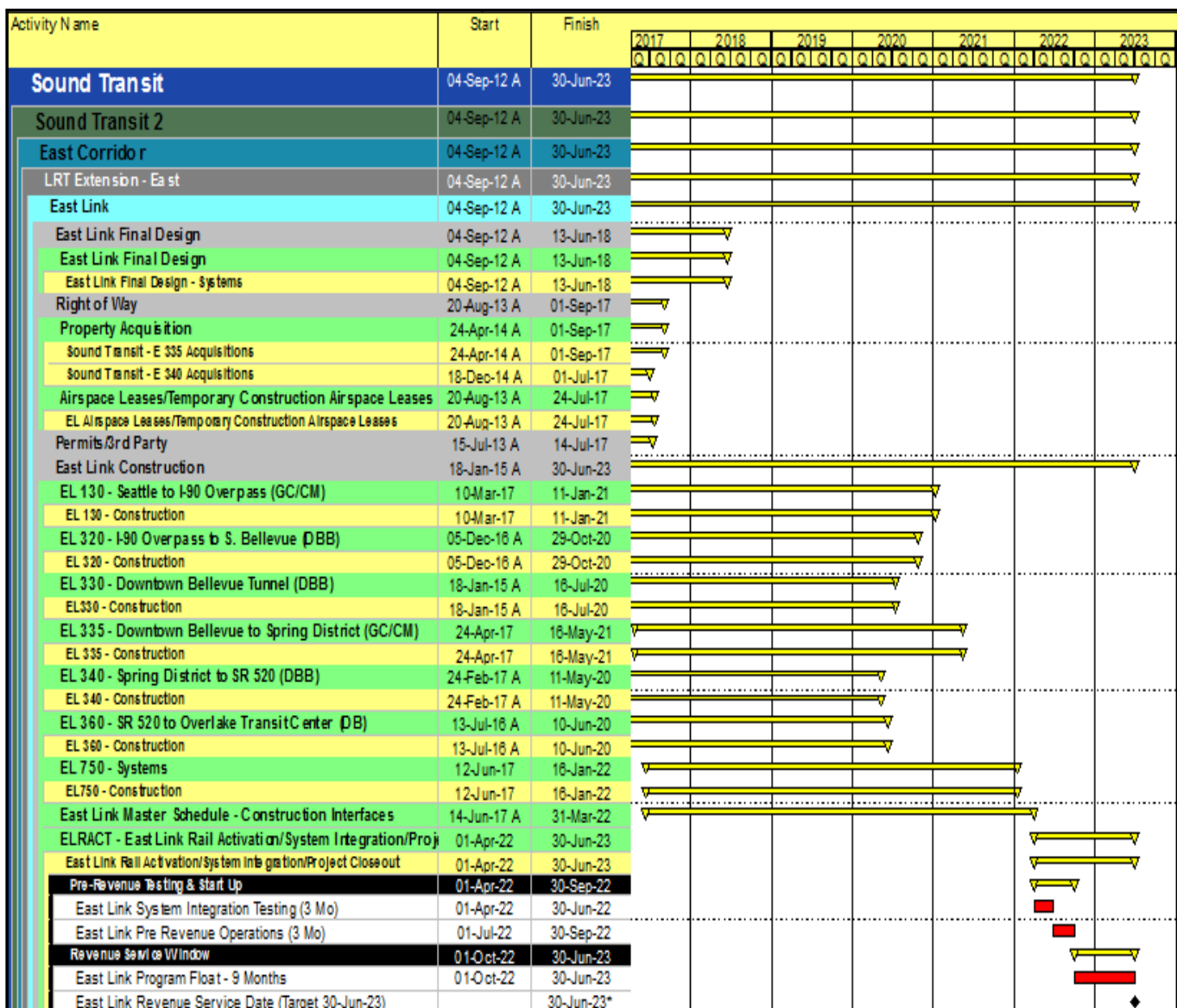


## Project Schedule

NTP was issued for E750 Systems on June 12th, all seven construction contracts are now in construction. Baseline schedules have been approved for E320 South Bellevue, E330 Downtown Tunnel, E340 Bel-Red, and E360 SR520 to RTC. Baselines are currently under review for E130 Seattle to S Bellevue, E335 Downtown to Spring District, and E750 Systems., and are anticipated to be accepted by early August. All contractor schedules have been incorporated into the Integrated Master Schedule below.

E130 began work on the I-90 floating bridge following the activation of the Temporary Construction Airspace Lease on June 14th. E320 has started on demolition and utility relocation. E330 continues tunneling and is making improved progress. E335 has mobilized to the jobsite and begun setting up environmental protections. E340 is relocating utilities. E360 has started demolition, tree removal, and utility relocation. The E750 Final Design is complete.

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

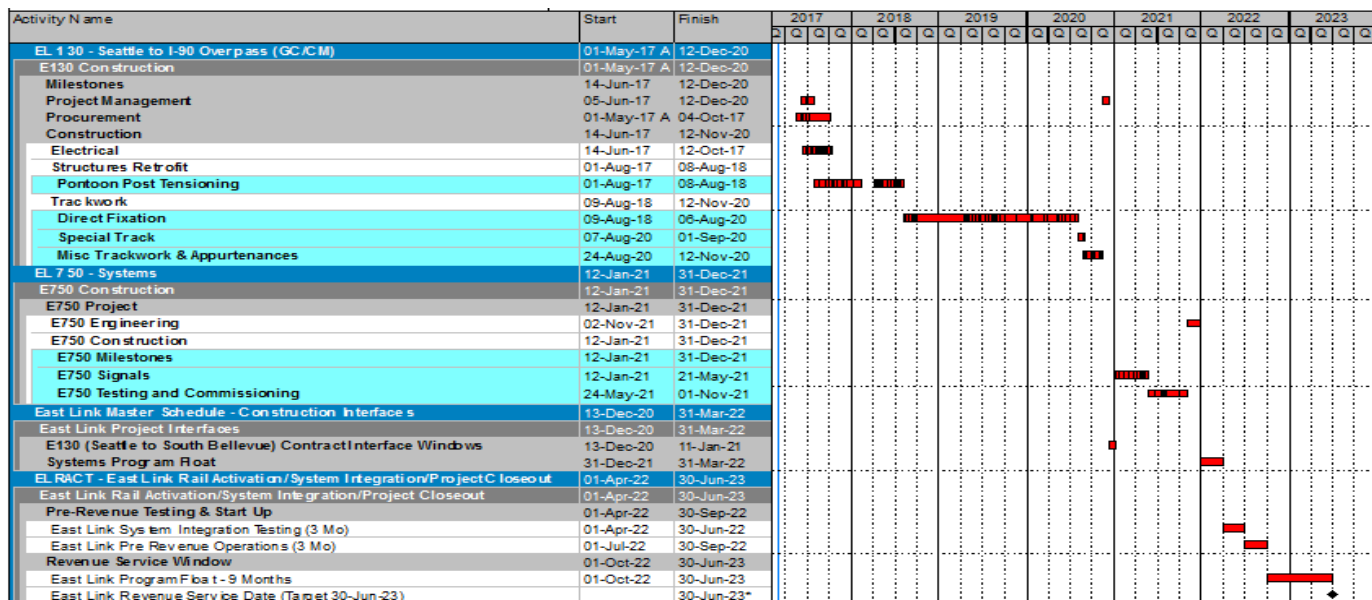


# Link Light Rail East Link Extension



## 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 retrofit due to the restricted work seasons on the floating bridge.



## Right of Way

The East Link Extension involves the acquisition of a range of property interests including fee acquisitions for stations, guideway, staging areas, support facilities, and tunnel and guideway easements as well as permanent and temporary easements for construction. These acquisitions will result in owner and tenant residential and commercial relocations. Market value trends in both residential and commercial properties are exhibiting strong upward pressure. The overall impact on the Right-of-Way (ROW) budget is being closely monitored. Efforts are also underway to prioritize acquisitions by contract package to help ensure timely availability of property. Property acquisition is recognized as a high priority and the management team has formed an ad hoc ROW team consisting of internally involved departments to prioritize and manage the process. See right-of-way program status in the table below.

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

East Link Extension Property Acquisition Status								
Line Section	Board Approved	Offers Made/In Negotiations	Signed Agreements	Possession and Use	Admin Settlement	Closings to date	Relocations Required	Parcels Vacated
<b>Total</b>	242	234	3	28	2	184	243	200

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

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

**E320 South Bellevue** - Air Space Lease discussions with WSDOT continued. Two parcels closed.

**E330 Downtown Bellevue** - No new activities.

**E335 Downtown Bellevue to Spring District** - One parcel closed; two parcels in P&U.

**E340 Bel-Red** - Two parcels closed and one parcel in P&U.

**E360 SR 520 to Redmond Technology Center** - Two offers made; one parcel closed.

### Construction Safety

Data/ Measure	June 2017	Year to Date	Project to Date
Recordable Injury/Illness Cases	1	3	3
Days Away From Work Cases	0	0	0
Total Days Away From Work	0	0	0
Restricted or Modified Work Cases	0	1	1
Total Days Restricted or Modified Work	0	17	17
First Aid Cases	3	13	17
Reported Near Mishaps	6	16	29
Average Number of Employees on Worksite	311	-	-
<b>Total # of Hours (GC &amp; Subs)</b>	<b>54,189</b>	<b>165,989</b>	<b>201,871</b>
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	3.69	3.61	2.97
DART Rate	0.00	1.20	0.99
<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>

### Sound Transit Board Actions

Board Action	Description	Date
M2017-96	Negotiate and execute a settlement agreement with Mercer Island to settle pending litigation through payment of certain reimbursable expenses not to exceed \$10,050,000 all as provided in this notion. [Motion for R8A Stage 3]	June 22

### Environmental

- Continued developing environmental permit application packages. Environmental commitments are being incorporated into the design, program, and specifications of the project.
- Coordinating with East Lin project team to ensure environmental compliance with an emphasis on establishing and maintaining appropriate Best Management Practices (BMPs) in advance of clearing and grubbing activities.

## Community Outreach

- Assisted Communications with the I-90 floating bridge media event.
- Hosted open house for the kick-off construction of the E340 Bel-Red contract and 68 people attended.
- Developing graphics and materials for the July 12th, Mercer Island open house.
- Staffed the Bellevue Strawberry Festival; engaged with over 600 attendees.
- Published a construction alert to the central Bellevue listserve announcing the upcoming 114th Avenue cul-de-sac closure. Installed signage at the cul-de-sac to inform bicyclist of the long-term detour.
- Met with S. Bellevue property owners to discuss noise mitigation offerings.
- Provided notification to Lincoln Center reps regarding upcoming building abatement and demolition.



Construction open house kick-off.

## 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: Contractor continues to mobilize as well as performing site and staging preparations as well as submittal of work plans and reviews prior to commencing critical works on the floating bridge.*

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

*Status: Incorporated as part of E130.*

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

*Status: Contractor continues site and staging preparations including grading work at the Park and Ride, grub clearing, saw cutting and demolition works on I-90 as well as drainage and trenching and duct bank works near Bellevue Way SE.*

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

*Status: See following pages.*

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

*Status: Contract with the exception of the Station package scope awarded, executed and NTP issued. The station scope exception will be repackaged and procured by year's end. Contractor continues mobilization effort with site preparations and has commenced some selective demolition scope.*

**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: MACC negotiated, Contract executed, Notice to Proceed issued on June 12.*



## Contract E330 – Downtown Bellevue Tunnel

### Current Progress

**South Portal:** The Contractor continued tunneling throughout the month and completed excavation through station point 545+96, which is approximately 331 feet of excavation. Good ground conditions being encountered along with the use of the onsite batch plant and improved shotcrete robot have helped keep excavation production on the rise.

**North Portal:** Completed the Skyline Building scope of work, and continued finalizing all sign-offs and closing out permits. Tunnel monitoring instrumentation to begin installation next month at this location.

**Between Portals:** Contractor's dewatering consultant developing dewatering plan for the tunnel and for the Skyline building.

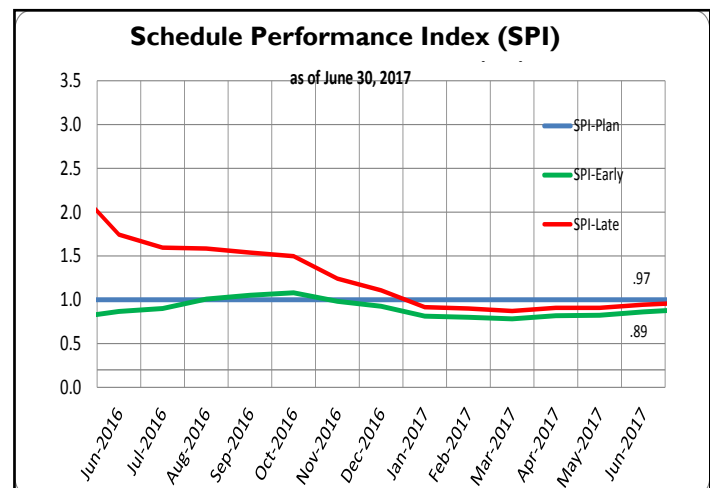
### Schedule Summary

The critical path for this contract follows the tunnel excavation and the completion of the South Portal structure. The Contractor has continued to exceed their estimated production rate of 3.2LF/day. By the end of June, they achieved a rate of 4.9 LF/day. The contractor continues to employ methods to recover time - including a new batch plant onsite, a new shotcrete robot, and further evaluation of a reduction in spiling—and is on pace to recover most of the time lost due to the slow start to tunneling.

Activity Name	Start	Finish	2017		2018				2019				2020	
			Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
<b>E330 Construction</b>	15-Dec-15 A	17-Jun-20												
<b>CONSTRUCTION</b>	15-Dec-15 A	17-Jun-20												
MILESTONES/CONSTRUCTION EASEMENTS	15-Dec-15 A	17-Jun-20												
MILESTONES	15-Dec-15 A	17-Jun-20												
CALCULATED MILESTONES	15-Dec-15 A	17-Jun-20												
MOBILIZATION	08-Feb-16 A	17-Apr-19												
SITWORK	29-Feb-16 A	17-Jun-20												
PRECONSTRUCTION	21-Mar-16 A	28-Apr-20												
TRAFFIC CONTROL	25-Mar-16 A	02-Jan-20												
SURVEY & MONITORING	29-Feb-16 A	09-Jul-18												
NORTH PORTAL AREA	13-Jun-16 A	14-Oct-16 A												
SOUTH PORTAL AREA	08-Feb-17 A	08-Apr-17 A												
SKYLINE BUILDING RETROFIT	29-Feb-16 A	17-Jun-20												
TUNNELING	01-Feb-17 A	25-Dec-19												
Sound Transit Controlled SEM Float - Tunnel Completion	25-Dec-19	25-Dec-19												
Atkinson Controlled SEM Float - Tunnel Completion	25-Dec-19	25-Dec-19												
EXCAVATION	01-Feb-17 A	20-Mar-19												
FINAL TUNNEL LINING	21-Mar-19	23-Oct-19												
FINAL TUNNEL FINISHES	28-Jun-19	24-Dec-19												
MID TUNNEL	04-Jun-18	02-Aug-19												
DEMOBE	13-Mar-17 A	01-Jun-20												

### Schedule Performance Index

This period, the SPI early is at 0.89 and the SPI late is at 0.97. Both the early and late indexes indicate that the Contractor continues to be behind schedule when compared to the baseline schedule. This trend is due to the tunnel excavation that began later than originally planned, and the Contractor experienced a much steeper learning curve than anticipated. Tunnel excavation is expected to trend in a positive direction and progress in the near future with much improved ground conditions and the potential decrease in the number of rebar spiling required going forward.



# Link Light Rail East Link Extension - Construction

## Next Period's Activities

- Continue tunnel excavation and extend ventilation lines. Continue improvements to shotcrete production, delivery and application.
- Complete Skyline Building work close out and begin tunnel instrumentation installation.
- Dewatering consultant to continue developing dewatering plan and identifying if additional test wells are required for northernmost end of tunnel.

## Closely Monitored Issues

- City of Bellevue (COB) is requiring an electrical permit for the permanent electrical conduit installed inside the tunnel. COB and ST are discussing if ST or the Contractor will procure the permit.
- *Notice of Intent to Claim (NOITC) for the lattice girder welding requirements*: received revised pricing after meeting with manufacturer to discuss cost mitigation efforts. Issue still under negotiation.
- *Water build-up outside the existing Skyline basement wall along 110th Ave.*: discussing means to mitigate the hydrostatic pressure and draining the water out of the ground prior to tunneling at this location. Investigating the COBs detention tank and adjacent storm drain line for leaks to determine if either are the source of the water into Skyline.
- Obtaining right of entry agreements and temporary construction easements for properties along alignment.

## Cost Summary

Present Financial Status	Amount
<b>E330 Contractor– Guy F Atkinson Construction, LLC.</b>	
Original Contract Value	\$121,446,551
Change Order Value	\$1,969,956
Current Contract Value	\$123,416,507
Total Actual Cost (Incurred to date)	\$38,651,646
Financial Percent Complete:	31.3%
Physical Percent Complete:	31.3%
Authorized Contingency	\$12,144,655
Contingency Drawdown	\$1,969,956
Contingency Index	1.9



Installing lattice girder at top heading.



## Contract E340 – Bel-Red

### Current Progress

E340 Contractor continued mobilization at various sites and advanced preparation for utilities relocation work and excavation.

Demolition work commenced with asbestos abatement at the Evans Industrial Park. Drilled shaft work started with assembly of the column cages and drilling of the shafts.

