

# Progress Report

## Link Light Rail Program

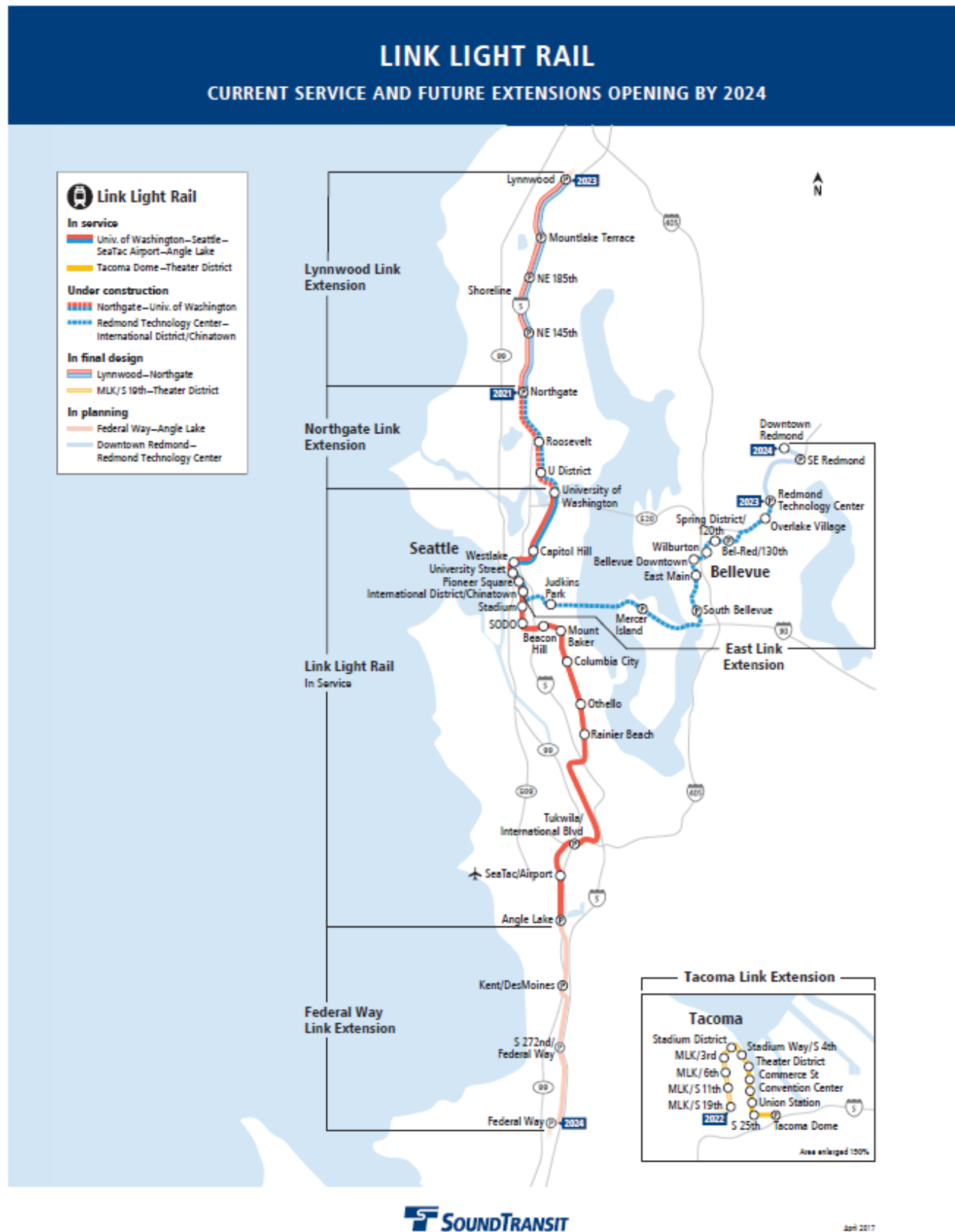
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East Link Extension - Ongoing work on I-90 Bridge

SEPTEMBER | 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 Extension:** The Tacoma Link Extension is a 2.4-mile extension of the existing Tacoma Link system from the Theater District in downtown Tacoma to the Hilltop neighborhood. The extension will travel at-grade along Stadium Way, North 1<sup>st</sup>. Street, Division Avenue, and Martin Luther King Jr. Way. The Sound Transit Board adopted the baseline capital budget of \$217.3M in September 2017.

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

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

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

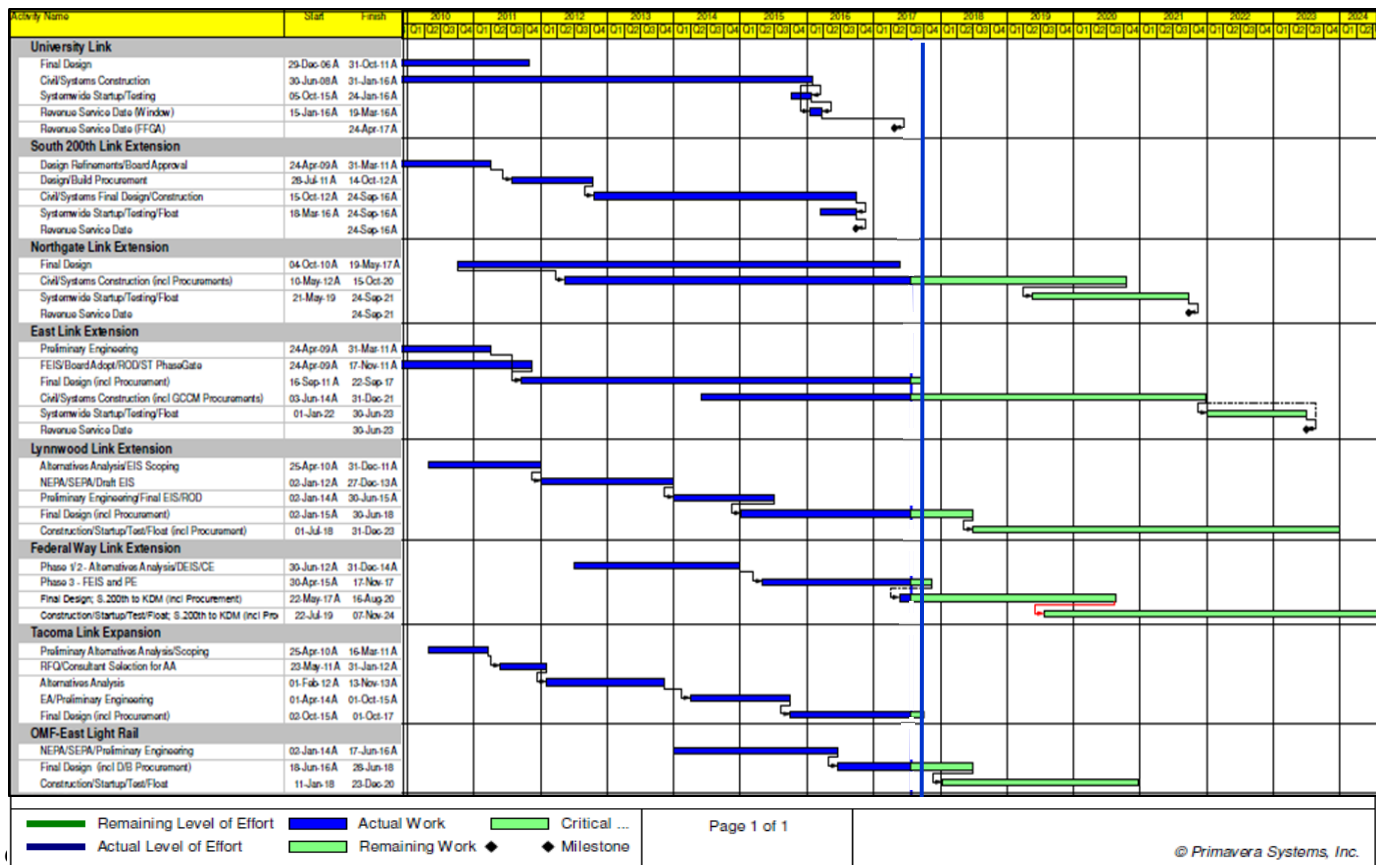
**West Seattle and Ballard Link Extensions:** The West Seattle & Ballard Link Extensions are voter-approved projects under the ST3 Plan. West Seattle segment includes 4.7 miles of light rail from downtown Seattle to West Seattle's Junction neighborhood. It includes 5 light rail stations. The route will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

## Program Budget

Project	Adopted Budget	Committed to Date	Incurred to Date	Forecast to Complete	Estimated Final Cost	Adopted Budget vs. EFC
University Link	\$1,756.0	\$1,513.2	\$1,503.0	\$40.9	\$1,554.1	\$201.9
Northgate Link Extension	\$1,899.8	\$1,592.4	\$967.8	\$254.6	\$1,847.0	\$52.8
Lynnwood Link Extension	\$488.4	\$231.3	\$167.7	\$257.1	\$488.4	\$0
East Link Extension	\$3,677.2	\$2,795.1	\$901.8	\$882.1	\$3,677.1	\$0
Downtown Redmond Link	\$28.6	\$14.7	\$5.8	\$13.9	\$28.6	\$0
West Seattle & Ballard Link	\$285.9	\$0	\$0	\$285.9	\$285.9	\$0
South 200th Link Extension	\$383.2	\$332.5	\$327.3	\$0.1	\$332.6	\$50.6
Federal Way Extension	\$412.6	\$56.2	\$49.2	\$356.5	\$412.6	\$0
Tacoma Link Expansion	\$217.3	\$23.7	\$20.4	\$193.7	\$217.3	\$0
Link O & M Facility: East	\$449.2	\$334.9	\$104.8	\$114.3	\$449.2	\$0
ST2 LRV Expansion	\$740.7	\$653.6	\$73.9	\$87.1	\$740.7	\$0
<b>Total Link</b>	<b>\$10,338.9</b>	<b>\$7,547.4</b>	<b>\$4,121.6</b>	<b>\$2,486.3</b>	<b>\$10,033.7</b>	<b>\$305.3</b>

Table in millions.

## Program Schedule





## Scope

- Limits:** 3.15-mile extension of the Initial Segment light rail transit (LRT) system from the Pine Street Stub Tunnel (PSST) in downtown Seattle to University of Washington (UW) campus near Husky Stadium.
- Tunnels:** Two twin bored tunnels. Two contract segments: U220 starts at Husky Stadium, continues beneath SR 520 and the Montlake Cut south to the Capitol Hill underground station. U230 commences at Capitol Hill Station and proceeds south under the I-5 freeway to the PSST.
- Stations:** 2 underground center platform stations – Capitol Hill (U240) and University of Washington (U250). U240 is approximately 65' underground with three station entrances. U250 is about 100' below ground, with three station entrances and connections to the UW campus by a pedestrian bridge.
- System:** 27 LRV; direct fixation tracks, signals, traction electrification, and SCADA communications
- Budget:** \$1.948 billion including finance cost (capital subtotal of \$1.756 billion)
- Schedule:** Revenue Service began on March 19, 2016.



## Key Project Issues

- *U830 Systems:* Contractor is currently focusing on punch list on ULINK and systems refinement to achieve optimal operation status. U-Link Systems has encountered some issues related to this infancy period and is working to resolve them.
- *Certification of Occupancy:* University Link continues to operate under a temporary certification of occupancy until all permit requirements are fully met. The final items remaining are the utilities as-built to be submitted to City of Seattle (SPU). Final review of the emergency ventilation systems by the Seattle Fire Department (SFD) is complete and has been accepted by SFD.
- Commercial issues with all prime Civil Contractors (with the exception of Capitol Hill Station Contractor) have been negotiated as the project proceeds through the close out process. Ongoing review of commercial issues with Systems Contractor.
- Miscellaneous follow-on commitments and restoration work remains. Before and After Study commitment to initiate in 2018.

## Project Cost Summary

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

WBS Phase Elements	Baseline Budget	Current Adopted Budget	Commitment to Date*	Incurred to Date	Est. Final Cost (EFC)	Adopted Budget vs. EFC
ADMINISTRATION	\$ 115.23	\$ 113.55	\$ 82.32	\$ 81.46	\$ 88.17	\$ 25.38
PRELIMINARY ENGINEERING	\$ 24.39	\$ 24.26	\$ 24.26	\$ 24.26	\$ 24.26	\$ -
FINAL DESIGN	\$ 77.94	\$ 90.31	\$ 87.97	\$ 86.20	\$ 88.66	\$ 1.65
CONSTRUCTION SERVICES	\$ 68.53	\$ 94.81	\$ 86.94	\$ 86.53	\$ 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	\$ 994.42	\$ 987.58	\$ 1,022.38	\$ 135.80
VEHICLES	\$ 103.91	\$ 103.91	\$ 99.20	\$ 99.19	\$ 101.91	\$ 2.00
ROW	\$ 167.33	\$ 152.33	\$ 126.43	\$ 126.43	\$ 126.79	\$ 25.54
<b>Capital Total</b>	<b>\$ 1,755.97</b>	<b>\$ 1,756.01</b>	<b>\$ 1,513.20</b>	<b>\$ 1,502.96</b>	<b>\$ 1,554.10</b>	<b>\$ 201.90</b>
FINANCE COST	\$ 191.71	\$ 191.71	\$ 191.71	\$ 174.87	\$ 191.71	\$ -
<b>Project Total</b>	<b>\$ 1,947.68</b>	<b>\$ 1,947.72</b>	<b>\$ 1,704.91</b>	<b>\$ 1,677.83</b>	<b>\$ 1,745.81</b>	<b>\$ 201.90</b>

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

In September, the projected Estimated Final Cost (EFC) including Finance Cost remains at about \$1.75B. As the project inches closer to close out, the timing for expenditure becomes less predictable. This period, after some cost adjustments the project expenditure net about \$165K and continues to inch the project's Incurred to Date amount about \$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 LRV repairs were excluded from this project and tracked independently.

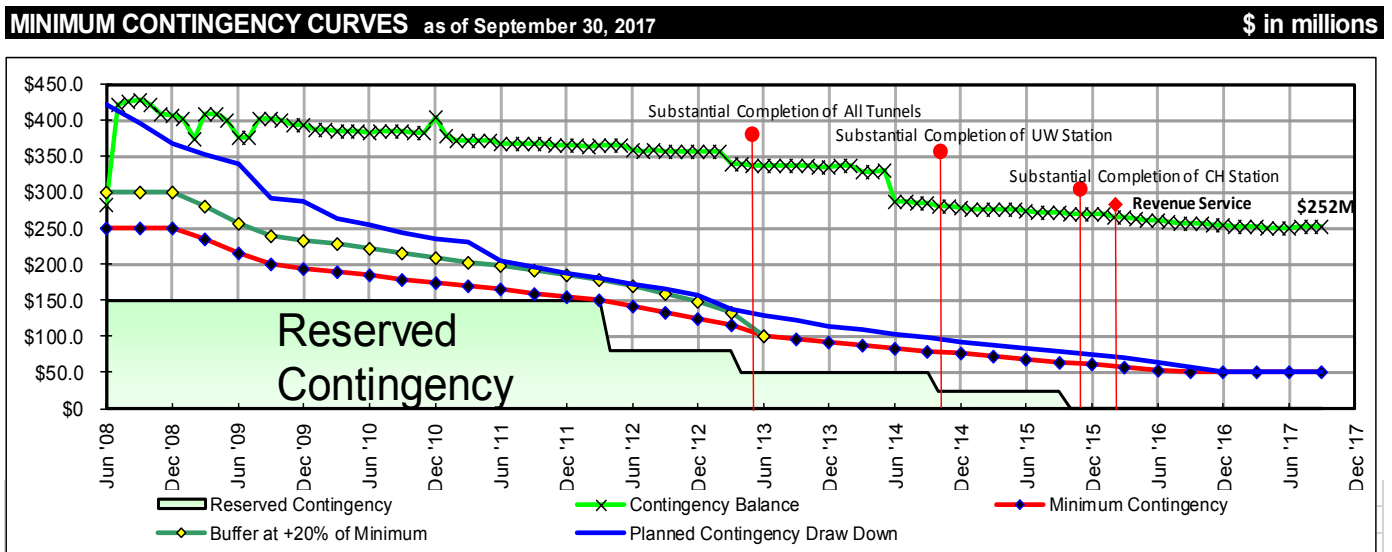
Construction EFC under the SCC format remains relatively unchanged at about \$1B. Construction SCC expenditures to date is over \$975M this period mostly attributed to Systems' continuing optimization and resolutions to change order work and miscellaneous follow on work. Total capital cost incurred to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

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	\$ 82.32	\$ 81.46	\$ 88.17	\$ 25.38
PRELIMINARY ENGINEERING	\$ 24.39	\$ 24.26	\$ 24.26	\$ 24.26	\$ 24.26	\$ -
FINAL DESIGN	\$ 77.94	\$ 90.31	\$ 87.97	\$ 86.20	\$ 88.66	\$ 1.65
CONSTRUCTION SERVICES	\$ 68.53	\$ 94.81	\$ 86.94	\$ 86.53	\$ 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	\$ 994.42	\$ 987.58	\$ 1,022.38	\$ 135.80
VEHICLES	\$ 103.91	\$ 103.91	\$ 99.20	\$ 99.19	\$ 101.91	\$ 2.00
ROW	\$ 167.33	\$ 152.33	\$ 126.43	\$ 126.43	\$ 126.79	\$ 25.54
<b>Capital Total</b>	<b>\$ 1,755.97</b>	<b>\$ 1,756.01</b>	<b>\$ 1,513.20</b>	<b>\$ 1,502.96</b>	<b>\$ 1,554.10</b>	<b>\$ 201.90</b>
FINANCE COST	\$ 191.71	\$ 191.71	\$ 191.71	\$ 174.87	\$ 191.71	\$ -
<b>Project Total</b>	<b>\$ 1,947.68</b>	<b>\$ 1,947.72</b>	<b>\$ 1,704.91</b>	<b>\$ 1,677.83</b>	<b>\$ 1,745.81</b>	<b>\$ 201.90</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 \$252M. Multitudes of favorable factors contributed to this positive stage that ranges from construction bidding climate, ROW acquisition cost trends, diligent project risk management practices, to excellent tunneling conditions. In September, overall contingencies decreased due to miscellaneous closed out and follow-on project commitments. While major construction activities are now complete, there are still considerable follow-on scope to complete (pertaining to close-out of the project, systems adjustments to optimize the operating systems as well as settlement of commercial issues). Barring any catastrophic event, the likelihood that this contingency stays on trend is high. The forecast indicates that approximately 80% of these contingencies will be remain unused; thereby, generating at least \$200M of budget savings excluding financing cost.



## U240 Contract – Capitol Hill Station

### Close-out

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

### Close-out Activities

#### Current Period

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

#### Next Period

- Continue negotiating and finalizing commercial issues.

### Closely Monitored Issues

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

### Cost Summary

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

## U250 Contract –University of Washington Sta.

### Close-out

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

### Close-out Activities

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

### Cost Summary

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

## U810 Contract – *Maintenance of Way*

### Close-out

ST and contractor have settled on a final contract amount.

### Close-out Activities

No more updates.

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

### Close-out

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

### Close-out Activities

#### Current Period

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

#### Next Period

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

### Closely Monitored Issues

- None to report.

### Cost Summary

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

### Cost Summary

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

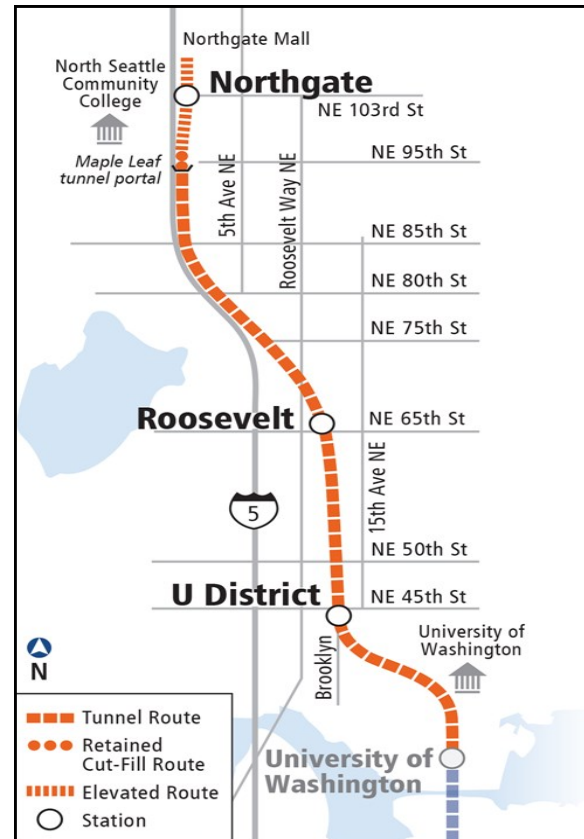


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# Link Light Rail Northgate Link Extension

## Scope

- Limits:** The Northgate Link Extension consists of 4.3 miles of light rail extending from the University of Washington to Northgate.
- Alignment:** The extension begins at the UW Station, boring tunnels under campus then continues north to a portal located north of NE 94<sup>th</sup> Street on the east side of I-5, then transitioning to an aerial structure running north to the Northgate Mall.
- Stations:** The *U District Station (UDS)* 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:** Construction



Map of Northgate Link Extension route and stations.

## Key Project Activities

- Congresswoman Pramila Jayapal toured the Northgate Station and Elevated Guideway construction site. The tour and briefing included a media event. The event went well.
- *For N125 TBM Tunnels*, Work in tunnels included installation of electrical conduits, wiring and fire standpipe. Roosevelt to U District is essentially complete and overhead electrical commissioning, cleaning and repairs have started throughout the segments from Roosevelt to the Maple Leaf Portal and UWS to UDS.
- *For N150 Roosevelt Station*, ST received SDOT's 30% design plans for proposed protected bike lane on NE 65<sup>th</sup> Street and plan is under review. N150 crews formed bulkheads and blockouts for center platform level topping slab. Subcontractors continued mechanical, electrical, and plumbing rough-in installation for center track slab. Contractor continued placing concrete for the south station walls and the north elevated deck.
- *For N160 Northgate Station*, Staff transmitted counterproposal to SDOT for Northgate access improvement funding agreement. Staff met with Northgate Mall management reps to discuss options for meeting ST's parking commitments during the 2017 holiday season.

- *Maple Leaf Portal*- JCM crews continue concrete progress on beams at the portal walls, traffic barriers and sound walls along I-5. Absher crews completed rebar, post-tensioning, cooling tubes and forms for straddle bent and bent cap.
- *In the Garage structure*, Absher continued installing electrical conduits up from slab into wall outlets and continued to install rebar and place concrete.
- *For N180 Trackwork*, Design team provided a new specification for the Ultra-Straight Rail welding procedures and issued a RFP to the contractor to implement the new scope.

## Closely Monitored Issues

- Sound Transit is reviewing the Notice of Impact for Concrete Supply disruption submitted by the Contractor on all three station contracts.

## 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	\$50.4	\$51.5	\$132.9	\$15.0
PRELIMINARY ENGINEERING	\$15.1	\$15.1	\$15.1	\$15.1	\$15.1	\$0.0
FINAL DESIGN	\$129.2	\$129.2	\$116.6	\$105.2	\$134.4	\$(5.2)
CONSTRUCTION SERVICES	\$118.3	\$118.3	\$97.7	\$57.3	\$110.9	\$7.5
3rd PARTY AGREEMENTS	\$11.8	\$11.8	\$10.0	\$6.4	\$12.4	\$(0.6)
CONSTRUCTION	\$1,343.0	\$1,343.0	\$1,208.7	\$638.8	\$1,335.5	\$7.6
ROW	\$112.3	\$112.3	\$94.0	\$93.5	\$106.0	\$6.3
PROJECT CONTINGENCY	\$22.2	\$22.2	\$0.0	\$0.0	\$0.0	\$22.2
<b>Total</b>	<b>\$1,899.8</b>	<b>\$1,899.8</b>	<b>\$1,592.4</b>	<b>\$967.8</b>	<b>\$1,847.0</b>	<b>\$52.8</b>

The Estimated Final Cost (EFC) for the project as of this reporting period is \$1,847.0M, which is \$52.8M below the current project budget. This period approximately \$13.6M was incurred, of which \$10.8M was for the ongoing major construction contracts including the N125 tunneling contract, the N140, N150, and N160 Station Finishes contracts, the N180 Trackwork contract and N830 Systems contract), and other miscellaneous construction; \$0.4M was incurred for civil and systems final design and design support during construction; and \$1.3M was for construction management. The remaining expenditures were for 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	\$505.4	\$396.2	\$532.4	\$15.2
20 STATIONS	\$376.1	\$429.0	\$415.1	\$108.9	\$445.8	\$(16.8)
30 SUPPORT FACILITIES: YARD, SHOP	\$5.3	\$5.3	\$6.4	\$5.4	\$6.4	\$(1.1)
40 SITEWORK & SPECIAL CONDITIONS	\$140.8	\$225.1	\$164.9	\$111.9	\$222.7	\$2.4
50 SYSTEMS	\$110.9	\$95.1	\$106.8	\$8.2	\$102.8	\$(7.7)
<b>Construction Subtotal (SCC 10 - 50)</b>	<b>\$1,228.7</b>	<b>\$1,302.1</b>	<b>\$1,198.5</b>	<b>\$630.5</b>	<b>\$1,310.1</b>	<b>\$(8.1)</b>
60 ROW, LAND, EXISTING IMPROVEMENTS	\$119.9	\$110.9	\$94.0	\$93.5	\$105.5	\$5.4
80 PROFESSIONAL SERVICES	\$420.7	\$429.1	\$299.9	\$243.8	\$426.0	\$3.1
90 CONTINGENCY	\$130.4	\$57.8	\$0.0	\$0.0	\$5.4	\$52.3
<b>Capital Total (SCC 10 - 90)</b>	<b>\$1,899.8</b>	<b>\$1,899.8</b>	<b>\$1,592.4</b>	<b>\$967.8</b>	<b>\$1,847.0</b>	<b>\$52.8</b>

## Cost Contingency Management

Compared to the baseline amount of \$396.2M, the Total Contingency has decreased by \$150M to \$246.2M, which is 28% of project work remaining. During this reporting period, a decrease of \$0.6M in the overall project contingency occurred. Detailed information is provided below.

**Design Allowance (DA)** – 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

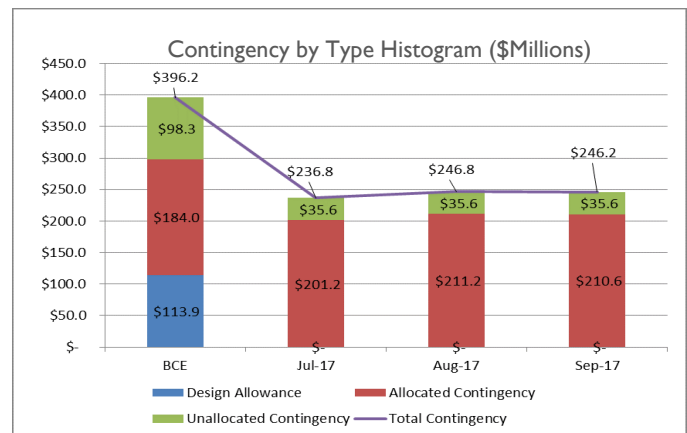


## Cost Contingency Management, continued

**Allocated Contingency (AC)**– Compared to the baseline amount of \$184.0M, Allocated Contingency has increased by 26.6M to \$210.6M. During this reporting period, a decrease of \$0.6M occurred in the AC following execution of change orders on the N125 Tunnel Contract, the N160 Station Finishes contract, and the N180 Trackwork contract.

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

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%	\$ 210.6	24.0%
Unallocated Contingency	\$ 98.3	4.6%	\$ 35.6	4.0%
<b>Total</b>	<b>\$ 396.2</b>	<b>18.6%</b>	<b>\$ 246.2</b>	<b>28.0%</b>



## Project Schedule

The N125 Tunneling Contractor (JCM) is continuing work on the Maple Leaf Portal Walls, Cross Passage mechanical & electrical, and tunnel finishes. JCM achieved Milestone 5, the hand over of the UDS station box in mid- July. Milestone 5A for completion of the tunnel work is scheduled for November 2017. The turn-over of UDS on July 17 has pushed back all of the N140 milestones and absorbed 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 12 day late achievement of Milestone 6 Substantial Completion on February 23, 2018.

The N140 U District Station contractor, Hoffman Construction, placed the south third of the invert slab and is preparing to pour the remainder in October. Wall waterproofing is ongoing. The South Basement Level 3 support columns are being formed and the rebar installed.

At Roosevelt Station (RVS), the N150 contractor, Hoffman Construction, has completed the center track and two-thirds of the platform level concrete, the North Basement Level 3 concrete deck. The South Basement Level 3 support columns have also been poured. Preparations underway for placement of the south track slab and final center platform slab.

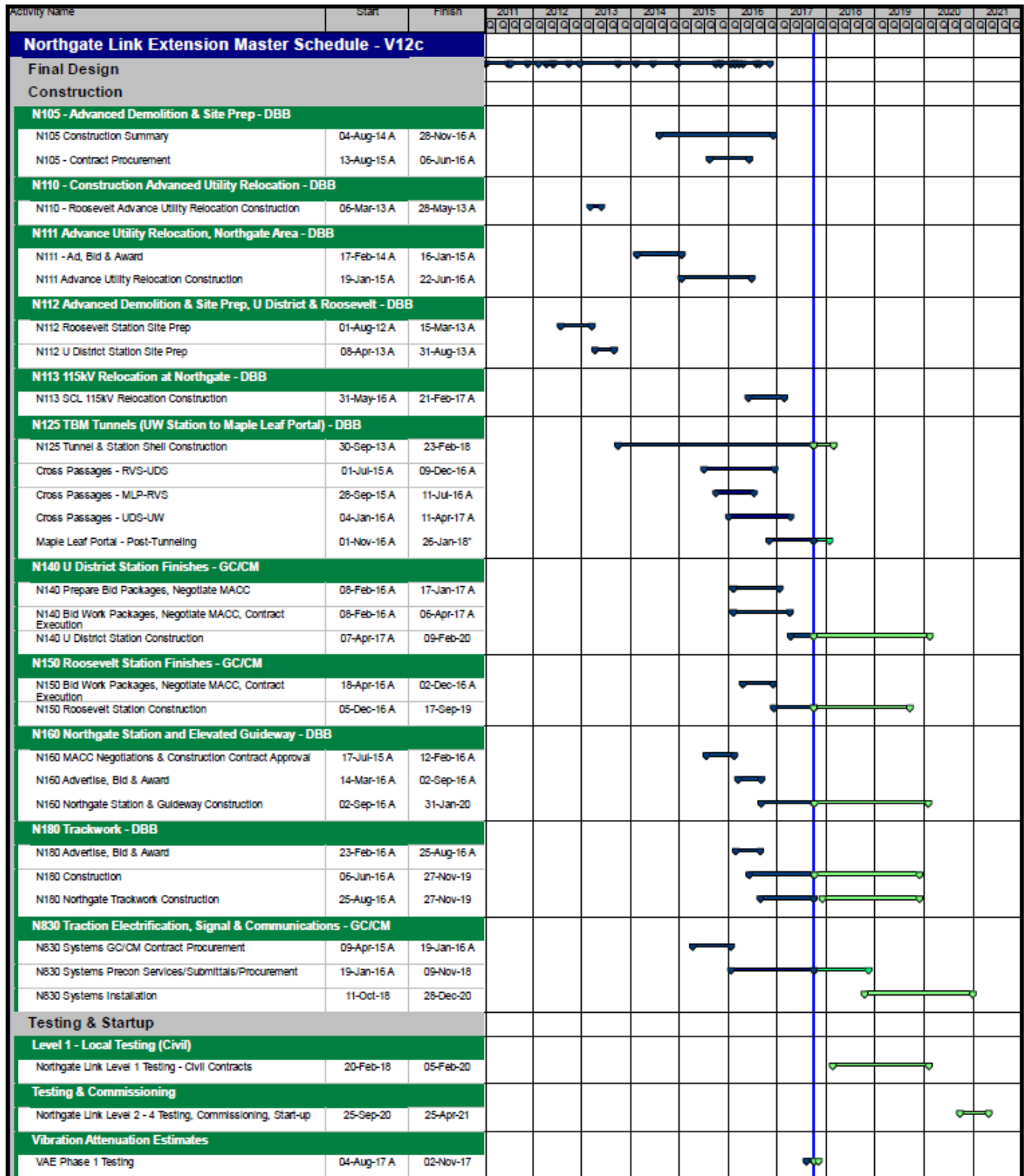
The N160 Contractor, Absher is continuing work on the B and C series straddle bents and caps, including added post-tensioning. Deck pours are ongoing at the station guideway. Production of A series columns is underway. Shotcreting of garage walls and forming for support columns is continuing. Absher is assembling the formwork system for the station platform level deck and beams.