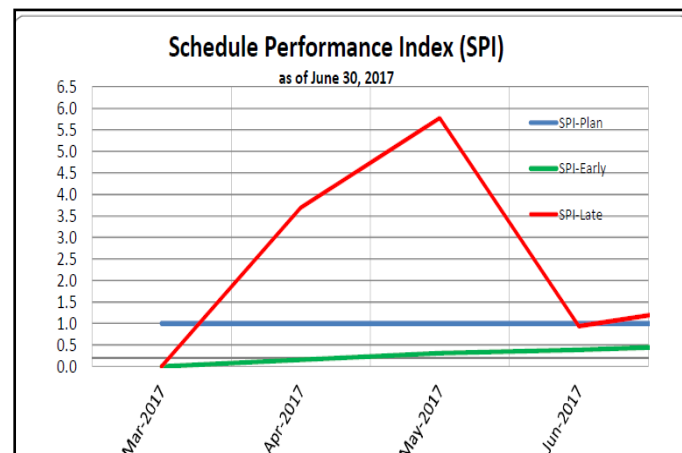
### Schedule Summary

The Contractor has been mobilizing, preparing submittals and work plans, and applying for permits. Work in June included installation of environmental protections, demolition and abatement, and building shaft rebar cages 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	2017	2018				2019				2020		
			Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
E340 Construction	24-Feb-17	11-May-20												
CONSTRUCTION	24-Feb-17	11-May-20												
~MILESTONES/EASEMENTS~	12-Oct-17	11-May-20												
~~Milestones	12-Oct-17	11-May-20												
Calculated Milestones	12-Oct-17	11-May-20												
MS #1 - Actual Complete Grading & Stabilization of West Tributary Wetland	12-Oct-17	13-Oct-17												
MS #2 - Actual Substantial Completion of West Tributary Wetland	17-Feb-19	18-Feb-19												
MS #3 - Actual Acceptance of Systems Interface Data Table (SDIT)	03-Nov-19	04-Nov-19												
MS #4 - Actual Substantial Completion	10-May-20	11-May-20												
~SUBMITTALS/PRELIMINARY ACTIVITIES~	24-Feb-17	20-Sep-18												
~MOBILIZATION~	24-Feb-17	13-Dec-19												
~SITEWORK~	04-Apr-17	09-Apr-20												
~RETAINING WALLS~	03-Aug-17	18-Dec-19												
~AERIAL STRUCTURES~	15-May-17	08-Dec-19												
~STATIONS~	24-Jul-17	04-Oct-19												
~ELECTRICAL/ITS~	13-Sep-17	14-Mar-19												
~FINISHES~	04-Oct-17	21-Nov-18												
~TRACKWORK~	07-Sep-17	10-Apr-20												
~LANDSCAPING/FLATWORK~	01-Aug-17	13-Mar-20												
~TESTING AND COMMISSIONING~	01-Nov-19	10-Dec-19												

### Schedule Performance Index

This period, the SPI early is at 0.50 and the SPI late is at 1.44. Construction began later than originally planned. The Contractor has started trending in the positive direction with regards to asbestos abatement and demolition of buildings, and is anticipated to continue to progress in the near future.



# Link Light Rail East Link Extension - Construction

## Next Period's Activities

- Continued asbestos abatement and demolition at the Evans Industrial park.
- Continued building of column cages for drilled shafts.
- Continued installation of drilled shafts, CSL cure and test.
- Continued utility relocations.

## Closely Monitored Issues

- Drilled shaft operation challenges included the release of high pH water. An immediate response ensued including reporting to regulatory agencies. Contractor to perform exploratory drilling operations to characterize soil conditions and strategy to contain these waters moving forward.
- Puget Sound Energy may not be ready to install their power poles.
- Coordination with COB and Safeway to facilitate Safe-

## Cost Summary

Present Financial Status	Amount
<b>E340 Contractor– Max J Kuney</b>	
Original Contract Value	\$93,170,012
Change Order Value	\$0
Current Contract Value	\$93,170,012
Total Actual Cost (Incurred to date)	\$6,343,762
Financial Percent Complete:	6.8%
Physical Percent Complete:	6.8%
Authorized Contingency	\$9,317,000
Contingency Drawdown	\$0
Contingency Index	N/A



Assembling column cages to be used for drilled shaft.

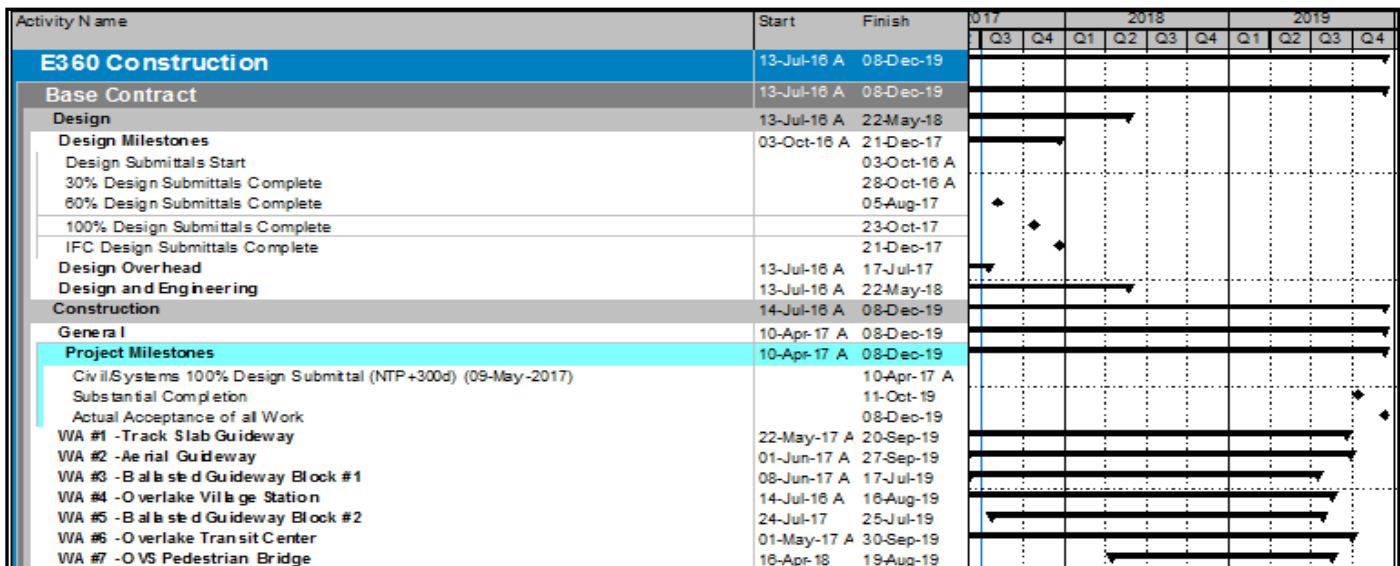
## Contract E360 – SR 520 to Redmond Technology Center (RTC)

### Current Progress

The Design-Build Contractor (Kiewit-Hoffman East Link Constructors, or K-H) worked on finalizing the OVS and RTC early work IFC design packages. The DB team submitted 100% design packages for the aerial guideway, retaining walls, and OV Pedestrian Bridge. K-H began excavation for the continued site clearing along the WSDOT ROW and demolition of Park Place structures. K-H secured the site civil permits for early work elements at OVS and RTC.

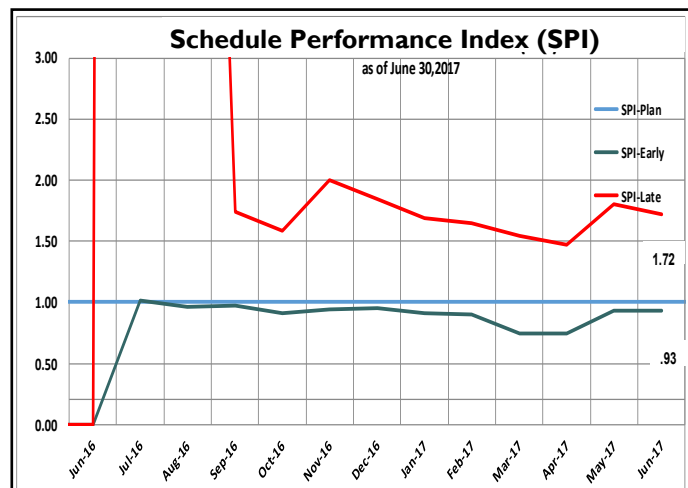
### Schedule Summary

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



### Schedule Performance Index

This period, the SPI early is 0.93 and SPI late is 1.72. The SPI early value continues to reflecting schedule slippage versus the baseline schedule. The early design packages for the OVS Infiltration Vault and RTC temporary drainage are near IFC and were anticipated to be approved and progressed into construction in June. The DB team continued to work on the 100% Station packages. K-H has deferred the OVS Station design to prioritize the OTC Station design.



# Link Light Rail East Link Extension - Design– Build

## Next Period's Activities

- Continue work on 100% and IFC design packages .
- Submit final OTC civil permit application packages to City of Redmond. Submit Design Packages 13 and 11 for City's review.
- Demolish Park Place buildings, begin construction of OVS Storm Water Infiltration Vault, complete the Microsoft temporary facilities, switch to Phase 4 temporary bus loop at RTC, and begin RTC temporary drainage.

## Closely Monitored Issues

- *Alternative OTC Ped Bridge* - Contractor and Microsoft are working on 30% designs for an alternative OTC Ped Bridge. Once design, costs and schedule are developed, a decision will be made whether to retain this scope in E360. That decision will happen in early third-quarter of 2017.
- Contractor, Sound Transit and City of Redmond continue to work out permitting issues. Contractor has submitted a notice of potential delay.
- Continue ongoing discussion with ST and Microsoft about the necessary easement for soil nail walls under Augusta Drive.
- Contractor has numerous outstanding change proposals to submit. ST and the Contractor continue to

## Cost Summary

Present Financial Status	Amount
<b>E360 Contractor— Kiewit-Hoffman</b>	
Original Contract Value	\$225,336,088
Change Order Value	\$500,000
Current Contract Value	\$225,836,088
Total Actual Cost (Amount Billed)	\$41,075,396
Financial Percent Complete:	18.2%
Physical Percent Complete:	18.2%
Authorized Contingency	\$22,533,609
Contingency Drawdown	\$500,000
Contingency Index*	4.2



Excavation of OVS Infiltration Vault.

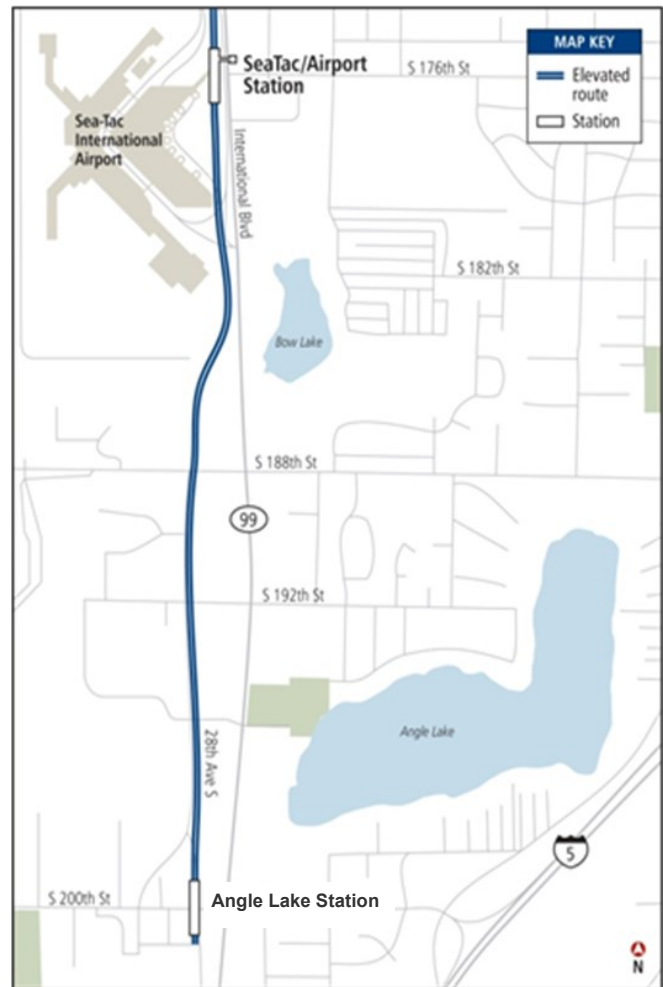
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# Link Light Rail

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

### Closely Monitored Issues

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



### 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	\$16.0	\$15.9	\$17.1	\$0.0
Preliminary Engineering	\$5.9	\$5.7	\$5.7	\$5.7	\$5.7	\$0.0
Final Design	\$20.0	\$9.5	\$8.7	\$8.7	\$8.7	\$0.8
Construction Services	\$15.1	\$17.3	\$17.1	\$17.1	\$17.2	\$0.1
3rd Party Agreements	\$6.9	\$7.1	\$5.7	\$3.8	\$5.2	\$1.9
Construction	\$275.7	\$282.9	\$240.6	\$237.7	\$249.2	\$33.7
Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$43.5	\$43.5	\$38.1	\$38.0	\$38.1	\$5.4
<b>Capital Total</b>	<b>\$383.2</b>	<b>\$383.2</b>	<b>\$332.0</b>	<b>\$326.9</b>	<b>\$341.2</b>	<b>\$42.0</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>\$332.0</b>	<b>\$326.9</b>	<b>\$341.2</b>	<b>\$42.0</b>

The overall project Estimated Final Cost (EFC) for this period reflects \$341M, a savings projection of \$42M. This period incurred cost increased by approximately \$0.4M, of this \$0.3M for several construction contracts (S440 change orders, S446 WSDOT construction task order, and SCADA/Startup), and the remaining expenditures of \$0.1M) are administrative charges.

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

Project Elements by SCC	Baseline Budget	Current Adopted Budget	Commitment to Date	Incurred to Date	Est. Final Cost (EFC)	Adopted Budget vs. EFC
10 Guideway & Track Elements	\$144.8	\$133.0	\$100.2	\$100.4	\$109.2	\$23.8
20 Stations	\$46.4	\$51.7	\$42.0	\$42.1	\$42.5	\$9.3
30 Support Facilities: Yards, Shops	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$34.6	\$55.3	\$57.2	\$54.1	\$58.5	-\$3.2
50 Systems	\$30.8	\$19.9	\$20.1	\$20.1	\$20.1	-\$0.2
<b>Construction Subtotal (SCC 10-50)</b>	<b>\$256.6</b>	<b>\$259.9</b>	<b>\$219.4</b>	<b>\$216.6</b>	<b>\$230.2</b>	<b>\$29.7</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	\$74.4	\$72.3	\$68.3	\$4.2
90 Unallocated Contingency	\$19.0	\$7.3	\$0.0	\$0.0	\$4.6	\$2.7
<b>Project Total (SCC 10-90)</b>	<b>\$383.2</b>	<b>\$383.2</b>	<b>\$332.0</b>	<b>\$326.9</b>	<b>\$341.2</b>	<b>\$42.0</b>
100 Finance Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
<b>Project Total (SCC 10-90)</b>	<b>\$383.2</b>	<b>\$383.2</b>	<b>\$332.0</b>	<b>\$326.9</b>	<b>\$341.2</b>	<b>\$42.0</b>



## Cost Contingency Management

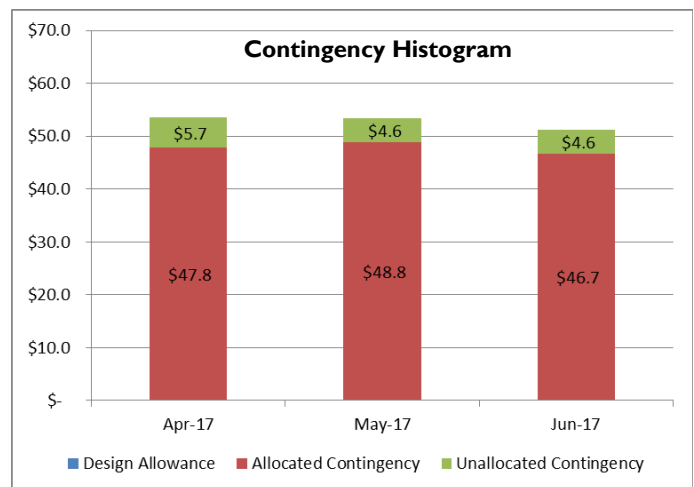
The overall project contingency balance as of this period is \$51.3M. Table (below) figures in millions.

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

**Allocated Contingency (AC):** This period the AC shows a current balance of \$46.7M, an overall decrease of \$2M from the previous period. This change is mostly due to construction phase for change orders (S440); commitment adjustments to S445 claim settlement, Startup and construction miscellaneous; and Administration phase commitments.

**Unallocated Contingency (UAC):** This period the UAC balance is \$4.6M, unchanged from last period.

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%	\$46.7	325.5%
Unallocated Contingency	\$19.0	5.0%	\$ 4.6	32.1%
<b>Total</b>	<b>\$75.5</b>	<b>20.0%</b>	<b>\$51.3</b>	<b>357.6%</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 and punchlist items.

#### Close-out Activities

##### Current Period

- Continued change order work and address contract closeout items (training, O&M Manuals, Commissioning Reports and As-Built).

##### Next Period

- Complete closeout materials and work around work.

#### Closely Monitored Issues

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

### S445 Contract—Design -Build Parking Garage

#### Close-out

Substantial Completion issued on December 21, 2016.

#### Close-out Activities

##### Current Period

- Preparing final change item.
- Continue closeout activities (As-builts).

##### Next Period

- Contract closeout.

#### Closely Monitored Issues

- None

### Cost Summary

Present Financial Status	Amount
<b>S440 Contractor—PCL Civil Contractors, Inc.</b>	
Original Contract Value	\$169,000,000
Change Order Value	\$8,138,340
Current Contract Value	\$177,138,340
Total Actual Cost (Amount Billed)	\$175,761,970
Financial Percent Complete:	99.2%
Physical Percent Complete:	100%
Authorized Contingency	\$13,520,000
Contingency Drawdown	\$8,138,340
Contingency Index*	1.7

### Cost Summary

Present Financial Status	Amount
<b>S445 Contractor—Harbor Pacific/Graham</b>	
Original Contract Value	\$29,978,000
Change Order Value	\$2,604,606
Current Contract Value	\$32,582,606
Total Actual Cost (Amount Billed)	\$32,582,606
Financial Percent Complete:	100%
Physical Percent Complete:	100%
Authorized Contingency	\$2,798,240
Contingency Drawdown	\$2,604,606
Contingency Index*	1.1

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

### Current Progress

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

*No more updates next period.*

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### Key Activities

#### Current Period

- Final payment processed.

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### Cost Summary

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

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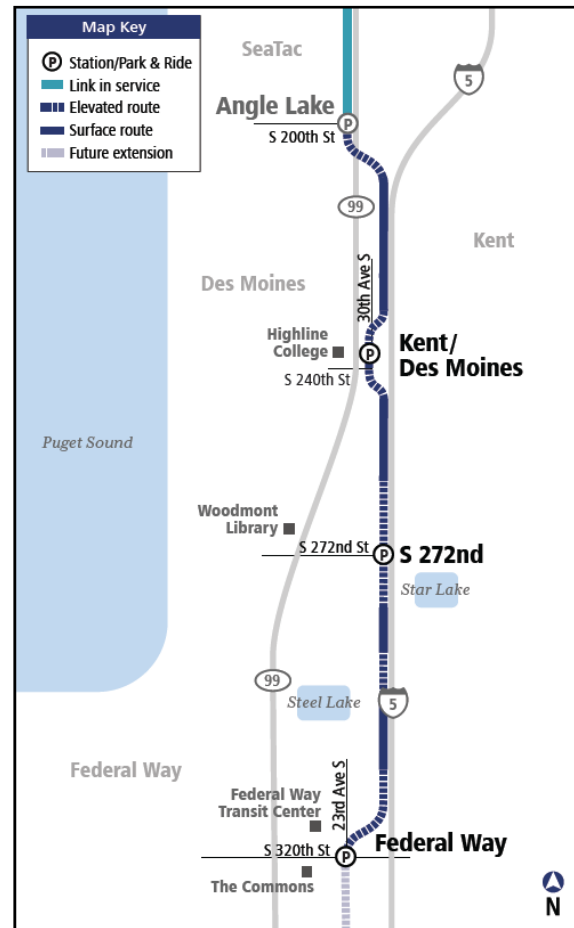
# Link Light Rail Federal Way Extension

## 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

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



Map of Federal Way Link Extension.