The N180 Trackwork contract is currently in production with casting of the 3'10" floating slabs and is moving into production of the 7'10" slabs. Isolation pad production has been hampered by Long Term Creep Test failures. SWI is working with the supplier to determine the cause and find a solution. The Contractor is continuing to work with ST on resolution of the rail welding spec for the Ultra-Straight Rail.

The N830/E750 Systems contractor, Mass Electric, is continuing to work on submittals and the Preliminary Schedule. Uninterrupted Power Supply (UPS) work at Convention Place Station is ongoing under a provisional sum.

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

## Project Schedule, continued





## Critical Path Analysis

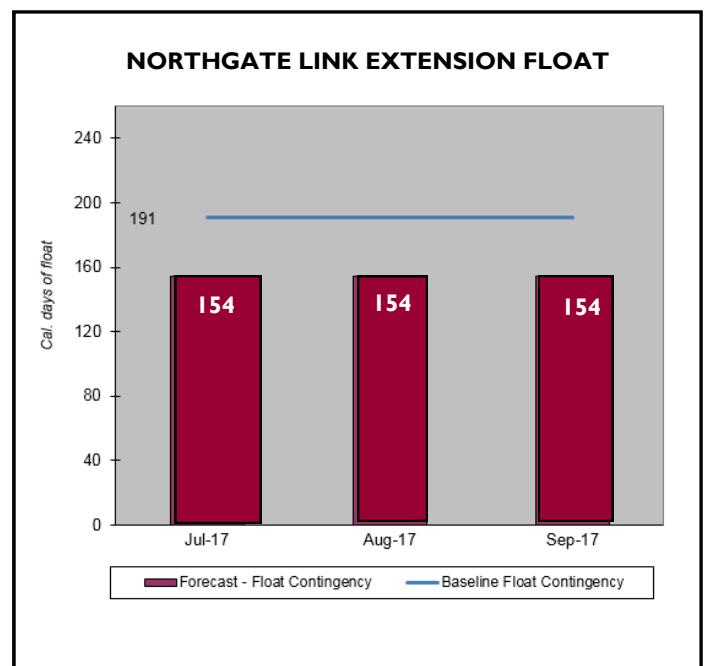
The critical path for the Northgate Link Extension continues to be driven by the N140 UDS contract through handover of the tunnels to the N180 Trackwork contractor. Hoffman Construction is currently working a 10-hour day at the UDS site and will add a second shift, per plan, in October 2017. Contract interface meetings between the N140 and N180 teams have begun and the teams are looking at ways of minimizing the impact of the late site access issues. The completion of N125 work at the Maple Leaf Portal remains critical to allowing the N180 Trackwork contractor access to the tunnels for Trackwork construction between UDS and MLP.

Activity ID	Activity Name	Start	Finish	2017			2018				2019				2020				2021			
				Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Northgate Link Extension Master Schedule - V12c		18-Jul-17	26-Sep-21																			
Construction		18-Jul-17 A	28-Dec-20																			
N140 U District Station Finishes - GC/CM		18-Jul-17 A	19-Dec-18																			
N140 U- District Station Construction		18-Jul-17 A	19-Dec-18																			
N180 Trackwork - DBB		20-Dec-18	17-Sep-19																			
N180 Construction		20-Dec-18	17-Sep-19																			
N830 Traction Electrification, Signal & Communications - GC/CM		18-Sep-19	28-Dec-20																			
Construction - Systems Installation		18-Sep-19	28-Dec-20																			
Testing & Startup		25-Sep-20	25-Apr-21																			
Testing & Commissioning		25-Sep-20	25-Apr-21																			
Program Float		26-Apr-21	26-Sep-21																			
Project Reserve & Completion		26-Apr-21	26-Sep-21																			

## Critical Path Float

The Northgate Link Project currently retains 154 days of unallocated project float. ST will formalize the remaining project float after completion of the N140 baseline Critical Path Method (CPM) Schedule. This schedule is the last construction contract CPM remaining to be submitted and accepted.

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



## Construction Safety

Data/ Measure	September 2017	Year to Date	Project to Date
Recordable Injury/Illness Cases	2	19	73
Days Away From Work Cases	0	1	5
Total Days Away From Work	30	75	294
Restricted or Modified Work Cases	1	10	33
Total Days Restricted or Modified Work	4	120	1017
First Aid Cases	4	24	75
Reported Near Mishaps	4	15	69
Average Number of Employees on Worksite	587	-	-
<b>Total # of Hours (GC &amp; Subs)</b>	142,875	964,375	2,937,247
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	2.80	3.94	4.97
DART Rate	1.40	2.28	2.59
<i>Recordable National Average</i>	3.50	3.50	3.50
<i>DART National Average</i>	2.00	2.00	2.00
<i>Recordable WA State Average</i>	7.00	7.00	7.00
<i>DART WA State Average</i>	3.90	3.90	3.90

## Right of Way

The U District and Roosevelt stations required the acquisition of a range of property interests including fee takings for stations and staging areas; tunnel easements are required for the running tunnel. These acquisitions are complete with the exception of one remaining parcel at the Northgate Station area which was forecast to settle in the 2nd QTR 2017 but has been moved out to 4th QTR 2017 to accommodate King County's Board schedule. The right-of-way program status is summarized in the following table.

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

## Community Outreach

- Published monthly electronic newsletter.
- Distributed various construction alerts which included the following:
  - Nighttime lane closures of Montlake Blvd. for surface restoration.
  - Banner Way NE/I-5 closure for surface restoration of CP 39
  - Concrete pour at U District Station site
  - 1st Avenue NE repaving work
- Sent electronic notifications and delivered hardcopies to Northgate Station stakeholders regarding nighttime pavement restoration.
- Met with mall management to discuss holiday season marketing.

## Sound Transit Board Actions

Board Action	Description	Date
	<i>None to report.</i>	

## Environmental

- None to report.

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## Major Construction Contract Packages

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

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

**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	Feb 2018
N140-U District Station Finishes	Oct 2013A (GC/CM-Precon)	April 2017A (construction)	Jan 2020
N150-Roosevelt Station Finishes	Apr 2013A (GC/CM-Precon)	Dec 2016A (construction)	Sep 2019
N160-Northgate Station & Guideway & Parking Garage	Apr 2016A	Sept 2016A	Jan 2020
N180-Trackwork to Northgate Station	Apr 2016A	Sept 2016A	Oct 2019
N830-Traction Power, Signals & Com	May 2015A (GC/CM-RFQ)	Jun 2017A (construction)	Dec 2020

A = Actual



### Contract N125 – TBM Tunnels

#### Current Progress

JCM is continuing work on the Cross Passages (CP), tunnel troughs, electrical, and fire standpiping.

*UDS*—JCM continues to access the cross passages between UWS and UDS via UDS during off-shift periods. Hoffman Construction is supplying crane support.

*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, continuing firestand pipe installation, and electrical installations. Installation of tunnel signage and handrailing is underway. Punchlist work is ongoing between UDS and RVS Stations.

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

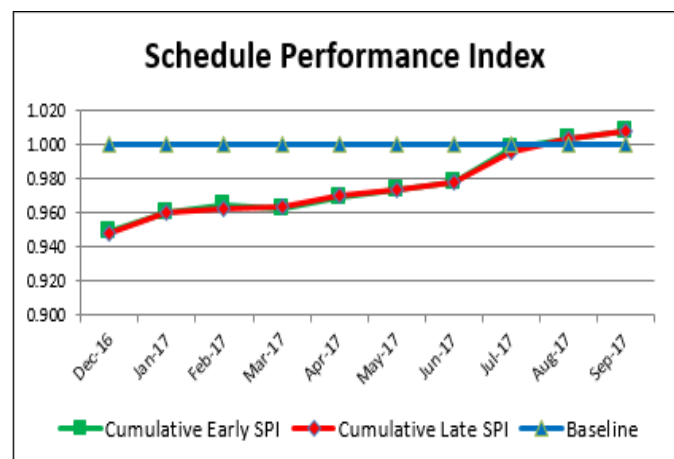
#### Schedule Summary

JCM's latest schedule indicates a late achievement of Milestone No. 6 Substantial Completion of February 23, 2018, 13 calendar days behind schedule. Achievement of Milestone No. 5A, completion of the tunnels between RVS and UWS is forecast on November 15, 2017. The longest path through the schedule still consists of the work to complete the Maple Leaf Portal.

Activity ID	Activity Name	Start	Finish	2017							2018		
				Jan	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
N125 TBM Tunnels		01-Feb-14 A	23-Feb-18										
N125		01-Feb-14 A	23-Feb-18										
Construction		01-Feb-14 A	23-Feb-18										
Payment Triggers - Project Demobilization		29-Jan-18	23-Feb-18										
Submittals - Prepare		02-Oct-17	27-Oct-17										
Submittals - Review & Approve		24-Feb-14 A	26-Nov-17										
Station Work MLP		01-Feb-14 A	06-Oct-17										
Station Work UW		02-Oct-17	20-Oct-17										
Tunneling		01-Nov-14 A	06-Feb-18										
Cross Passages - MLP - RVS		02-May-16 A	19-Dec-17										
Cross Passages - UDS - UW		17-Mar-17 A	23-Oct-17										
Cross Passages - Additional SEM Measures		01-Mar-16 A	02-Oct-17										
MLP Final Work		20-Jul-17 A	26-Jan-18										

#### Schedule Performance Index

The early SPI for this period remained at 1.00. This is expected as the project nears completion.



# Link Light Rail Northgate Link Extension - Construction

## Key Activities

### Current Period

- Continued final asphalt pavement and ADA ramp construction at CP33. Awaiting design at CP 35 and 38.
- Resumed installation of crossover fire standpipes.
- Continued performing punch list items.
- Began pulling cables from NB tunnel into cross passages.
- Continued installation of remaining overhead electrical work.
- Continued concrete repairs for walkways and high voltage electrical troughs.
- Continued installation of tunnel handrails.
- Continued preparation of formwork and shop drawings and off-site rebar fabrication for the MSE wall moment slab barriers and various sections of MLP concrete walls.
- Poured first concrete for the portal structure walers and struts.

### Next Period

- Complete permanent surface restoration at most remaining cross passages.
- Resume internal electrical/tie-in work at cross passages.
- Continue installation of crossover fire standpipes.
- Continue punch list work items.
- Prepare for feeder cable pulling.
- Continue segment, walkway, & cable trough patching and leak repairs.
- Continue installation of tunnel handrails.
- Continue install of rebar, formwork and concrete pours for west barrier wall, sound wall, and moment slab.
- Continue concrete pours for the portal structure walers and struts.

## Closely Monitored Issues

- Water leakage in the tunnel at Cross Passages 29 through 32 (all of which were previously frozen) has diminished significantly following recent grouting operations. Leakage remains under review and will become a punch list item.

## Cost Summary

Present Financial Status	Amount
<b>NI25 Contractor - JCM Northlink</b>	
Original Contract Value	\$440,321,000
Change Order Value	\$ 57, 810,579
Current Contract Value	\$498,131,579
Total Actual Cost (Incurred to date)	\$479,220,337
Financial Percent Complete:	96%
Physical Percent Complete:	97%
Authorized Contingency	\$66,048,150
Contingency Drawdown	\$57,810,579
Contingency Index	1.11



MLP: Setting up waler rebar above west wall of portal structure.

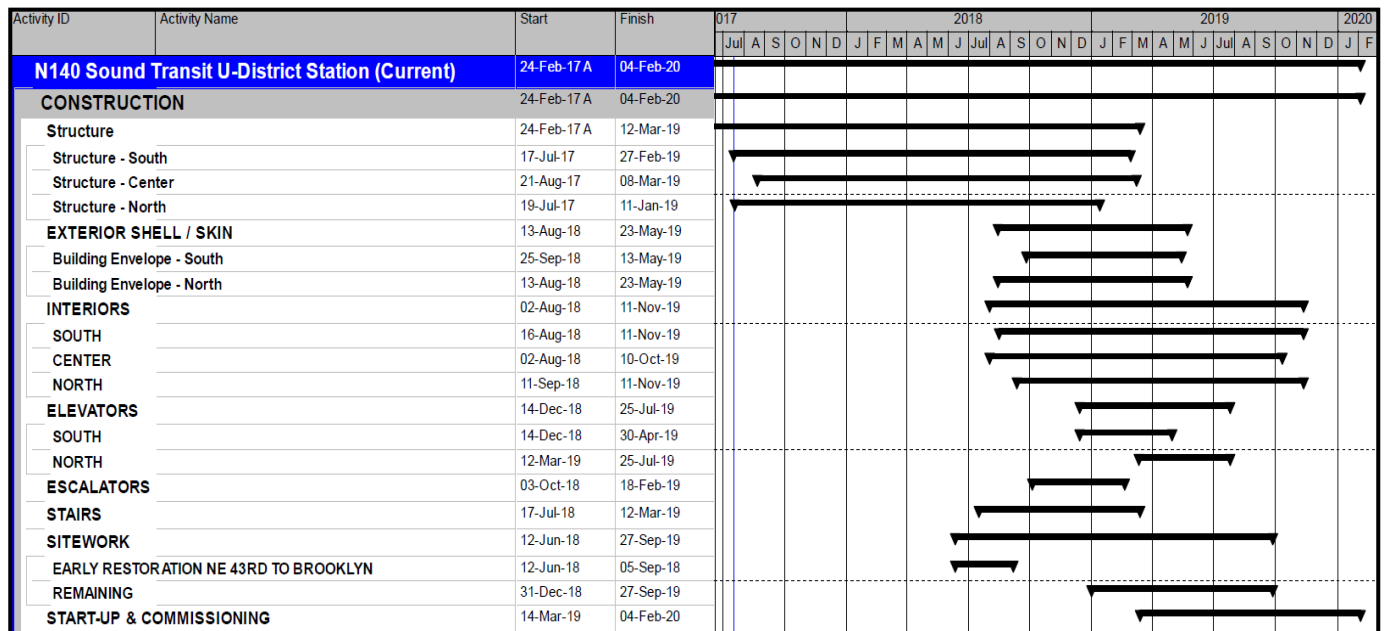
## Contract N140 – U District Station Finishes

### Current Progress

Hoffman Construction continues to work toward completion of the platform and track level invert slabs, installation of the waterproofing system, and construction of platform level columns. Crews are working a 10 hour/day shift in an effort to mitigate the delays in site access and the teamster's strike. ST has completed review of the preliminary CPM submission and is expecting the cost-loaded baseline CPM in early October.

### Schedule

The preliminary construction schedule below. The Contractor is still working on the contract baseline schedule.



# Link Light Rail Northgate Link Extension - Construction

## Key Activities

### Current Period

- Continued to prepare and process submittals and RFIs.
- Continued installation of south staging platform west side of Brooklyn.
- Commenced installation of waterproofing system for station box.
- Completed shotcrete for east and west walls.
- Commenced reinforcing steel installation for the bottom station slab.
- Completed shotcrete placement for the north headwall of the UDS and continued installation of the waterproofing system for the station box.
- Commenced activities related to the invertslab pour such as top mat reinforcing and steel, power and systems duct bank runs.
- Completed blockout formwork for sump pit, electrical vaults, floor drain catch basins and elevator and escalator pits as well as sanitary piping.
- Placed 2,800 cubic yards of concrete for the first section of the station invert slab.
- Completed CAD welding of grounding wires along the east, west and south walls.
- Continued the installation of power and systems duct bank runs.

### Next Period

- Continue to process submittals and RFIs.
- Continue the installation of the top rebar mat for the second two-thirds of the invert slab.
- Continue installation of wall rebar dowels along the east, west and north walls.
- Continue plumbing and electrical systems installations for the second invert slab pour.
- Strip the bulkhead in preparation for the second invert slab pour.
- Commence wall waterproofing in the southeast corner and working north.
- Mock up wall waterproofing over the shotcrete for the tieback heads.
- Commence tie back de-tensioning along the west wall and along the south headwall.
- Continue prefabricating rebar columns.
- Commence adding temporary power connection including electrical meter.

## Closely Monitored Issues

- Teamsters strike caused some delays with concrete deliveries due to backlog in the market. HCC is working on a time impact analysis and reviewing options to recover time, including Saturday work.

## Cost Summary

Present Financial Status	Amount
<b>NI40 Contractor - Hoffman Construction</b>	
Original Contract Value	\$159,836,68
Change Order Value	\$0
Current Contract Value	\$159,836,68
Total Actual Cost (Incurred to date)	\$13,209,229
Financial Percent Complete:	8%
Physical Percent Complete:	8%
Authorized Contingency	\$7,991,834
Contingency Drawdown	\$0
Contingency Index	N/A



South End concrete placement.

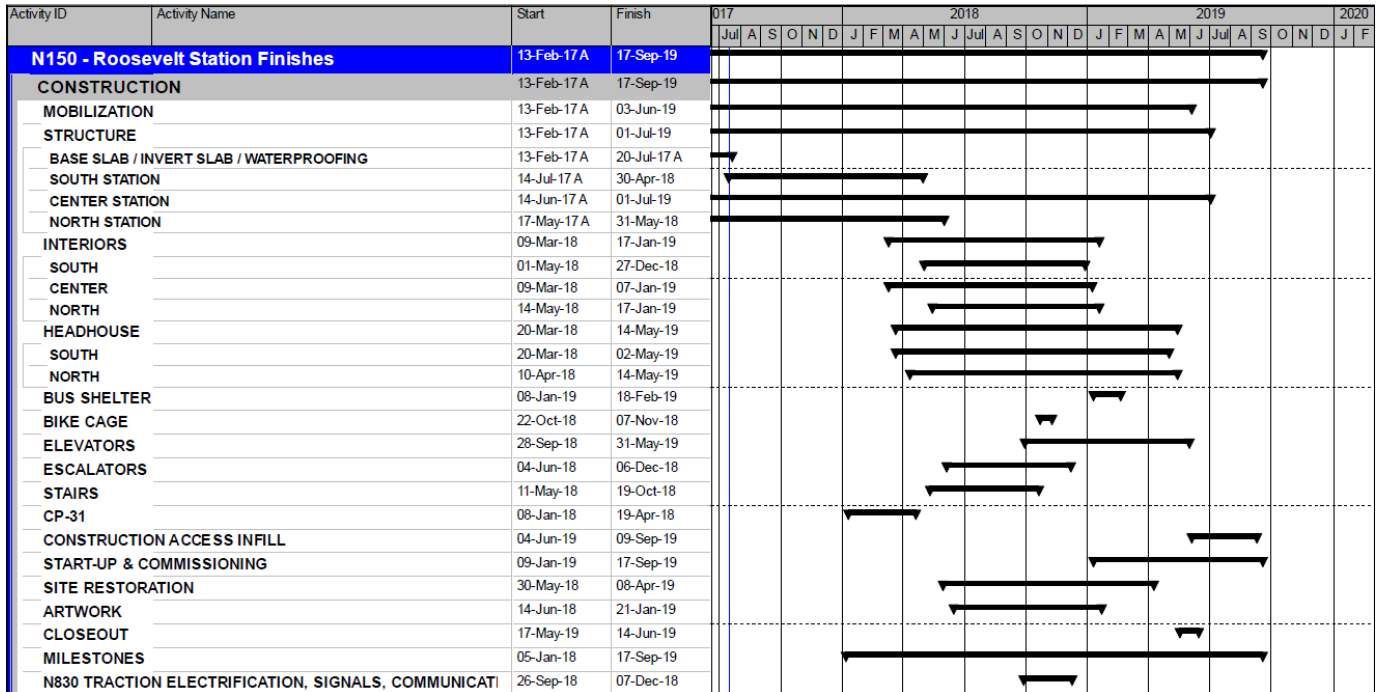
## Contract N150 – Roosevelt Station Finishes

### Current Progress

Hoffman Construction is currently working on Basement Level 3 Deck. The north deck has been poured. Rebar and embeds are underway for the center and south portions. Basement Level 2 columns at the north are also underway. While the project remains on schedule, the impact of the teamsters strike has not been substantiated by the Contractor.

### Schedule

The project remains on schedule. The longest path is unchanged and runs 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.
- Removed 80 ton mobile crane from the station box.
- Continued concrete placement including for the south station walls.
- Completed top mat rebar for north elevated deck and the topping slab in center platform.
- Placed concrete columns and beams on the basement level, the elevated deck and the center platform level topping slab.
- Continued shoring for basement level stair landing and commenced shoring towers for the north elevated deck.
- HCC subcontractors continued mechanical, electrical, plumbing rough-in installation for the center track slab.

### Next Period

- Continue to prepare, review and respond to submittals and RFIs.
- Place concrete for north elevated deck as well as complete installation of inserts, embeds and bottom mat rebar.
- Continue work on the escalator support columns and begin rebar for various sections.
- Commence formwork for the south track level slab.
- Commence the electrical branch rough-in and rebar for the south track level slab.

## Closely Monitored Issues

- ST to continue coordinating preliminary design for escalator control rooms with Labor & Industries. Design team is working with ST to provide changes related to escalator control rooms and revised escalator supports. These activities are being tracked in order to ensure release of submittals for escalator fabrication queue which is scheduled in 4th QTR 2017.
- It is anticipated the delay due to the Teamster strike will be in the range of 8-12 days. HCC is working on a time impact analysis which is forthcoming and is reviewing options to recover time, including Saturday work.

## Cost Summary

Present Financial Status	Amount
<b><i>N150 Contractor - Hoffman Construction</i></b>	
Original Contract Value	\$152,291,184
Change Order Value	\$ 780,8017
Current Contract Value	\$153,072,001
Total Actual Cost (Incurred to date)	\$33,321,716
Financial Percent Complete:	22%
Physical Percent Complete:	18%
Authorized Contingency	\$7,614,559
Contingency Drawdown	\$780,817
Contingency Index	1.7



View of Roosevelt Station box looking south.

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

#### Current Progress

The N160 Contractor is continuing with the A series columns (Guideway Units 1 & 2), column caps, beams, and post-tensioning for the B series bents (Guideway Units 4 & 5) and track slabs for the Station spans (Guideway Unit 3). 1st Ave. paving was completed. Planning for the detention vaults is also underway.

At the Parking Garage Absher wall and column construction is ongoing.

#### Schedule

The N160 Contractor's September schedule update forecasts a completion of March 7, 2020, 34 days behind schedule. The negative float is in large part due to the impacts of the Teamsters strike and delay in receiving City of Seattle sign-off on the post-tensioning plans. ST & Absher expect to agree on the magnitude of these impacts in early October, at which time the contract milestones will be adjusted and the negative float will be reduced or eliminated. The Parking Garage completion, Milestone No. 3, is now shown as completing on August 15, 2018. ST has requested Absher revise the close-out and O&M manual activities at the end of the schedule given the unrealistic sequence shown. This will also eliminate some of the negative float.

Activity ID	Activity Name	Start	Finish	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
N160 - Northgate Station Finishes				31-Aug-16 A	07-Mar-20																			
1.00 - General Requirements				31-Aug-16 A	07-Mar-20																			
1.05 - Project Summary				03-Jan-17 A	01-Nov-19																			
Summary Budget Section / Provisional Sums				31-Aug-16 A	06-Mar-20																			
1.10 - Project Start-up				31-Aug-16 A	19-Apr-18																			
1.20 - Contractual Milestones				30-Mar-18	07-Mar-20																			
1.30 - Contractual Constraints				17-Oct-16 A	09-Aug-19																			
1.40 - Completion of Major Elements of Work				12-Mar-18	01-Nov-19																			
2.00 - Procurement				02-Sep-16 A	01-Oct-19																			
2.10 - Construction Plans				02-Sep-16 A	22-May-17 A																			
2.20 - Construction Engineering				12-Sep-16 A	22-Mar-18																			
2.30 - Trade Packaging				02-Sep-16 A	01-Oct-19																			
2.40 - Long Lead Materials				12-Sep-16 A	28-Aug-19																			
2.50 - Mock-ups				17-Feb-17 A	27-Sep-18																			
3.00 - Preparatory Work				17-Oct-16 A	06-Mar-20																			
3.10 - Maintenance of Traffic				17-Oct-16 A	06-Mar-20																			
3.20 - Environmental				17-Oct-16 A	06-Mar-20																			
3.40 - Mobilization				24-Oct-16 A	18-Jun-19																			
4.00 - Earthwork & Utilities				04-Jan-17 A	06-Mar-20																			
4.10 - Storm Drainage Vaults/FC Structures				28-Nov-17	15-Nov-18																			
4.20 - Storm Drainage Conveyance				09-Jan-17 A	05-Sep-19																			
4.30 - Water				13-Mar-18	08-Apr-19																			
4.40 - Sewer				25-Apr-17 A	04-Apr-19																			
4.50 - Roadway Electrical & In-Ground Systems				08-Feb-18	12-Apr-19																			
4.60 - Grading & Ditches				28-Sep-18	09-Aug-19																			
4.70 - Mass Excavation & Shoring				04-Jan-17 A	06-Mar-20																			
4.80 - Walls				03-Apr-17 A	20-Sep-18																			
5.00 - Guideway (inc. Station Unit)				03-Jan-17 A	17-Dec-18																			
5.40 - Station Unit				03-Jan-17 A	22-May-18																			
5.60 - GW Unit 5				08-Mar-17 A	09-Jul-18																			
5.50 - GW Unit 4				25-Apr-17 A	18-Oct-18																			
5.30 - GW Unit 3				15-Mar-17 A	08-Oct-18																			
5.20 - GW Unit 2				30-Mar-17 A	17-Dec-18																			
5.10 - GW Unit 1				16-Jun-17 A	25-Oct-18																			
6.00 - Station Finishes				15-Jan-18	01-Nov-19																			
6.10 - Station North				15-Jan-18	10-Jul-19																			
6.20 - Station South				20-Apr-18	17-Jul-19																			
6.30 - Station Mezzanine				10-Aug-18	18-Jun-19																			
6.40 - Station Platform				21-Nov-18	01-Nov-19																			
7.00 - Garage				27-Jun-17 A	10-Aug-18																			
7.10 - Garage Structure				10-Jul-17 A	16-Mar-18																			
7.20 - Garage Finishes				31-Jan-18	10-Aug-18																			
8.00 - At-Grade Restoration				22-Sep-17 A	13-Jan-20																			
8.10 - Maple Leaf Portal				08-Mar-19	13-Aug-19																			
8.20 - North TPSS & Signal Bungalow (W of R02; at Bents A1 & A2)				05-Dec-17	02-Apr-19																			
8.30 - North Signal Bungalow (E of R02; at Bent B6)				17-Apr-18	04-Oct-18																			
8.40 - Civil Restoration				22-Sep-17 A	13-Jan-20																			
9.00 - Transition to Operations				18-Dec-18	22-Dec-18																			
10.00 - Project Close-out				23-Feb-18	07-Mar-20																			
10.10 - Occupancy Testing/Inspections				14-Jan-20	07-Mar-20																			
10.20 - Punchlist				14-Jan-20	16-Feb-20																			
10.30 - O&M's/ Warranties / As-Builts / Training				10-Dec-19	07-Mar-20																			
10.10 - Commissioning				23-Feb-18	17-Nov-19																			

# Link Light Rail Northgate Link Extension - Construction

## Key Activities

### Current Period

- *Guideway:* Placed curb at track slabs C1 and C2; Completed falsework, rebar, PT placement and cooling tube installation, and placed concrete for straddle bents at B7 and B8; Continued falsework, rebar and PT installation for B5-B6 and C3-C5 caps; Began PT stressing for C1-C3 caps; Placed concrete for A13 transition, and continued rebar cages for A-line columns; Continued assembling PERI falsework for Station Mezzanine deck and beams.
- *Parking Garage:* Completed waterproofing installation at south and east walls and began north and west walls; Continued conduit, piping, and rebar installation at exterior walls and columns; Continued rebar installation and concrete placement for interior columns at C-line; Continued forming H-line shear wall; Began shotcrete at south wall B4-B2 levels.
- *Utility & Drainage Work:* Completed Storm Drain work at Jurisdictional Ditch and performed video inspection; Completed pavement restoration.
- *Offsite Fabrication:* Girder fabrication ongoing; Continued pre-cast stair and curb fabrication; Continued structural steel fabrication.

### Next Period

- *Guideway:* Continue formwork, rebar and concrete placement for columns/caps; Continue falsework and concrete for straddle bents; Continue horizontal post tensioning.
- *Parking Garage:* Continue shotcrete placement at exterior walls; Continue mechanical and electrical for each lift of concrete/shotcrete; Begin forming and placing exterior cast-in-place columns.

## Closely Monitored Issues

- Negotiation of the work needed for the Lynnwood Link design revisions is complete and a change order has been issued.
- Concrete consolidation in areas of congested reinforcement – contractor will increase consolidation efforts to ensure quality.
- Schedule slippage on elevated structure – contractor to provide means of recovery.
- Labor shortages for skilled tradespeople may impact schedule.

## Cost Summary

Present Financial Status	Amount
<b>N160 Contractor - Absher Construction</b>	
Original Contract Value	\$174,000,000
Change Order Value	\$ 1,299,999
Current Contract Value	\$175,299,999
Total Actual Cost (Incurred to date)	\$56,672,458
Financial Percent Complete:	32%
Physical Percent Complete:	28%
Authorized Contingency	\$17,400,000
Contingency Drawdown	\$ 1,299,999
Contingency Index	3.71



Column form installation in parking garage.