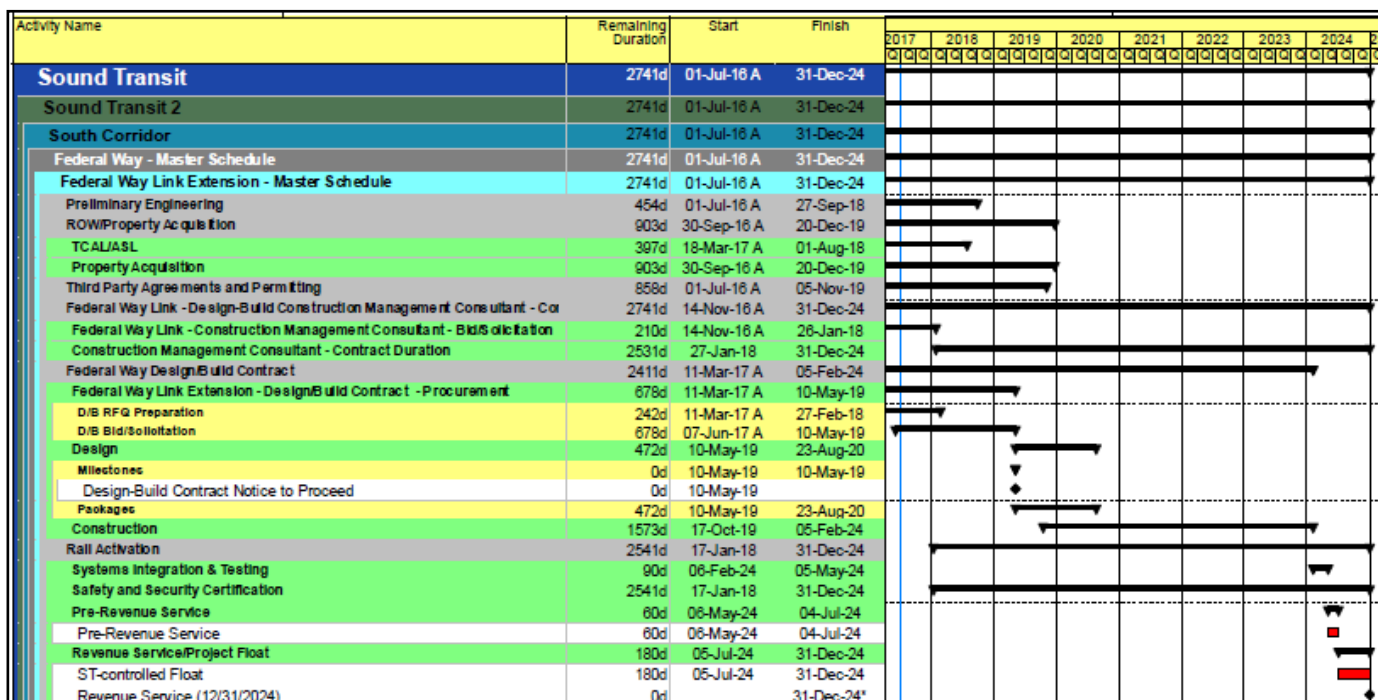
## Project Cost Summary

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

Phase	Adopted Budget	Commitment to Date	Incurred to Date	Forecasts and Trends	Estimated Final Cost (EFC)	Budget Versus EFC
Administration	\$14.9	\$7.1	\$7.2	\$7.8	\$14.9	\$0.0
Preliminary Engineering	\$40.4	\$39.1	\$34.4	\$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	\$2.6	\$1.0	\$16.1	\$18.6	\$0.0
Construction	\$25.5	\$0.0	\$0.0	\$25.5	\$25.5	\$0.0
Right of Way	\$265.1	\$4.5	\$1.1	\$260.7	\$265.1	\$0.0
<b>Total</b>	<b>\$412.6</b>	<b>\$53.3</b>	<b>\$43.7</b>	<b>\$359.3</b>	<b>\$412.6</b>	<b>\$0.0</b>

## Project Schedule

The project schedule is presented below. ROD was received in March 2017. ST has commenced acquiring real estate and will Baseline the project in 4th Qtr 2017 and may issue an RFQ for potential Design-Build contractors in 4th quarter 2017 or early 2018. Real Estate 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 due to independent estimate resource constraints.



## Sound Transit Board Actions

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

Motion Number	Description	Date
	None to report.	

## Community Outreach

- Another round of outreach events that include neighborhood briefings, tabling events, public outreach at local schools and city council working sessions will begin next period (July).

## Environmental

- None to report.

## Phase 3 Preliminary Engineering (PE)

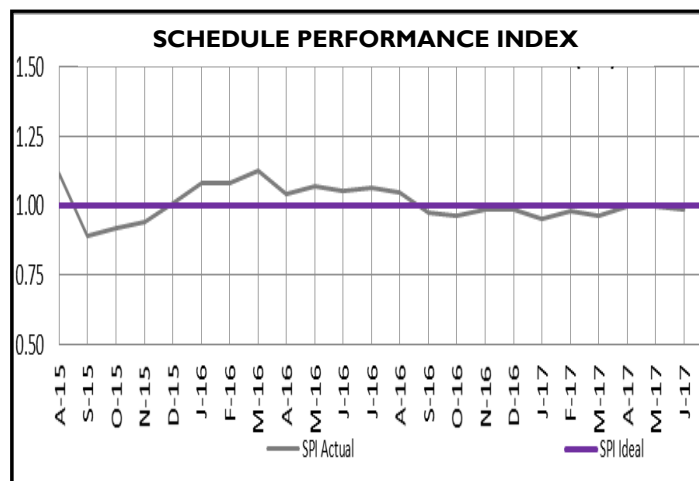
In July 2015, Sound Transit executed an amendment to the professional services agreement with HDR Engineering, Inc. for Phase 3 professional services, including completion of a Final Environmental Impact Statement (FEIS) using the preferred alternative and the other alternatives in the Draft EIS, preliminary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

### Phase 3 Key Activities

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

### Phase 3 Schedule Performance

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

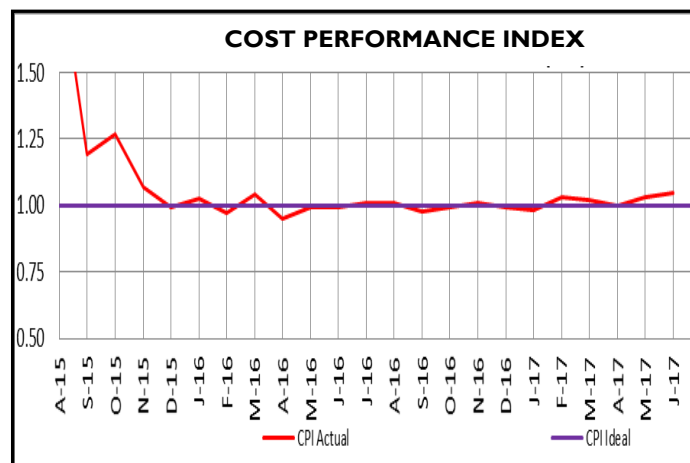




## Phase 3 Cost Performance

Phase 3 expenditures totaled \$21.6M, approximately 72% of the Phase 3 contract total. The Phase 3 percent complete is reported at 76%, with an earned value of \$22.6M. The cumulative Cost Performance Index (CPI) is 1.05, indicating costs are on track with work accomplished. Phase 3 cost is on budget.

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



Phase 3 Performance	Cumulative To Date
Amount Invoiced	\$21.6
% Spent	72%
Earned Value	\$22.6
% Complete	76%
<b>SPI</b>	0.99
<b>CPI</b>	1.05

# Link Light Rail Tacoma Link Expansion

## Scope

**Limits:** City of Tacoma

**Alignment:** The Tacoma Link Expansion is a 2.4-mile extension of the existing Tacoma Link system from the Theater District in downtown Tacoma to the Hilltop neighborhood. The Expansion will travel at-grade along Stadium Way, North 1st. Street, Division Avenue, and Martin Luther King Jr. Way.

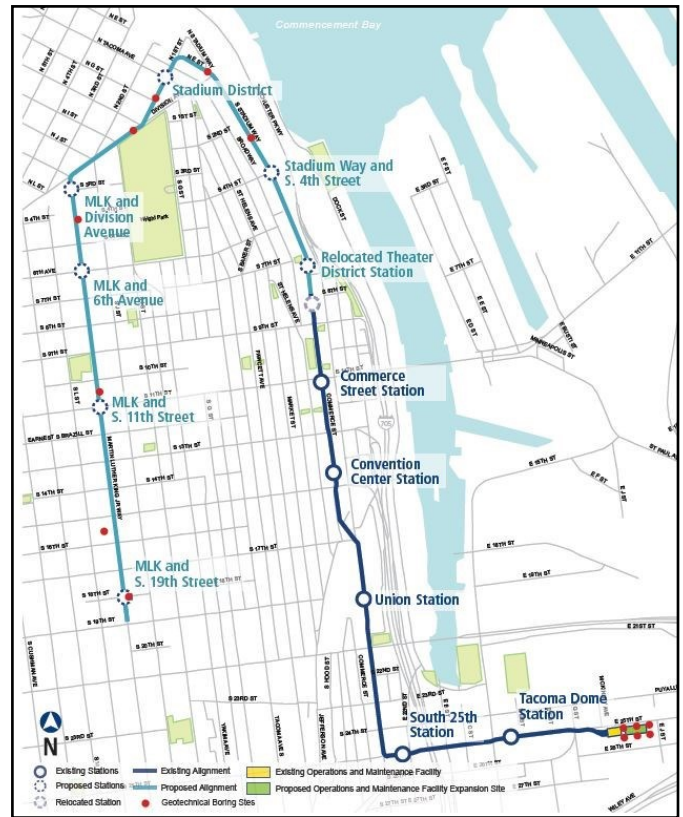
**Stations:** Relocated Theater District Station, Stadium Way & 4th St, Stadium District, MLK Jr. Way and Division, MLK Jr. Way and 6TH Ave, MLK Jr. Way and S. 11th St., and MLK Jr. Way and S. 19th St.

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

**Budget:** \$34.6 Million Phase Gate 4 budget; excludes Construction (Year of Expenditure Dollars)

**Phase:** Final Design

**Const. Starts:** 2018



Map of Tacoma Link Expansion.

## Key Project Activities

### Final Design

- Design consultant completed responses to 60% design package and continued work on 90% design package
- Continued work with City of Tacoma on issues regarding OCS pole placement along Stadium Way and Commerce St. and treatment of unsignalized intersections.

### Pre-Construction Services

- Construction Management Consultant's (CMC) Resident Engineer and ST staff continue to review maintenance of traffic plans and provide constructability reviews in advance of Constructability Workshop.

### Third Parties

- Completed amendment to funding agreement to address City contribution based on baseline cost estimate.
- ST and City of Tacoma staff substantially completed work order negotiations for City inspection and project management services of various project elements, most notably utilities.
- Issued final risk assessment report to FTA for review. Provided additional information to FTA and PMOC for inclusion into independent risk assessment report

### Right of Way

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

## Project Cost Summary

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

### Cost Summary by Phase

WBS Phase Elements	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
Administration	\$10.6	\$4.2	\$4.3	\$10.6	\$0.0
Preliminary Engineering	\$5.9	\$5.6	\$5.6	\$5.9	\$0.0
Final Design	\$10.8	\$7.7	\$5.1	\$10.8	\$0.0
Construction Services	\$0.8	\$0.5	\$0.0	\$0.8	\$0.0
3rd Party Agreements	\$1.3	\$0.0	\$0.0	\$1.3	\$0.0
Construction	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Vehicles	\$2.0	\$1.9	\$0.3	\$2.0	\$0.0
ROW	\$3.2	\$1.6	\$1.5	\$3.2	\$0.0
<b>Total</b>	<b>\$34.6</b>	<b>\$21.6</b>	<b>\$16.7</b>	<b>\$34.6</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	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
20 Stations	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
30 Support Facilities	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
50 Systems	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
<b>Construction Subtotal (10 - 50)</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>
60 Row, Land	\$3.2	\$1.6	\$1.5	\$3.2	\$0.0
70 Vehicles (non-revenue)	\$2.0	\$1.9	\$0.3	\$2.0	\$0.0
80 Professional Services	\$29.4	\$18.0	\$15.0	\$29.4	\$0.0
90 Unallocated Contingency	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
<b>Total (10 - 90)</b>	<b>\$34.6</b>	<b>\$21.6</b>	<b>\$16.7</b>	<b>\$34.6</b>	<b>\$0.0</b>

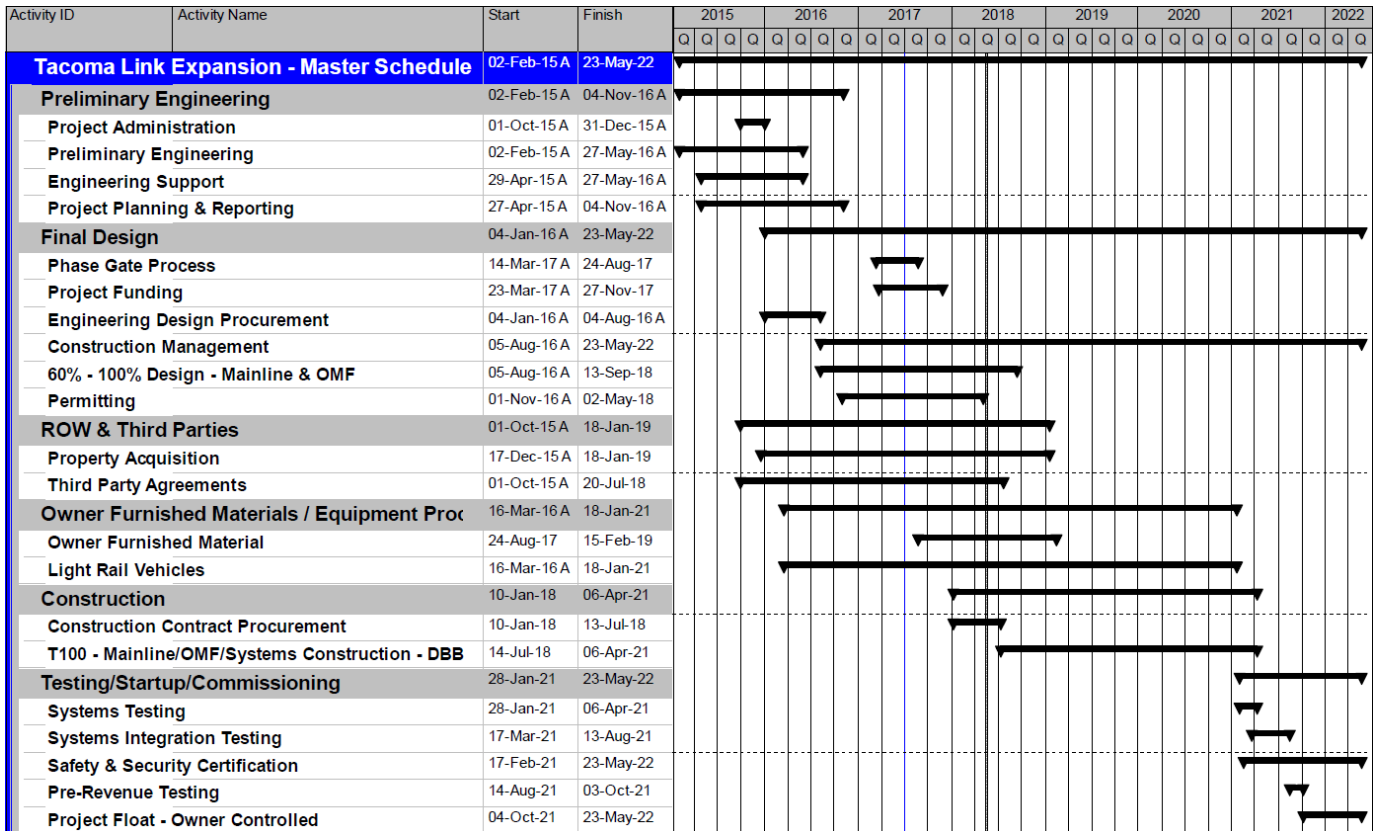
## Risk Management

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

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

## Project Schedule

The Master Schedule has been updated through the end of June. Project baselining, Phase Gate 5, has been pushed back to August 2017 to accommodate FTA risk assessment activities. TCE Batch No. 1 revised to include a more detailed acquisition process for the first six properties. The demolition of the AVH Warehouse was moved back in to the T100 contract. Addition time for Executive level briefings added to the station naming process. BAFOs for the LRVs are due in late August. Procurement of rail, special trackwork, and TPSS's have been incorporated in the construction contract and will require separate procurements. Activities for SQA are also being added to the schedule, to account for both Design, Construction, and Commissioning Conformance checks. The Project Float remains 8 months. The schedule end date remains May 23, 2022.



## Sound Transit Board Actions

Motion Number	Description	Date
	None to report.	

## Community Outreach

- Lead tour of alignment with City's Community and Economic Development to discuss residential and business impacts before and after construction.
- Prepared station naming briefing materials for ST CEO in advance of Tacoma City Council notification and ST Board action next period.

## Final Design

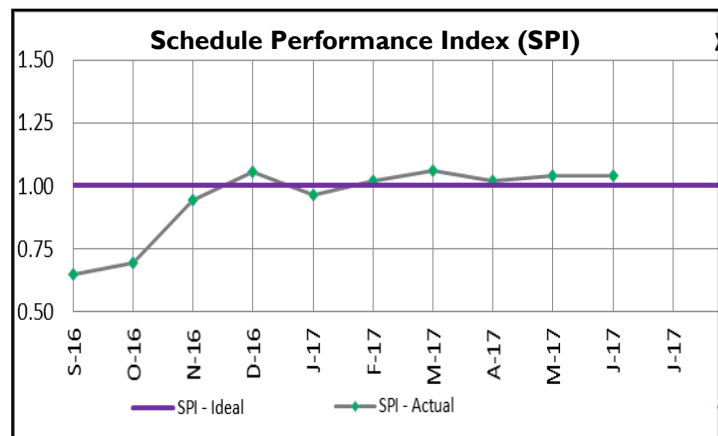
In July 2016 Sound Transit executed a contract with HDR Engineering, Inc. to provide civil and systems final design services for Tacoma Link.

### Final Design Key Activities

- Continued coordination meetings with the City of Tacoma.
- Continued work order development with the City of Tacoma for construction services as identified in the Construction Services Agreement.
- Received three proposals from interested LRV manufacturers. Two firms were shortlisted with car builder meetings occurring in July.