### Contract N180 – Trackwork UWS to Northgate Station

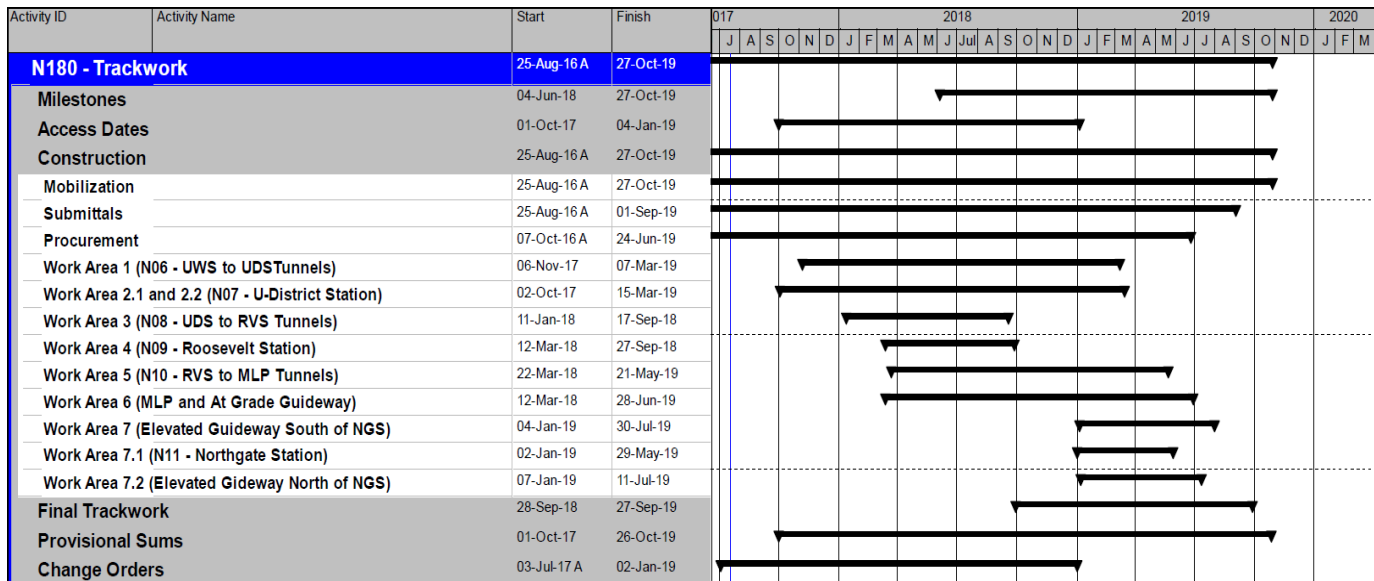
#### Current Progress

The N180 Contractor continues to focus on procurement, submittals, and manufacturing of the pre-cast floating slabs. The Contractor is working with British Steel to finalize the roll dates for the Ultra-Straight Rail (USR)

ST has issued the specification for welding the USR. SWI is evaluating the impact this will have on the field welding activities. The Pre-Cast yard in Woodland continued casting of the 3'10" slabs at a rate of 6/day. The 7'10" slabs have begun production. Isolation pad production is being hampered by failure of the Long Term Creep tests. SWI has been meeting with N140 contractor to work on the interface and access coordination at UDS.

#### Schedule Summary

Below is the latest schedule for N180.





# Link Light Rail Northgate Link Extension– Construction

## Key Activities

### Current Period

- *Columbia Precast Plant (CPP)*: Continued to cast six 3'-10" floating slabs per day; total slab production to date: 392 out of 1,366 (29%); sectionalized the first 7'-10" floating slab and verified measurements and consolidation.
- *Scougal Facility*: Continued fabrication of the 5Hz tapered side and end separation pads and tapered side shim pads.
- Progress Rail continued production of Hi-resilience qualification samples and will begin qualification testing.
- Continued coordination with N150 on temporary lighting and power systems, and ventilation plan.

### Next Period

- CPP to continue casting 3'-10" and 7'-10" floating slabs.
- Scougal to continue producing 5Hz side and end separation pads, and tapered side shim pads.
- Progress Rail to begin qualification testing of Hi-resilience fasteners.
- Kelley Engineered Equipment continuing fabrication and assembly of Floating Slab Gantry.

## Closely Monitored Issues

- Scougal has not been able to achieve a passing Long Term Creep (LTC) test at their facility or at Dynamark. All other qualification testing has passed. Scougal/SWI are in the process of sourcing a new rubber supplier.

## Cost Summary

Present Financial Status	Amount
<b>N180 Contractor - Stacy and Witbeck, Inc.</b>	
Original Contract Value	\$71,455,950
Change Order Value	\$1,441,206
Current Contract Value	\$72,897,156
Total Actual Cost (Incurred to date)	\$10,841,714
Financial Percent Complete:	15%
Physical Percent Complete:	12%
Authorized Contingency	\$10,718,393
Contingency Drawdown	\$1,441,206
Contingency Index	1.11



Columbia Precast: Transporting 7'-10" floating slab with new, larger forklift.

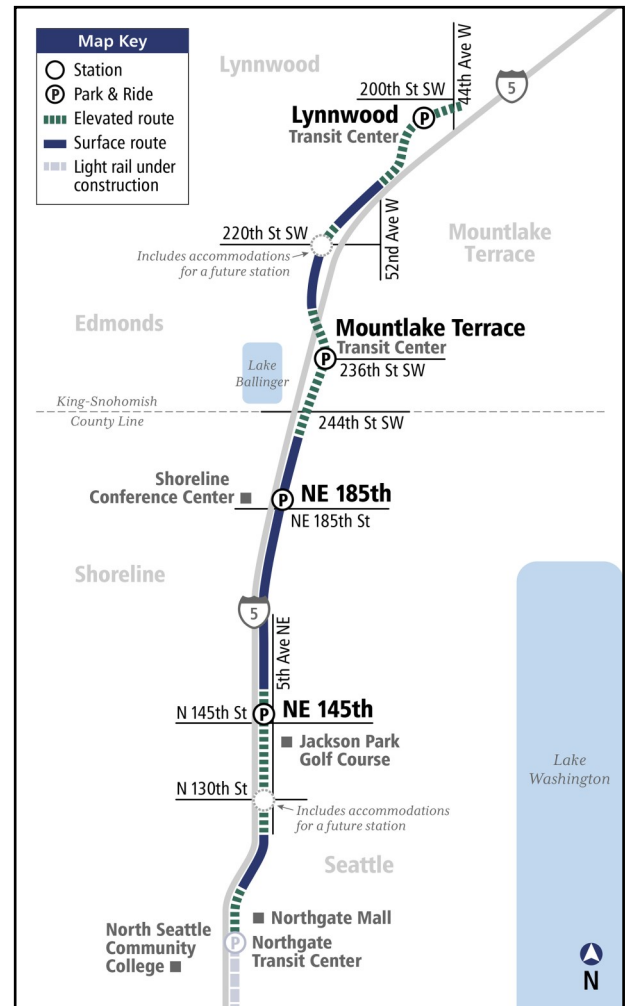
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# Link Light Rail Lynnwood Link Extension

## 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>	Mid 2024



Map of Lynnwood Link Extension Alignment.

## Key Project Activities

- L200 60% civil design submitted in February 2017; reviews completed in March 2017.
- L300 60% civil design submitted in March 2017; reviews completed in April 2017.
- L800 60% systems design submitted in June; reviews completed in August 2017.
- Conducted VE reviews with 3rd party jurisdictions in September 2017.
- WSDOT completed engineering review of L200 Temporary Construction Air Space Lease (TCAL) and Air Space Lease (ASL); review began on August 7, 2017; L300 submitted to WSDOT on July 3, 2017.
- Continuing right of way acquisition and pre-construction planning.
- Evaluating cost savings ideas.

### 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	\$18.2	\$17.9	\$88.3	\$0.0
Preliminary Engineering	\$42.0	\$39.1	\$39.1	\$42.0	\$0.0
Final Design	\$111.5	\$82.5	\$44.3	\$111.5	\$0.0
Construction Services	\$104.9	\$23.3	\$7.7	\$104.9	\$0.0
3rd Party Agreements	\$17.4	\$7.2	\$2.8	\$17.4	\$0.0
Construction	\$0.5	\$0.2	\$0.2	\$0.5	\$0.0
Light Rail Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$123.8	\$60.8	\$55.8	\$123.8	\$0.0
<b>Total</b>	<b>\$488.4</b>	<b>\$231.3</b>	<b>\$167.7</b>	<b>\$488.4</b>	<b>\$0.0</b>

#### Cost Summary by SCC

SCC Element	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
10 Guideway & Track	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
20 Stations	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
30 Support Facilities	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$0.5	\$0.2	\$0.2	\$0.5	\$0.0
50 Systems	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
<b>Construction Subtotal (10 - 50)</b>	<b>\$0.5</b>	<b>\$0.2</b>	<b>\$0.2</b>	<b>\$0.5</b>	<b>\$0.0</b>
60 Row, Land	\$123.8	\$60.8	\$55.8	\$123.8	\$0.0
80 Professional Services	\$364.1	\$170.2	\$111.7	\$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>\$231.3</b>	<b>\$167.7</b>	<b>\$488.4</b>	<b>\$0.0</b>



## 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	161	76	4	0	0	39	159	63
L300—North Segment	36	12	0	0	0	9	25	3
<b>Total*</b>	<b>197</b>	<b>88</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>48</b>	<b>184</b>	<b>66</b>

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

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

Thirteen additional parcels approved by the Board; seven additional parcels closed; one additional relocation identified; three additional relocations vacated.

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

Eleven additional parcels approved by the Board; one additional parcel closed. One additional parcel closed.

## Sound Transit Board Actions

Board Action	Description	Date
R2017-33	Acquire certain real property interests, including acquisition by condemnation to the extent authorized by law, and to reimburse eligible relocation and reestablishment expenses incurred by affected owners and tenants as necessary for the Lynnwood Link Extension.	Sep 28

## Community Outreach

- Continued sending out notification flyers to property owners about upcoming survey work or geotech borings on properties.
- Provided project briefing to members of the Echo Lake and Meridian Park neighborhood and around 40 members were on hand to review 60% station designs and get a project update.
- Draft project banner completed for City of Lynnwood staff's review and approval; banner to be placed on the perimeter fence of the recently acquired and former Black Angus property.

## Civil Final Design Overview

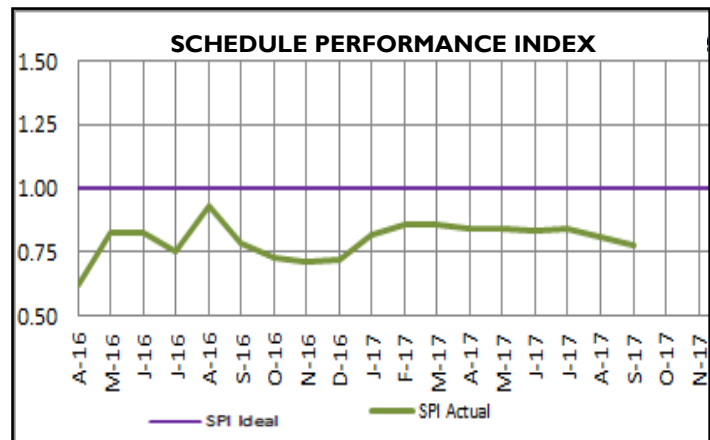
Sound Transit executed a professional services contract with HNTB Jacobs in April 2016 to perform Civil Final Design Services.

### Civil Final Design Activities

- Focus is currently on Cost Savings Ideas. Consultant designer, GC/CM, and ST working to evaluate and estimate potential cost savings ideas. Dispositions for each idea are in-progress.

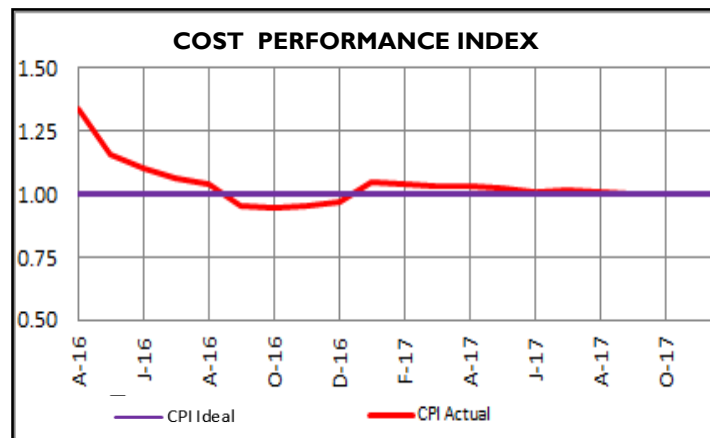
### Civil Final Design Schedule Performance Index

The cumulative Schedule Performance Index (SPI) trends at 0.78 through September 2017, which means that cumulative work accomplished is less than work originally planned. Currently the civil final design is developing cost savings ideas and schedule performance is expected to drop over the next couple of reporting periods until the costs savings ideas are completed.



### Civil Final Design Cost Performance Index

\$40.6M of the total contract amount, 56%, has been spent through September 2017. The Civil Final Design percent complete is 56%, with an earned value of \$40.6M. The cumulative Cost Performance Index (CPI) through September is 1.00 indicating that expenditures are aligned to the earned value of work performed.



Final Design Performance	Cumulative To-date
Amount Invoiced	\$40.6M
% Spent	56%
Earned Value	\$40.6M
% Complete	56%
<b>SPI</b>	0.78
<b>CPI</b>	1.00

### Systems Final Design Overview

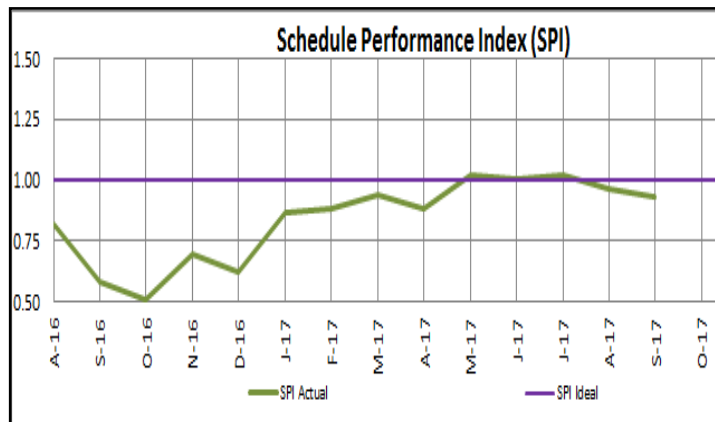
Sound Transit executed a professional services contract with LTK Engineering in July 2016 to perform Systems Final Design Services.

#### Systems Final Design Activities

- L800 60% cost estimate submitted to Sound Transit August 25, 2017.
- L800 60% cost estimate reconciliation completed on September 27, 2017.
- Systems Design currently on hold while reviewing & finalizing cost savings ideas from previous VE workshops.

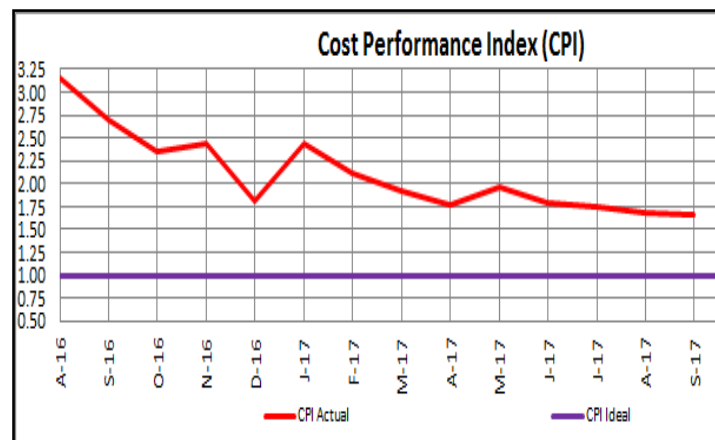
#### Systems Final Design SPI

The cumulative Schedule Performance Index (SPI) trends at 0.93 through September 2017, which means that cumulative work accomplished is behind the work originally planned. The monthly SPI for September was 0.31, indicating significantly less work accomplished than planned for the month. This is directly attributed to the design hold due to cost savings ideas development. Schedule performance is expected to drop over the next couple of reporting periods until the costs savings ideas are completed.



#### Systems Final Design Cost Performance

\$2.7M of the total contract amount, 28%, has been spent through September 2017. The Systems Final Design percent complete is 47%, with an earned value of \$4.5M. The cumulative Cost Performance Index (CPI) through September is 1.65 indicating that expenditures are significantly lower than planned for the work performed.



Final Design Performance	Cumulative To Date
Amount Invoiced	\$2.7M
% Spent	28%
Earned Value	\$4.5M
% Complete	47%
<b>SPI</b>	<b>0.93</b>
<b>CPI</b>	<b>1.65</b>



## Civil Construction Management Overview

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

### Civil Construction Management Activities

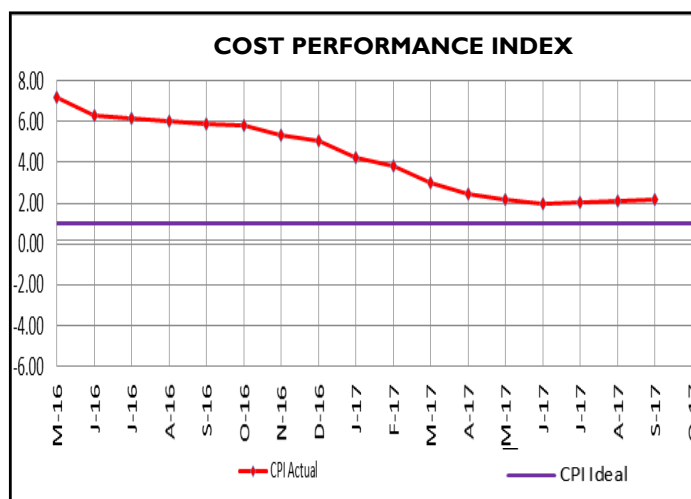
- Coordinating meetings with design, GC/CM, and ST teams.
- Coordination on various preconstruction activities including cost estimates, schedule, and constructability.
- Coordinating GC/CM review of 60% submittals and Project wide effort towards value engineering.

### Civil Construction Management Schedule Performance Index

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

### Civil CM Cost Performance Index

\$2.6M of the total contract amount, 35%, is spent through September 2017, with an earned value of \$5.7M. The cumulative Cost Performance Index (CPI) through September is 2.16; 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. With the current work on the 60% deliverables and delay in the LLE design contract, and CPI is anticipated to trend closer to an expected value of 1.0.



Civil CM Performance	Cumulative To-date
Amount Invoiced	\$2.6M
% Spent	35%
Earned Value	\$5.7M
<b>CPI</b>	<b>2.16</b>

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

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

### L200 GC/CM Pre-Con Activities

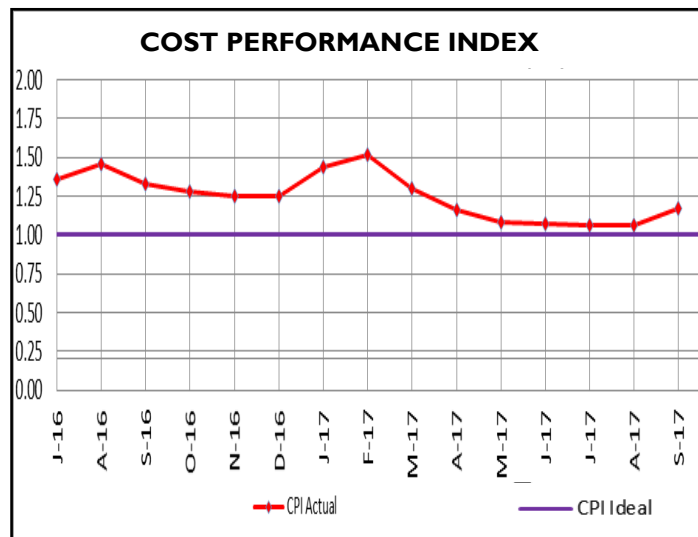
- Coordinating meetings with design, CM, and ST teams.
- Progress on various preconstruction activities including cost estimates, schedule, and constructability.
- Project wide effort towards value engineering.

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

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

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

\$2.7M of the total contract amount, 52%, is spent through September 2017, with an earned value of \$3.1M. The cumulative Cost Performance Index (CPI) through September is 1.17; indicating actual costs are slightly lower than planned.



L200 GC/CM Performance	Cumulative To-date
Amount Invoiced	\$2.7M
% Spent	52%
Earned Value	\$3.1M
<b>CPI</b>	<b>1.17</b>

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

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

### L300 GC/CM Pre-Con Activities

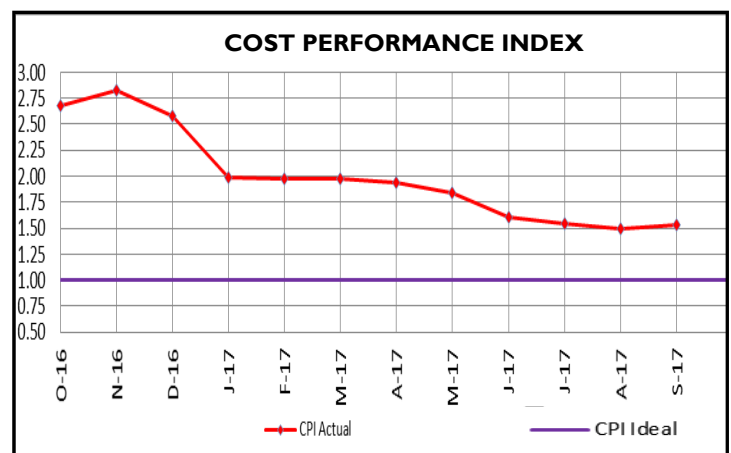
- Coordinating meetings with design, CM, and ST teams.
- Progress on various preconstruction activities including cost estimates, schedule, and constructability.
- Project wide effort towards value engineering.

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

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

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

\$2.0M of the total contract amount, 37%, has been spent through September 2017, with an earned value of \$3.1M. The cumulative Cost Performance Index (CPI) through September is 1.53; indicating actual costs are lower than planned. We anticipate this will moderate as the work towards deliverables increases.



L300 GC/CM Performance	Cumulative To-date
Amount Invoiced	\$2.0M
% Spent	37%
Earned Value	\$3.1 M
<b>CPI</b>	<b>1.53</b>

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# Link Light Rail

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

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

**Budget:** \$225.6 Million  
**Phase:** Construction  
**Construction Start:** January 2015  
**Construction Completed:** November 2017



Since June 2017, the project has provided 24/7 HOV access on I-90 between Seattle, Mercer Island and Bellevue.

### Major Contracts

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

## Key Project Activities

- The WSDOT Contractor continues working on punchlist items at both Mercer Island and Mount Baker Tunnels. This work includes ongoing testing and replacement of defective IR cameras.
- General Electric is scheduled to make modifications to the Mount Baker Ridge Tunnel Switch Gear during September, and will troubleshoot other electrical issues.
- SCADA revisions required for fan startup sequencing at Mercer Island and Mt. Baker Ridge tunnels continue, in conjunction with ongoing system testing and commissioning.

## Closely Monitored Issues

- While Center Roadway turnover to Sound Transit was completed on time in June 2017, Substantial Completion continues to slip; achievement of Substantial Completion is anticipated for 4th Quarter 2017.
- MBRT/MIT LIOP Hardware Upgrade work has been postponed until the Work Plan & Commissioning Plans are submitted.
- Fan Testing and Commissioning, specifically jet fans and their start-up under generator power, is taking longer than anticipated. The contractor continues to resolve issues.
- Challenges continue with network programming tasks for Phase 3 commissioning and Simplex / SCADA video interface and integration. Recent testing revealed that several problems still exist and remain to be solved. Additional testing will be performed to demonstrate system integration.
- Due to a change in required traffic load rating, it will be necessary to replace several roadway catch basin frames and grates. Other additional work may be required.

### Project Cost Summary

The following tables summarize the cost information for the I-90 Two-way Transit and HOV Operations (Stage 3) project. Total Project Costs expended during this period was \$2.9M. Tables in millions.

#### Cost Summary by Phase

Project Elements by Phase	Baseline Budget	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
Administration	\$3.6	\$3.6	\$2.2	\$2.7	\$3.6	\$0.0
Preliminary Engineering	\$1.5	\$1.5	\$1.5	\$1.5	\$1.5	\$0.0
Final Design	\$22.1	\$22.1	\$18.7	\$18.0	\$22.1	\$0.0
Construction Services	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
3rd Party Services	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Construction	\$198.3	\$198.3	\$171.9	\$161.3	\$198.3	\$0.0
<b>Total</b>	<b>\$225.6</b>	<b>\$225.6</b>	<b>\$194.4</b>	<b>\$183.5</b>	<b>\$225.6</b>	<b>\$0.0</b>

#### Cost Summary by SCC

Project Elements by SCC	Baseline Budget	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
40 Sitework & Special Conditions	\$180.6	\$180.6	\$172.0	\$161.3	\$180.6	\$0.0
80 Professional Services	\$26.3	\$26.3	\$22.5	\$22.2	\$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>\$183.5</b>	<b>\$225.6</b>	<b>\$0.0</b>

### Cost Contingency Management

In the table below, the Allocated Contingency includes both WSDOT-controlled construction contingency & 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%	\$8.1	19.2%
Unallocated Contingency	\$18.7	8.3%	\$18.7	44.4%
<b>Total</b>	<b>\$35.7</b>	<b>15.8%</b>	<b>\$26.8</b>	<b>63.6%</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.



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

## 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 14<sup>th</sup> 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 4<sup>th</sup> Quarter 2017. Physical Completion has also slipped to 4<sup>th</sup> QTR 2017. The E130 Seattle to South Bellevue Contractor has begun construction activities on the floating bridge.

The remaining Project Milestones for construction are indicated below:

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	11/1/2017	5/31/2017	6/14/2017 A	5/31/2017	11/1/2017

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



*Concealed Communications Wiring Installation*



*Landscaping at Mercer Island Tunnel*

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# Link Light Rail

## East Link Extension

### Scope

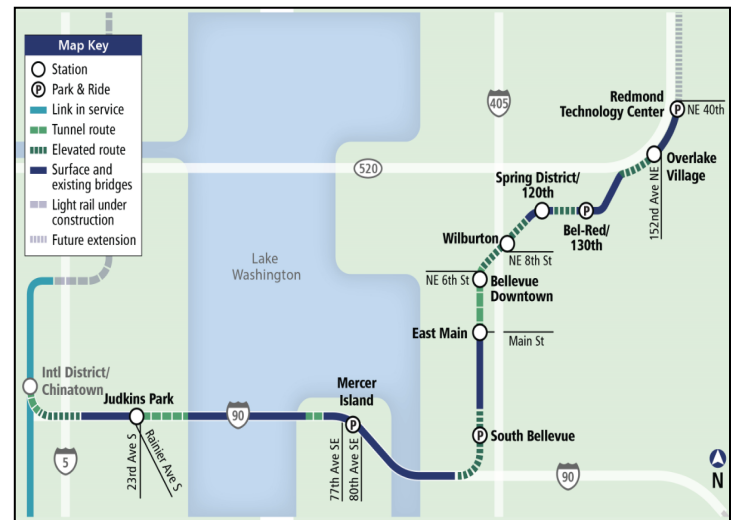
**Limits/Alignment:** Fourteen-mile extension from Downtown Seattle to Mercer Island, Bellevue and the Overlake area of Redmond. The extension includes 10 stations along the alignment that includes at-grade, elevated, bridges, new and retro-fitted tunnels.

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

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

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

**Schedule:** Revenue Service - June 2023



Map of East Link Extension Alignment.

## Key Project Activities

### Seattle to South Bellevue

- Continued demolition, utility relocations, drainage installation and sound wall mock up for East Segment—Mercer Island Station site.
- Access and equipment mobilization in preparation for seismic retrofit D2 bridge south of International District Sta.
- Continued post tensioning prep work including off site steel fabrication, core hole layout, coring and saw cutting.

### South Bellevue to Redmond

- E320 South Bellevue:* Site and staging preparations and demolition work ongoing including clearing, grading and constructing access from South Bellevue Park and Ride to SE 30th. Dewatering well points at the parking garage installed and operational.
- E330 Downtown Bellevue Tunnel:* Tunneling advanced to about 684 linear feet without spiles due to favorable ground conditions; Developing procedures to fill voids behind the Skyline Building garage wall .
- E335 Downtown Bellevue to Spring Dist.:* Commenced Phase 1 of City of Bellevue garage reconfiguration and Phase 2 for full closure of 110th. Commenced selective abatement and demolition of Lincoln Center building east of I-405.
- E340 Bel-Red:* Procurement of H-Piles for early Spring 2018 installation. All dewatering drill shafts near wetlands established and successful in dropping artesian pressures. Coordinating with 3rd Party utilities for temporary aerial and pot holing along the alignment.
- E360 SR520 to Redmond Technology Center:* Continued concrete placement on the infiltration vault at Overlake Village Station site. Installed temporary eco-block retaining wall for access road to Sweeper Site. Continued demolition work at the current Overlake Transit Center site.

## Closely Monitored Issues

- Completing remaining property acquisitions.
- Timely submissions and issuance of construction permits. Mercer Island permit is being prioritized.
- E330 Downtown Bellevue Tunnel production rate continues to be monitored closely despite favorable ground conditions.
- With the commencement of construction at all segments, construction safety and environmental compliance are priorities.
- E340 coordination and collaboration of private utility relocation.
- E335 station sub package procurements.

## Project Cost Summary

The East Link project cost is summarized below in two cost categories. In the first table, the cost is summarized in accordance with Sound Transit's Work Breakdown Structure (WBS). The second table summarizes the project in accordance with the FTA's Standard Cost Category (SCC) format. The Estimated Final Cost (EFC) continues to be projected at approximately \$3.68B. This period's expenditure is about \$48.4M, increasing the total project cost from \$853.4M to \$901.8M. This period's project commitments increased approximately \$17M from \$2.778B to \$2.795B primarily driven by a resolution to the Spring District real estate acquisition and some construction change orders.