### Final Design Schedule Performance

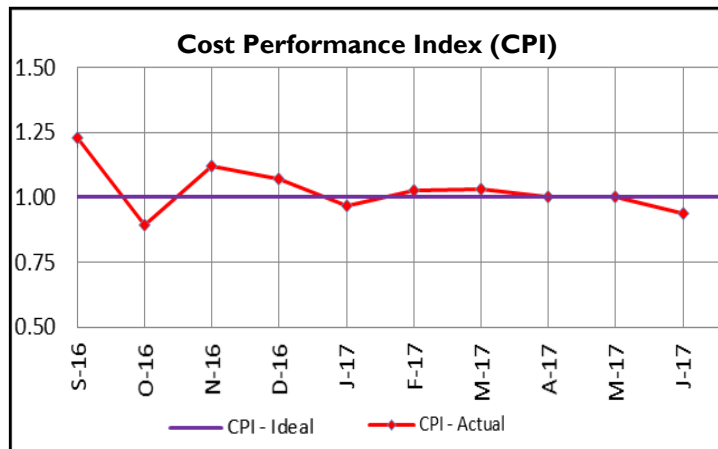
The cumulative Schedule Performance Index (SPI) for the Final Design contract is 1.04 through June, indicating that the contract work performed is slightly ahead of the original plan.



### Final Design Cost Performance

Based on Actuals, the Contract expenditures through June totaled \$5.3M, approximately 69% of the Final Design contract total. The Final Design contract percent complete reported at the end of June is 65%, with an earned value of \$4.9M.

The cumulative Cost Performance Index (CPI) through June is 0.94 ; indicating expenditures greater than the Budgeted Cost for Work Performed. Civil/Track/Station Design is the greatest driver of the negative CPI. The Consultant is scheduled to complete the design submittals earlier than anticipated.



Phase 3 Performance	Cumulative To-Date
Amount Invoiced	\$5.3M
% Spent	69%
Earned Value	\$4.9M
% Complete	65%
<b>SPI</b>	<b>1.04</b>
<b>CPI</b>	<b>0.94</b>

# Link Light Rail

## Link Operations and Maintenance Facility: East

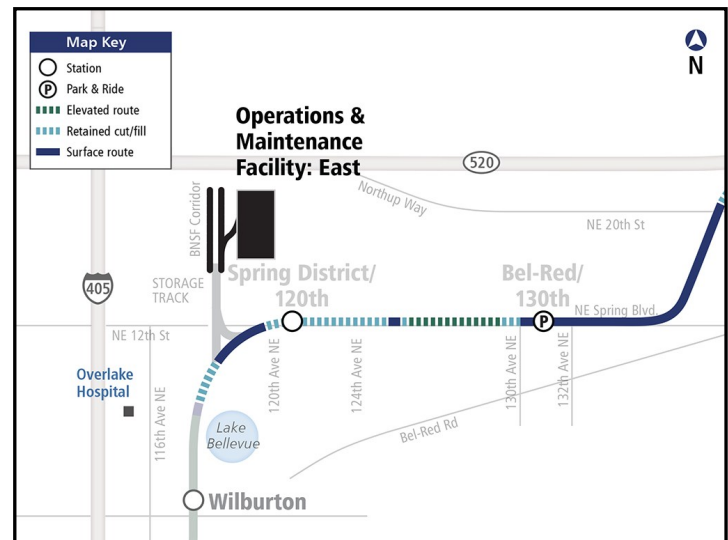
### Project Summary

**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

- OMF East TIFIA loan executed.
- Design Build construction contract (M200) with Hensel Phelps was issued NTP June 19, 2017.
- Continued to collaborate with City of Bellevue (COB) regarding: surplus property disposition, TOD decision making process, and Men's Shelter and transitional housing site alternative.
- Meetings continue with Hensel Phelps: Master Development Plan review with COB, design development meeting with ST, coordination with PSE on power services, application process and points of contact.
- Design Build PM contract with KBA was issued NTP June 7, 2017.
- An agreement with King County (KC) to replace sewer in-kind is pending execution while discussions continue with KC regarding betterment to upsize interceptor sewer.
- ST meeting with KC to discuss East Rail Corridor trail coordination.
- Project Management Plan approved by PMOC and will be adopted by the Change Control Board next period.
- The LNOP for Lynnwood was signed and now OMF East will receive a portion of funding for construction activities.

### Closely Monitored Issues

- Property acquisition and relocation schedule is on critical path. Condemnation process timeline are being monitored closely.
- Permit schedule for the Master Development Plan by City of Bellevue is pending and is a top schedule risk.



### 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	\$2.8	\$2.8	\$17.6	\$0.0
Preliminary Engineering	\$9.5	\$9.5	\$9.0	\$8.6	\$9.5	\$0.0
Final Design	\$0.4	\$0.4	\$0.0	\$0.0	\$0.4	\$0.0
Construction Services	\$19.3	\$19.3	\$17.6	\$0.1	\$19.3	\$0.0
3rd Party Agreements	\$3.1	\$3.1	\$0.2	\$0.0	\$3.1	\$0.0
Construction	\$264.8	\$264.8	\$218.9	\$5.0	\$264.8	\$0.0
ROW	\$134.5	\$134.5	\$39.8	\$38.8	\$134.5	\$0.0
<b>Total</b>	<b>\$449.2</b>	<b>\$449.2</b>	<b>\$288.3</b>	<b>\$55.3</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 \$5.3M was incurred, of which \$0.1M was Administration, ROW was \$0.2M, and Construction phase is \$5M for M200 contract regarding mobilization, design and other expenditures.

#### 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	\$0.0
20 Stations	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
30 Support Facilities: Yards, Shops	\$140.1	\$140.1	\$123.1	\$1.8	\$145.7	\$0.0
40 Sitework & Special Conditions	\$43.6	\$43.6	\$38.3	\$0.5	\$41.4	\$0.0
50 Systems	\$43.0	\$43.0	\$38.3	\$0.6	\$38.3	\$0.0
<b>Construction Subtotal (SCC 10-50)</b>	<b>\$229.3</b>	<b>\$229.3</b>	<b>\$203.8</b>	<b>\$2.9</b>	<b>\$229.5</b>	<b>\$0.0</b>
60 Row, Land, Improvements	\$134.5	\$134.5	\$39.8	\$38.8	\$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	\$44.7	\$13.6	\$71.4	\$0.0
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>\$288.3</b>	<b>\$55.3</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 most recent OMF East quarterly risk register review meeting was held June 2017 and the top five actively managed are shown below.

- Third Party requesting additional site improvements not included in the agreements.
- Authorities Having Jurisdiction not fully communicating all of their requirements to Sound Transit.



# Link Light Rail

## Link Operations and Maintenance Facility: East



### Risk Management, continued

- Third Party not satisfied with progress on Master Development Plan causing reconsideration for use of a development agreement process and late permits.
- Third Party imposes additional scope or betterments through the permitting process.
- ST requirements potentially increase change items.

### Contingency Status

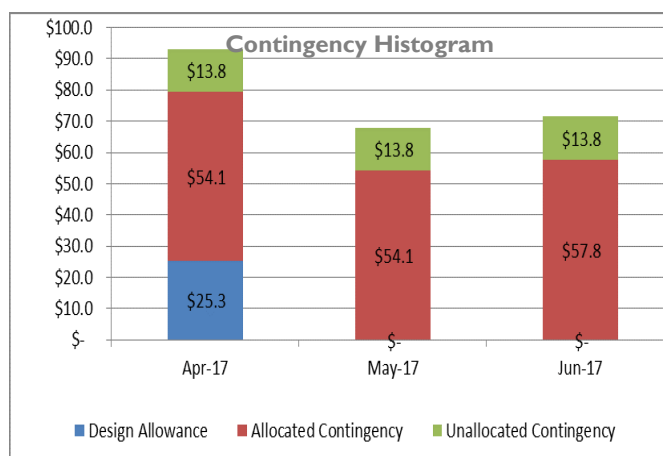
The Link Operations and Maintenance Facility East was baselined and approved by Sound Transit Board on July 2016 with a total contingency of \$93.2M. The contingency drawdown plan (shown below) excludes the Design Allowance amount as it was absorbed by the design builder responsible for design, therefore the starting contingency drawdown balance began at \$67.8M. At the end of June 2017, the total contingency balance has increase by \$3.7M, totaling \$71.6M. The current contingency balance 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).

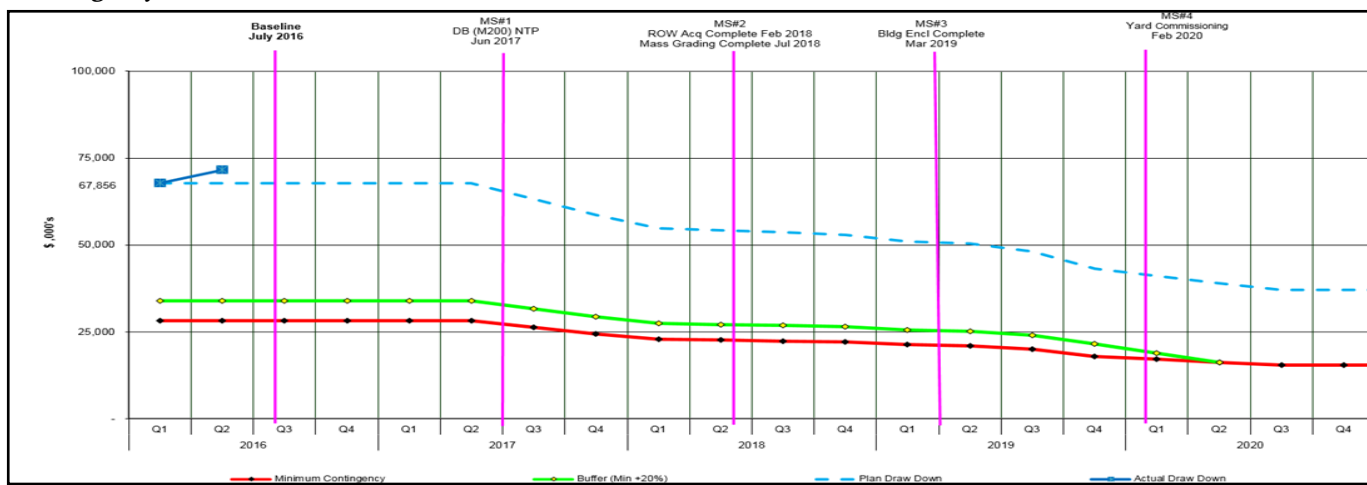
**Allocated Contingency (AC)** – Compared to the baseline amount of \$54.1M, AC reflects an increase of \$3.7M this period based on execution of M200 contract. The AC was planned for \$18.1M (reflective of 8% contract contingency) but management wanted to increase to \$21.9M (10% contract contingency).

**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%	\$ 57.8	14.7%
Unallocated Contingency	\$ 13.8	3.1%	\$ 13.8	3.5%
<b>Total</b>	<b>\$ 93.2</b>	<b>20.7%</b>	<b>\$ 71.6</b>	<b>18.2%</b>

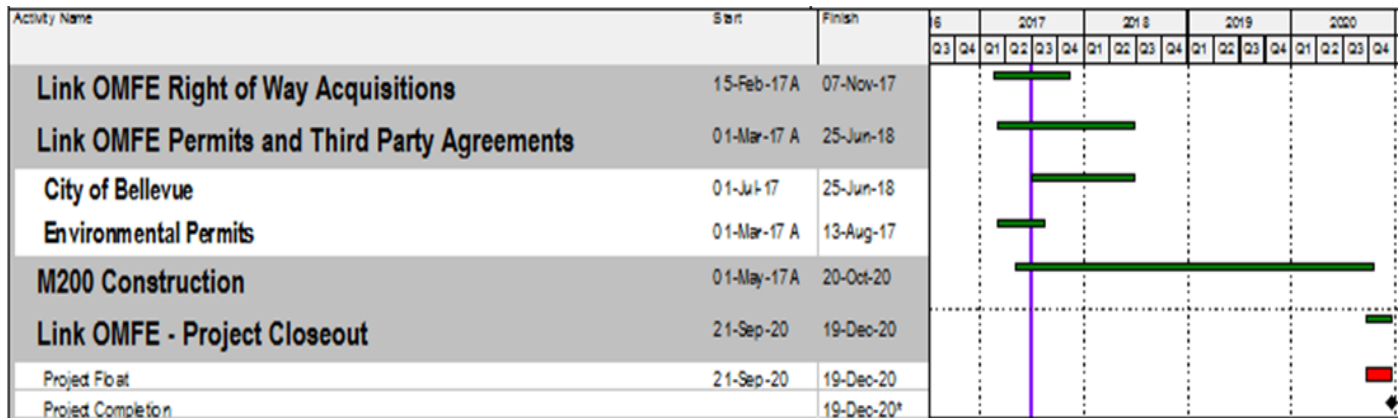


### Contingency Drawdown



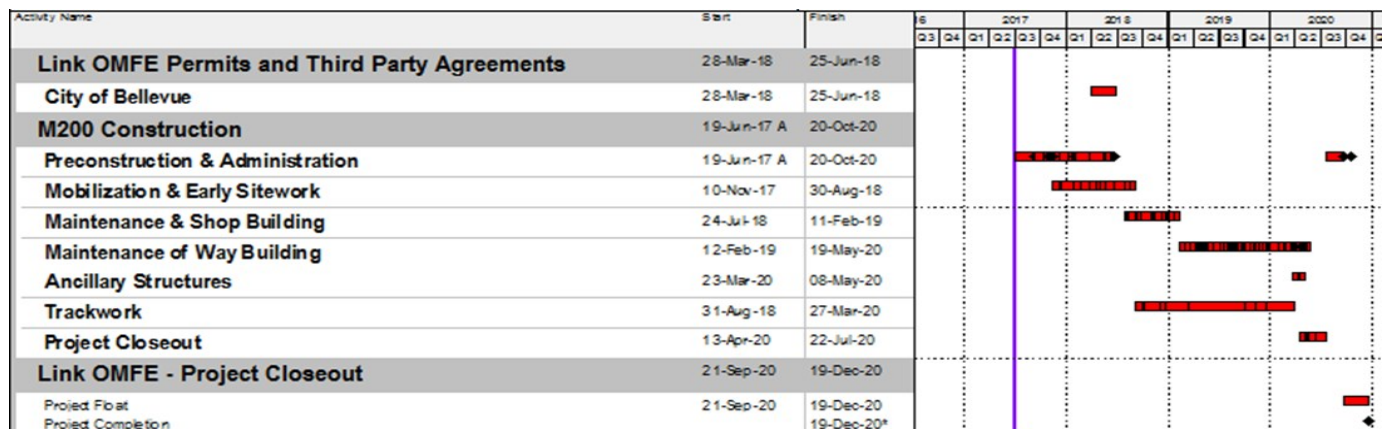
## Project Schedule

The project schedule is presented below and reflected in the baseline. ST Board approved the M200 contract in May 2017 and Notice to Proceed was issued June 19, 2017. Property acquisitions are trending ahead of schedule to be completed in late 2017, in time for construction to start as planned.



## Critical Path Analysis

The critical path is now fully within the M200 contract. It runs through site preparation and building structures, with a parallel critical path running through the storage tracks. The two paths converge on signal and systems commissioning.



# Link Light Rail

## Link Operations and Maintenance Facility: East

### Right of Way

Filed condemnations and requested Possession and Use of all properties. ST responded to second counter offer for one property. One parcel relocated this period. The right - of-way program status of this period 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	9	0	2	0	1	31	5

\*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

- On-site public open house conducted on June 22; 43 people signed in.
- TOD link on projects and plans; website went live on June 21.

### Environmental

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



Aerial view drawing of the proposed OMF East site.

## Phase 2 Preliminary Engineering and FEIS

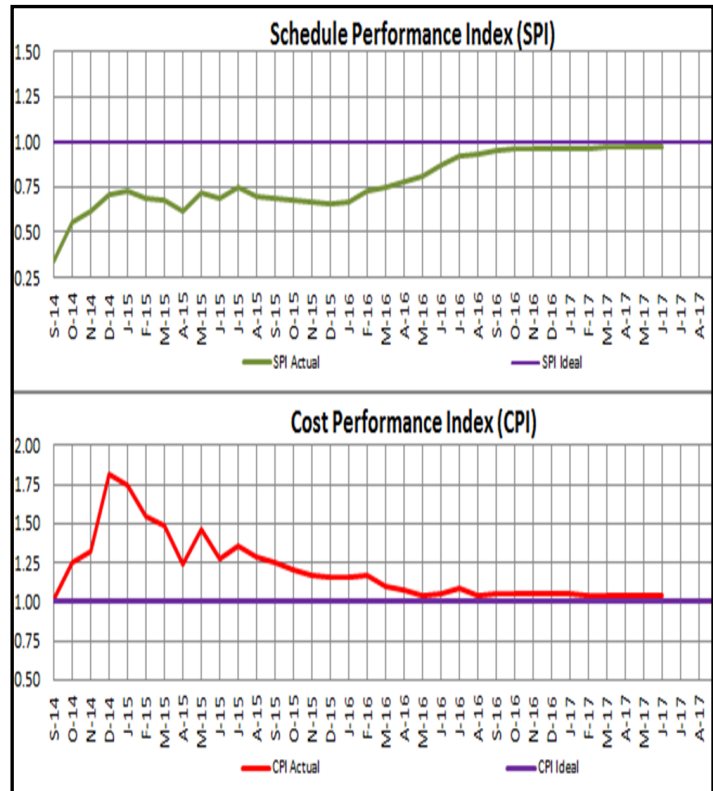
Sound Transit executed a professional services agreement with Huitt-Zollars, Inc. (HZ) for civil engineering and architectural design services and issued NTP for Phase 2, Preliminary Engineering and FEIS for the Link Operations and Maintenance Facility: East in September 2014.

### Phase 2 Key Activities

- Continued working on draft agreement with King County regarding mainline sewer replacement .
- JARPA approval received, awaiting City of Bellevue review of CAR prior to implementing fee in lieu program.
- Coordinated permit support services payment concurrence with the City of Bellevue.

### Phase 2 Schedule Performance

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



### Phase 2 Cost Performance

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

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

## Contract M200 - OMF East Design Build

### Scope

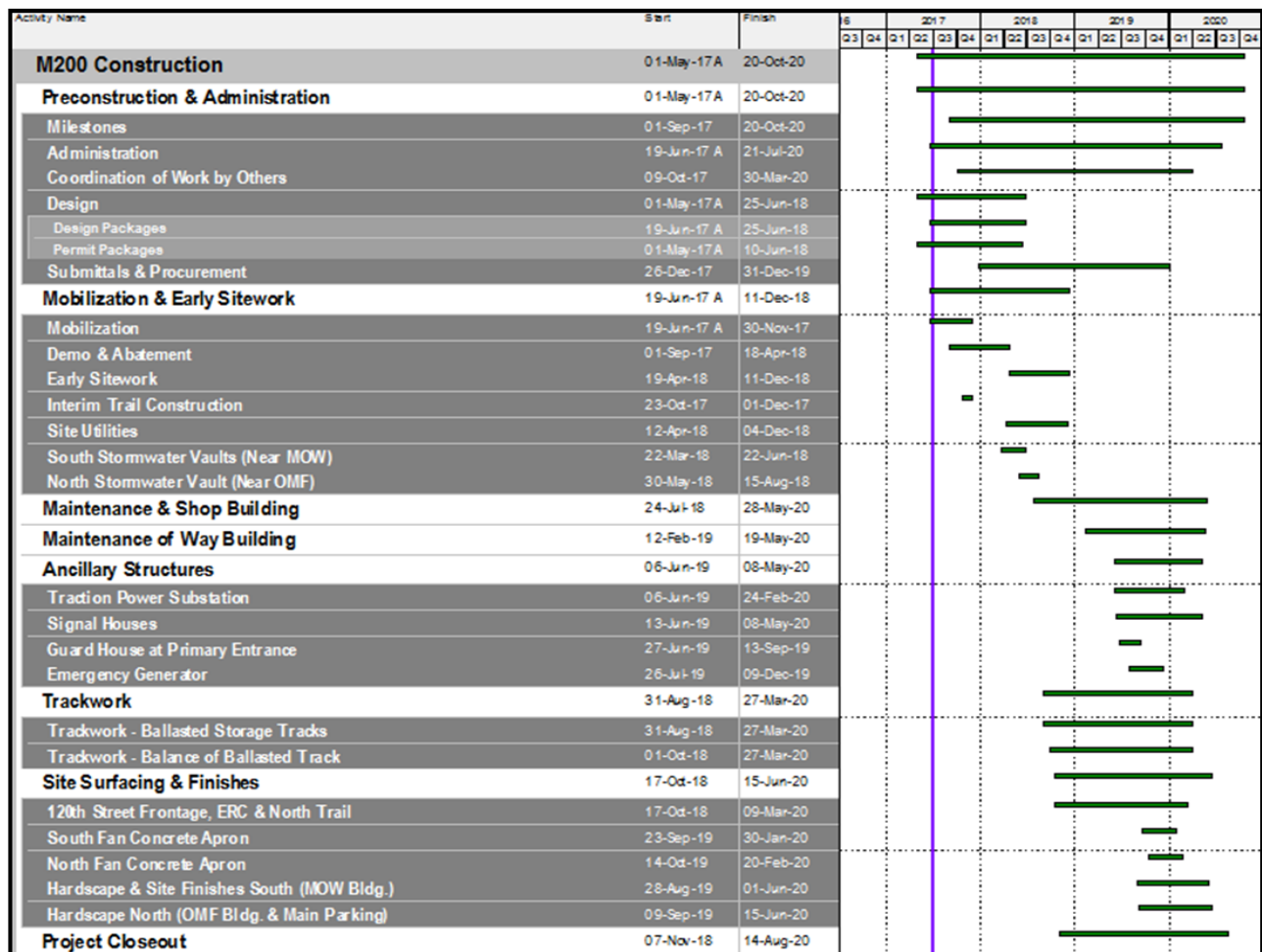
Design and construct an O&M facility with offices and furnishings, storage yard for 96 LRVs, vehicle maintenance facility, Maintenance of Way (MOW) facility, bike trail, and light rail system elements [Traction Power Substation (TPSS), Overhead Catenary System (OCS), Communications and Supervisory Control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

### Current Progress

Notice to Proceed was issued on June 19 to Hensel Phelps Construction Co. A temporary field office was setup for co-location of Contractor, RE Team and key ST staff. Contractor began submitting early submittals, design development, and preparing preliminary baseline CPM schedule and Schedule of Values.

### 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 Contractor began design prior to NTP in anticipation of submitting their Master Development Permit application for ST review in July. Design will continue throughout 2017 with construction beginning toward the end of the year, primarily to demolish existing buildings and construct the interim trail. Major sitework is planned for early 2018.





## Next Period's Activities

- Submit MDP application to ST for legal review.
- Submit preliminary baseline CPM schedule and SOV.
- Submit Environmental Management plan, Air pollution Control Plan, and Temporary Landscape Protection Plan.
- Continue Design work to complete the 30% DPs.
- Continue to work on early submittals within 30 days from NTP.
- Complete additional geotechnical investigation drilling.

## Closely Monitored Issues

- Discussions continue with ST, DBPM team, and King County regarding 54-inch sewer line betterment work.
- Submission of MDP to City of Bellevue

## Cost Summary

Present Financial Status	Amount
<b>M200 Contractor – Hensel Phelps</b>	
Original Contract Value	\$218,912,000
Change Order Value	\$0
Current Contract Value	\$218,912,000
Total Actuals (Incurred to Date)	\$5,000,000
% of Authorized Billed to Date	0%
Physical Percent Complete	0%
Authorized Contingency	\$21,891,200
Contingency Drawdown	\$0
Contingency Index	NA

# 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

- Continued engineering on car shells and systems.
- Continued Preliminary Design Reviews and submittals of Contract Deliverables Requirements List.
- Commenced monthly quality assurance meeting.
- LRV manufacturer finalizing order commitments with sub-suppliers.

## Project Cost Summary

The LRV Fleet Expansion project cost is summarized below by two cost categorizations. In the first table, the cost is summarized in accordance with Sound Transit's Work Breakdown Structure (WBS) at the Phase Level. The second table summarizes the project in accordance with the FTA's Standard Cost Category (SCC) format. Both tables below are shown in millions.

To date, approximately \$10.4M has been expended with over \$653.6M committed. The LRV manufacturer continued preliminary engineering design package submittals. The project management team continues preliminary engineering design package reviews.

### 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	\$0.6	\$0.6	\$6.4	\$0.0
Construction Services	\$18.0	\$18.0	\$4.8	\$2.1	\$18.0	\$0.0
Vehicles	\$716.3	\$716.3	\$648.2	\$7.7	\$716.3	\$0.0
<b>Total</b>	<b>\$740.7</b>	<b>\$740.7</b>	<b>\$653.6</b>	<b>\$10.4</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 to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget Vs. EFC
Construction Subtotal (SCC 10-50)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
60 ROW, Land, Existing Improvements	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
70 Vehicles	\$702.8	\$702.8	\$653.0	\$9.8	\$702.8	\$0.0
80 Professional Services	\$6.1	\$6.1	\$0.6	\$0.6	\$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>\$10.4</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 10.9% of remaining work in the project.

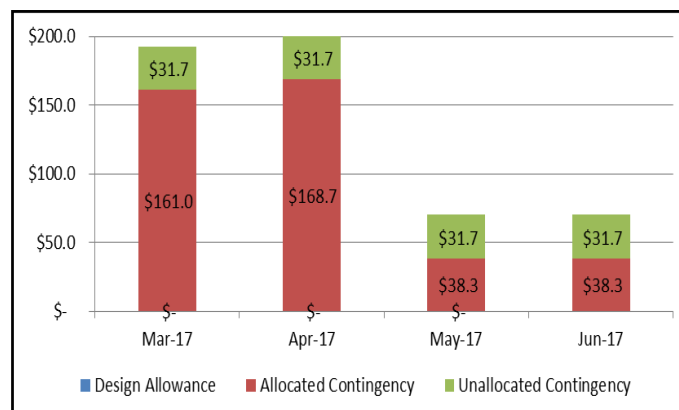
*Design Allowance* – This project contains \$0 design allowance.

*Allocated Contingency* – The project baseline's allocated contingency was \$46.3M. Due to a successful vehicle procurement and a lower than anticipated contract value the allocated contingency was realized at \$167.3M in October 2016. The current available allocated contingency is \$38.3M after executing a change order to add additional vehicles and spare parts to 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	6.0%
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>10.9%</b>

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



## Project Schedule

The ST2 LRV Expansion project schedule is shown below.

Activity Name	Start	Finish	Baseline Start	Baseline Finish	17	2018	2019	2020	2021	2022	2023	2024
<b>LRV Procurement Schedule</b>	10-Oct-16 A	08-May-23	12-Sep-16	20-Sep-24								
<b>LRV Engineering and Manufacture</b>	10-Oct-16 A	11-May-22	12-Sep-16	13-Mar-19								
LRV Design Reviews, Manufacturing, and System Tests	10-Oct-16 A	11-May-22	12-Sep-16	13-Mar-19								
<b>LRV Delivery Schedule</b>	21-Nov-18	07-Feb-23	13-Mar-19	22-Jun-24								
Delivery of 1st LRV		21-Nov-18		13-Mar-19								
Delivery of 40th LRV - Northgate Link Vehicle Deliveries Complete		13-Mar-20		13-Dec-20								
Delivery of 42nd LRV - Max Capacity at Existing OMF at capacity (104 LRVs)		02-Apr-20		12-Jan-21								
Final Acceptance of Vehicles	12-May-22	07-Feb-23	25-Sep-23	22-Jun-24								
Delivery of 122nd LRV - Final ST2 Delivery	12-May-22											
<b>Project Closeout</b>	08-Feb-23	08-May-23	23-Jun-24	20-Sep-24								
ST-Controlled Float	08-Feb-23	08-May-23	23-Jun-24	20-Sep-24								
LRV Procurement Complete		08-May-23		20-Sep-24								

## Sound Transit Board Actions

Motion Number	Description	Date
	None to report.	

# Link Light Rail Staffing Report



## Project Staffing – Link Light Rail Program – MAY 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
Principal Architect	Federal Way Link Extension	2016 Attrition
Corridor Design Manager	Systems	2016 Attrition
Principal Construction Manager	South Corridor	2017 Attrition*
Chief of Staff	Executive Director's Office	2017 Attrition*
Director	Civil and Structural Engineering	2017 Attrition*
Real Property Coordinator	Real Property	2017 Attrition
Executive Project Director	Federal Way Link Extension	May 2017*

\*Attrition resulting from internal promotion.

Recruiting is on-going for the following design, engineering and construction management staff.

Position	Project Assignment	Planned Hire Date
Sr. Project Manager	Sounder Capital Program	2016 Attrition*
Civil Engineer	Lynnwood Link Extension	2016 Attrition*
Deputy Director	Construction Management	2016 Attrition*
Construction Contracts Claims Sp.	Construction Management	2016 Attrition*
Sr. Systems Engineer	LRV Procurement and Testing	2016 Attrition
Sr. Project Manager	OMF: East	2016 Reclass
Executive Project Director	Executive Director's Office	2016 Reclass
Leasing Document Coordinator	Property Management	2017 Attrition*
Community Outreach Specialist	South Corridor	2017 Attrition*
Config. and Change Mgt. Spec.	Project Controls	2017 Attrition*
Deputy Director	Civil and Structural Engineering	2017 Attrition *
Mechanical Engineer	Civil/Systems Integration	2017 Attrition*
Construction Manager	Northgate Link Extension	2017 Attrition*
Civil Engineer	Utilities	2017 Attrition
Project Control Specialist	Northgate Link Extension	2017 Attrition
Project Coordinator	Non-Corridor Projects	2017 Attrition

\*Attrition resulting from internal promotion

## Project Staffing – Link Light Rail Program continued

Position	Project Assignment	Planned Hire Date
Sr. Systems Engineer	Operations Technology	January 2017
Sr. Systems Engineer	Operations Technology	January 2017
Sr. Civil Engineer	Non-Corridor Projects – Operations	February 2017
Project Control Supervisor	Tac./Fed. Way –Tac Link Extension	February 2017
Construction Manager	Systems	February 2017
Construction Manager	Lynnwood Link Extension	February 2017
Project Manager	Public Art (STart)	February 2017
Construction Manager	Systems	March 2017
Specifications Writer	Civil and Structural Engineering	April 2017
Chief Systems Engineer	Traction Power	April 2017
Scheduling Engineer	Right-of-Way	April 2017
Chief Systems Engineer	Signals	April 2017
Construction Manager	Systems	April 2017
Chief Systems Engineer	Communications	May 2017

There were 645.5 (103% 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 May. Staffing was within 10% of plan for the East and Lynnwood Link Extensions. Staffing for the Tacoma, Northgate, and Federal Way Link Extensions was 111%, 117% and 77% of plan respectively; staffing for the Link Operations & Maintenance Facility: East was 26% of plan.

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

	May 2017 Staffing Plan Variance											
	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	43.2	1.2	103%	37.9	18.3	-19.6	48%	79.9	58.0	-21.9	73%
Northgate Link Extension	71.1	91.9	20.8	129%	44.2	42.8	-1.4	97%	115.3	131.0	15.7	114%
OMF East	6.6	0.0	-6.6	0%	16.7	6.1	-10.6	37%	23.3	7.1	-16.2	30%
East Link Extension	66.8	79.8	13.1	120%	72.1	72.2	0.2	100%	138.8	145.6	6.8	105%
Lynnwood Link Extension	178.0	197.6	19.6	111%	51.9	46.8	-5.1	90%	229.9	242.5	12.5	105%
Tcoma Link Expansion	24.0	28.1	4.1	117%	18.1	18.7	0.6	103%	42.1	47.4	5.3	113%
<b>Total</b>	<b>388.5</b>	<b>440.6</b>	<b>52.2</b>	<b>113%</b>	<b>240.9</b>	<b>204.9</b>	<b>-36.0</b>	<b>85%</b>	<b>629.3</b>	<b>627.9</b>	<b>2.1</b>	<b>100%</b>

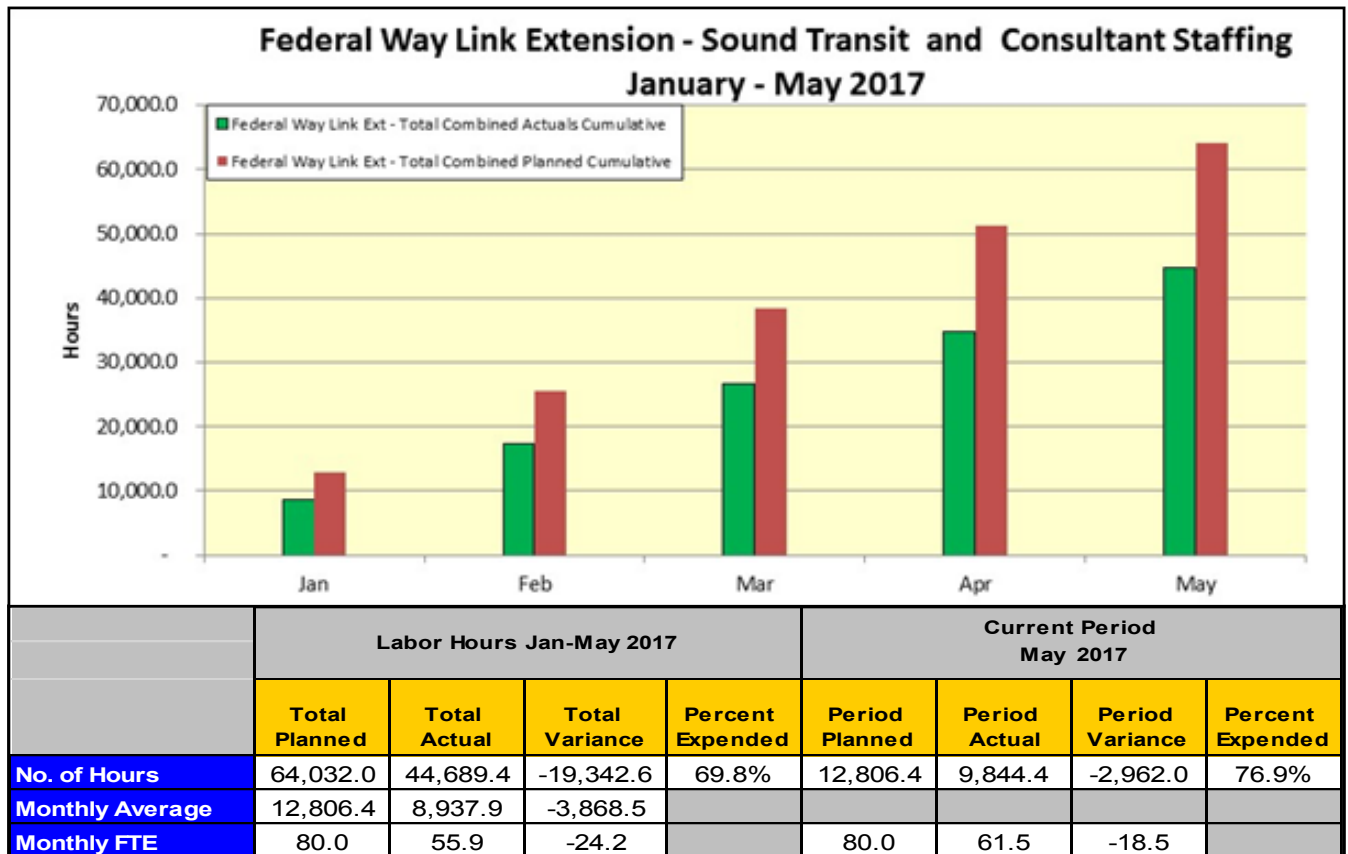
# Link Light Rail Staffing Report



## Federal Way Link Extension Staffing

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

There were 61.5 (77% of plan) consultant and internal staff on the Federal Way Link Extension in May including 43.2 consultant FTE (103% of plan) and 18.3 internal FTE (48% of plan). Average year-to-date (YTD) internal staffing (18.8 FTE/mo.) is 50% (19.3 FTE/mo.) below plan; YTD consultant staffing (37.1 FTE/mo.) is 11.7% (4.9 FTE/mo.) below plan. All consultant staff is supporting preparation of bridging documents for Design-Build (DB) contract.



## Operations & Maintenance Facility: East Staffing

### Total Internal and External Staffing – OMF East

There were 6.2 internal and 0 consultant FTE participating in the Operations & Maintenance Facility: East project in May. This is 9% (0.5 FTE) above April staffing and 26% of plan. Average year-to-date staffing (7.1 FTE/mo.) is 70% (16.2 FTE/mo.) below plan.