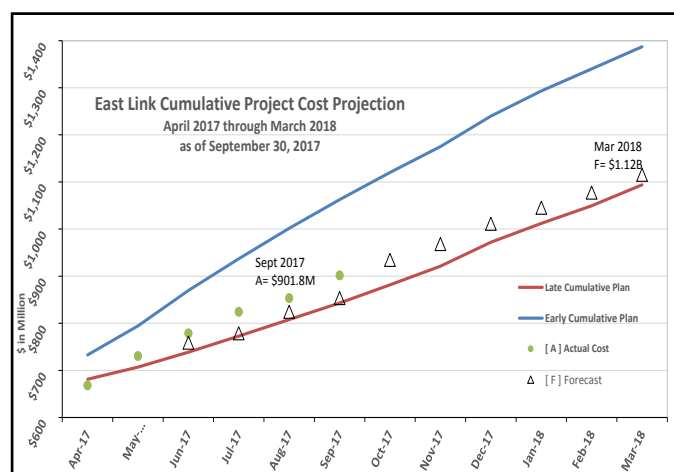
### Cost Summary by Phase

Project Phase	Baseline Budget	Current Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Current Budget vs. EFC
Administration	186.2	186.2	62.6	\$61.9	186.2	\$0.0
Preliminary Engineering	55.9	55.9	54.8	\$54.7	55.9	\$0.0
Final Design	283.0	283.0	232.4	\$196.0	283.0	\$0.0
Construction Services	257.5	257.5	196.8	\$37.9	257.5	\$0.0
3rd Party Agreements	52.2	52.2	35.9	\$12.6	52.1	\$0.0
Construction	2,544.3	2,544.3	1,959.2	\$303.5	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	253.3	\$235.2	298.2	\$0.0
<b>Total</b>	<b>3,677.2</b>	<b>3,677.2</b>	<b>2,795.1</b>	<b>\$901.8</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	\$880.2	\$142.5	889.1	(\$141.5)
20 Stations	\$397.7	\$397.7	\$262.9	\$49.2	442.8	(\$45.1)
30 Support Facilities	\$0.0	\$0.0	\$0.0	\$0.0	0.0	\$0.0
40 Sitework & Special Conditions	\$808.5	\$806.0	\$450.6	\$94.1	647.2	\$158.9
50 Systems	\$353.8	\$353.8	\$344.1	\$12.8	336.4	\$17.4
<b>Construction Subtotal (10 - 50)</b>	<b>\$2,304.6</b>	<b>\$2,305.1</b>	<b>\$1,937.9</b>	<b>\$298.6</b>	<b>2,315.4</b>	<b>(\$10.3)</b>
60 Row, Land	\$288.5	\$288.5	\$253.3	\$235.2	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	\$603.8	\$368.0	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>\$2,795.1</b>	<b>\$901.8</b>	<b>3,677.2</b>	<b>(\$0.0)</b>

The East Link (EL) cost projection continues to progress back to within the planned expenditure as construction activities continue to accelerate. This period's project expenditure topped out at approximately \$48.4M where construction phase is responsible for over 89% or \$43.1M of September's cost. Total project cost incurred to date has now reached \$902M to which about \$303.5M were within the Construction Phase. The March 2018 project cost projection is now adjusted from \$1.09 to \$1.12B reflecting a more active construction than previously anticipated. All civil construction segments are now fully mobilized and in full construction. Systems contract, a joint East Link and Northgate Link contract, continues product and component design.



# 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 developing 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. Sound Transit continued the quantitative risk update and risk assessment workshops. ST included participation of construction management consultants and construction contractors who are 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 September 2017, excepting the E335 Stations, all major construction contracts have been procured, the total contingency balance stands at \$472.5M (previously \$474.7M). The current contingency balance is consistent with the project's planned contingency drawdown.

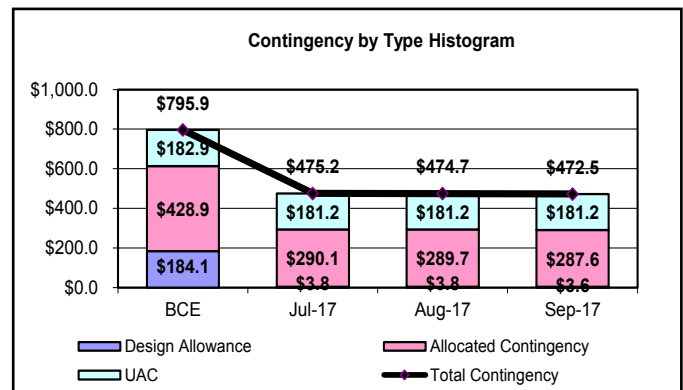
**Design Allowance (DA)** was set up to account for unquantified scope at the time of the cost estimate. This period, DA balance was reduced from \$3.8M to \$3.6M due to a reallocation of DA to Allocated Contingency (AC) bucket as we close out a utility design budget. DA balance is expected to be fully drawn when all construction scope are executed.

**Allocated Contingency (AC)** is used to address risks, complexity and unforeseen conditions during the execution of work, including procurement. This period AC balance was reduced by \$2.1M lowering the balance from \$289.7M to \$287.6M. This draw is primarily due to construction change orders and miscellaneous 3rd party commitments.

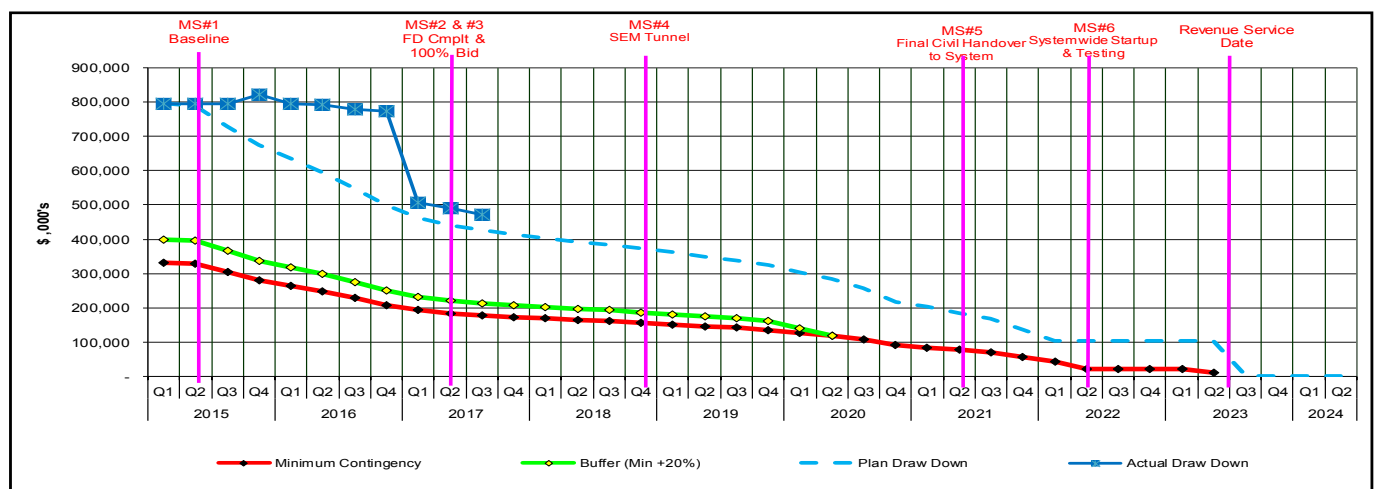
**Unallocated Contingency (UAC)** is used to address general project-wide cost risks and uncertainties. The UAC balance of \$181.2M continues to be stable compared to the initial balance of \$182.9M at time of project baselining.

Contingency Status	BCE		Current Status	
	Amount	% of Total Budget	Remaining Amount	% of Work Remaining
Design Allowance	\$184.1	5.0%	\$3.6	0.1%
Allocated Contingency	\$428.9	11.7%	\$287.6	10.4%
Unallocated Contingency	\$182.9	5.0%	\$181.2	6.5%
<b>Total:</b>	<b>\$795.9</b>	<b>21.6%</b>	<b>\$472.5</b>	<b>17.0%</b>

Dollar figures on this page are displayed in millions.



### Contingency Drawdown



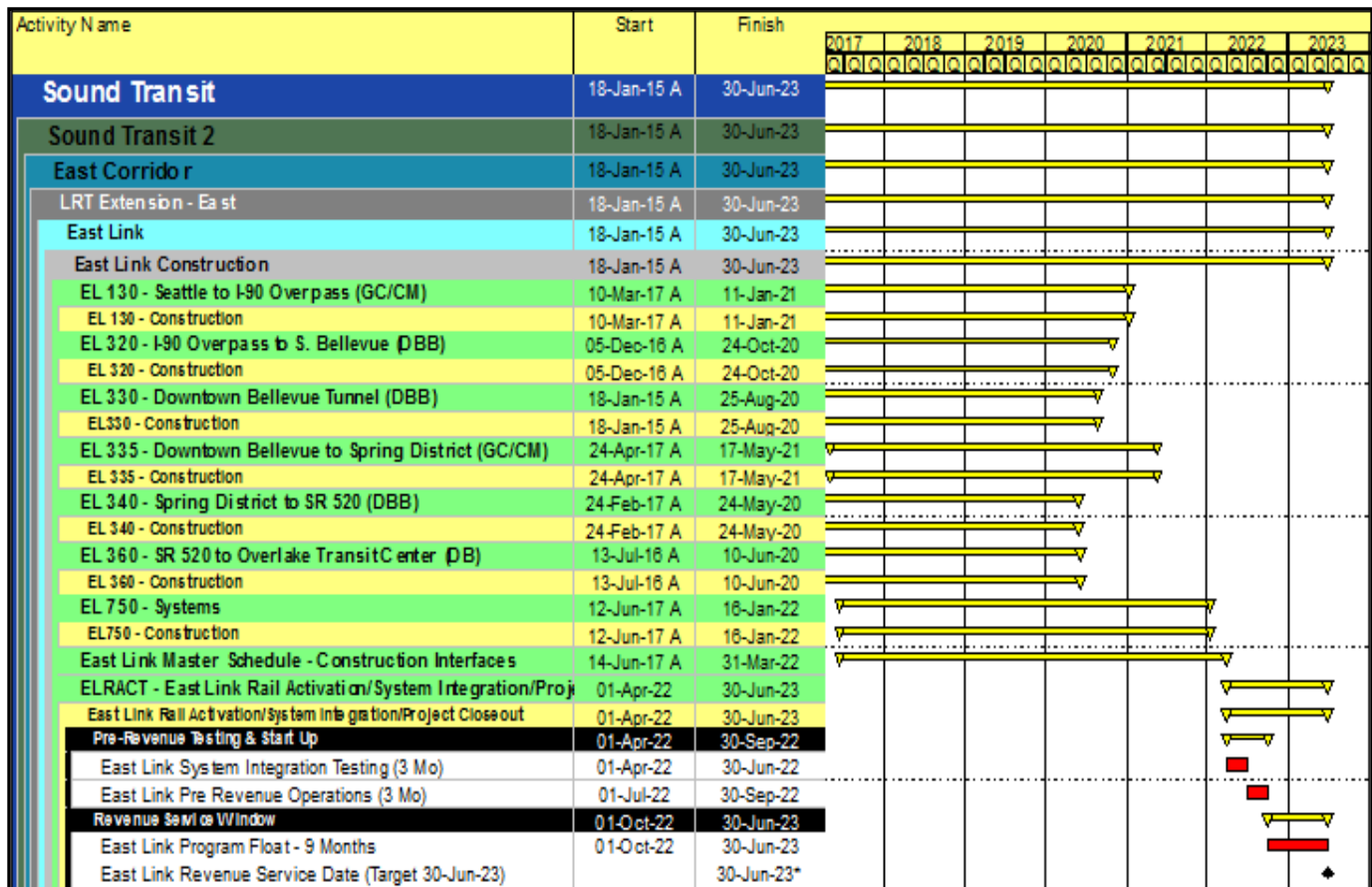


### Project Schedule

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

E130 wrapped up most work on the floating bridge for the winter moratorium. Almost all steel reaction frames were loaded into the western pontoon. The remaining frames will go in within the first two weeks of October, weather permitting. The eastern pontoon will be ballasted for the winter and the reaction frames will be installed when work begins in the spring of 2018. E320 began drilling shafts for the aerial guideway and continued relocating utilities. E330 continues tunneling and is making good progress. E335 continued demo, clearing and grubbing, and tying rebar cages; and began drilling shafts and mass excavation of the trench for 120th Station. E340 continues relocating utilities and drilling shafts. E360 has started demolition, tree removal, and utility relocation. E750 Systems contractor continued product and component designs. They will complete this phase of work within the next two years and will begin construction in Northgate Link before commencing on East Link. Systems construction in East Link is anticipated to start on the eastern segment of E130 in Summer of 2019.

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





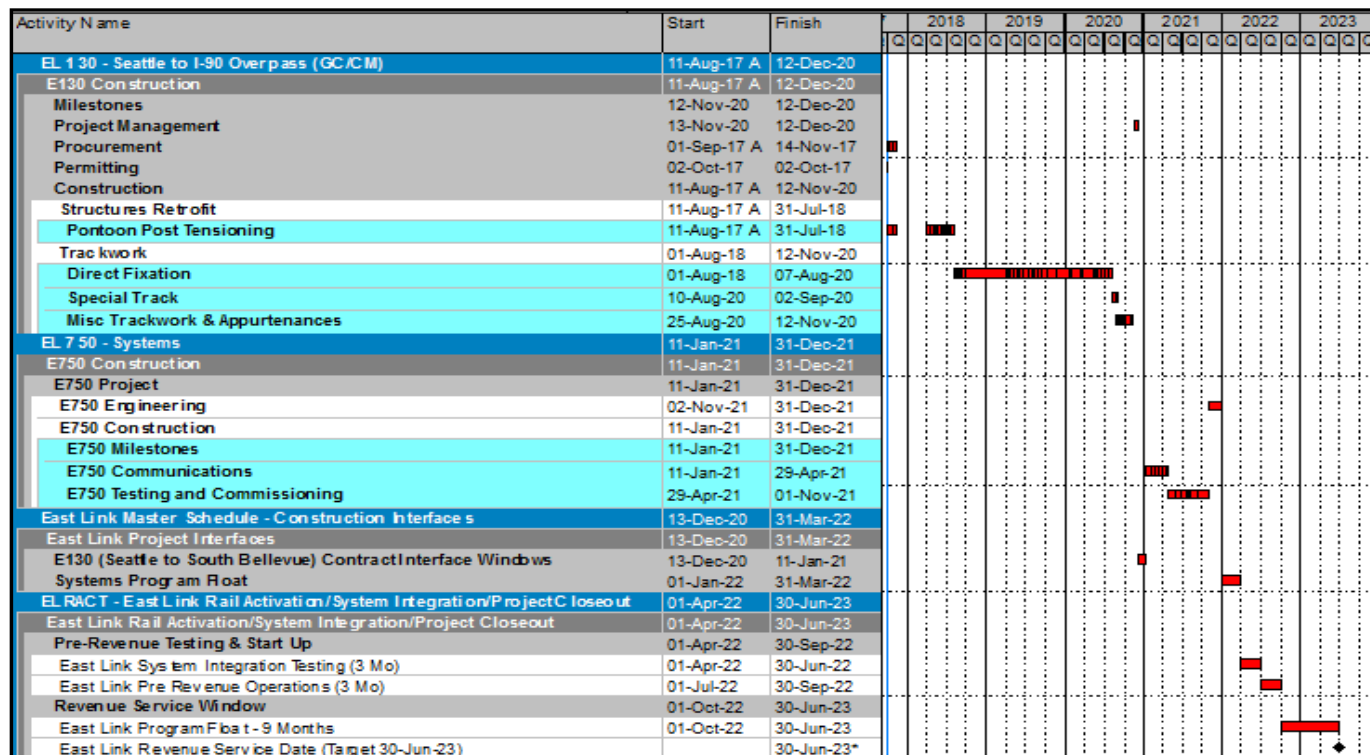
# Link Light Rail

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

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

East Link Extension Property Acquisition Status								
Line Section	Board Approved	Offers Made/In Negotiations	Signed Agreements	Possession and Use	Admin Settlement	Closings to date	Relocations Required	Parcels Vacated
Total	244*	234	2	26	2	188	243	202

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. \*Two City of Seattle parcels were added; did not need Board approval.

### Right of Way, continued

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

*E320 South Bellevue* - No new activity.

*E330 Downtown Bellevue* - No new activity.

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

*E340 Bel-Red* - No new activity.

*E360 SR 520 to Redmond Technology Center* - Air Space Lease discussion with WSDOT continues with regards to the OTC pedestrian bridge modification.

### Construction Safety

Data/ Measure	September 2017	Year to Date	Project to Date
Recordable Injury/Illness Cases	5	10	10
Days Away From Work Cases	1	1	1
Total Days Away From Work	2	2	2
Restricted or Modified Work Cases	4	6	6
Total Days Restricted or Modified Work	4	21	21
First Aid Cases	2	21	25
Reported Near Mishaps	12	40	53
Average Number of Employees on Worksite	639	-	-
<b>Total # of Hours (GC &amp; Subs)</b>	160797	528244	564081
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	6.22	3.79	3.55
DART Rate	6.22	2.65	2.48
<i>Recordable National Average</i>	3.50	3.50	3.50
<i>DART National Average</i>	2.00	2.00	2.00
<i>Recordable WA State Average</i>	7.00	7.00	7.00
<i>DART WA State Average</i>	3.90	3.90	3.90

### Sound Transit Board Actions

Board Action	Description	Date
	None to report.	

### Environmental

- Continued developing environmental permit application packages. Environmental commitments are being incorporated into the design, program, and specifications of the project.
- Coordinating with East Link 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.
- Participating in weekly environmental compliance walks in support of overall Construction Management effort.

## Community Outreach

- Ongoing coordination with City of Mercer Island regarding lane and ramp closures.
- Coordinating with City of Seattle regarding the homeless encampment under I-90 at Rainier Avenue.
- Met with Skyline Tower representatives to discuss the results of coring behind their parking garage.
- Various construction alerts were sent regarding traffic impacts in Bellevue Way, tree work on NE 24th Street, work on 112th Avenue, full closure of 110th Avenue to build the north tunnel portal, etc.
- Coordinated a water shutoff with Pine Forest Properties.
- Provided car wash vouchers to Lake Bellevue building tenants in response to dust complaints.
- Conducted briefings with the Pacific Northwest Ballet of upcoming work activities on the MGI property site, including parking modification in their parking lot.
- Provided information to various business representatives and residents about upcoming construction activities.



Ongoing work on I-90—workers lowering beam into hatch of pontoon.

## 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: Punchlist work ongoing.*

**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 site stabilization and ongoing staging of construction materials and equipment; ongoing fabrication and shop assemblies of anchor frame steel.*

**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 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 under E330.*

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

*Status: With the station scope exception (to be repackaged and procured by year's end.) Contractor continues mobilization effort with site preparations, selective demolition and preparation for drilled shafts.*

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

*Status: See following pages under Contract E340.*

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

*Status: See following pages under Contract E360.*

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

*Status: Contractor commenced mobilization with critical submittal and reviews of plans.*

## Contract E330 – Downtown Bellevue Tunnel

### Current Progress

**South Portal:** The Contractor continued tunneling throughout September and excavation progressed approximately 108 feet this period, with approximately 689 total feet of excavation to date. Good ground conditions decreases the need for ground spiles and has helped maintain the increased excavation rate at or around the 5ft/day mark. Hauling of spoils offsite continues.

**North Portal:** Determined water intrusion and voids behind the basement walls along the East elevation of the Skyline building need to be addressed prior to tunneling. Grouting of voids to be performed next month.

**Between Portals:** Continued to install and repair utility monitoring points along tunnel alignment.

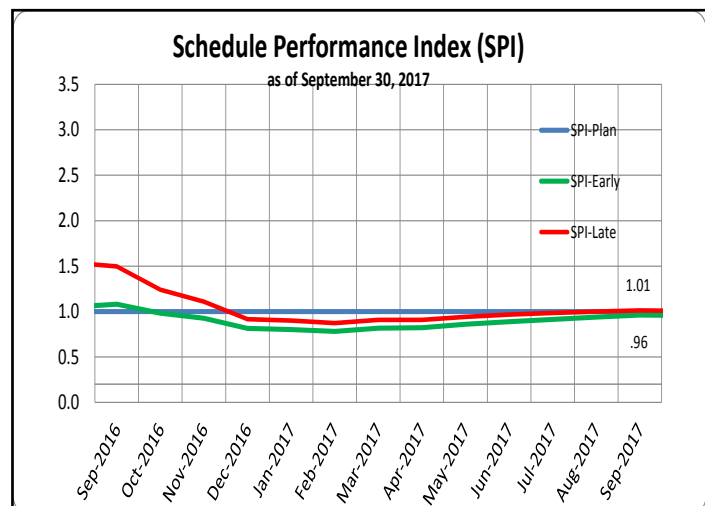
### Schedule Summary

The critical path for this contract follows the tunnel excavation and the completion of the South Portal structure. Tunneling continues to exceed estimated production rates. Overall tunnel production has reached 3.73 LF/Day. The contractor is now forecast to finish excavating in January 2019 and to achieve Substantial Completion on time.

Activity Name	Start	Finish	2018												2019				2020		
			Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3			
<b>E330 Construction</b>	15-Dec-15 A	28-Jul-20																			
<b>CONSTRUCTION</b>	15-Dec-15 A	28-Jul-20																			
<b>MILESTONES/CONSTRUCTION EASEMENTS</b>	15-Dec-15 A	27-May-20																			
<b>MILESTONES</b>	15-Dec-15 A	27-May-20																			
<b>CALCULATED MILESTONES</b>	15-Dec-15 A	27-May-20																			
L-NTP	15-Dec-15 A																				
NTP	08-Feb-16 A																				
MLST 1 - Acceptance of the 110th Ave Controlled Low Strength Material Work		14-Oct-16 A																			
MLST 2 - Acceptance of CO #006 Work		14-Oct-16 A																			
MLST 3 - Substantial Completion of all Work from Station EB 542+64.52 to Station EB 562+47.91		01-Feb-20																			
MLST 4 - Substantial Completion Total Contract		27-May-20																			
<b>MOBILIZATION</b>	08-Feb-16 A	01-Feb-19																			
<b>SITEWORK</b>	29-Feb-16 A	28-Jul-20																			
PRECONSTRUCTION	21-Mar-16 A	28-Jul-20																			
TRAFFIC CONTROL	25-Mar-16 A	17-Dec-19																			
SURVEY & MONITORING	29-Feb-16 A	19-Apr-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	27-May-20																			
<b>TUNNELING</b>	01-Feb-17 A	08-Jan-20																			
Sound Transit Controlled SEM Float - Tunnel Completion	08-Jan-20	08-Jan-20																			
Atkinson Controlled SEM Float - Tunnel Completion	08-Jan-20	08-Jan-20																			
<b>EXCAVATION</b>	01-Feb-17 A	03-Jan-19																			
FINAL TUNNEL LINING	04-Jan-19	03-Oct-19																			
FINAL TUNNEL FINISHES	24-Apr-19	07-Jan-20																			
MID TUNNEL	16-Mar-18	15-May-19																			
DEMOBE	13-Mar-17 A	14-May-20																			

### Schedule Performance Index

This period, the SPI early is at 0.96 and the SPI late is at 1.01. The early index curve indicates that the Contractor continues slightly behind plan when compared to the baseline schedule. The recent trend, however, continues moving in the positive direction as shown with the SPI late index now hovering above the 1.0 mark with regards to tunnel excavation progress. The Contractor is anticipated to continue to improve progress in the near future with the improved ground conditions being encountered.





# Link Light Rail East Link Extension - Construction

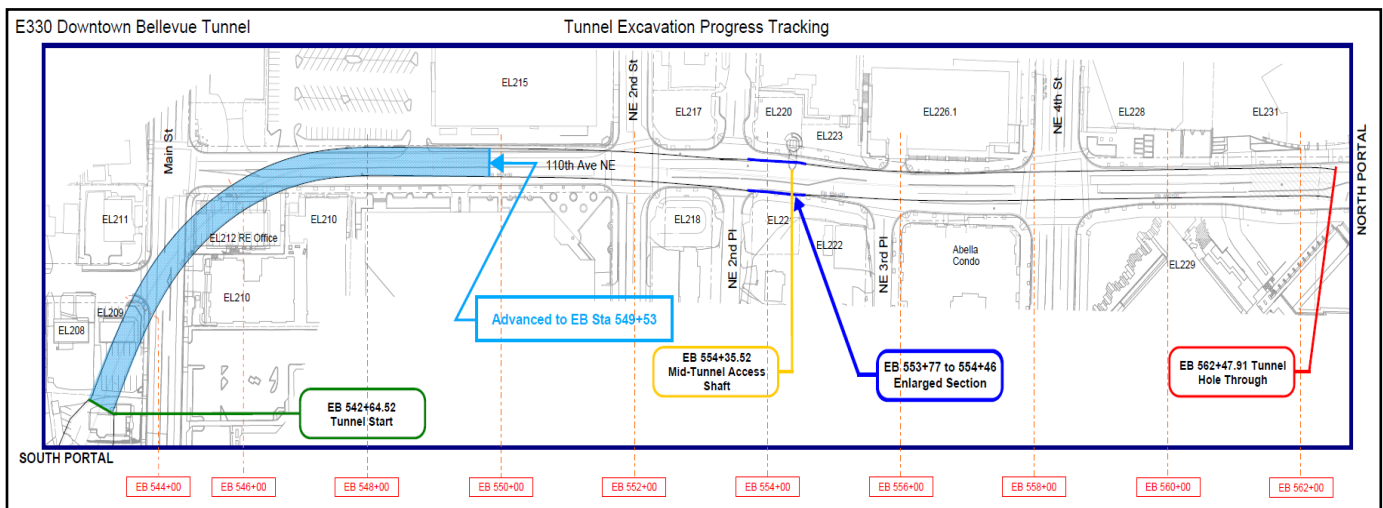
## Next Period's Activities

- Continue tunnel excavation and extend ventilation lines.
- Working with Skyline Building Management and Contractor to address voids behind, and water intrusion through, the East basement walls.

## Closely Monitored Issues

- Test performed on the 48" detention pipe next to the skyline building show that the pipe is leaks when filled halfway. Test reports submitted to the City of Bellevue (COB) for their use. COB to determine if further action will be required from their perspective as the owner/operator of the pipe.
- Working with Skyline building management and the contractor to begin grouting voids behind Skyline basement lagging and execute Right Of Entry (ROE) to perform work. Grouting of the Skyline wall draft proposal under review.

## E330 Tunnel Excavation Progress Tracking



As of Sep. 30, 2017

## Cost Summary

Present Financial Status	Amount
<b>E330 Contractor– Guy F Atkinson Construction, LLC.</b>	
Original Contract Value	\$121,446,551
Change Order Value	\$2,073,741
Current Contract Value	\$123,520,292
Total Actual Cost (Incurred to date)	\$48,610,148
Financial Percent Complete:	39%
Physical Percent Complete:	39%
Authorized Contingency	\$12,144,655
Contingency Drawdown	\$2,073,741
Contingency Index	2.3



Excavating tunnel top heading in the Downtown Bellevue Tunnel.

## Contract E340 – Bel-Red

### Current Progress

Asbestos abatement for building demolition at the Evans Industrial Park is complete with the exception of the contractor's field office that will be complete at the end of the project. Tying of rebar cages for guideway columns are completed and the first of ten column transition pours has been completed. Preparation for the remaining column pours has started. Utility Contractor nearly completed with pole installation and work has begun on stringing cable and setting detention vaults.

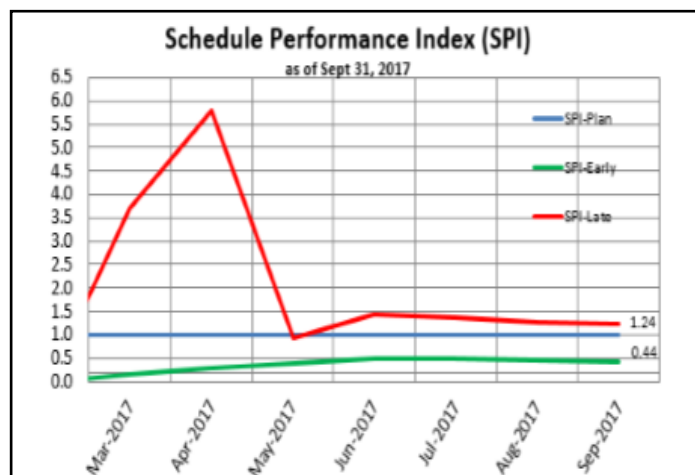
### Schedule Summary

Work in September included continued utility relocation and drilled shafts for the aerial guideway. The critical path of this project runs through the retaining walls on the west end of the project, followed by trackwork.

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

### Schedule Performance Index

This period, the SPI early is at 0.44 and the SPI late is at 1.24. The late index indicates that the contractor is still ahead of schedule when compared to the baseline planned work. However, the SPI early index has remained approximately the same as last two previous months - behind the planned early finish of their work. This trend is supported by the fact that construction continues to experience delays due to drilled shaft operations and dewatering issues.



# Link Light Rail East Link Extension - Construction

## Next Period's Activities

- Complete temporary aerial utilities service connection.
- Finish remaining bridge column transition pours.
- Complete joint ductbank installation on 132nd Ave NE.
- Continue installation of the storm drain along 136th Place.
- Removal of abandoned OPL pipeline .
- Decommission the dewatering wells.

## Closely Monitored Issues

- Utility Coordination (PSE, CenturyLink and Comcast) for temporary aerial system installation.
- Commercial utility connections unknowns being encountered within roadways and private properties.
- Artesian conditions for deep sewer on 130<sup>th</sup> Ave NE.
- Schedule for road closures in coordination with other Sound Transit and City of Bellevue projects
- Bellevue Projects with a delayed starts have potential to impact construction project schedule.
- Potential for contaminated soil and water impacts.

## Cost Summary

Present Financial Status	Amount
<b>E340 Contractor– Max J Kuney</b>	
Original Contract Value	\$93,170,012
Change Order Value	\$803,183
Current Contract Value	\$93,973,195
Total Actual Cost (Incurred to date)	\$16,298,207
Financial Percent Complete:	17.3%
Physical Percent Complete:	17.3%
Authorized Contingency	\$9,317,000
Contingency Drawdown	\$803,183
Contingency Index	1.5



Excavating for new PSE vaults



Prepping shaft for transition pour



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

### Current Progress

**Design:** The Design-Build Contractor, Kiewit-Hoffman East Link Constructors (KH) team submitted Issued For Construction (IFC) sets for Track & Alignment Design, Special Track Procurement Design and Drainage/Site Prep Along Guideway. Structural design package continue to progress with IFC packages scheduled for submittal in October. Station design packages for the OVS and RTC & Garage continue with 100% submittal scheduled for October. OVS Ped Bridge design have been progressing and 60% package is scheduled to be submitted to ST in the 1st QTR 2018.

**Construction:** KH continued site clearing, grubbing, and access road construction throughout the site. Ongoing construction of the Overlake Village Station vault continued through the month with footings completed and upper walls mid-way through completion. Demolition of RTC leased office buildings continue to be delayed due to private utility facilitation.

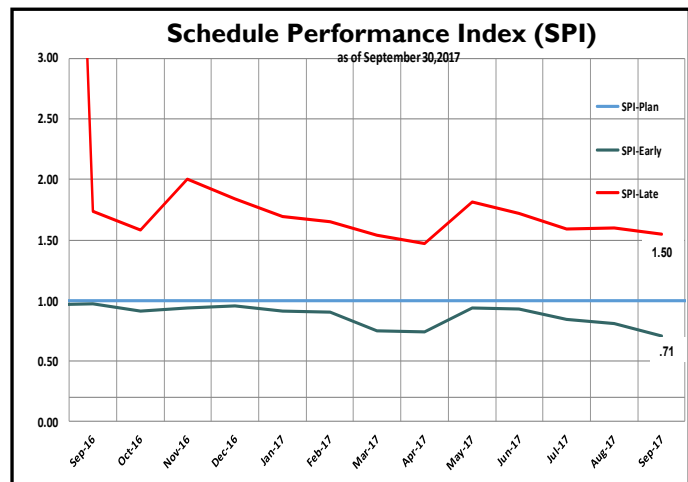
### Schedule Summary

The Contractor is approaching 100% on most design packages. Construction continued in September with clearing and grubbing, installation of temporary access roads, and concrete foundations for Overlake Village Station. The critical path for this contract runs through the aerial guideway and direct fixation trackwork. The Contractor's current projected completion is two months ahead of Sound Transit's baseline milestone.

Activity Name	Start	Finish	2018					2019				
			Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
E360 Construction	13-Jul-16 A	12-Dec-19										
Base Contract	13-Jul-16 A	12-Dec-19										
Design	13-Jul-16 A	21-Aug-18										
Design Milestones	03-Oct-16 A	08-Mar-18										
Design Submittals Start		03-Oct-16 A										
30% Design Submittals Complete		28-Oct-16 A										
60% Design Submittals Complete		03-Nov-17										
100% Design Submittals Complete		12-Jan-18										
IFC Design Submittals Complete		08-Mar-18										
Design Overhead	13-Jul-16 A	18-Jul-17 A										
Design and Engineering	13-Jul-16 A	21-Aug-18										
Construction	14-Jul-16 A	12-Dec-19										
General	10-Apr-17 A	12-Dec-19										
Project Milestones	10-Apr-17 A	12-Dec-19										
Civil/Systems 100% Design Submittal (NTP+ 300 d) (09-May-2017)		10-Apr-17 A										
Substantial Completion		15-Oct-19										
Actual Acceptance of all Work		12-Dec-19										
WA #1 - Track Slab Guideway	22-May-17 A	18-Sep-19										
WA #2 - Aerial Guideway	01-Jun-17 A	01-Oct-19										
WA #3 - Ballasted Guideway Block #1	08-Jun-17 A	24-Jun-19										
WA #4 - Overlake Village Station	14-Jul-16 A	16-Aug-19										
WA #5 - Ballasted Guideway Block #2	15-Aug-17 A	02-Jul-19										
WA #6 - Overlake Transit Center	01-May-17 A	04-Oct-19										
WA #7 - OVS Pedestrian Bridge	16-Feb-18	18-Sep-19										

### Schedule Performance Index

This period, the SPI early is 0.71 and SPI late is 1.50. The SPI early value continues reflecting slippage of early finishes of baseline planned work. SPI late index is still ahead of late finishes on the planned work. The SPI index is supported by the fact that design packages have slowed somewhat impacting the start of the construction scope. The DB team continues to progress the design to the IFC stage with a major structural package and the 100% station packages due in October.



# Link Light Rail

## East Link Extension - Design– Build

### Next Period's Activities

- Structural and Civil IFC design packages are scheduled to be submitted next month (Structural: Guideway Substructure, Guideway Superstructure, At-Grade Guideway Retaining Structure. Civil: Systems)
- Contractor will continue utility isolation, preload, and selective demolition and clear/grub at Park Place.
- Continue Form/Pour/Strip walls and lids at OVS infiltration vault. Backfill activities to commence late October.
- Continue Site Preparation and demolition for RTC construction.

### Cost Summary

Present Financial Status	Amount
<b>E360 Contractor— Kiewit-Hoffman</b>	
Original Contract Value	\$225,336,088
Change Order Value	\$515,753
Current Contract Value	\$225,851,841
Total Actual Cost (Amount Billed)	\$52,779,827
Financial Percent Complete:	23.3%
Physical Percent Complete:	23.3%
Authorized Contingency	\$22,533,609
Contingency Drawdown	\$515,753
Contingency Index*	9.4

### Closely Monitored Issues

- *Alternative RTC Ped Bridge* - Contractor and Microsoft are working on 60% designs for an alternative RTC Ped Bridge. Once design, costs and schedule are developed, a decision will be made whether to retain this scope in E360. Decision pending for in early 1st QTR 2018.
- Contractor, Sound Transit and City of Redmond continue to work out permitting issues.
- Continue ongoing discussion with ST and Microsoft about the necessary easement for soil nail walls under Augusta Drive.
- ST and the Contractor must resolve and negotiate changes related to Track/Fasteners/Clips, the RTC Temporary Drainage, and the OVS Infiltration Vault base modification.
- Implementation of Safety Certification for mitigating hazards. Development of Safety and Security Certification Plan (SSCP).



OVS Infiltration Vault

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# Link Light Rail Downtown Redmond Link Extension

## Scope

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

## Key Project Activities/Issues

- Environmental review was completed for the project as part of the 2011 East Link Project Final Environmental Impact Statement (EIS), but ST Board suspended preliminary engineering due to the recession.
- Funding through completion of preliminary engineering was restored in 2016. Advancing from conceptual engineering, ST and design consultant identified changes and refinements to the project since Final EIS.
- In June 2017, ST Board identified proposed refinements to the alignment and station profile of the project and authorized staff to complete additional environmental review as appropriate.
- ST completed a project delivery method workshop, which resulted in the selection of Design/Build alternative delivery method. Preliminary engineering will be completed through the development of bridging documents and project requirements for subsequent design/build solicitation in 2018.



Map of Downtown Redmond Link Extension.

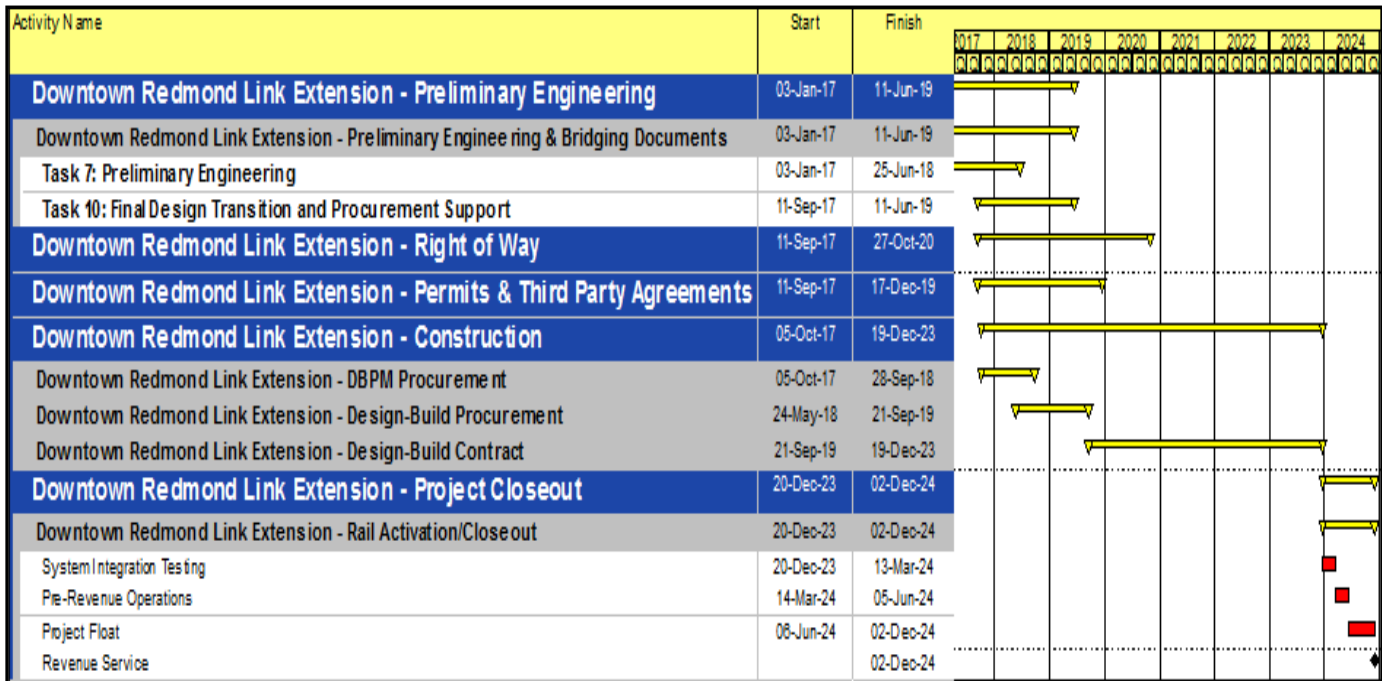
## Project Cost Summary

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

Project Phase	Current Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Current Budget versus EFC
Administration	\$5.3	\$0.9	\$0.9	\$5.3	\$0.0
Preliminary Engineering	\$19.8	\$13.3	\$4.7	\$19.8	\$0.0
Final Design	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Construction Services	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
3rd Party Agreements	\$2.5	\$0.3	\$0.0	\$2.5	\$0.0
Construction	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Light Rail Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$1.1	\$0.1	\$0.1	\$1.1	\$0.0
<b>Total</b>	<b>\$28.6</b>	<b>\$14.7</b>	<b>\$5.8</b>	<b>\$28.6</b>	<b>\$0.0</b>

## Project Schedule

Downtown Redmond Link is currently undergoing Environmental Analysis ahead of the ST Board adopting the project to be built. Preparations are underway to begin early property acquisition in 2018. The project is anticipated to be base-lined in 4th QTR 2018 in time to issue an RFP to prospective Design-Build contractors in early 2019. The project is currently forecast for completion near the end of 2024. The project schedule is below.



## Sound Transit Board Actions

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

Motion Number	Description	Date
	None this period.	

## Community Outreach

- Spoke with more than 80 people at the Redmond Rain Fest on September 23.
- Continued meeting with property owners regarding refinements on the project's route, profile and stations.
- Continued planning outreach activities to gather public input on project requirements.

## Environmental

- None to report.

# Link Light Rail West Seattle & Ballard Link Extensions

## Scope

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

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

## Key Project Activities

- In September 2017, ST Board approved Resolution R2017-32, establishing the Project Allocation (budget) through the completion of the Preliminary Engineering Phase in the amount of \$285.9M and establishing the name of the project as the West Seattle and Ballard Link Extensions Project.
- ST Board also approved Motion M2017-119, authorizing contract execution with HNTB Corporation to provide project development services in the amount of \$24.4M with 10% contingency.
- Began the development of a Partnering Agreements the City of Seattle.
- Formed project team and conducted team chartering workshops.



Map of West Seattle & Ballard Link Extensions

## Project Cost Summary

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

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



## Project Schedule

The preliminary project schedule is presented below.

Activity	2017		2018				2019				2020				2021				2022			
	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Issue NTP - Project Development Consultant Contract	◆																					
Project Development Phase 1 - Alternatives Development																						
Negotiation Phase 2 contract																						
Phase Gate 2 & 3																						
ST Board identifies DEIS Alternatives																						
ST Board identifies Preliminary Preferred Alternative																						
ST Board approves Phase 2 Contract Amendment																						
Project Development Phase 2 - Conceptual Engineering / DEIS																						
Negotiation Phase 3 contract																						
Brief Board on Construction Delivery Method and Contracts Packaging																						
ST Board reaffirms Preferred Alternative																						
ST Board approves Phase 3 Contract Amendment																						
Project Development Phase 3 - Preliminary Engineering / FEIS																						
Publish FEIS																						
ST Board selects Project to be Built																						
FTA Issues ROD																						
Final Design and/or Alternative Project Delivery Procurement(s)																						

	'17	'18	'19	'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35	'36	'37
<b>CENTRAL CORRIDOR PROJECTS</b>																					
West Seattle to Downtown																					
Ballard to Downtown																					

## Sound Transit Board Actions

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

Motion Number	Description	Date
R2017-32	Established the Project Allocation (budget) through the completion of the Preliminary Engineering Phase in the amount of \$285,896,000, and established the name of the project as the West Seattle & Ballard Link Extensions Projects.	Sep 2017
M2017-119	Authorized contract execution with HNTB Corporation to provide project development services in the amount of \$24,412,019 with \$2,441,202 (10%) contingency.	Sep 2017

## Community Outreach

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

## Environmental

- None to report this period.



# Link Light Rail

## S. 200th Link Extension

### Scope

<b>Limits:</b>	South 200th Link Extension consists of 1.6-mile extension of light rail from the SeaTac/Airport Station to South 200th Street.
<b>Alignment:</b>	The extension continues in an aerial configuration heading south of the existing SeaTac/Airport Station, east of Air Cargo Road across South 188th Street, and continuing south along the east side of 28th Avenue South to the elevated Angle Lake Station located at South 200th Street. A passenger pickup/drop-off area, bus transfer, plaza, and a minimum 700-space structured park and ride facility will be located at Angle Lake Station. Up to 400 additional spaces may be developed for interim parking while Angle Lake Station is the interim southern terminus of the Link system. Guideway/Station and Parking Garage/Plaza are being delivered under a Design Build contract.
<b>Station:</b>	Angle Lake Station is located at South 200th Street.
<b>Systems:</b>	Signals, track electrification, and SCADA communications
<b>Budget:</b>	\$383.2 Million
<b>Schedule:</b>	Revenue Service began on September 24, 2016



Map of S. 200th Link Extension.

### Key Project Activities

- *Design Build Guideway and Station (S440):* The project team 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):* Substantial Completion was achieved.
- *Roadway Improvements (S447):* Closeout was completed.
- *Project-wide:* Goal to conclude all closeout work by end of 4th Quarter 2017. Follow-on work items expected to be completed by 4th QTR 2017.

### Closely Monitored Issues

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

### Project Cost Summary

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

#### Cost Summary by Phase

WBS Phase Elements	Baseline Budget	Current Adopted Budget	Commitment to Date	Incurred to Date	Est. Final Cost (EFC)	Adopted Budget vs. EFC
Administration	\$16.1	\$17.1	\$16.1	\$16.0	\$16.5	\$0.6
Preliminary Engineering	\$5.9	\$5.7	\$5.7	\$5.7	\$5.7	\$0.0
Final Design	\$20.0	\$9.5	\$8.7	\$8.7	\$8.7	\$0.8
Construction Services	\$15.1	\$17.3	\$17.1	\$17.1	\$17.1	\$0.2
3rd Party Agreements	\$6.9	\$7.1	\$5.7	\$3.8	\$3.3	\$3.8
Construction	\$275.7	\$282.9	\$241.1	\$238.0	\$243.1	\$39.8
Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$43.5	\$43.5	\$38.1	\$38.0	\$38.1	\$5.4
<b>Capital Total</b>	<b>\$383.2</b>	<b>\$383.2</b>	<b>\$332.5</b>	<b>\$327.3</b>	<b>\$332.6</b>	<b>\$50.6</b>
Finance Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
<b>Project Total</b>	<b>\$383.2</b>	<b>\$383.2</b>	<b>\$332.5</b>	<b>\$327.3</b>	<b>\$332.6</b>	<b>\$50.6</b>

The overall project Estimated Final Cost (EFC) for this period reflects \$332.5M, a savings projection of \$50.6M. This period incurred cost decreased by approximately \$0.01M, of this -\$0.04M was in the construction services phase which included an accrual error, and \$0.03 in the administration phases. All other phases had minor activity that were immaterial.

The EFC grouped by SCC is also reflecting \$332.5M, a savings projection of \$50.6M. The work remaining can be achieved under the adopted budget.

#### Cost Summary by SCC

Project Elements by SCC	Baseline Budget	Current Adopted Budget	Commitment to Date	Incurred to Date	Est. Final Cost (EFC)	Adopted Budget vs. EFC
10 Guideway & Track Elements	\$144.8	\$133.0	\$100.2	\$100.2	\$107.9	\$25.1
20 Stations	\$46.4	\$51.7	\$42.0	\$42.0	\$42.3	\$9.5
30 Support Facilities: Yards, Shops	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$34.6	\$55.3	\$57.3	\$54.3	\$56.7	-\$1.4
50 Systems	\$30.8	\$19.9	\$20.3	\$20.3	\$20.3	-\$0.4
<b>Construction Subtotal (SCC 10-50)</b>	<b>\$256.6</b>	<b>\$259.9</b>	<b>\$219.9</b>	<b>\$216.8</b>	<b>\$227.1</b>	<b>\$32.8</b>
60 Row, Land, Existing Improvements	\$43.5	\$43.5	\$38.1	\$38.0	\$38.1	\$5.4
70 Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
80 Professional Services	\$64.1	\$72.5	\$74.5	\$72.5	\$65.6	\$6.8
90 Unallocated Contingency	\$19.0	\$7.3	\$0.0	\$0.0	\$1.8	\$5.5
<b>Project Total (SCC 10-90)</b>	<b>\$383.2</b>	<b>\$383.2</b>	<b>\$332.5</b>	<b>\$327.3</b>	<b>\$332.6</b>	<b>\$50.6</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>\$332.5</b>	<b>\$327.3</b>	<b>\$332.6</b>	<b>\$50.6</b>

## Cost Contingency Management

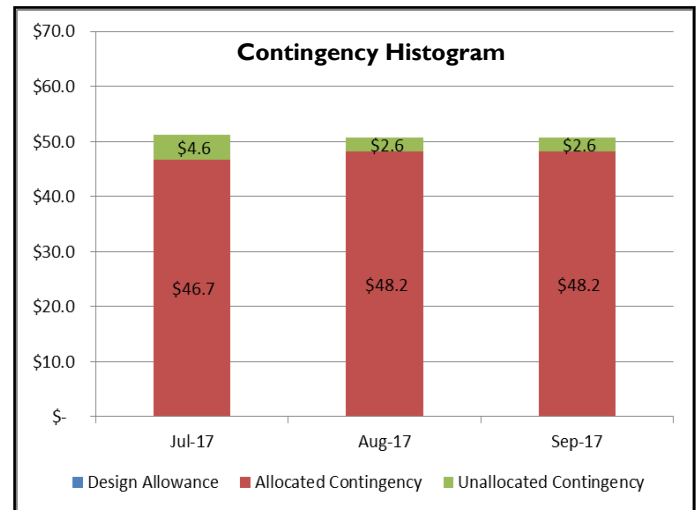
The overall project contingency balance as of this period is \$50.8M. Table (below) figures in millions.

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

**Allocated Contingency (AC):** This period the AC balance is \$48.2M, an increase of \$1.5M based on a reassessing the need for unallocated contingency necessary for remaining work and related risk.

**Unallocated Contingency (UAC):** This period the UAC balance is \$2.6M, a decrease of \$2M based on a reassessing the need for unallocated contingency necessary for remaining work and related risk.

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%	\$48.2	906.9%
Unallocated Contingency	\$19.0	5.0%	\$ 2.6	48.9%
<b>Total</b>	<b>\$75.5</b>	<b>20.0%</b>	<b>\$50.8</b>	<b>958.5%</b>



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

#### Close-out

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

#### Close-out Activities

##### Current Period

- Discussion surfaced to replace E-clips on guideway.
- Finalizing work arounds and safety certification.
- Completed all NCRs and Transition to Operations.
- Close to finalizing change order work and contract close-out items (As-Builts and Safety Certification).

##### Next Period

- Complete work arounds and closeout activities.
- Begin replacement work for E-clips.

#### Closely Monitored Issues

- None to report.

### S445 Contract—Design -Build Parking Garage

#### Close-out

Substantial Completion issued on December 21, 2016.

#### Close-out Activities

##### Current Period

- Final Payment processed.

##### Next Period

- Complete contract closeout.

#### Closely Monitored Issues

- None to report.

### Cost Summary

Present Financial Status	Amount
<b>S440 Contractor—PCL Civil Contractors, Inc.</b>	
Original Contract Value	\$169,000,000
Change Order Value	\$8,490,373
Current Contract Value	\$177,490,373
Total Actual Cost (Amount Billed)	\$175,761,970
Financial Percent Complete:	99.2%
Physical Percent Complete:	100%
Authorized Contingency	\$13,520,000
Contingency Drawdown	\$8,490,373
Contingency Index*	1.6

### Cost Summary

Present Financial Status	Amount
<b>S445 Contractor—Harbor Pacific/Graham</b>	
Original Contract Value	\$29,978,000
Change Order Value	\$2,607,828
Current Contract Value	\$32,585,828
Total Actual Cost (Amount Billed)	\$32,582,606
Financial Percent Complete:	100%
Physical Percent Complete:	100%
Authorized Contingency	\$2,798,240
Contingency Drawdown	\$2,607,828
Contingency Index*	1

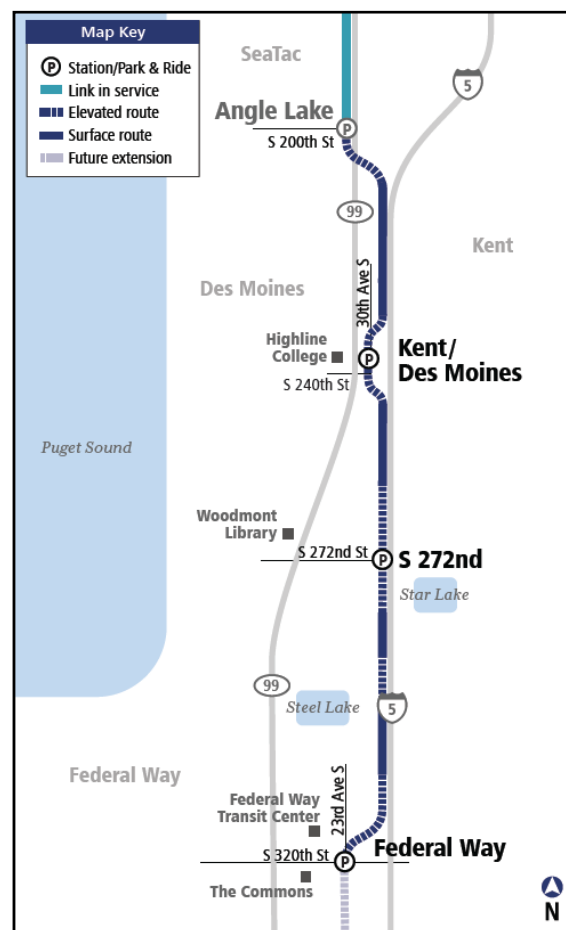
# Link Light Rail Federal Way Extension

## 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

- Submitted New Start Rating application to FTA.
- Project team continues to prepare for Entry to Engineering.
- ROW properties (full and partial) continue to be certified and approved by the ST Board in stages.
- Project team continues to work with each of the cities staff to coordinate code changes required to build the project and include changes in future development agreements.
- Coordination continues with WSDOT regarding project needs, WSDOT's SR509 project, air space leases and temporary construction easements.
- ST/King County/Federal Way Public Schools staff working together to evaluate land exchange feasibility on Mark Twain Elementary school and Redondo Park & Ride.
- Project team working to complete initial draft of Project Requirements followed by beginning QA/QC process.
- Held quarterly risk register meeting.
- 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 re-lease the entire project budget will be sought in May 2018. Table (below) figures in millions.

Phase	Adopted Budget	Commitment to Date	Incurred to Date	Forecasts and Trends	Estimated Final Cost (EFC)	Budget Versus EFC
Administration	\$14.9	\$8.1	\$7.9	\$6.8	\$14.9	\$0.0
Preliminary Engineering	\$40.4	\$39.1	\$37.6	\$1.2	\$40.4	\$0.0
Final Design	\$2.4	\$0.0	\$0.0	\$2.3	\$2.4	\$0.0
Construction Services	\$45.7	\$0.0	\$0.0	\$45.7	\$45.7	\$0.0
Third Parties	\$18.6	\$3.5	\$1.7	\$15.2	\$18.6	\$0.0
Construction	\$25.5	\$0.0	\$0.0	\$25.5	\$25.5	\$0.0
Right of Way	\$265.1	\$5.4	\$1.9	\$259.8	\$265.1	\$0.0
<b>Total</b>	<b>\$412.6</b>	<b>\$56.2</b>	<b>\$49.2</b>	<b>\$356.5</b>	<b>\$412.6</b>	<b>\$0.0</b>

## Project Schedule

The project schedule is presented below. ROD was received in March 2017. ST will issue an RFQ for potential Design-Build contractors in 1st QTR 2018. Real Estate acquisitions are now underway and additional detail has been added to the master schedule to monitor any impacts to the project. Project Baseline has been delayed to 2nd QTR 2018 to allow time for completion of independent cost estimate and risk assessment.

Activity Name	Start	Finish																											
			17	2018				2019				2020				2021				2022				2023				2024	
			Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Sound Transit	01-Jul-16 A	31-Dec-24																											
Sound Transit 2	01-Jul-16 A	31-Dec-24																											
South Corridor	01-Jul-16 A	31-Dec-24																											
Federal Way - Master Schedule	01-Jul-16 A	31-Dec-24																											
Federal Way Link Extension - Master Schedule	01-Jul-16 A	31-Dec-24																											
Preliminary Engineering	01-Jul-16 A	24-May-18																											
ROW/Property Acquisition	30-Sep-16 A	20-Dec-19																											
TCAL/ASL	18-Mar-17 A	31-Jul-18																											
Property Acquisition	30-Sep-16 A	20-Dec-19																											
Third Party Agreements and Permitting	01-Jul-16 A	05-Nov-19																											
Federal Way Link - Design-Build Construction Management C	14-Nov-16 A	31-Dec-24																											
Federal Way Link - Construction Management Consultant - E	14-Nov-16 A	26-Jan-18																											
Construction Management Consultant - Contract Duration	27-Jan-18	31-Dec-24																											
Federal Way Design/Build Contract	11-Mar-17 A	05-Feb-24																											
Federal Way Link Extension - Design/Build Contract - Procu	11-Mar-17 A	10-May-19																											
Design	10-May-19	23-Aug-20																											
Construction	18-Dec-19	05-Feb-24																											
Rail Activation	22-Jan-18	31-Dec-24																											
Systems Integration & Testing	06-Feb-24	05-May-24																											
Safety and Security Certification	22-Jan-18	31-Dec-24																											
Pre-Revenue Service	06-May-24	04-Jul-24																											
Pre-Revenue Service	06-May-24	04-Jul-24																											
Revenue Service/Project Float	05-Jul-24	31-Dec-24																											
ST-controlled Float	05-Jul-24	31-Dec-24																											
Revenue Service (12/31/2024)		31-Dec-24*																											

## Sound Transit Board Actions

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

Motion Number	Description	Date
	None to report.	

## Community Outreach

- Hosted an open house at Highline College to gather input on the proposed station look and feel and around a hundred people attended.
- Hosted a station area look and feel workshop with the Federal Way Chamber and ten people attended
- Continued meeting with property owners regarding the ST Board decision on the project's route, profile and station areas.
- Met with various business and property owners to discuss impacts to their properties and the business relocation process.

## Environmental

- None to report.

## Phase 3 Preliminary Engineering (PE)

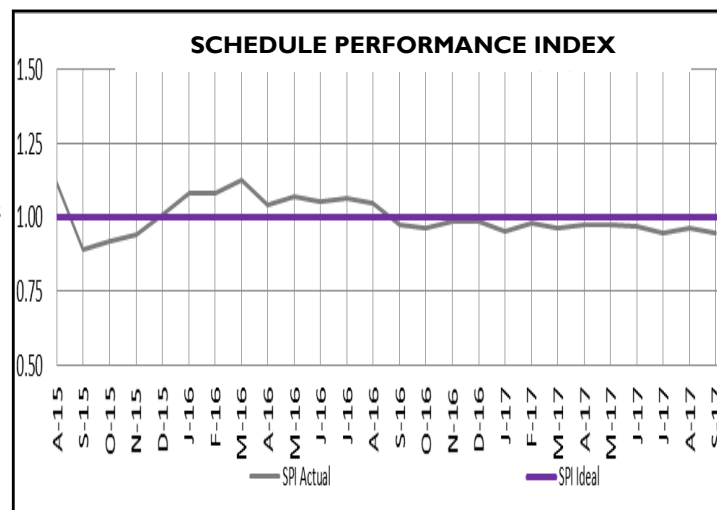
In July 2015, Sound Transit executed an amendment to the professional services agreement with HDR Engineering, Inc. for Phase 3 professional services, including completion of a Final Environmental Impact Statement (FEIS) using the preferred alternative and the other alternatives in the Draft EIS, preliminary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

### Phase 3 Schedule Performance

The cumulative Schedule Performance Index (SPI) is 0.95 through September 2017, indicating the overall amount of work accomplished is near 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.

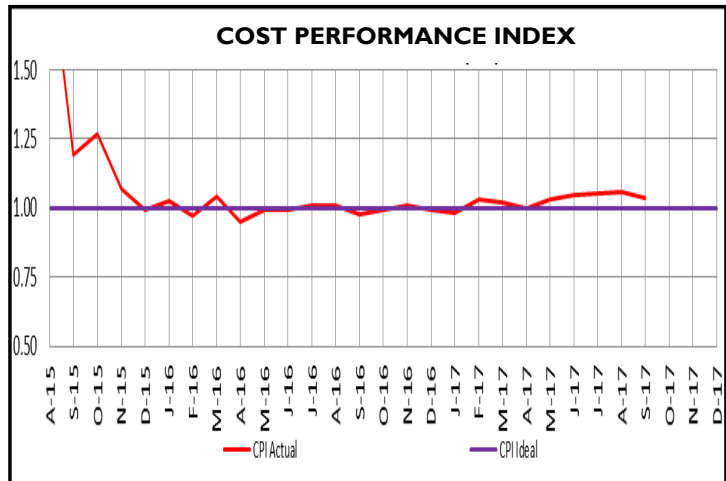




### Phase 3 Cost Performance

Phase 3 expenditures totaled \$25.8M, approximately 86% of the Phase 3 contract total has been spent through September 2017. The Phase 3 percent complete is reported at 89%, with an earned value of \$26.7M. The cumulative Cost Performance Index (CPI) is 1.04, indicating costs are on track with work accomplished.

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	\$25.8M
% Spent	86%
Earned Value	\$26.7M
% Complete	89%
<b>SPI</b>	<b>0.95</b>
<b>CPI</b>	<b>1.04</b>

# Link Light Rail Tacoma Link Extension

## Scope

**Limits:** City of Tacoma

**Alignment:** The Tacoma Link Extension is a 2.4-mile extension of the existing Tacoma Link system from the Theater District in downtown Tacoma to the Hilltop neighborhood. The 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.

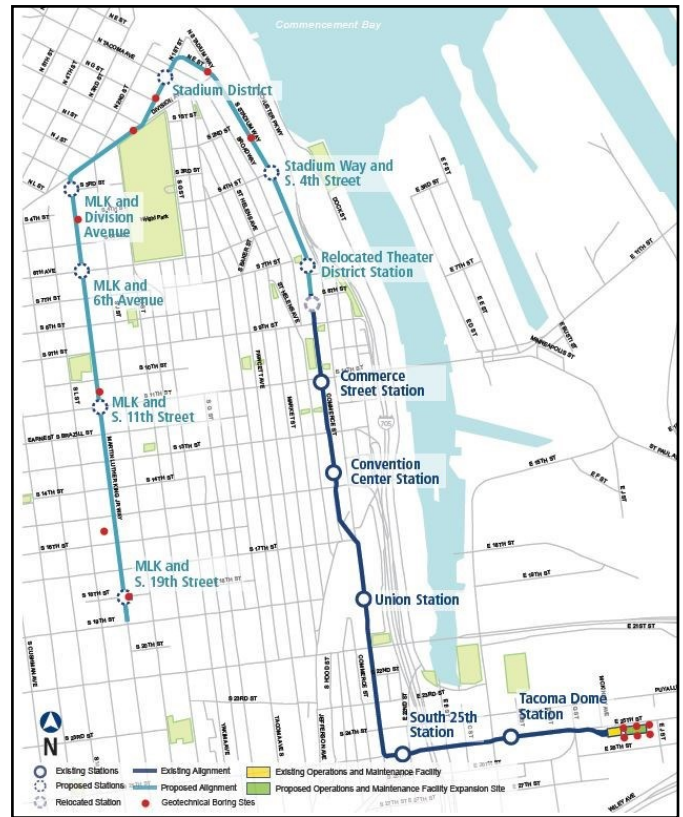
**Systems:** Expansion of the Operations and Maintenance Facility; The at-grade alignment will include additional signals, OCS, traction power, and communications infrastructure.