	Labor Hours to Date				Current Period May 2017			
	Total Planned	Total Actual	Total Variance	Percent Expended	Period Planned	Period Actual	Period Variance	Percent Expended
<b>No. of Hours</b>	18,632.0	5,654.3	-12,977.7	30.3%	3,726.4	984.4	-2,742.0	26.4%
<b>Monthly Average</b>	3,726.4	1,130.9	-2,595.5					
<b>Monthly FTE</b>	23.3	7.1	-16.2		23.3	6.2	-17.1	

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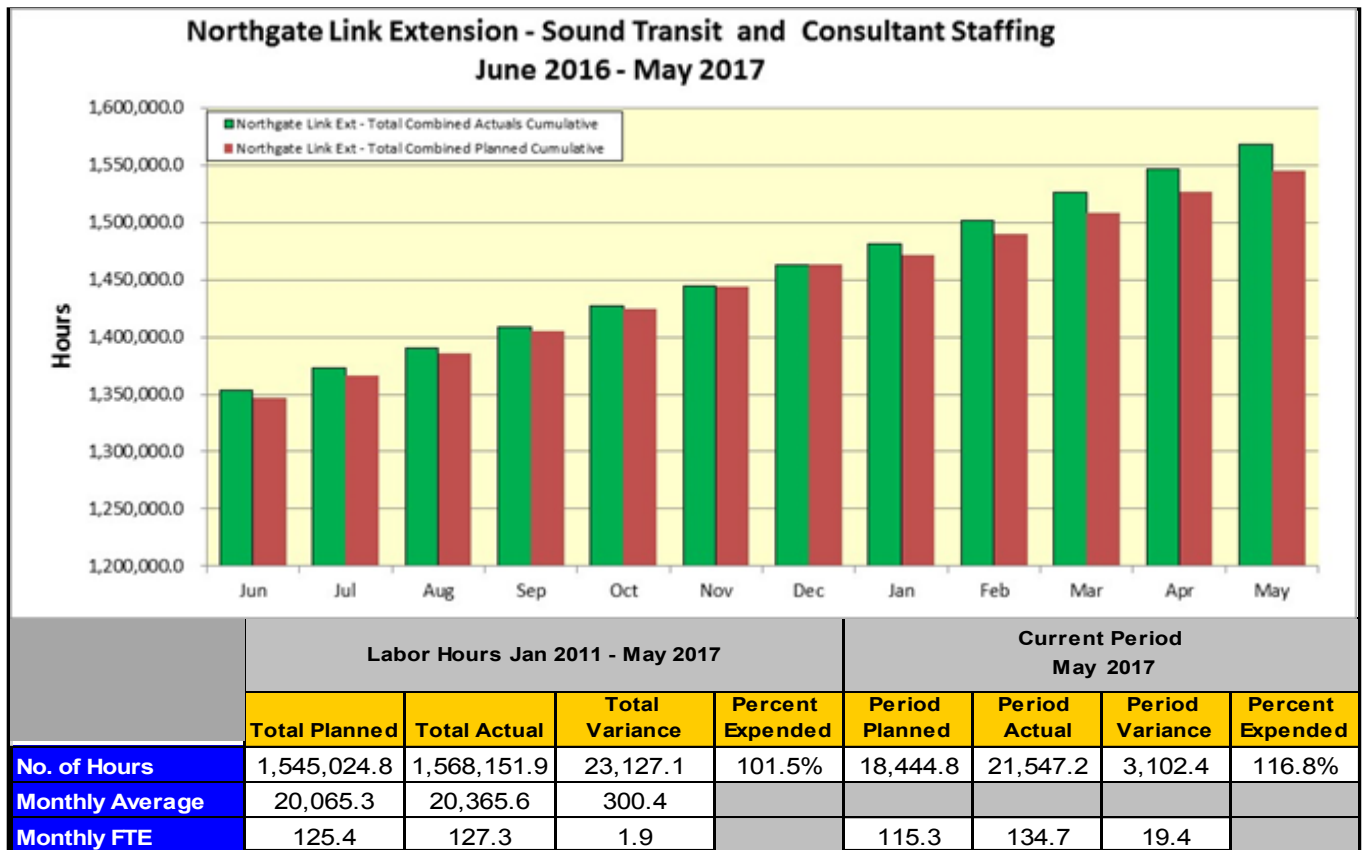
# Link Light Rail Staffing Report



## Northgate Link Extension Staffing

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

During May 42.8 internal and 91.9 consultant FTE were assigned to the Northgate Link Extension. This is 7% (8.2 FTE) above April staffing and is 17% (19.4 FTE) above plan. Average year-to-date staffing (131 FTE/mo.) is 14% (15.7 FTE/mo.) above plan; cumulatively since January 2011 average monthly staffing is trending with plan.

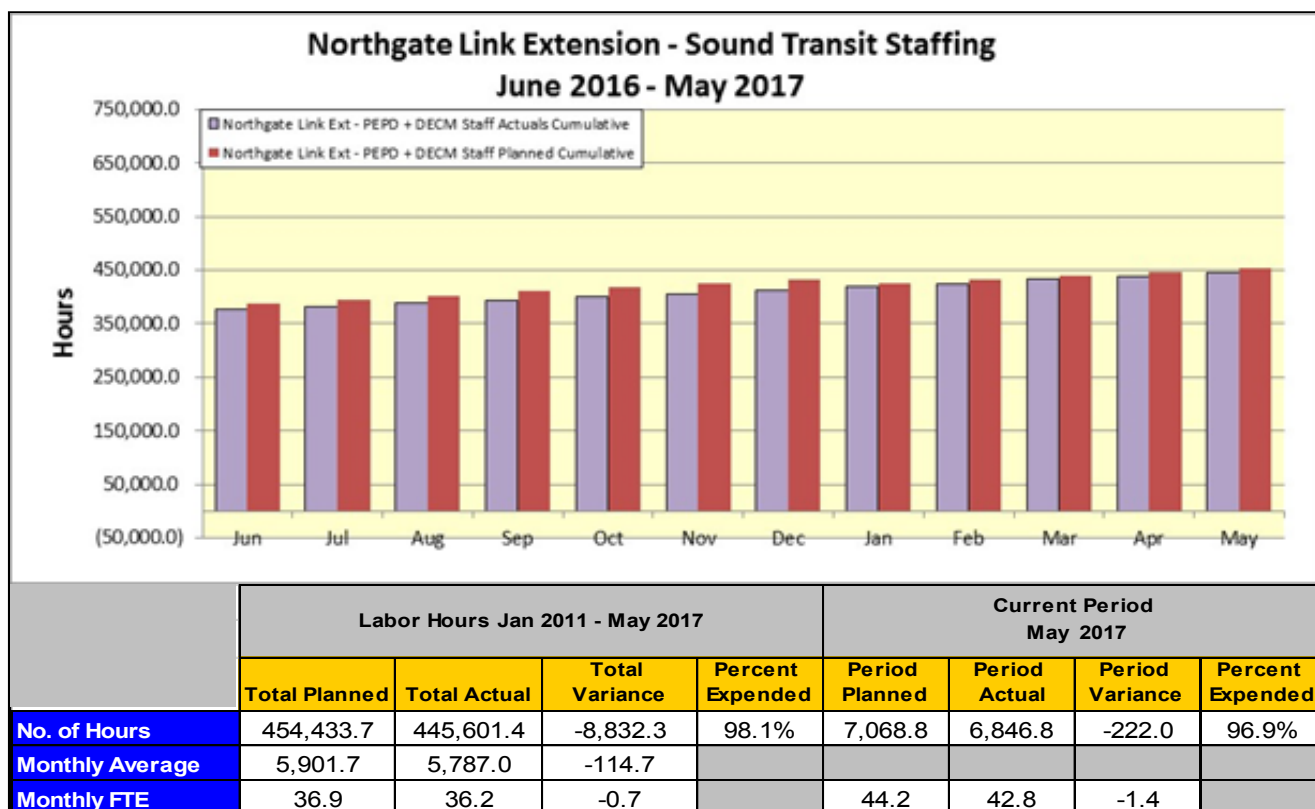




## Northgate Link Extension Staffing

### Internal Resource Commitments to Northgate Link Extension

Internal staffing in May (42.8 FTE) increased 10% (4.3 FTE) from April and was 3% (1.4 FTE) below plan. Cumulatively, since January 2011, average monthly internal staffing (36 FTE/mo.) is 1.9% (0.7 FTE/mo.) below plan.



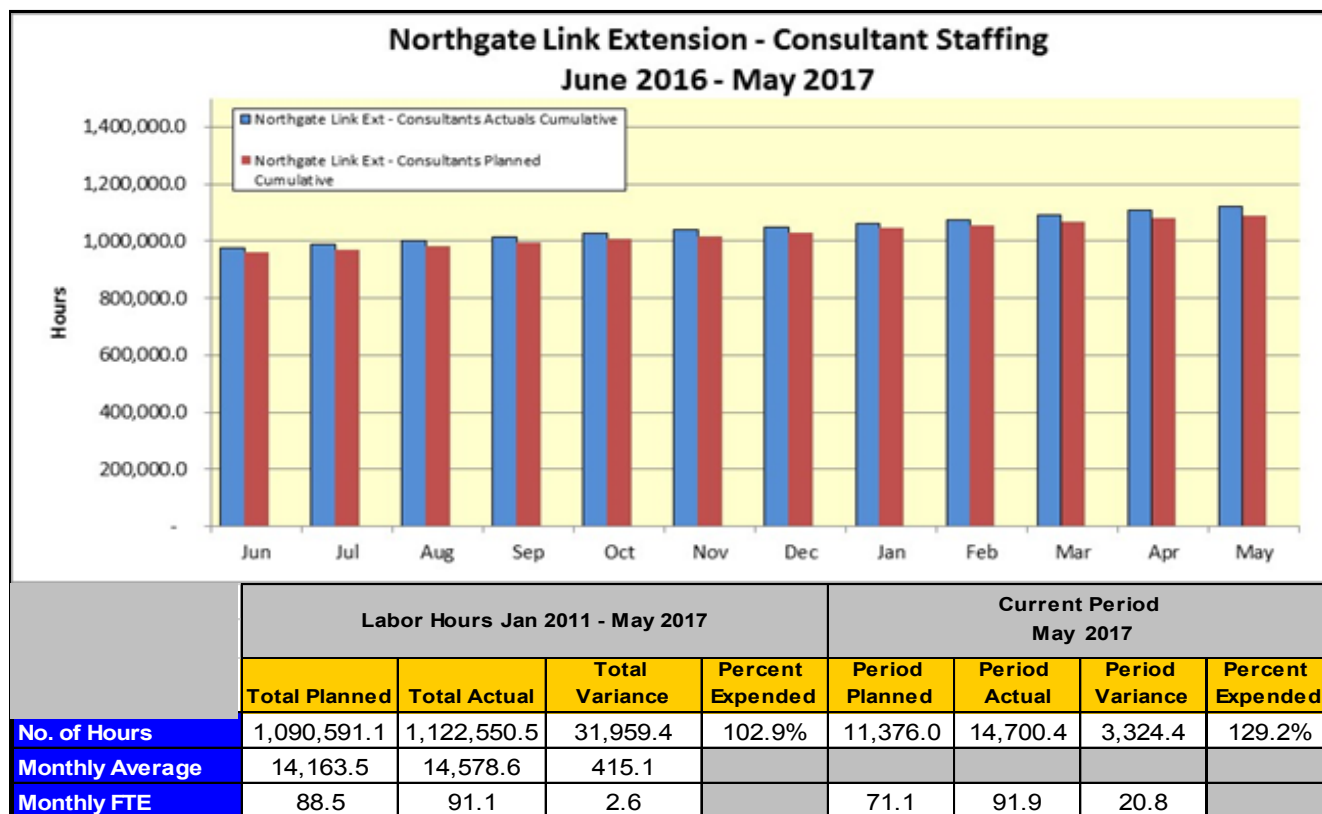
# Link Light Rail Staffing Report



## Northgate Link Extension Staffing

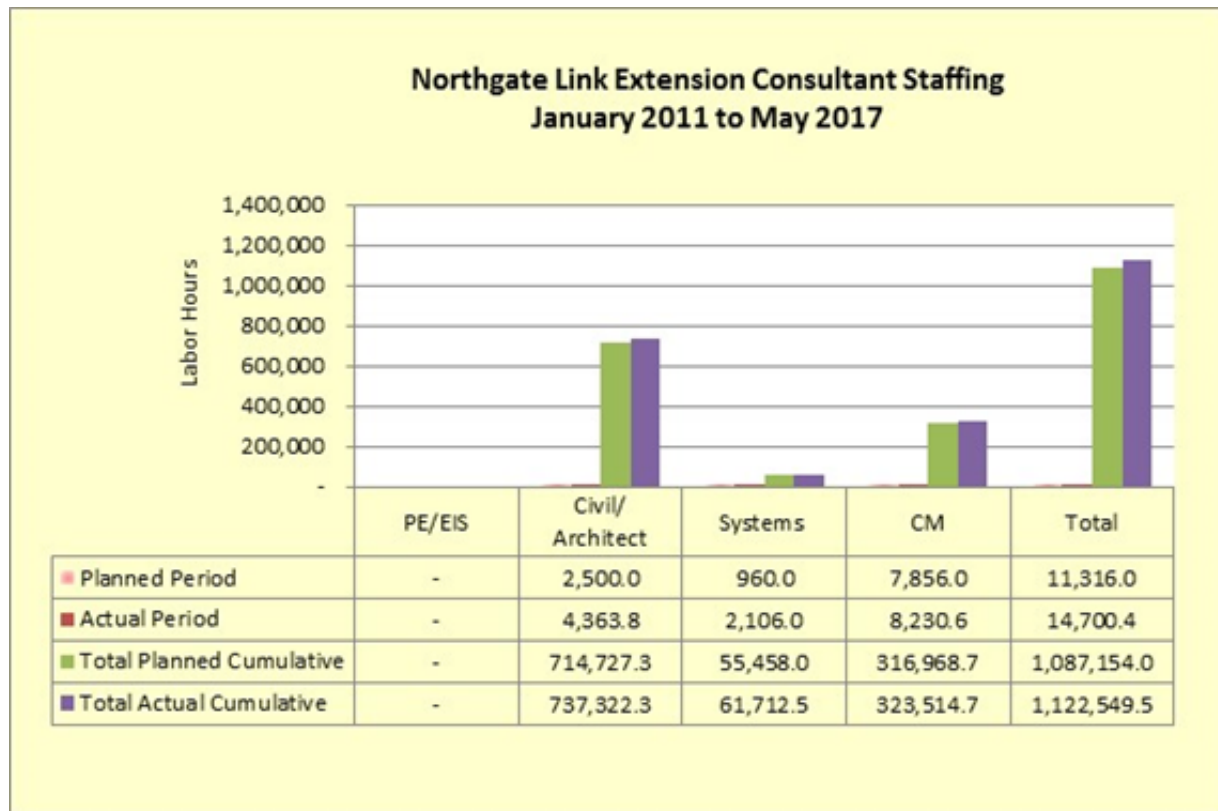
### Consultant Resource Commitments to Northgate Link Extension

In May 91.9 consultant FTE were assigned to the Northgate Link Extension; consultant staffing was 5% (4 FTE) above April staffing and was 29% (20.8 FTE) above plan. Cumulatively, since January 2011, average monthly consultant utilization (91.1 FTE/mo.) is trending 2.9% (2.6 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 May (27.3 FTE) was 1.8% (0.5 FTE) above April staffing and was 70% (11.3 FTE) above plan. Cumulatively since January 2011, average civil engineering/architecture consultant staffing of 59.8 FTE/mo. is trending within 3% of plan.
- Systems consultant utilization in May (13.2 FTE) was 43.3% (4 FTE) above April staffing and was 119% (7.2 FTE) above plan. Since January 2011, average monthly Systems consultant staffing (5 FTE/mo.) is trending within 5% of plan.
- CM consultant staffing in May (51.4 FTE) was consistent with April staffing and was 5% (2.3 FTE) above plan. Cumulatively, since January 2011, average monthly CM consultant staffing (26.3 FTE/mo.) is trending with plan.