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

**Phase:** Final Design and Construction

**Const. Starts:** 2018

**Service:** May 2022



Map of Tacoma Link Expansion.

## Key Project Activities

- Sound Transit Board adopted the Tacoma Link Expansion baseline schedule and budget by increasing the authorized project allocation from \$34.6M to \$217.3M, established a revenue service date of May 2022, approved passage through Gate 5 - Establish Baseline; and approved Tacoma Link Extension as the project name.

### Final Design

- Design consultant completed and submitted the 90% design package.
- Continued work with City of Tacoma on issues regarding OCS pole placement along Stadium Way and Commerce St. and treatment of un-signalized intersections.

### Pre-Construction Services

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

### Third Parties

- ST and City of Tacoma staff completed work order negotiations for City design review, inspection, utility relocation construction, and project management services of various project elements, most notably utilities and traffic elements.
- Issued final risk assessment report to FTA for review.

### Right of Way

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

## Project Cost Summary

In September 2017, Sound Transit Board adopted the Tacoma Link Extension baseline schedule and budget by increasing the authorized project allocation from \$34.6M to \$217.3M. The Tacoma Link project cost is summarized below in two cost categories. The first table summarizes costs in accordance with Sound Transit's budget Work Breakdown Structure (WBS). The second table summarizes costs in accordance with the FTA's Standard Cost Categories (SCC) format. The figures in both tables are shown in millions.

### Cost Summary by Phase

WBS Phase Elements	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
Administration	\$16.9	\$4.9	\$4.8	\$16.9	\$0.0
Preliminary Engineering	\$5.6	\$5.6	\$5.6	\$5.6	\$0.0
Final Design	\$10.8	\$7.7	\$7.6	\$10.8	\$0.0
Construction Services	\$9.9	\$0.5	\$0.1	\$9.9	\$0.0
3rd Party Agreements	\$1.4	\$1.1	\$0.3	\$1.4	\$0.0
Construction	\$127.1	\$0.0	\$0.0	\$127.1	\$0.0
Vehicles	\$35.4	\$1.9	\$0.3	\$35.4	\$0.0
ROW	\$3.5	\$1.8	\$1.6	\$3.5	\$0.0
Contingency	\$6.5	\$0.0	\$0.0	\$6.5	\$0.0
<b>Total</b>	<b>\$217.3</b>	<b>\$23.7</b>	<b>\$20.4</b>	<b>\$217.3</b>	<b>\$0.0</b>

### Cost Summary by SCC

Project Elements by SCC	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
10 Guideway & Track	\$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>\$127.1</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$127.1</b>	<b>\$0.0</b>
60 Row, Land	\$3.5	\$1.8	\$1.6	\$3.5	\$0.0
70 Vehicles (non-revenue)	\$35.4	\$1.9	\$0.3	\$35.4	\$0.0
80 Professional Services	\$44.7	\$19.9	\$18.5	\$44.7	\$0.0
90 Unallocated Contingency	\$6.5	\$0.0	\$0.0	\$6.5	\$0.0
<b>Total (10 - 90)</b>	<b>\$217.3</b>	<b>\$23.7</b>	<b>\$20.4</b>	<b>\$217.3</b>	<b>\$0.0</b>

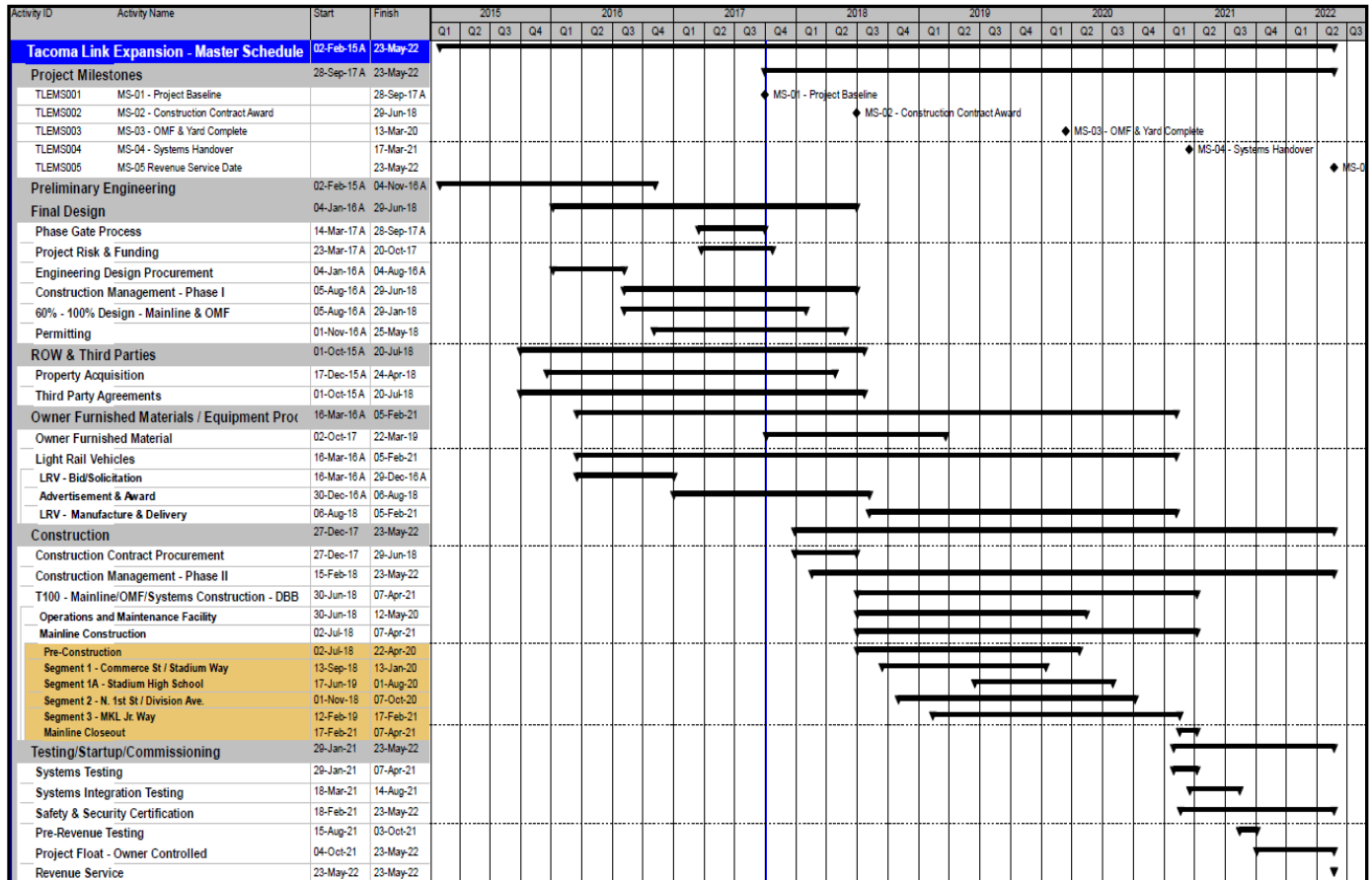
## Risk Management

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

The Baseline Risk Assessment was conducted in May 2017. The 3rd QTR 2017 Risk review meeting was held on August 31, 2017.

## Project Schedule

The Master Schedule has been updated through the end of September. The project schedule and milestones have been baselined. The baselined project milestones are shown on the summary schedule below. The 90% Final Design package was received on September 5, 2017. TCE Batch No. 1 appraisals have been completed and currently being reviewed, with some revisions in progress. The LRV BAFOs were received in September and are being evaluated. LRV manufacturing is still scheduled to start in early January 2018. Project Float remains 8 months. The Revenue Service



## Community Outreach

- Met with over 150 people at the Tacoma Art Wine and Beer Walk.
- Continued outreach coordination efforts between City of Tacoma, Links to Opportunity, Tacoma Public Utilities and Pierce Transit.
- Met with Multicare to discuss 90% design and partnering approach as the project moves to construction.
- Continued planning and development of 90% open house and pre-construction outreach material.
- Continued review of special conditions for contractor scope of work.

## Sound Transit Board Actions

Motion Number	Description	Date
R2017-31	Adopted the Tacoma Link Expansion baseline schedule and budget by increasing the authorized project allocation from \$34,622,000 to \$217,346,000 and establishing a project revenue service date of May 2022; (2) approving passage through Gate 5 within Sound Transit's Phase Gate process; and (3) approving Tacoma Link Extension as the project name.	Sep 28

## Final Design

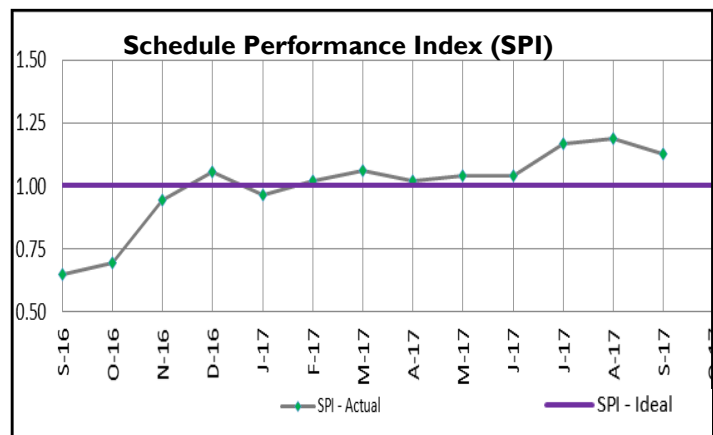
In July 2016 Sound Transit executed a contract with HDR Engineering, Inc. to provide civil and systems final design services for Tacoma Link.

### 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.
- Continued effort on BAFO proposals from LRV manufacturers.

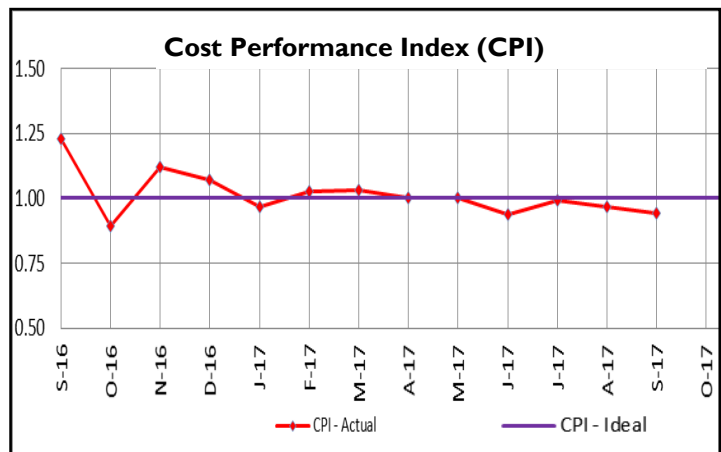
### Final Design Schedule Performance

The cumulative Schedule Performance Index (SPI) for the Final Design contract is 1.13 through September, indicating that the contract work performed is ahead of the original plan. The Consultant is scheduled to complete the design submittals earlier than anticipated.



### Final Design Cost Performance

Based on Actuals, the Contract expenditures through September totaled \$7.2M, approximately 95% of the Final Design contract total. The Final Design contract percent complete reported at the end of September is 90%, with an earned value of \$6.8M. The cumulative Cost Performance Index (CPI) through September 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 along with the consultant accelerated schedule to complete the design submittals earlier than anticipated. There is a change request in process to address cost issues in these tasks and should be reflected in the next months report.



Phase 3 Performance	Cumulative To-Date
Amount Invoiced	\$7.2M
% Spent	95%
Earned Value	\$6.8M
% Complete	90%
<b>SPI</b>	<b>1.13</b>
<b>CPI</b>	<b>0.94</b>

# Link Light Rail

## Link Operations and Maintenance Facility: East

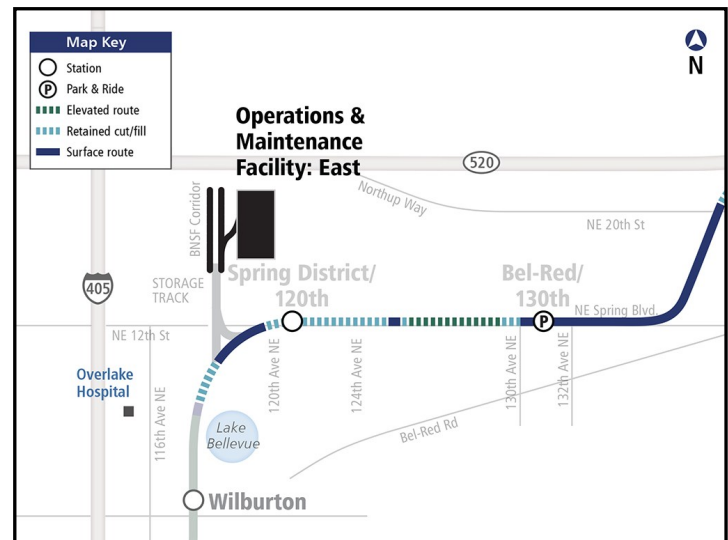
### Project Summary

**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

- Continue coordination of property acquisition settlements, relocations of tenants and property transfers to M200 Contractor.
- Public Design Review meeting scheduled for October 11.
- Conducted quarterly risk review and updates in September.
- ERC trail connection workshop scheduled with City of Bellevue and King County Parks.
- Provided annual briefing to TIFIA Federal Oversight.
- Type 2 LRV design being compared with OMF East facility equipment requirements.

### Closely Monitored Issues

- Property acquisition and tenant relocation schedule is on the critical path; all private parcels in condemnation and City spur property may require TCE.
- Permit schedule for the Master Development Plan (MDP) by COB is pending and is a top schedule risk.
- Elements of DB Contractor's proposal (shear wall elimination for future development) may require MOU amendment with COB.
- COB adherence to the MOU and IA future development (TOD) intent potentially in question.
- KC betterment scope and schedule variance now being defined, may require additional property.



### 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)

#### Cost Summary by Phase

WBS Phase Elements	Baseline Budget	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
Administration	\$17.6	\$17.6	\$3.2	\$3.1	\$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	\$0.7	\$19.3	\$0.0
3rd Party Agreements	\$3.1	\$3.1	\$0.2	\$0.0	\$3.1	\$0.0
Construction	\$264.8	\$264.8	\$219.8	\$8.0	\$264.8	\$0.0
ROW	\$134.5	\$134.5	\$85.2	\$84.2	\$134.5	\$0.0
<b>Total</b>	<b>\$449.2</b>	<b>\$449.2</b>	<b>\$334.9</b>	<b>\$104.8</b>	<b>\$449.2</b>	<b>\$0.0</b>

The Estimated Final Cost (EFC) for this reporting period is \$449.2M, which is equal to the current project budget. This period approximately \$3.4M was incurred, of which \$0.1M was Administration, ROW was \$2.6M, Construction Services was \$0.2M and Construction phase is \$0.5M for M200 contract regarding design development 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	-\$1.5
20 Stations	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
30 Support Facilities: Yards, Shops	\$140.1	\$140.1	\$123.1	\$1.9	\$145.7	-\$5.7
40 Sitework & Special Conditions	\$43.6	\$43.6	\$38.3	\$0.6	\$41.4	\$2.3
50 Systems	\$43.0	\$43.0	\$38.3	\$0.6	\$38.3	\$4.7
<b>Construction Subtotal (SCC 10-50)</b>	<b>\$229.3</b>	<b>\$229.3</b>	<b>\$203.8</b>	<b>\$3.2</b>	<b>\$229.5</b>	<b>-\$0.2</b>
60 Row, Land, Improvements	\$134.5	\$134.5	\$85.2	\$84.2	\$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	\$45.9	\$17.4	\$71.4	\$0.2
90 Unallocated Contingency	\$13.8	\$13.8	\$0.0	\$0.0	\$13.8	\$0.0
<b>Project Total (SCC 10-90)</b>	<b>\$449.2</b>	<b>\$449.2</b>	<b>\$334.9</b>	<b>\$104.8</b>	<b>\$449.2</b>	<b>\$0.0</b>

### Risk and Contingency Management

#### Risk Management

The Risk Contingency Management Plan (RCMP) established a risk management and oversight process for identifying, assessing, and monitoring risk and develop risk reduction/mitigation plans. It provides a tool for the project team to proactively manage risks on the project. Sound Transit (ST) continuously monitors project status and associated risks, taking mitigation actions for known risks identified on the risk register, and effectively responding in a timely manner to those risks that pose a significant impact to the project cost and/or schedule forecast. The OMF East quarterly risk register review meeting for 3rd QTR was held in September 2017. The current top actively managed risks are listed below.

- Third Party requesting additional site improvements not included in the agreements.
- 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 imposes additional scope or betterments through the permitting process.
- ST requirements potentially increase change items.
- Property acquisition and tenant relocation is an ongoing risk.

### Contingency Status

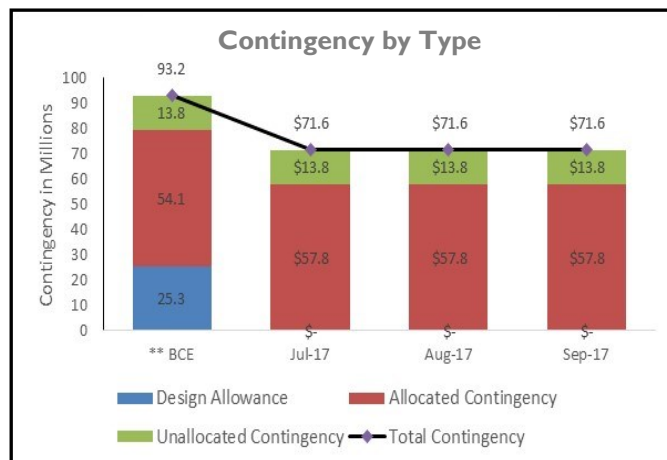
The Link Operations and Maintenance Facility East was baselined and approved by Sound Transit Board in July 2016 with a total contingency of \$93.2M. The contingency drawdown plan (shown below) excludes the Design Allowance amount as it was used when the design build contract was executed, therefore the starting contingency drawdown balance began at \$67.9M. As of this period, the total contingency balance remains at \$71.6M and is consistent with the project's planned contingency drawdown. Details are provided below.

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

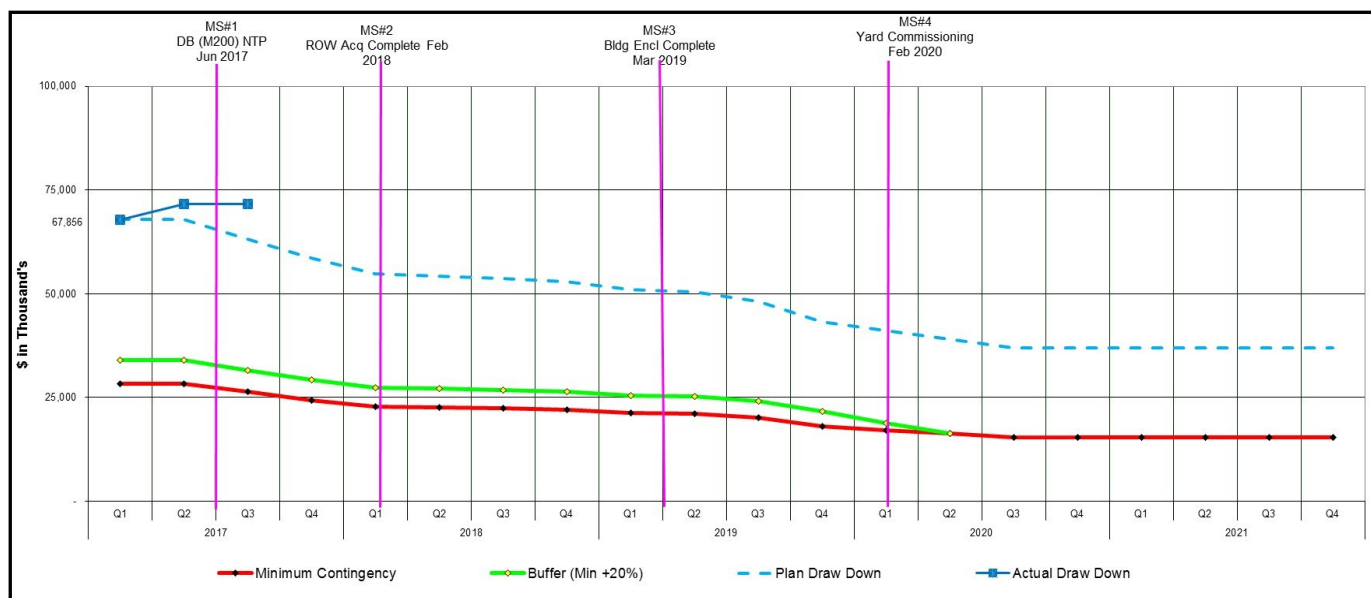
**Allocated Contingency (AC)** – Compared to the baseline amount of \$54.1M, AC of \$57.8M reflects no changes this period.

**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	16.8%
Unallocated Contingency	\$ 13.8	3.1%	\$ 13.8	4.0%
<b>Total</b>	<b>\$ 93.2</b>	<b>20.7%</b>	<b>\$ 71.6</b>	<b>20.8%</b>

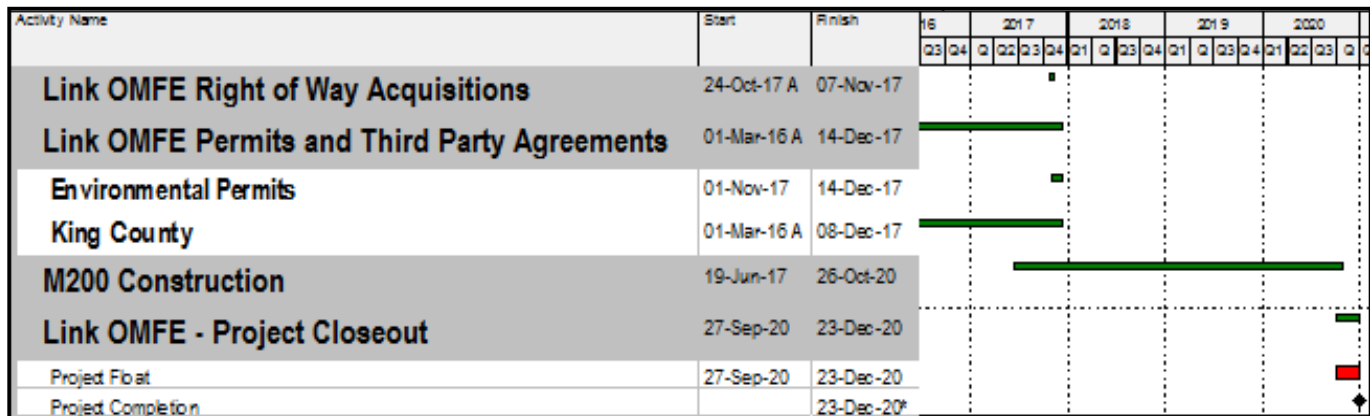


### Contingency Drawdown



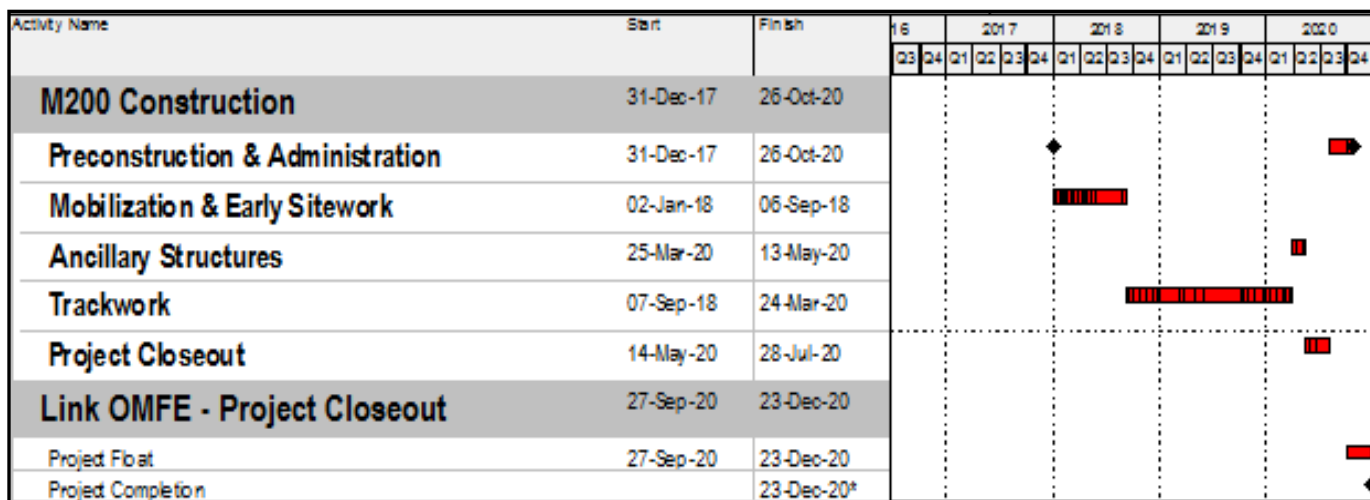
### Project Schedule

The project schedule is presented below and reflected in the baseline. The Contractor has mobilized to the jobsite and has submitted the Master Development Plan application to the City of Bellevue. Design work has begun. 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. Continued relocations of tenants and settling acquisitions. This period, three additional parcels were closed and one relocation identified. The right - of-way program status is summarized below:

Link OMF East Property Acquisition Status								
	Board Approved	Offers Made/In Negotiations	Signed Agreements	Possession and Use	Admin Settlement	Closings to date	Relocations Required	Parcels Vacated
<b>Total*</b>	11	9	0	2	0	4	32	6

\*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

- Web Team posted time lapse video of existing OMF yard on OMF East project website.
- Planning for OMF East groundbreaking with a November/December timeframe.
- Next stakeholder meeting will be on October 16.

### 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

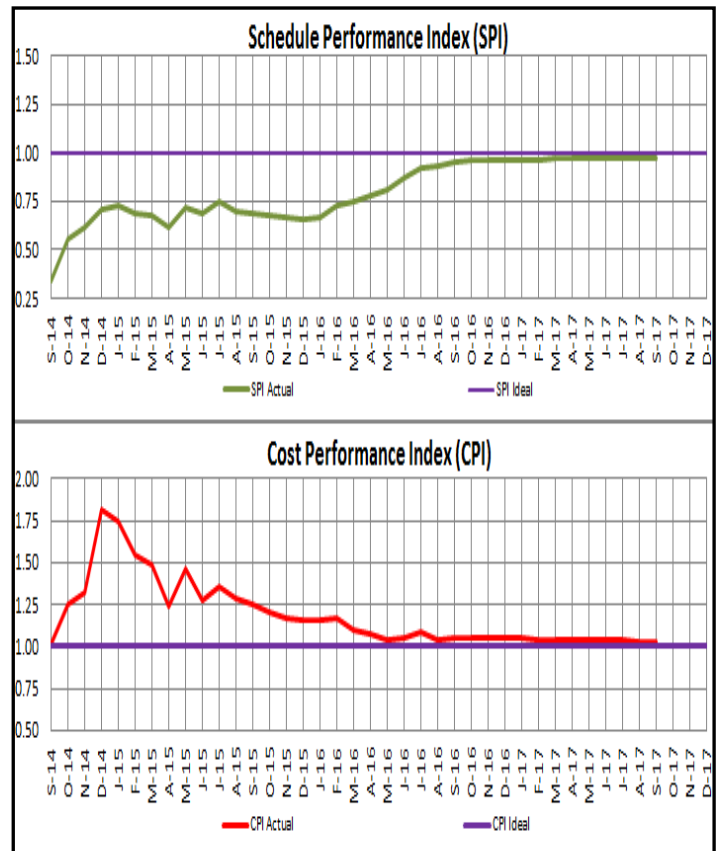
Sound Transit executed a professional services agreement with Huitt-Zollars, Inc. (HZ) for civil engineering and architectural design services and issued NTP for Phase 2, Preliminary Engineering and FEIS for the Link Operations and Maintenance Facility: East in September 2014.

### 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 September 2017, which means that cumulative work accomplished is slightly less than work planned.



### Phase 2 Cost Performance

\$5.0M of the total Phase 2 contract amount, approximately 94.2%, was spent through September 2017. The Phase 2 percent complete is 97%, with an earned value of \$5.2M. The cumulative Cost Performance Index (CPI) is 1.03, meaning that expenditures are slightly less than the earned value.

Phase 2 Performance	Cumulative To Date
Amount Invoiced	\$5.0M
% Spent	94.2%
Earned Value	\$5.2M
% Complete	97%
<b>SPI</b>	<b>0.97</b>
<b>CPI</b>	<b>1.03</b>



## Contract M200 - OMF East Design Build

### Scope

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

### Current Progress

Contractor continued working on the 30% design packages. Received feedback from King County on sewer betterment, working on the CNRFP this month. Set up meeting with King County to address the sewer line betterment issue. Contractor working on a cost loaded CPM schedule. Contractor is also working on the early permit packages to City of Bellevue and reviewing cost proposals for CN RFP 1,2,3,4; also, held over the shoulder structural meeting with City of Bellevue and attended shop area layout meetings at the Forest Street OMF site.

### Schedule Summary

The Contractor's preliminary baseline schedule is presented below. This schedule has not been formally accepted; however, it is unlikely that any major work elements will change prior to approval. The Contractor submitted their Master Development Permit application to the City of Bellevue in mid-August. They are working with the City to establish a clear timeline of all permit submittals and anticipated turnaround times. 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.

Activity Name	Start	Finish	16		2017				2018				2019				2020			
			Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>M200 Construction</b>	19-Jun-17	26-Oct-20																		
<b>Preconstruction &amp; Administration</b>	19-Jun-17	26-Oct-20																		
Milestones	19-Jun-17	26-Oct-20																		
Administration	19-Jun-17	31-Jan-20																		
Coordination of Work by Others	06-Nov-17	19-Mar-20																		
Design	19-Jun-17	10-Jun-19																		
Design Packages	19-Jun-17	26-Jun-18																		
Permit Packages	19-Jun-17	12-Jun-18																		
Design Administration	19-Jun-17	10-Jun-19																		
Submittals & Procurement	10-Nov-17	22-Oct-19																		
<b>Mobilization &amp; Early Sitework</b>	19-Jun-17	10-Dec-18																		
Mobilization	19-Jun-17	22-Jan-18																		
Pilot Infiltration Test Investigation	19-Jun-17	07-Jul-17																		
Demo & Abatement	01-Sep-17	24-Apr-18																		
Interim Trail Construction	17-Nov-17	29-Dec-17																		
Early Sitework	25-Apr-18	04-Oct-18																		
Site Utilities	24-Apr-18	10-Dec-18																		
South Stormwater Vaults (Near MOW)	28-Mar-18	28-Jun-18																		
North Stormwater Vault (Near OMF)	05-Jun-18	21-Aug-18																		
<b>Maintenance &amp; Shop Building</b>	26-Jul-18	09-Jun-20																		
<b>Maintenance of Way Building</b>	21-Feb-19	27-May-20																		
<b>Ancillary Structures</b>	05-Jun-19	13-May-20																		
Traction Power Substation	05-Jun-19	23-Mar-20																		
Signal Houses	12-Jun-19	13-May-20																		
Guard House at Primary Entrance	26-Jun-19	12-Sep-19																		
Emergency Generator	25-Jul-19	18-Dec-19																		
<b>Trackwork</b>	07-Sep-18	27-Mar-20																		
<b>Site Surfacing &amp; Finishes</b>	17-Oct-18	01-Jun-20																		
<b>Project Closeout</b>	09-Nov-18	20-Aug-20																		



### Next Period's Activities

- Continue development of 54-inch sewer line betterment scope.
- TESC and SWPPP is tentatively scheduled to be submitted early next week.
- Start infiltration pit work next period.
- HP to start BMPs for early work.
- Preparation for track rail demolition.
- Continue OMF and MOW equipment layout workshops.
- Over the shoulder reviews for MEP and exterior building scope of work
- Revise the MDP with comments from City of Bellevue.