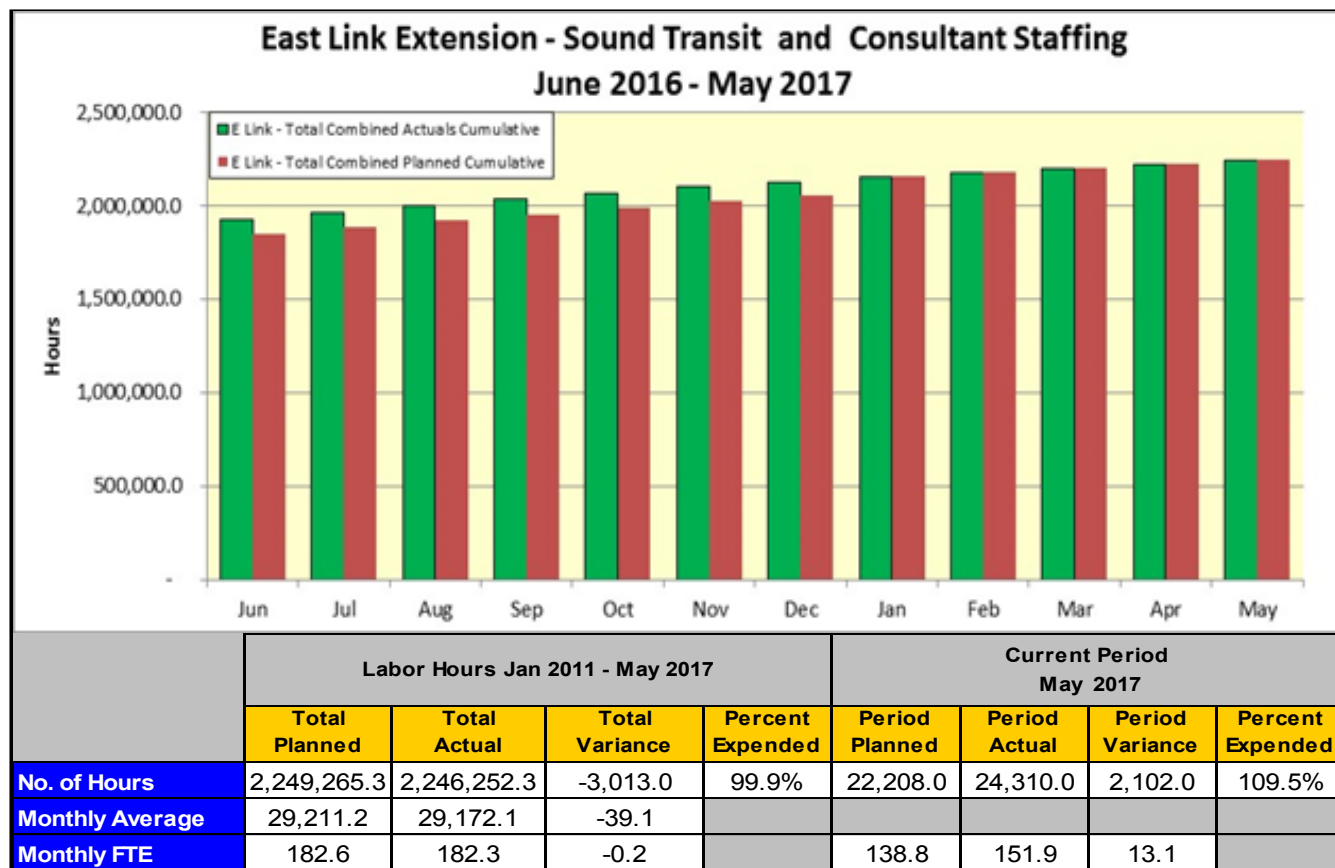
# Link Light Rail Staffing Report



## East Link Extension Staffing

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

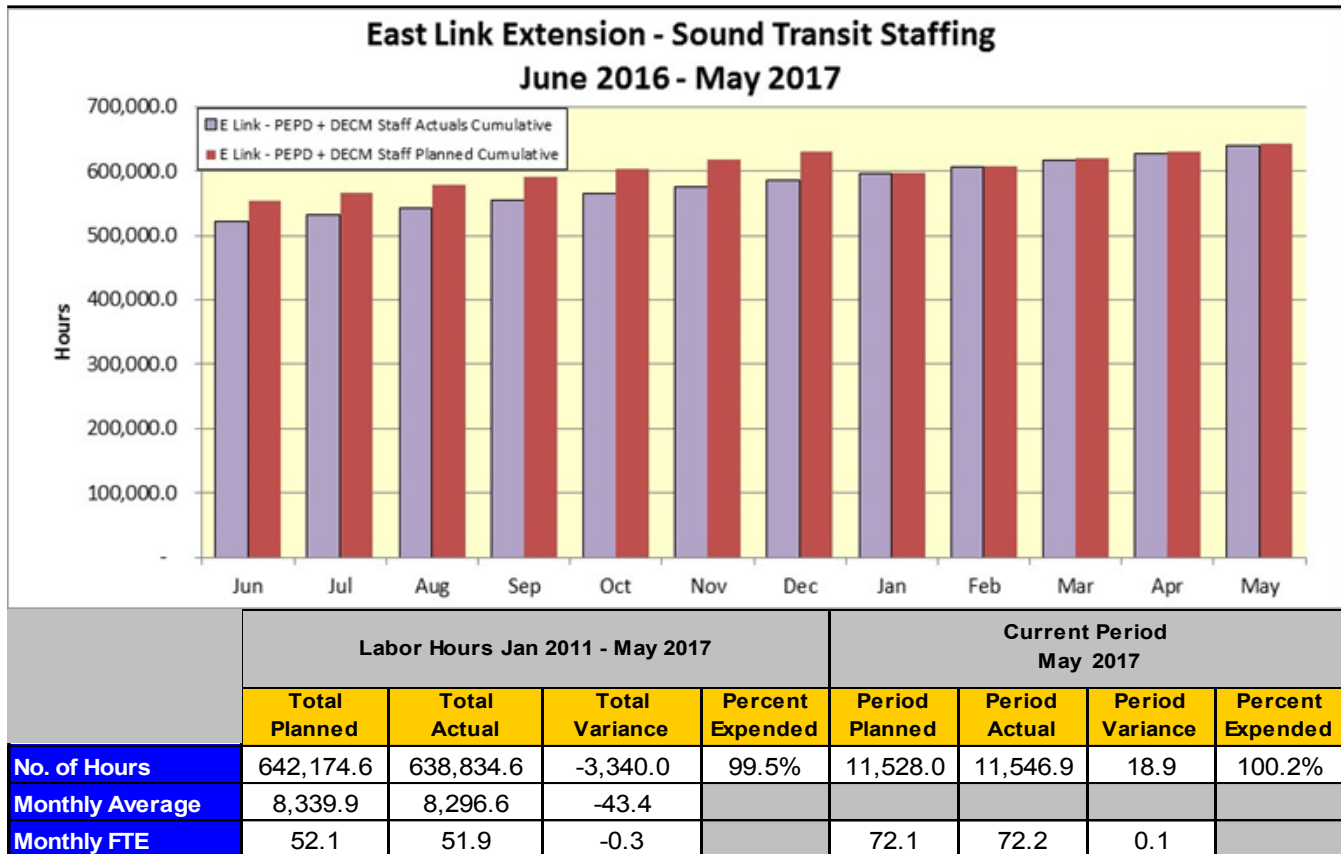
Staffing for the East Link Extension in May (151.9 FTE) increased 4% (5.2 FTE) from April and was 9% (13.1 FTE) above plan. Average year-to-date staffing of 145.6 FTE/mo. is trending 5% above plan. Cumulatively since January 2011, average monthly staffing of 182.3 FTE/mo. is trending with plan.



## East Link Extension Staffing

### Internal Resource Commitments to East Link Extension

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



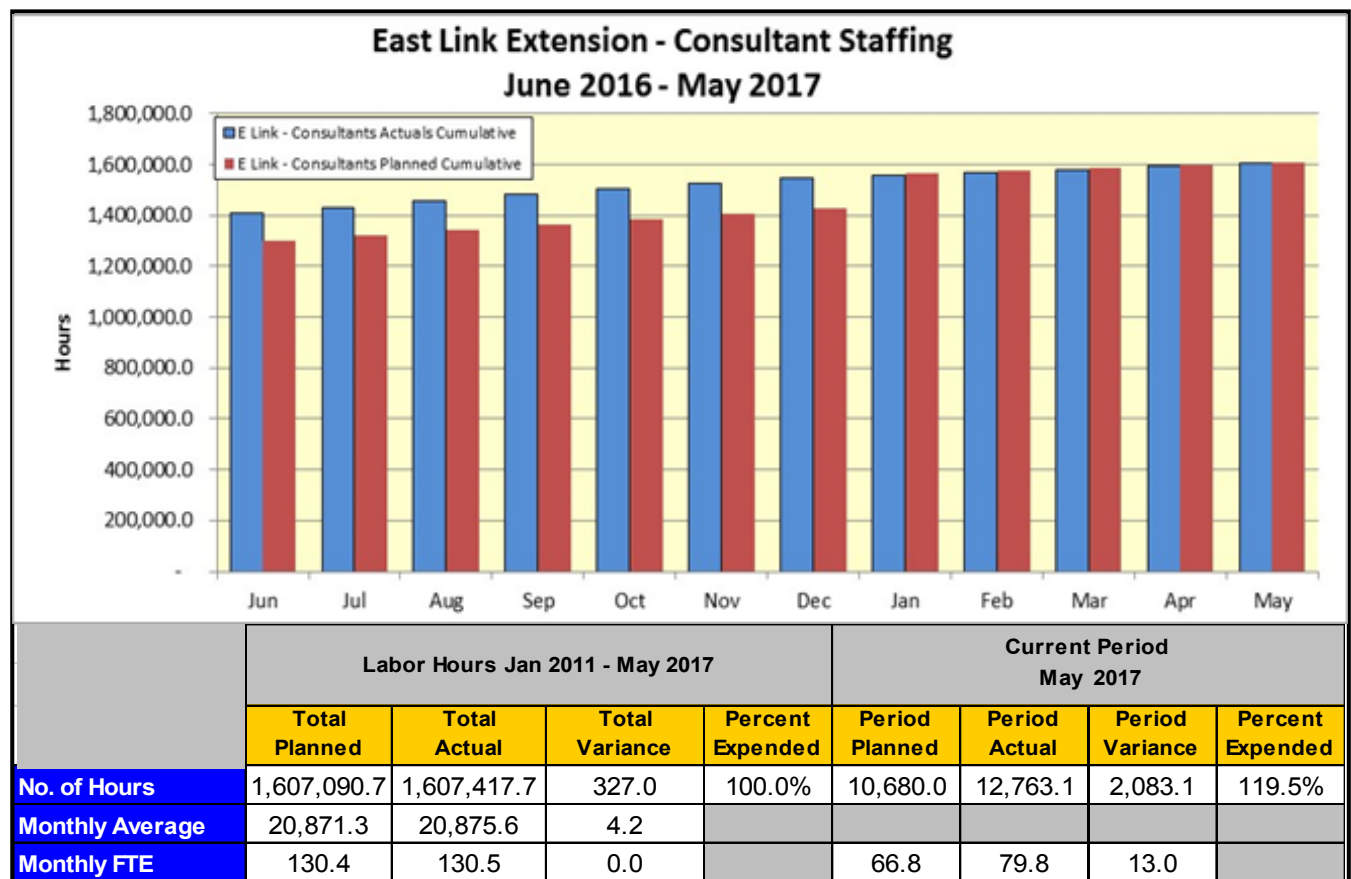
# Link Light Rail Staffing Report



## East Link Extension Staffing

### Consultant Resource Commitments to East Link Extension

There were 79.8 consultant FTE assigned to the East Link Extension during May. Consultant staffing was 5% (3.9 FTE) below April and 20% (13 FTE) above plan. Cumulatively since January 2011, average monthly consultant staffing (130.5 FTE/mo.) is trending with plan.

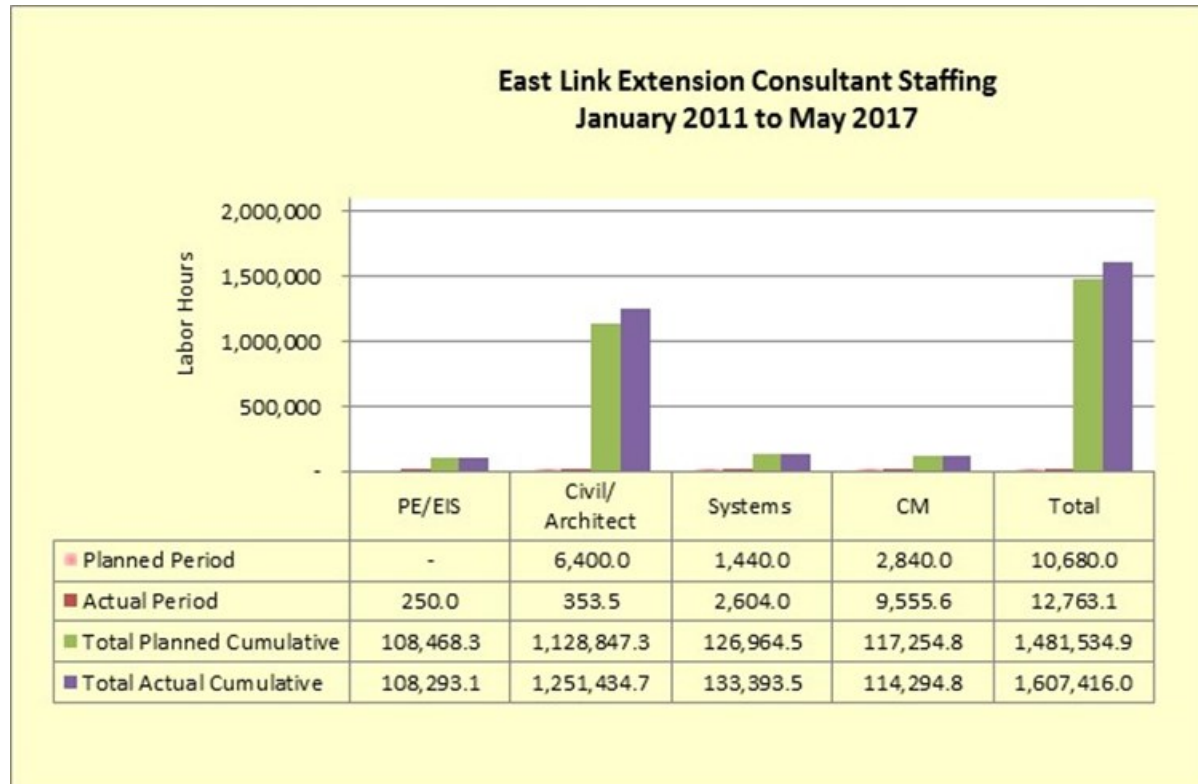




## East Link Staffing

### Consultant Resource Commitments to East Link, continued

In May construction management consultant staffing (59.7 FTE) was 75% of consultant staffing; civil engineering consultant staffing (2.2 FTE) comprised 2.7% of consultant staffing. Systems consultant staffing (16.3 FTE) was 81% (7.2 FTE) above plan; there were 1.6 consultant FTE performing Preliminary Engineering (PE).



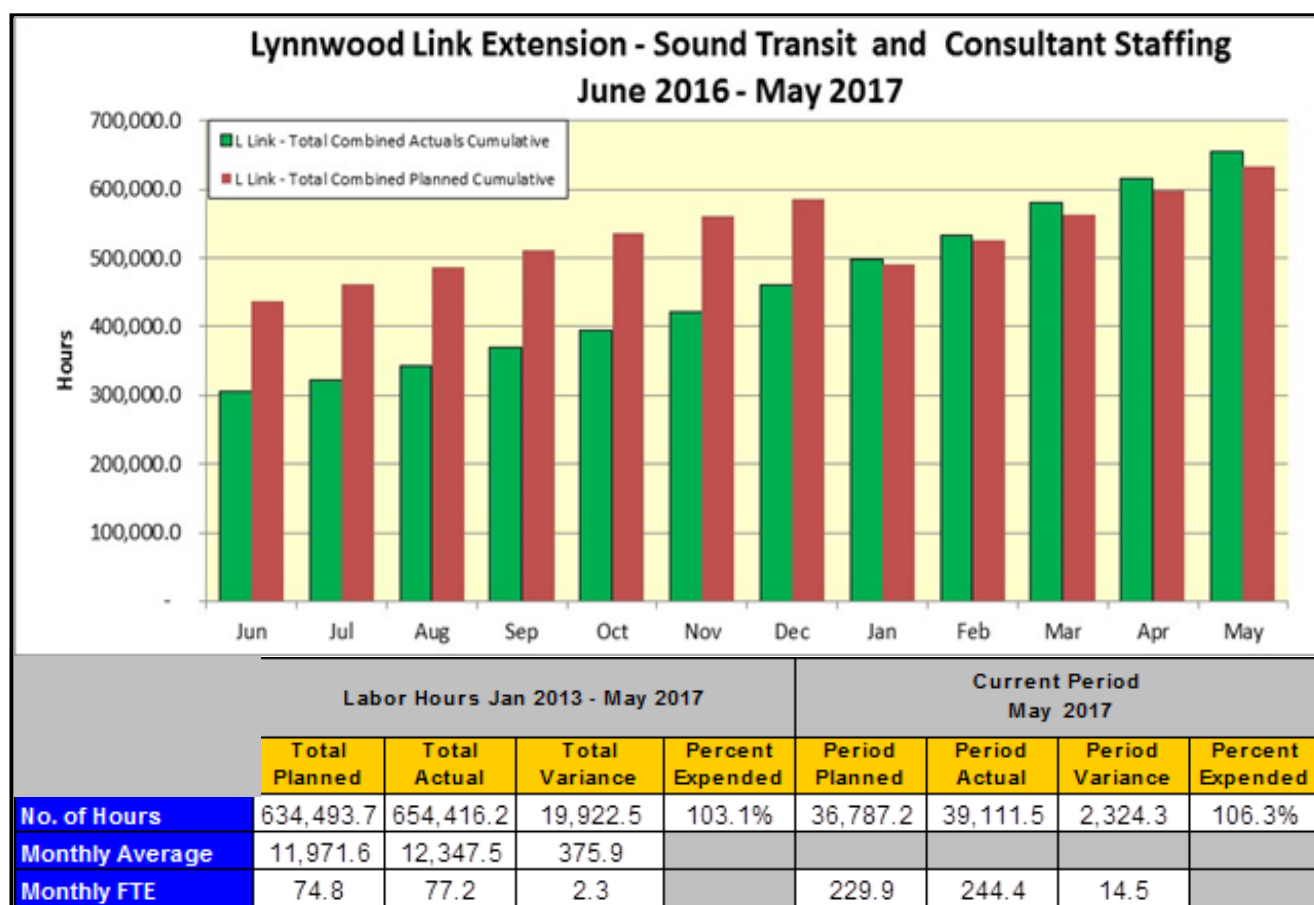
# Link Light Rail Staffing Report



## Lynnwood Link Extension Staffing

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

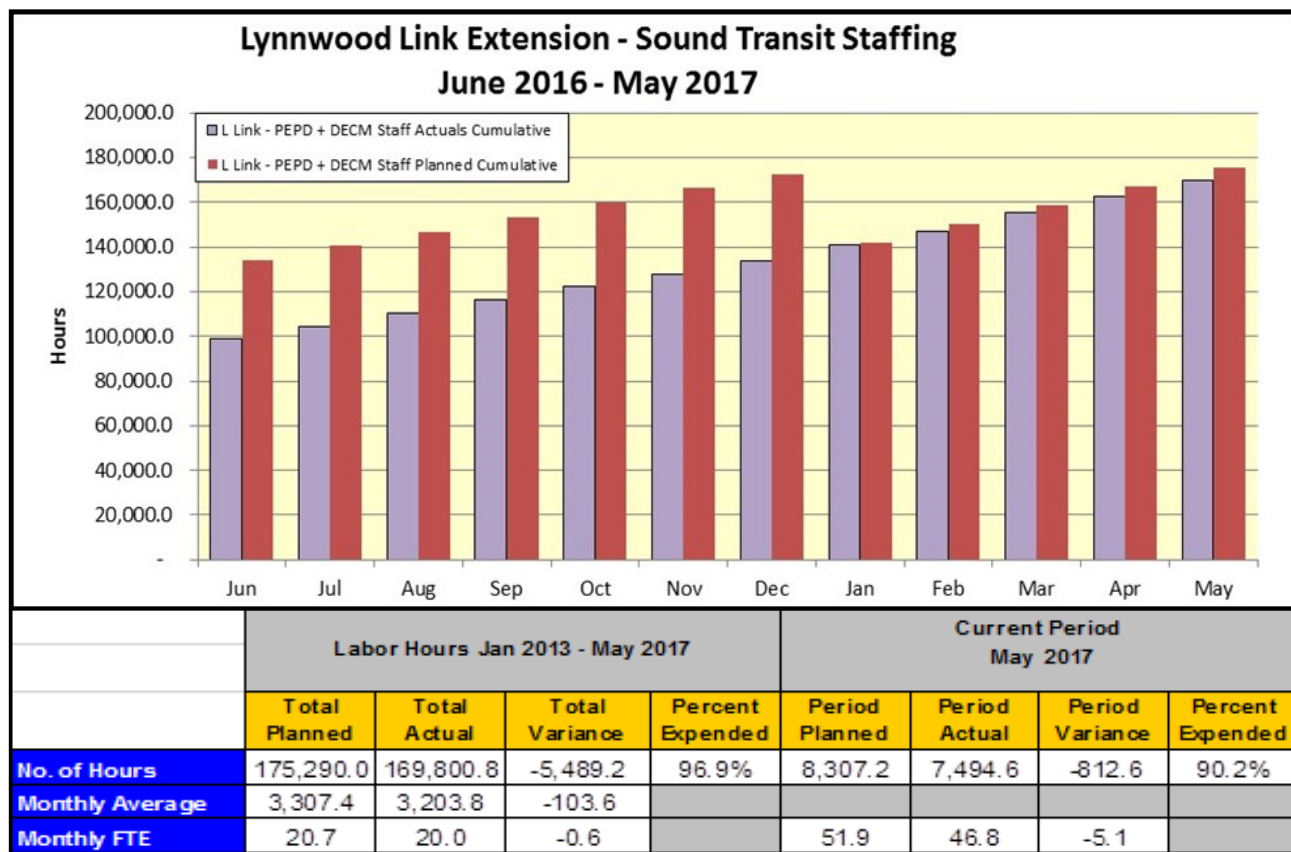
During May Lynnwood Link Extension staffing was 244.4 FTE (6% or 14.5 FTE above plan) and included 197.6 consultant FTE (11% above plan) and 46.8 internal FTE (90% of plan). Average year-to-date staffing of 242 FTE/mo is trending 5% (12.5 FTE/mo.) above plan; cumulatively since January 2013 staffing is averaging 77 FTE/mo. and is trending 3% above plan.