### Closely Monitored Issues

- Submission of alternative options and ROM for KC 54" Sewer Line Betterment for review.
- Additional TCE requirement to tie the East Side interceptor structure R02-49.
- Approval of the Design Quality Plan (DQPP).

### 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)	\$7,125,860
% of Authorized Billed to Date	3.26%
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

- Preliminary Design Reviews for the major systems completed with exception of car body design.
- Continued Monthly Quality Assurance meeting.
- Completed Schedule A Milestone A—submittal of purchase orders placed for long lead items.

## Project Cost Summary

The LRV Fleet Expansion Project has an approved baseline budget of \$740.7M. The project cost is summarized below by two cost categorizations. In the first table, the cost is summarized in accordance with Sound Transit's Work Breakdown Structure (WBS) at the Phase Level. The second table summarizes the project in accordance with the FTA's Standard Cost Category (SCC) format. Both tables below are shown in millions.

In September, the project incurred to date is increased from \$69.7M to \$73.9M, an increase of \$4.2M mostly attributed to a milestone payment pertaining to the partial completion of Preliminary Design Review (PDR). The manufacturer has completed all but the PDR for the car body.

### 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	\$2.4	\$18.0	\$0.0
Vehicles	\$716.3	\$716.3	\$648.2	\$70.9	\$716.3	\$0.0
<b>Total</b>	<b>\$740.7</b>	<b>\$740.7</b>	<b>\$653.6</b>	<b>\$73.9</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	\$73.3	\$702.8	\$0.0
80 Professional Services	\$6.1	\$6.1	\$0.6	\$0.7	\$6.1	\$0.0
90 Contingency	\$31.7	\$31.7	\$0.0	\$0.0	\$31.7	\$0.0
<b>Capital Total (SCC 10-90)</b>	<b>\$740.7</b>	<b>\$740.7</b>	<b>\$653.6</b>	<b>\$73.9</b>	<b>\$740.7</b>	<b>\$0.0</b>

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

## Cost Contingency Management

The project's baseline budget approved by the ST Board in September 2015 contained a total of \$78.0M of Total Contingency. The project's Total Contingency is currently at \$70.1M or about 12% of remaining work in the project.

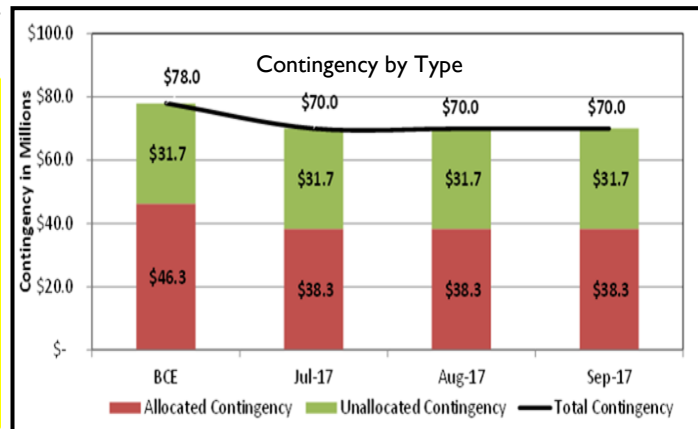
*Design Allowance* – This project contains \$0 design allowance.

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

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

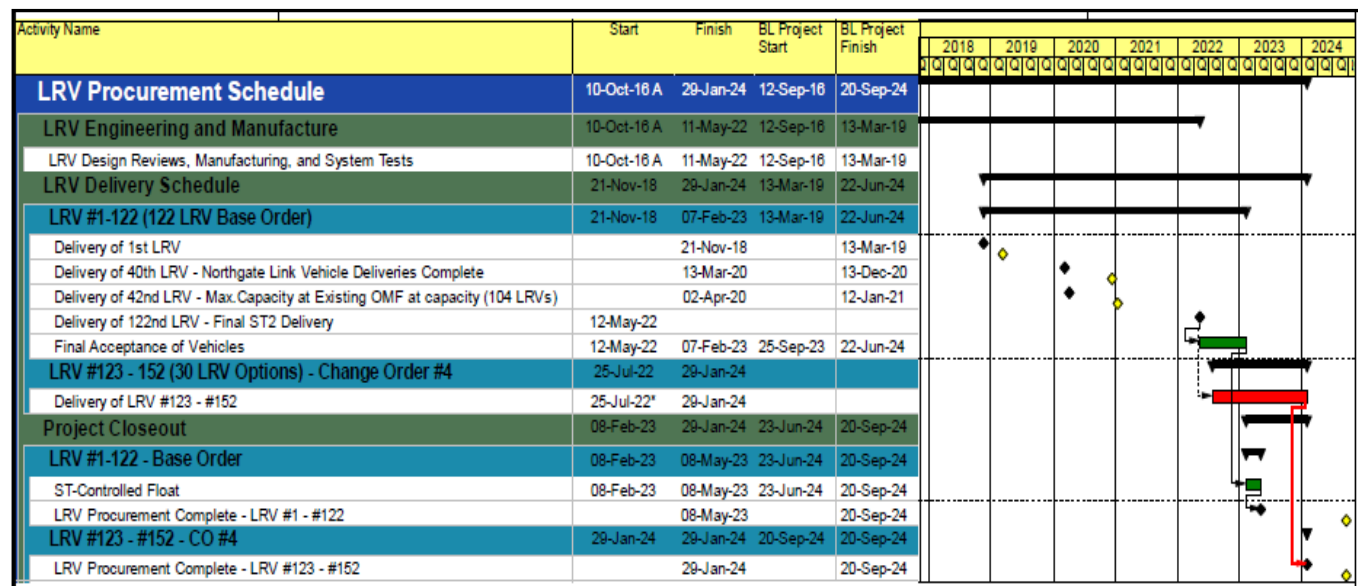
Contingency Status	Baseline		Current	
	Amount	% of Total	Amount	% of Work Remaining
Design Allowance	\$ -	0.0%	\$ -	0.0%
Allocated Contingency	\$ 46.3	6.4%	\$ 38.3	6.6%
Unallocated Contingency	\$ 31.7	4.3%	\$ 31.7	0.0%
<b>Total</b>	<b>\$ 78.0</b>	<b>10.7%</b>	<b>\$ 70.1</b>	<b>12.0%</b>

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



## Project Schedule

The LRV Fleet Expansion project schedule is shown below. Siemens is currently completing action items from Preliminary Design Review and working on Final Design Review. Carshell design is completed and the systems engineering group has named all major systems vendors.



# Link Light Rail Staffing Report



## Project Staffing – Link Light Rail Program – August 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
Civil Engineering Supervisor	Sounder and Operations	2017 Attrition*
Project Coordinator	Permits Administration	2017 Attrition*
Construction Manager	Systems	February 2017
Project Control Supervisor	Federal Way to Tacoma Link Ext.	July 2017

*\*Attrition resulting from internal promotion.*

Position	Project Assignment	Planned Hire Date
Sr. Project Manager	Sounder Capital Program	2016 Attrition*
Civil Engineer	Non-Corridor Operations	2016 Attrition*
Deputy Director	Construction Management	2016 Attrition*
Construction Contracts Claims Sp.	Construction Management	2016 Attrition*
Sr. Systems Engineer	Test Manager	2016 Attrition
Sr. Project Manager	OMF: East	2016 Reclass
Executive Project Director	Executive Director's Office	2016 Reclass
Config. and Change Mgt. Spec.	Project Controls	2017 Attrition*
Deputy Director	Civil and Structural Engineering	2017 Attrition *
Deputy Construction Manager	South Corridor	2017 Attrition*
Sr. Civil Engineer	Non-Corridor Projects – Operations	2017 Attrition*
Sr. Project Control Specialist	OMF East	2017 Attrition*
Deputy Construction Manager	Rail Installation	2017 Attrition
Document Control Coordinator	System Expansion	2017 Attrition
Civil Engineer	Utilities	2017 Attrition
Design Technology Specialist	System Expansion Program	2017 Attrition
Construction Manager	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
Systems Engineer	SCADA	2017 Attrition
Supervisor Community Outreach	South Corridor	2017 Attrition
Sr. Systems Engineer	Operations Technology	January 2017
Sr. Systems Engineer	Operations Technology	January 2017
Sr. Civil Engineer	Northgate Link Extension	February 2017
Project Manager	Public Art (STart)	February 2017
Engineering Stds. Program Mgr.	Civil and Structural Engineering	April 2017
Chief Systems Engineer	Traction Power	April 2017
Sr. Scheduling Engineer	Right-of-Way	April 2017
Chief Systems Engineer	Signals	April 2017
Chief Systems Engineer	Communications	May 2017
Assistant Permit Administrator	Permits Administration	June 2017
Sr. Project Control Specialist	Federal Way Link Extension	June 2017
Sr. Systems Engineer	LRV Procurement and Testing	July 2017
Project Director	West Seattle to Ballard Link Ext.	July 2017
Project Director	Downtown Redmond	July 2017
Project Director	Fed. Way to Tacoma Link Ext.	July 2017
Project Director	Bus Rapid Transit	July 2017
Construction Manager	Systems	August 2017
Project Control Specialist	North Corridor	August 2017

There were 589.4 (94% 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 August. Staffing was within 10% of plan for the Northgate and Federal Way Link Extensions. Staffing for the Tacoma and East Link Extensions was 142% and 132% respectively; staffing for the Link Operations & Maintenance Facility: East, and the Lynnwood Link Extension was 64%, and 54% of plan respectively.

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

	August 2017 Staff 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	52.0	10.0	124%	37.9	22.7	-15.2	60%	79.9	59.6	-20.3	75%
Northgate Link Extension	71.1	80.7	9.6	113%	44.2	42.3	-1.9	96%	115.3	123.0	7.7	107%
OMF East	6.6	6.7	0.1	101%	16.7	8.3	-8.4	49%	23.3	9.0	-14.3	39%
East Link Extension	66.8	129.0	62.3	193%	72.1	67.6	-4.4	94%	138.8	146.6	7.8	106%
Lynnwood Link Extension	178.0	80.1	-97.9	45%	51.9	44.6	-7.4	86%	229.9	204.9	-25.0	89%
Tacoma Link Extension	24.0	38.6	14.6	161%	18.1	17.0	-1.1	94%	42.1	48.0	6.0	114%
<b>Total</b>	<b>388.5</b>	<b>387.1</b>	<b>-1.4</b>	<b>100%</b>	<b>240.9</b>	<b>202.4</b>	<b>-38.5</b>	<b>84%</b>	<b>629.3</b>	<b>590.4</b>	<b>-38.1</b>	<b>94%</b>

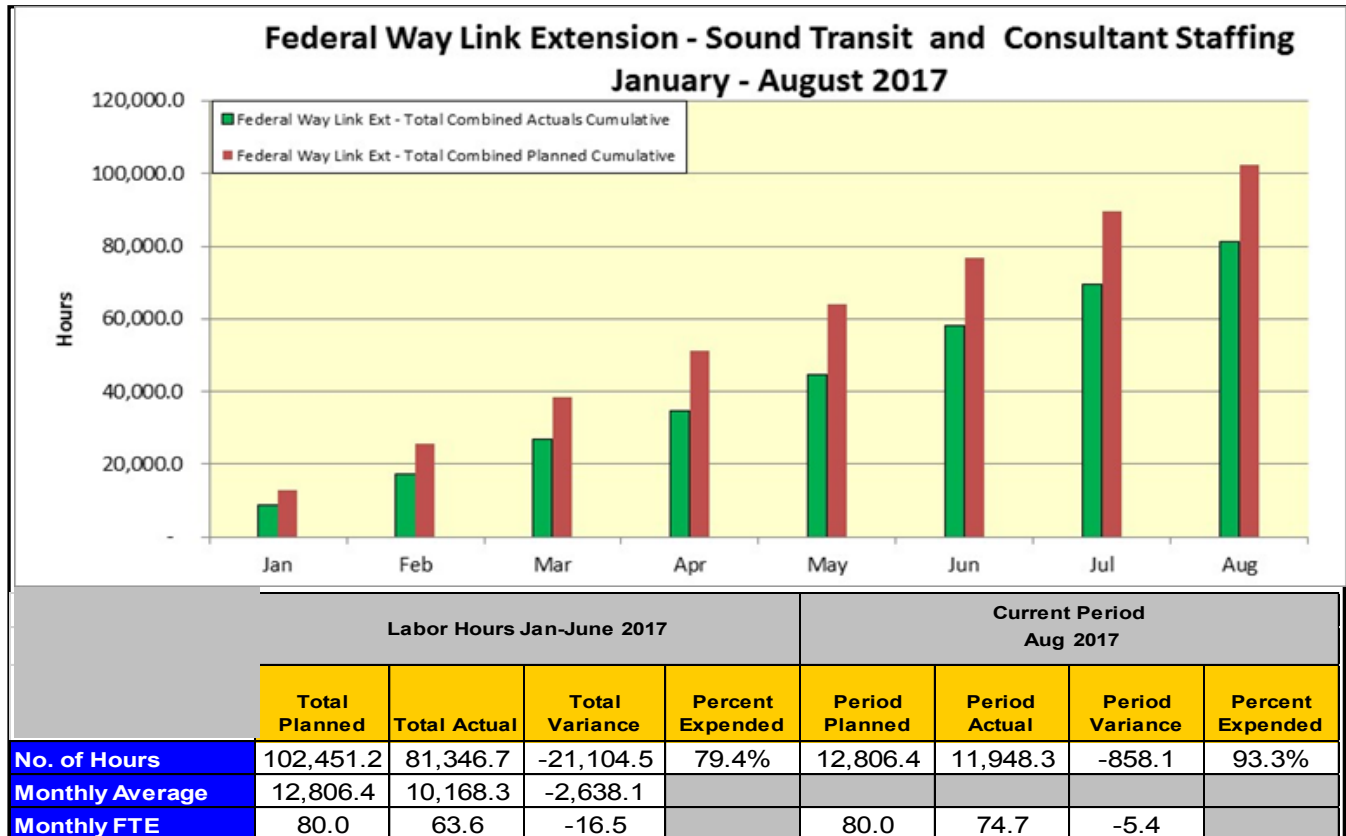
# Link Light Rail Staffing Report



## Federal Way Link Extension Staffing

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

There were 74.7 (93% of plan) consultant and internal staff on the Federal Way Link Extension in August including 52 consultant FTE (124% of plan) and 22.7 internal FTE (60% of plan). Cumulatively from January 2017 average staffing is trending 25% (20.3 FTE/mo.) below plan. All consultant staff is supporting preparation of bridging documents for the Design-Build (D-B) contract.



## Operations & Maintenance Facility: East Staffing

### Total Internal and External Staffing – OMF East

There were 7.5 internal and 5.7 consultant FTE participating in the Operations & Maintenance Facility: East project in July. This is 56% (4.7 FTE) above June staffing and 57% of plan. Average year-to-date staffing (7.2 FTE/mo.) is 65% (15.1 FTE/mo.) below plan. Consultant staffing in July was for the design-build project management services.

	Labor Hours to Date				Current Period Jul 2017			
	Total Planned	Total Actual	Total Variance	Percent Expended	Period Planned	Period Actual	Period Variance	Percent Expended
<b>No. of Hours</b>	26,084.8	9,121.9	-16,962.9	35.0%	3,726.4	2,113.0	-1,613.4	56.7%
<b>Monthly Average</b>	3,726.4	1,303.1	-2,423.3					
<b>Monthly FTE</b>	23.3	8.1	-15.1		23.3	13.2	-10.1	



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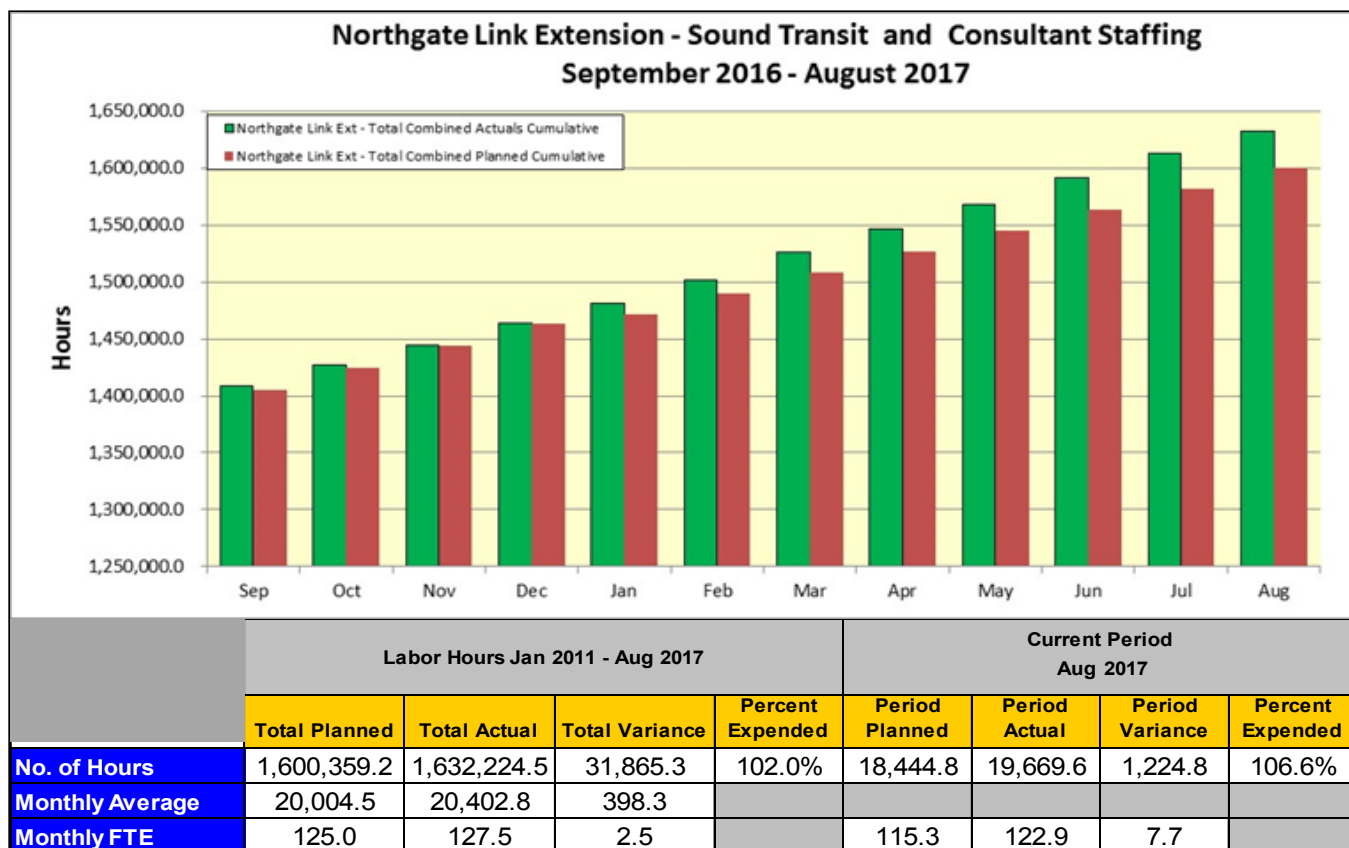
# Link Light Rail Staffing Report



## Northgate Link Extension Staffing

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

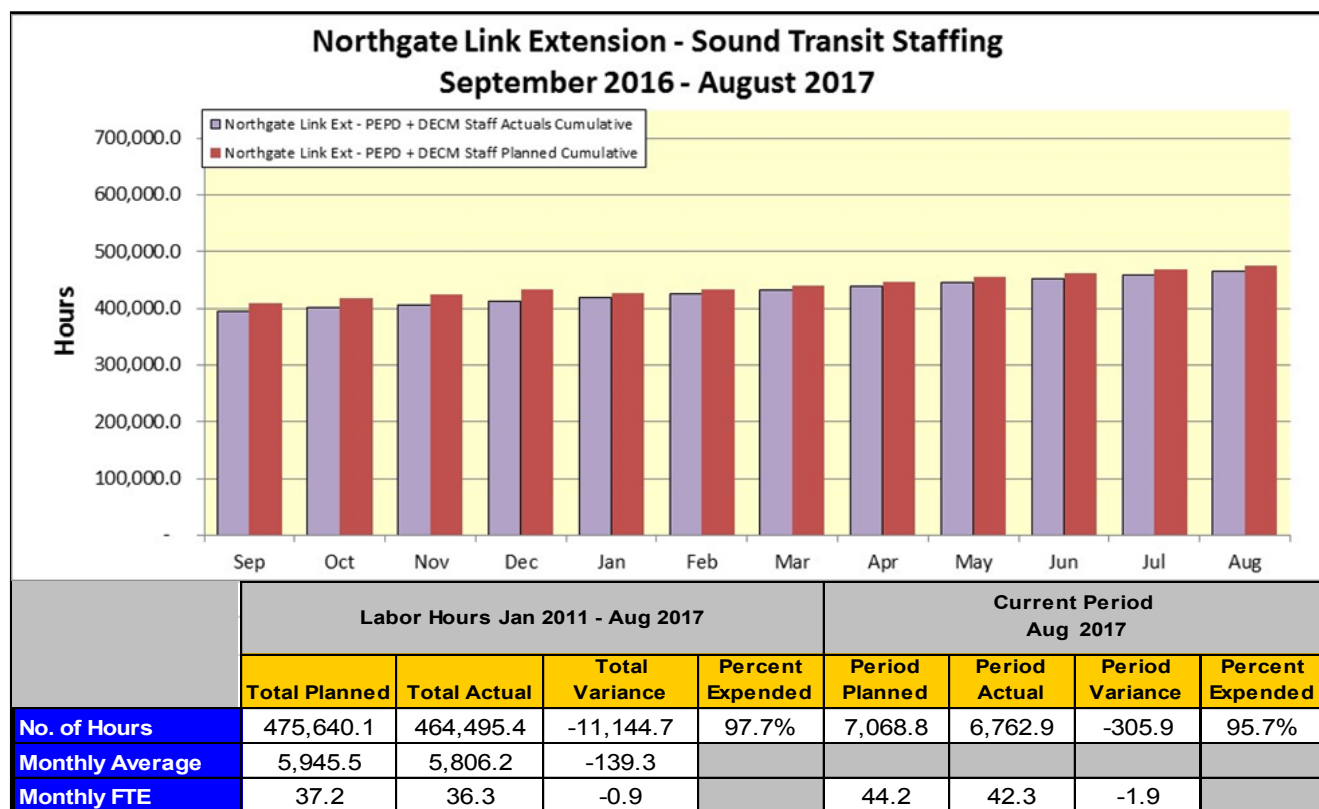
During August, 122.9 internal and consultant FTE were assigned to the Northgate Link Extension. This is 8% (11.2 FTE) below July staffing and is 7% (7.7 FTE) above plan. Average year-to-date staffing (123 FTE/mo.) is 7% (7 FTE/mo.) above plan; cumulatively since January 2011 average monthly staffing is trending with plan.



## Northgate Link Extension Staffing

### Internal Resource Commitments to Northgate Link Extension

Internal staffing in August (42.3 FTE) increased 12% (4.9 FTE) from July and was 4% (1.9 FTE) below plan. Cumulatively, since January 2011, average monthly internal staffing (36 FTE/mo.) is 2.3% (0.9 FTE/mo.) below plan.



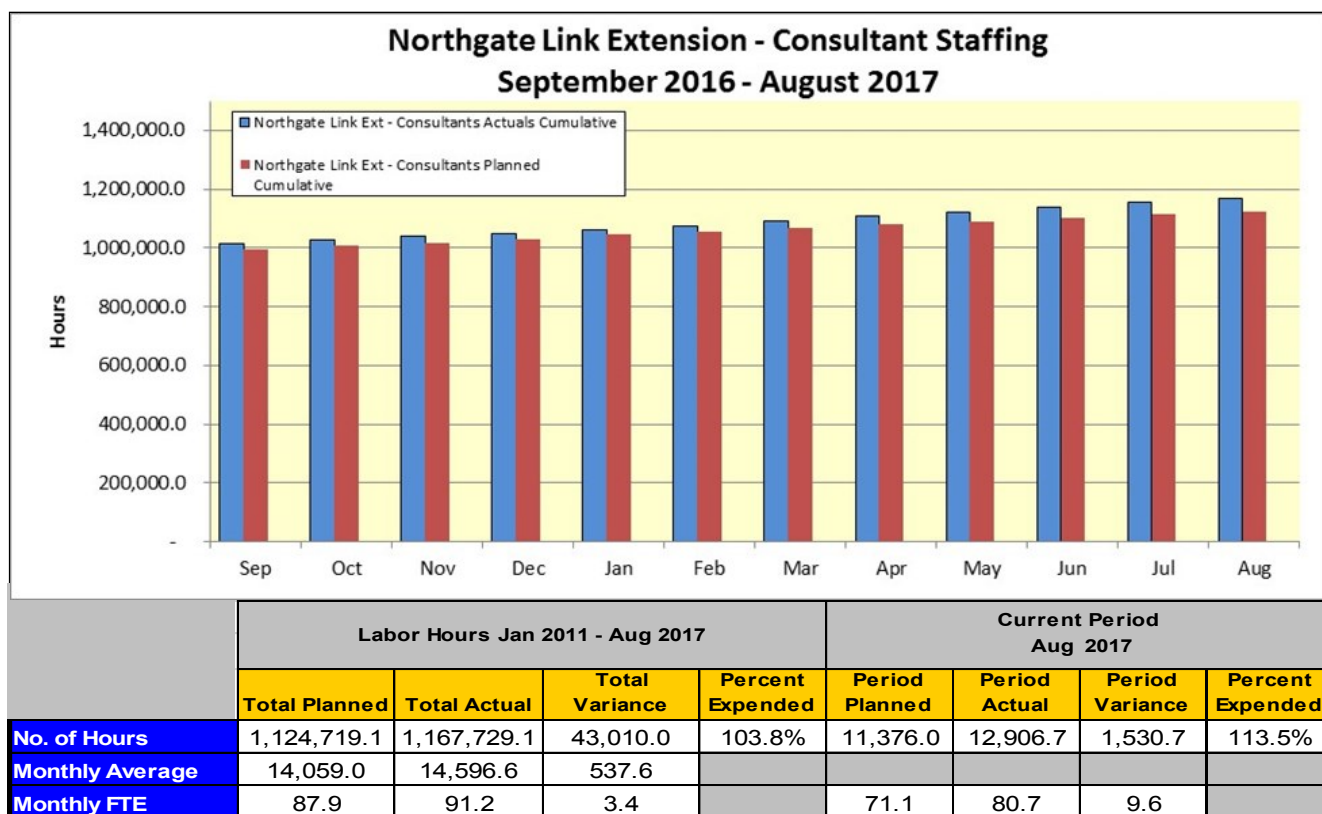
# Link Light Rail Staffing Report



## Northgate Link Extension Staffing

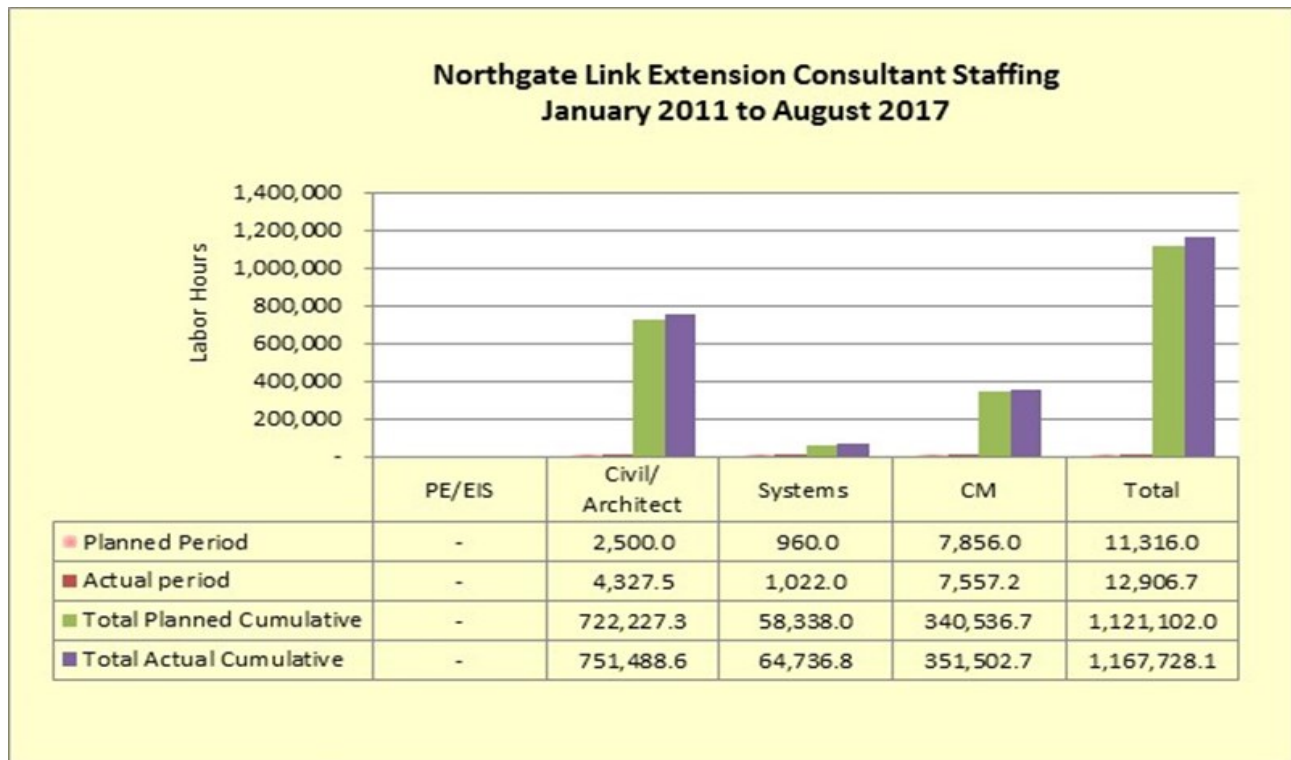
### Consultant Resource Commitments to Northgate Link Extension

In August 80.7 consultant FTE were assigned to the Northgate Link Extension; consultant staffing was 17% (16.1 FTE) below July staffing and was 13% (9.6 FTE) above plan. Cumulatively, since January 2011, average monthly consultant utilization (91.7 FTE/mo.) is trending 3.8% (3.4 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 August (27 FTE) was 4% (1.2 FTE) below July staffing and was 69% (11 FTE) above plan. Cumulatively since January 2011, average civil engineering/architecture consultant staffing of 58.7 FTE/mo. is trending 4% above plan.
- Systems consultant utilization in August (6.4 FTE) was 34% (1.6 FTE) above July staffing and was 6% (0.4 FTE) above plan. Since January 2011, average monthly Systems consultant staffing (5.1 FTE/mo.) is trending 5% above plan.
- CM consultant staffing in August (47.2 FTE) was 26% (16.5 FTE) below July staffing and was 4% (1.9 FTE) below plan. Cumulatively, since January 2011, average monthly CM consultant staffing (27.5 FTE/mo.) is 3% (0.9 FTE/mo) above plan.