## Lynnwood Link Extension Staffing

### Internal Staffing—Lynnwood Link

During May internal staffing for the Lynnwood Link Extension (46.8 FTE) was 7% (3.5 FTE) above April staffing and 10% (5.1 FTE) below plan. Cumulatively, since January 2013, average monthly internal staffing (20 FTE/mo.) is trending with plan.



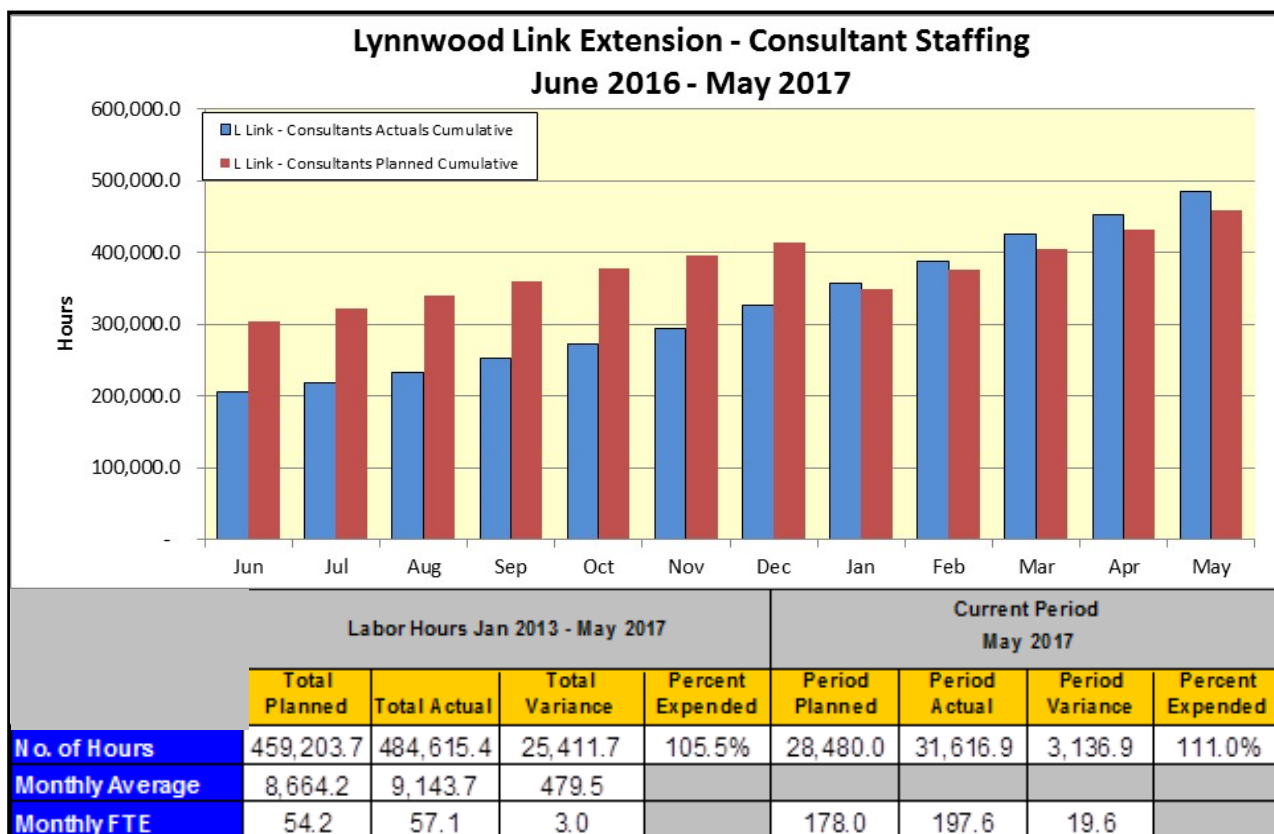
# Link Light Rail Staffing Report



## Lynnwood Link Expansion

### Consultant Staffing—Lynnwood Link

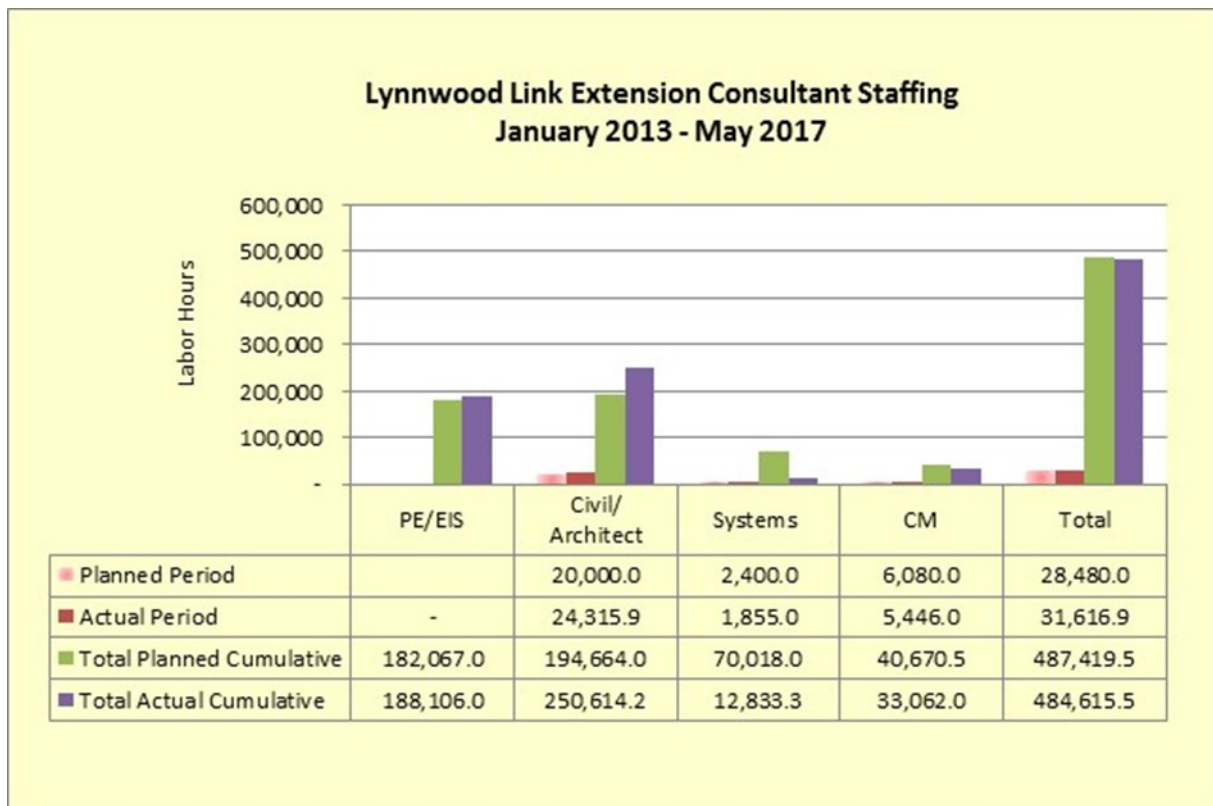
There were 197.6 consultant FTE assigned to the Lynnwood Link Extension during May. Consultant staffing increased 12% (20.8 FTE) from April and was 11% (19.6 FTE) above plan. Cumulatively since January 2013, average monthly consultant staffing (57.1 FTE/mo.) is trending 5.5% (3 FTE/mo.) above plan.



## Lynnwood Link Extension Staffing

### Consultant Resource Commitments to Lynnwood Link

Sixty-two percent of the Lynnwood Link consultant staffing (152 FTE) were civil engineering consultants. Additional consultant staffing (34 FTE) provided construction management and systems design (11.6 FTE) support.



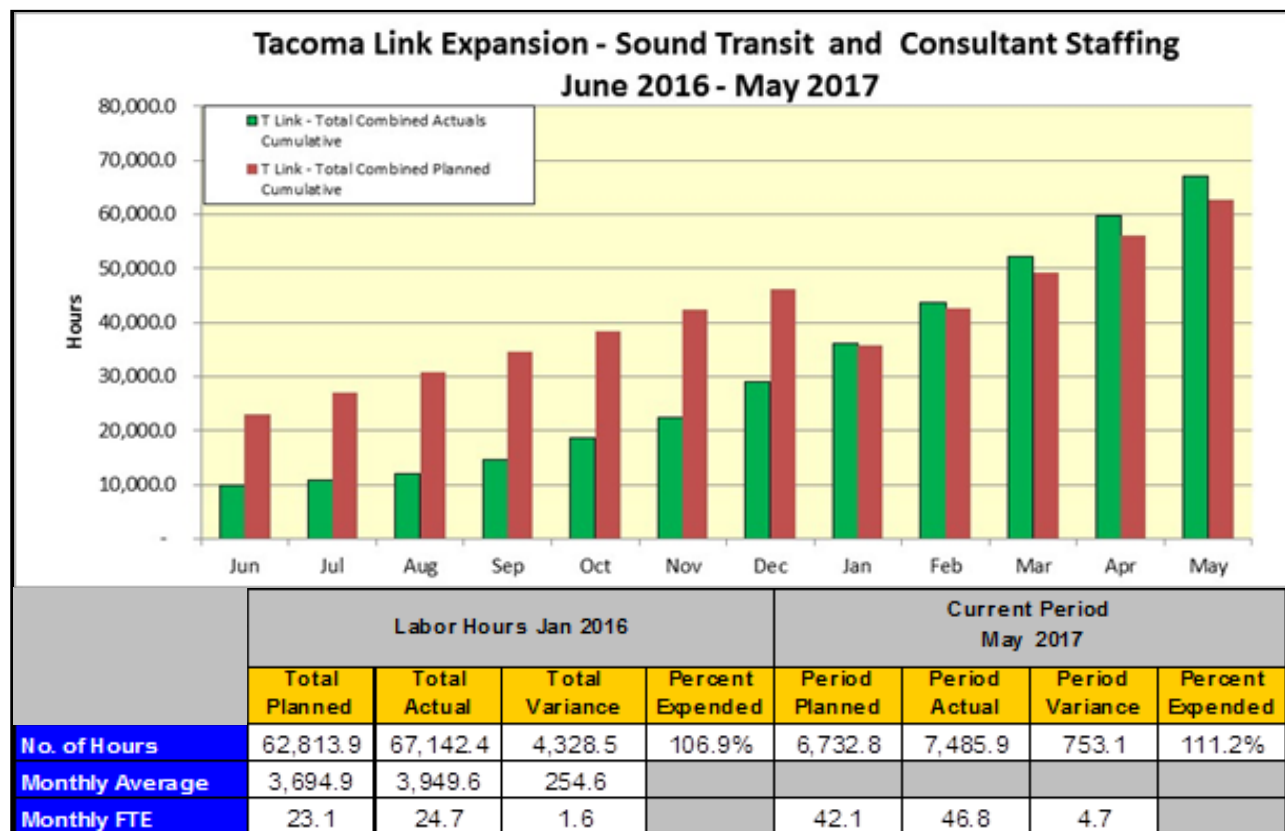
# Link Light Rail Staffing Report



## Tacoma Link Expansion

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

During May there were 46.8 FTE (111% of plan) assigned to the Tacoma Link Expansion including 28.1 consultant FTE (17% above plan) and 18.7 internal FTE (3% below plan). Average year-to-date staffing (47.4 FTE/mo.) is 13% (5.3 FTE/mo.) above plan; cumulatively since January 2016 staffing is trending 6.9% (1.6 FTE/mo.) above plan.

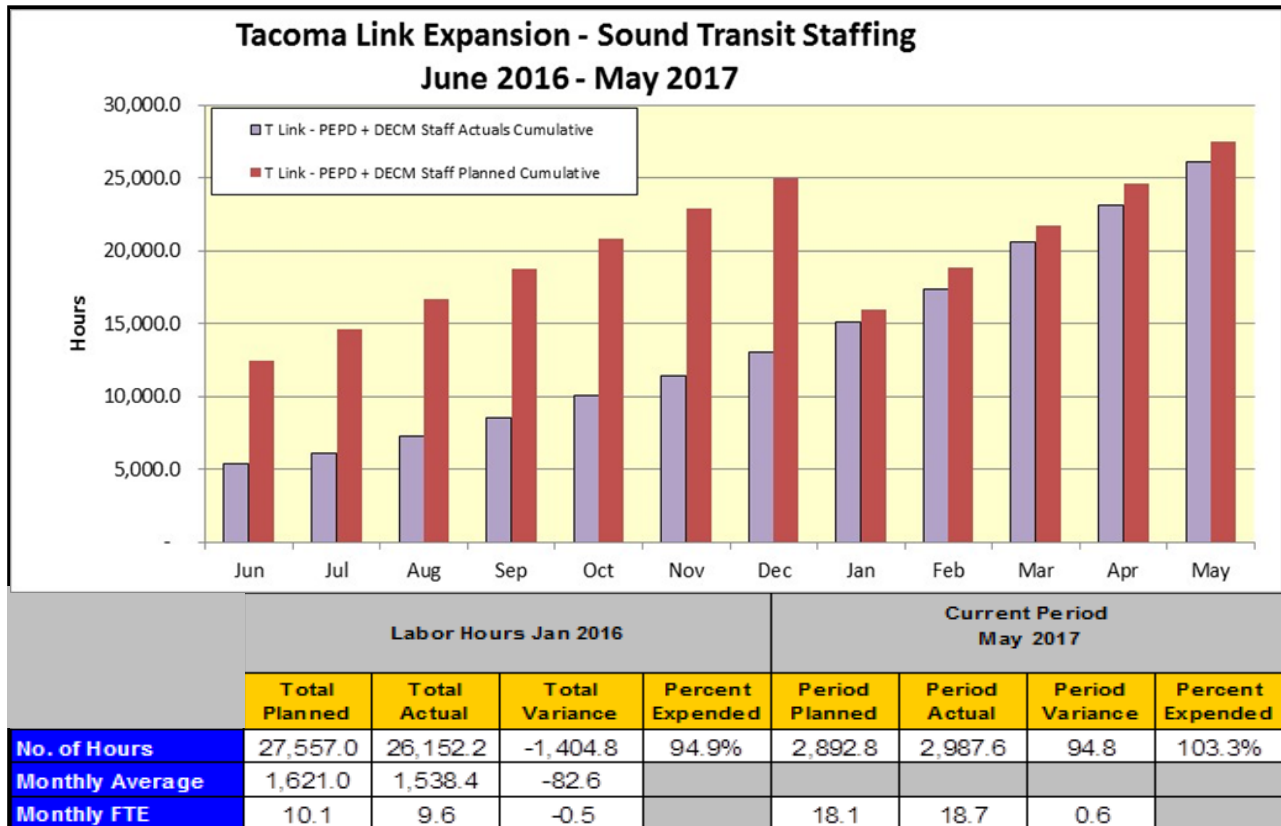




## Tacoma Link Expansion

### Internal – Tacoma Link Expansion

During May internal staffing for the Tacoma Link Extension (18.7 FTE) was 15% (2.8 FTE) above April staffing and was 3% (0.6 FTE) above plan. Cumulatively, since January 2016, average monthly internal staffing (9.6 FTE/mo.) is trending 5.1% (0.5 FTE/mo.) below plan.



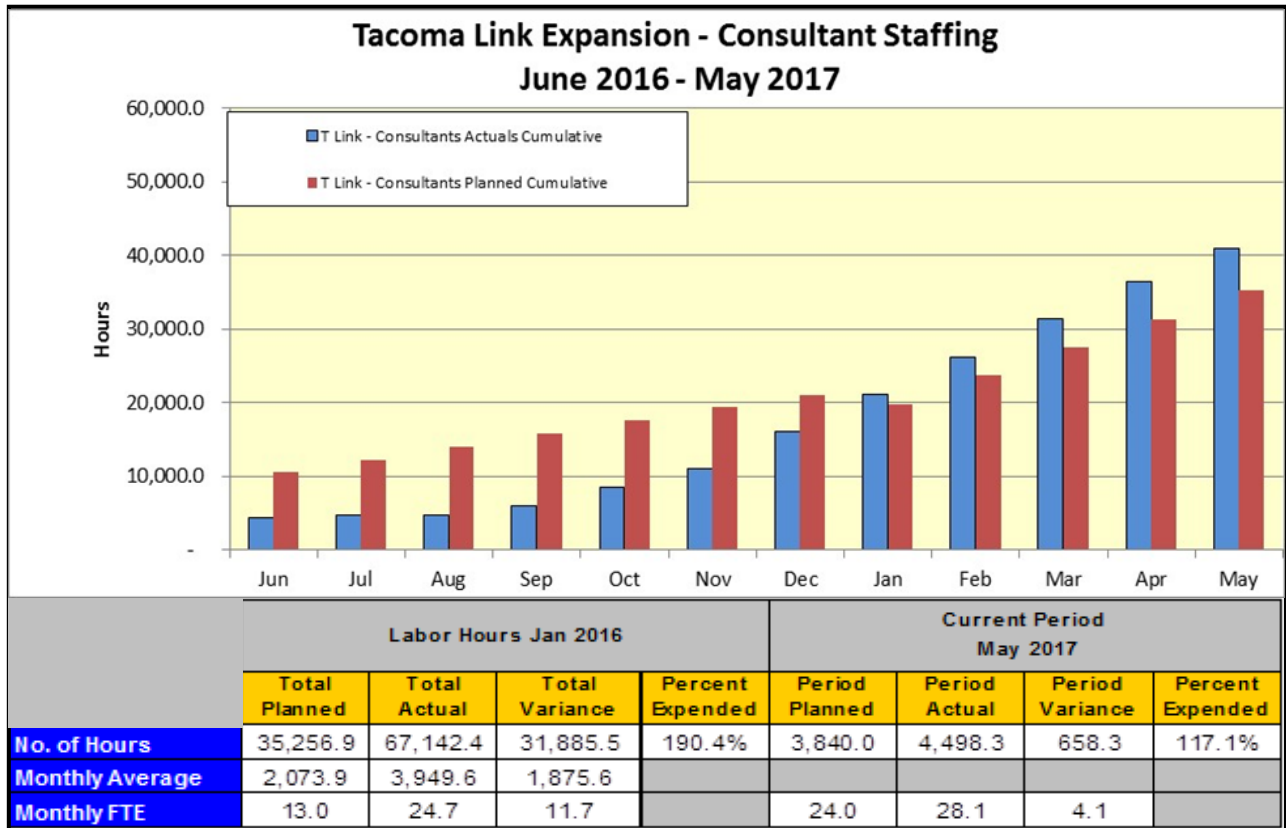
# Link Light Rail Staffing Report



## Tacoma Link Expansion

### Consultant Resource Commitments – Tacoma Link Expansion

There were 28.1 consultant FTE assigned to the Tacoma Link Extension during May. Consultant staffing was 17% (4.1 FTE) above plan. Cumulatively since January 2016, average monthly consultant staffing (23.3 FTE/mo.) is trending 90% (11 FTE/mo.) above plan.



## ACRONYMS

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

### 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
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