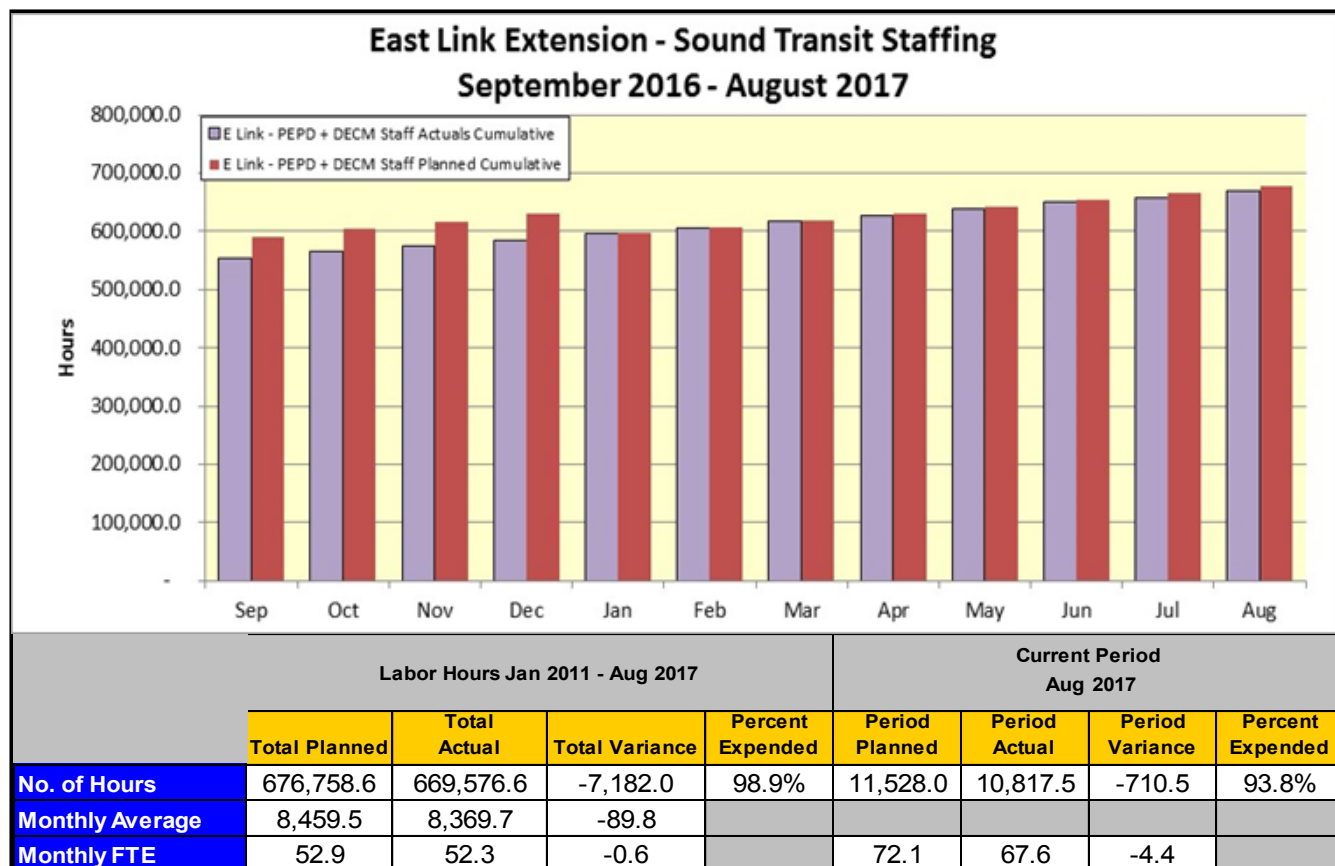
# Link Light Rail Staffing Report



## East Link Extension Staffing

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

During August internal staffing for the East Link Extension (67.6 FTE) was 17% (11.5 FTE) above July staffing and was 6% (4.4 FTE) below plan. Cumulatively, since January 2011, average monthly internal staffing (52.3 FTE/mo.) is trending with plan.

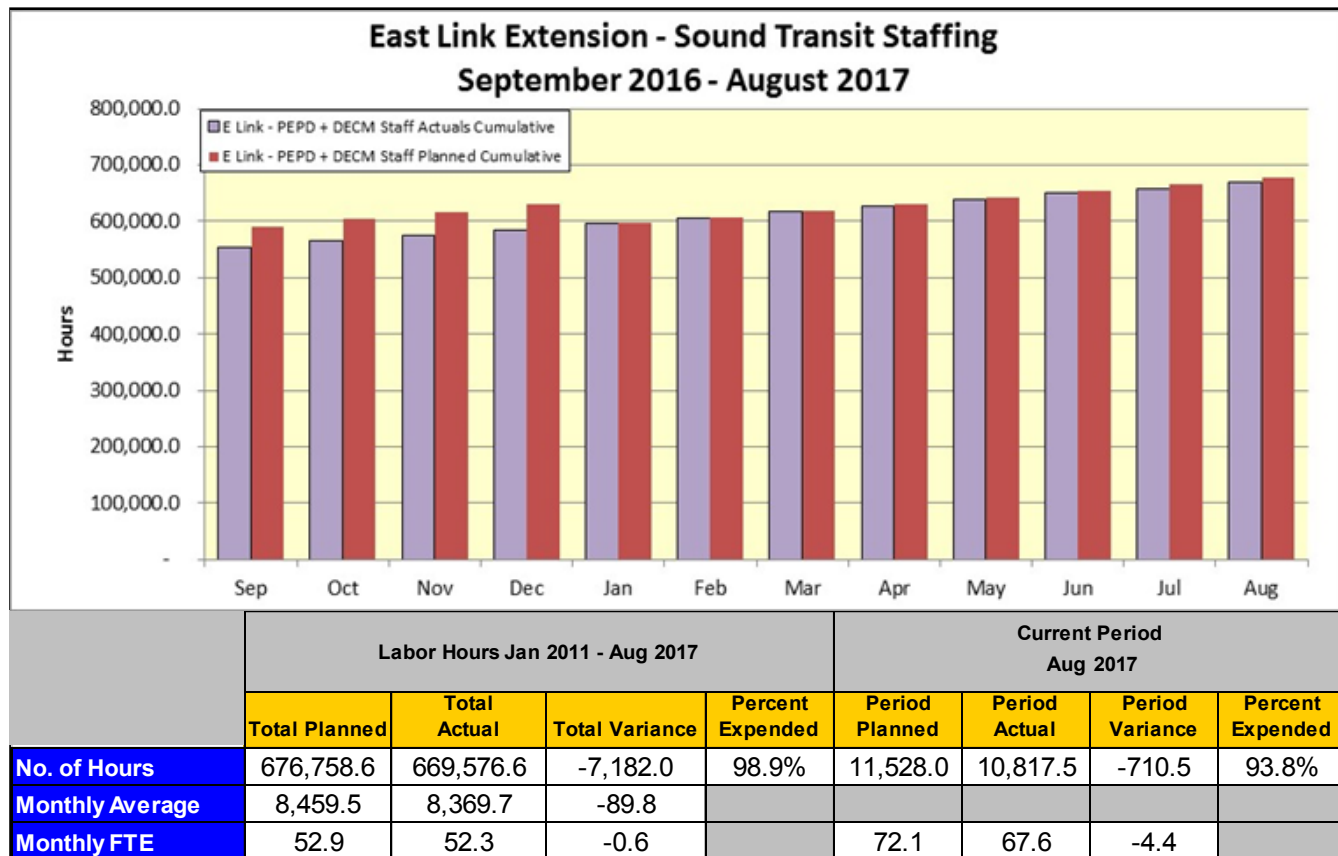




## East Link Extension Staffing

### Internal Resource Commitments to East Link Extension

During August, internal staffing for the East Link Extension (67.6 FTE) was 17% (11.5 FTE) above July staffing and was 6% (4.4 FTE) below plan. Cumulatively, since January 2011, average monthly internal staffing (52.3 FTE/mo.) is trending with plan.



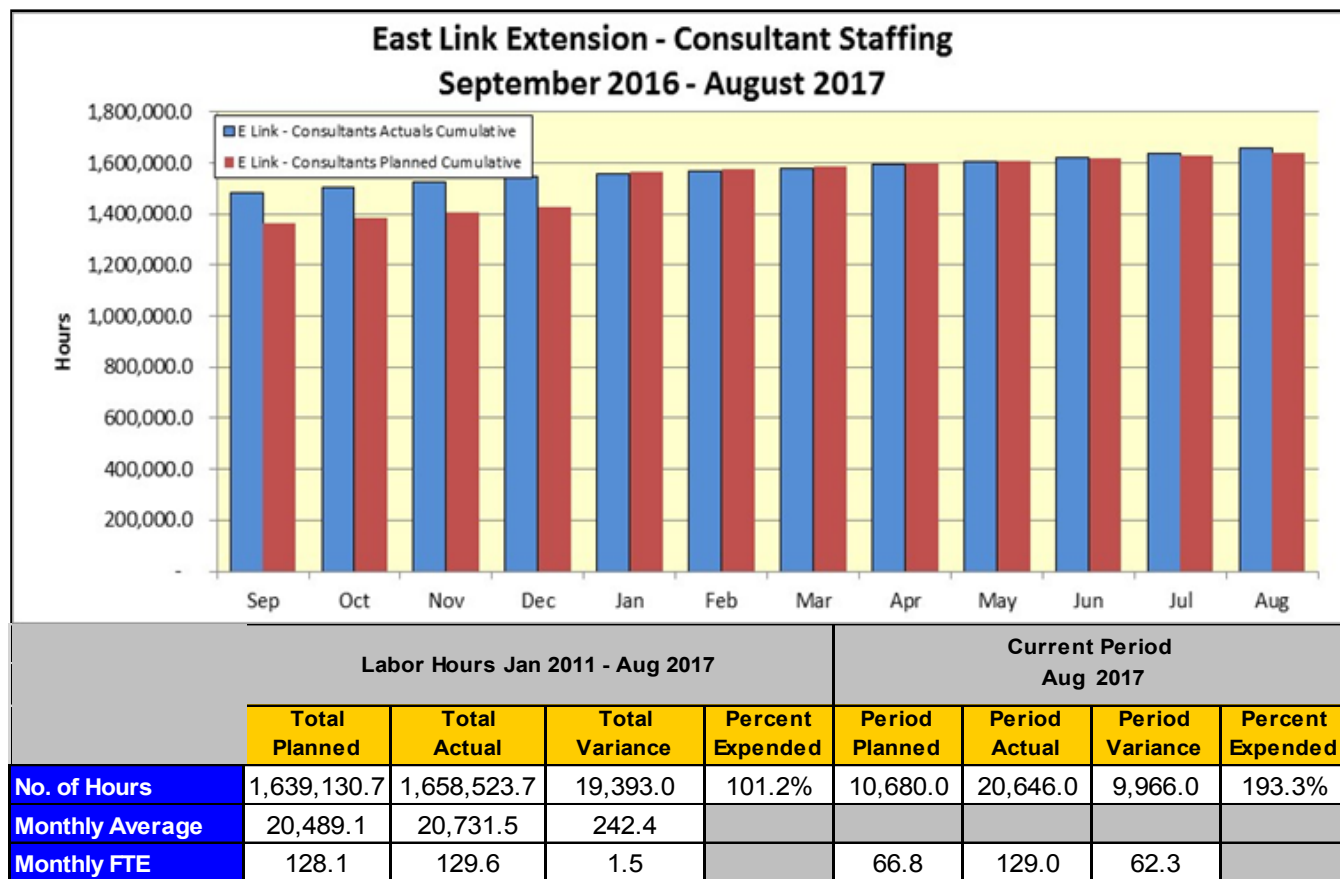
# Link Light Rail Staffing Report



## East Link Extension Staffing

### Consultant Resource Commitments to East Link Extension

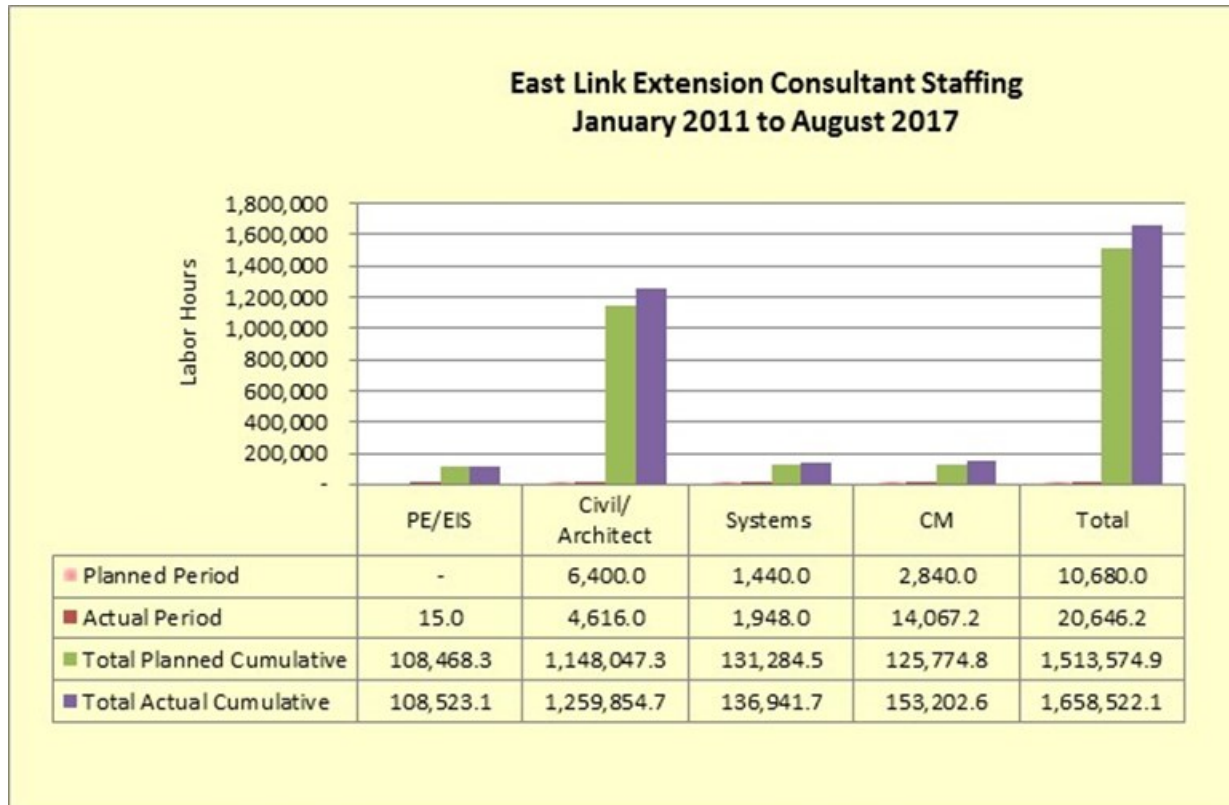
There were 129 consultant FTE assigned to the East Link Extension during August. Consultant staffing was 35% (33.5 FTE) above July and 93% (62.3 FTE) above plan. Cumulatively since January 2011, average monthly consultant staffing (129.6 FTE/mo.) is trending with plan.



## East Link Staffing

### Consultant Resource Commitments to East Link, continued

In August construction management consultant staffing (87.9 FTE) was 68% of consultant staffing; civil engineering consultant staffing (28.9 FTE) comprised 23% of consultant staffing. There were 12.2 FTE and 0.1 consultant FTE s supporting systems design and preliminary engineering, respectively.



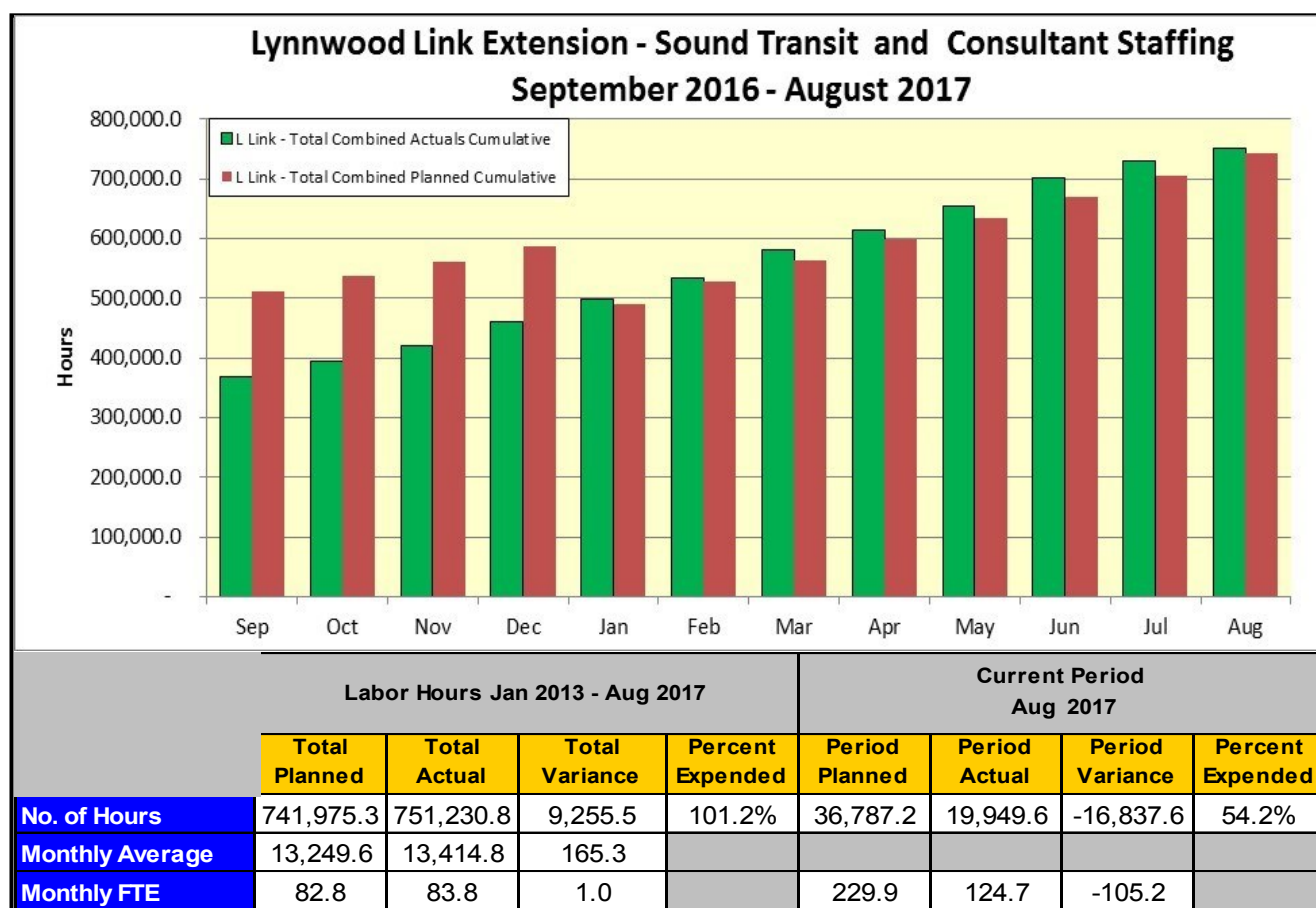
# Link Light Rail Staffing Report



## Lynnwood Link Extension Staffing

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

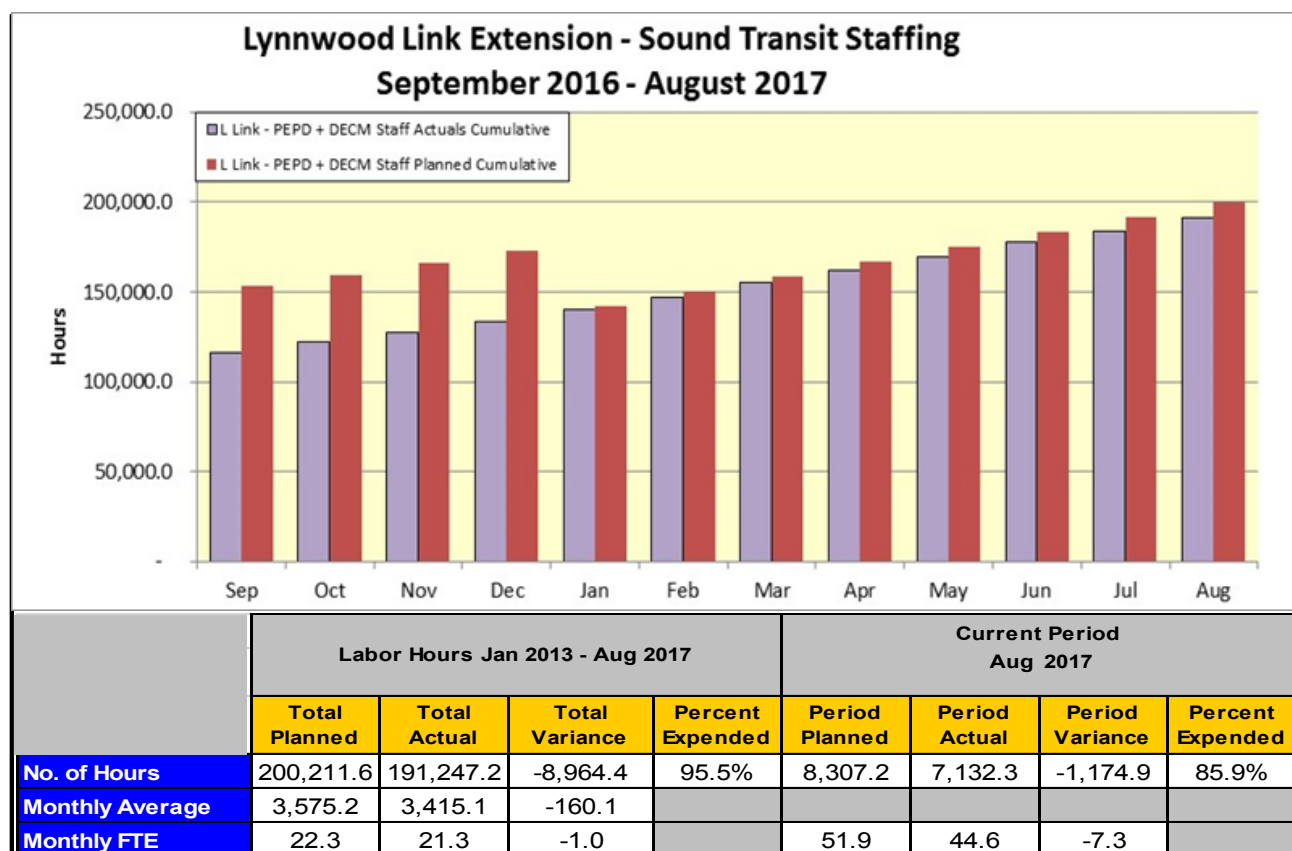
During August, Lynnwood Link Extension staffing was 124.7 FTE (56% or 105.2 FTE below plan) and included 80.1 consultant FTE (55% below plan) and 44.6 internal FTE (86% of plan). Average year-to-date staffing of 204.9 FTE/mo is trending 11% (25 FTE/mo.) below plan; cumulatively since January 2013 staffing is averaging 83.8 FTE/mo. and is trending with plan.



## Lynnwood Link Extension Staffing

### Internal Staffing—Lynnwood Link

During August internal staffing for the Lynnwood Link Extension (44.6 FTE) was 8% (3.6 FTE) below above July staffing and 14% (7.4 FTE) below plan. Cumulatively, since January 2013, average monthly internal staffing (21.3 FTE/mo.) is trending within 5% of plan.



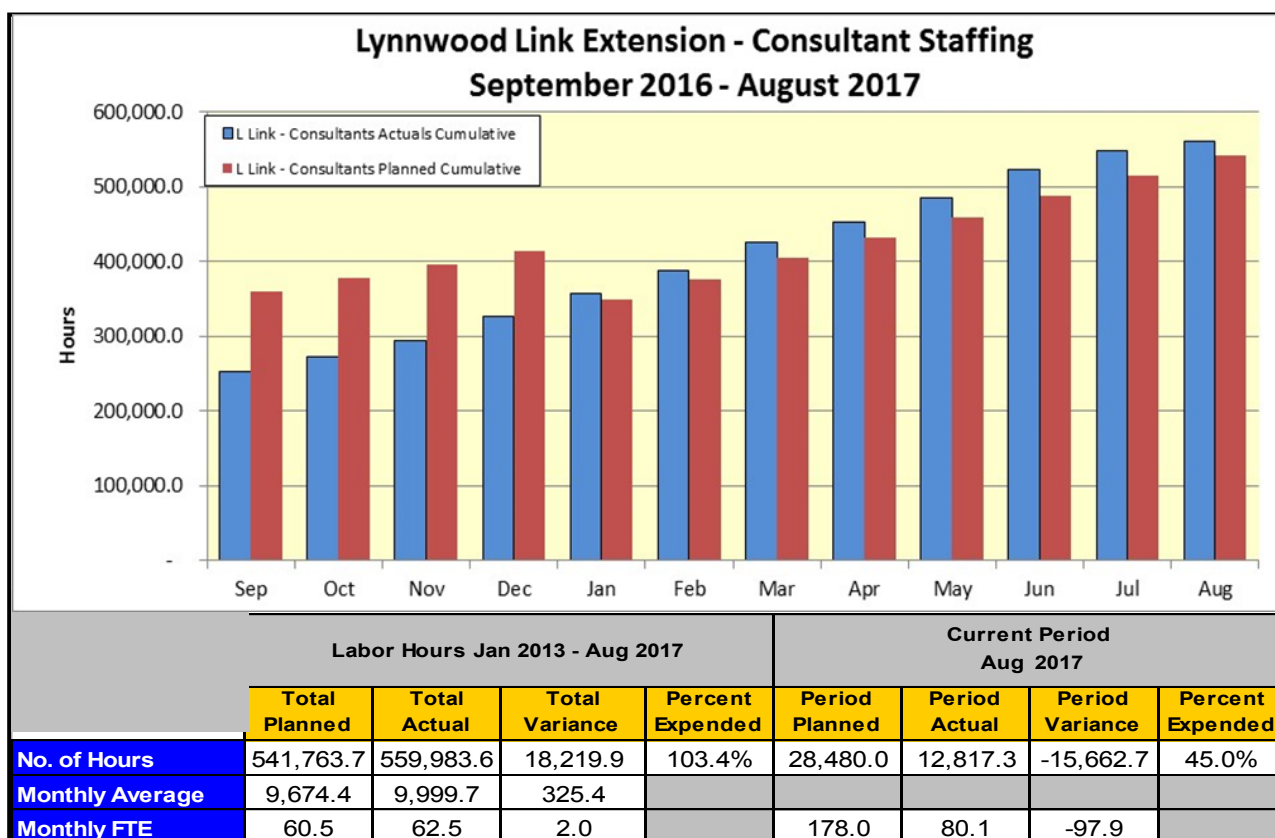
# Link Light Rail Staffing Report



## Lynnwood Link Expansion

### Consultant Staffing—Lynnwood Link

There were 80.1 consultant FTE assigned to the Lynnwood Link Extension during August. Consultant staffing decreased 47% (70.1 FTE) from July and was 55% (97.9 FTE) below plan. Cumulatively since January 2013, average monthly consultant staffing (62.5 FTE/mo.) is trending with above plan.

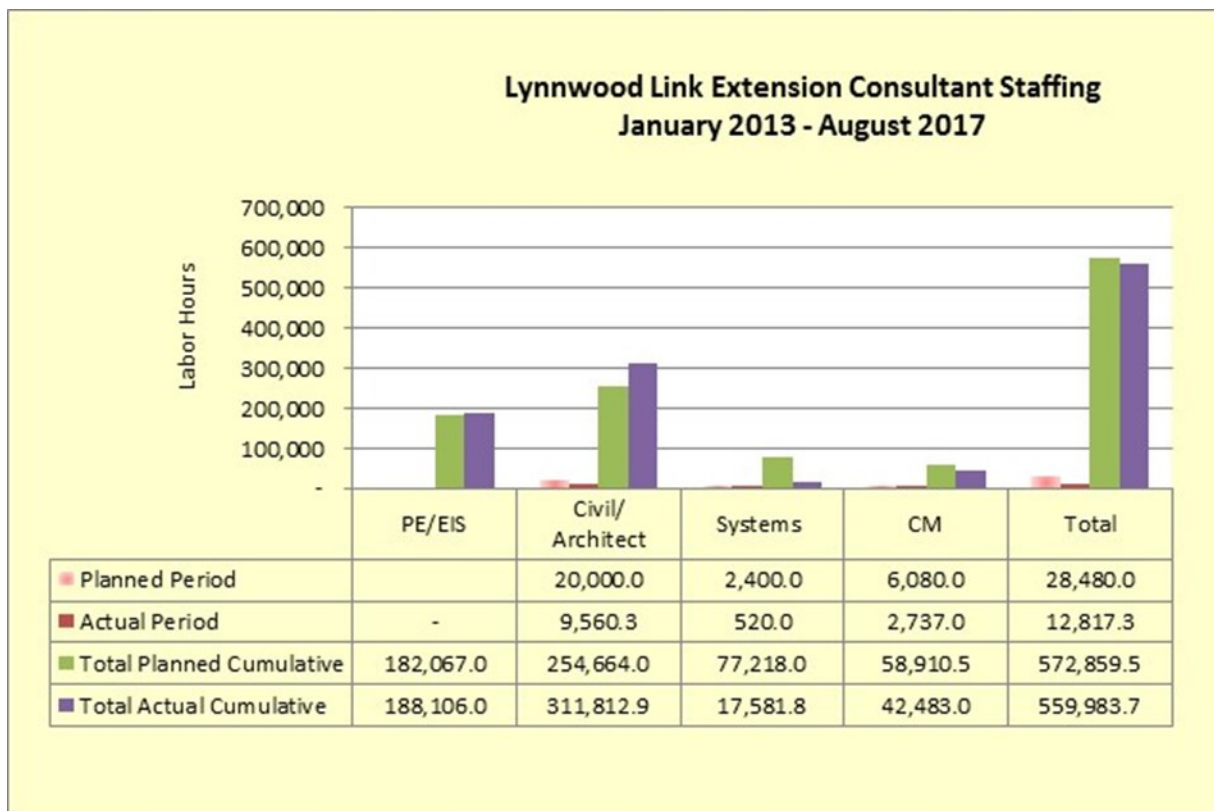




## Lynnwood Link Extension Staffing

### Consultant Resource Commitments to Lynnwood Link

Seventy-five percent of the Lynnwood Link consultant staffing (59.8 FTE) were supporting civil final design. Additional consultant staffing (17.1 FTE or 21% of consultant staffing) provided construction management and systems design (3.3 FTE or 4% of consultant staffing) support.



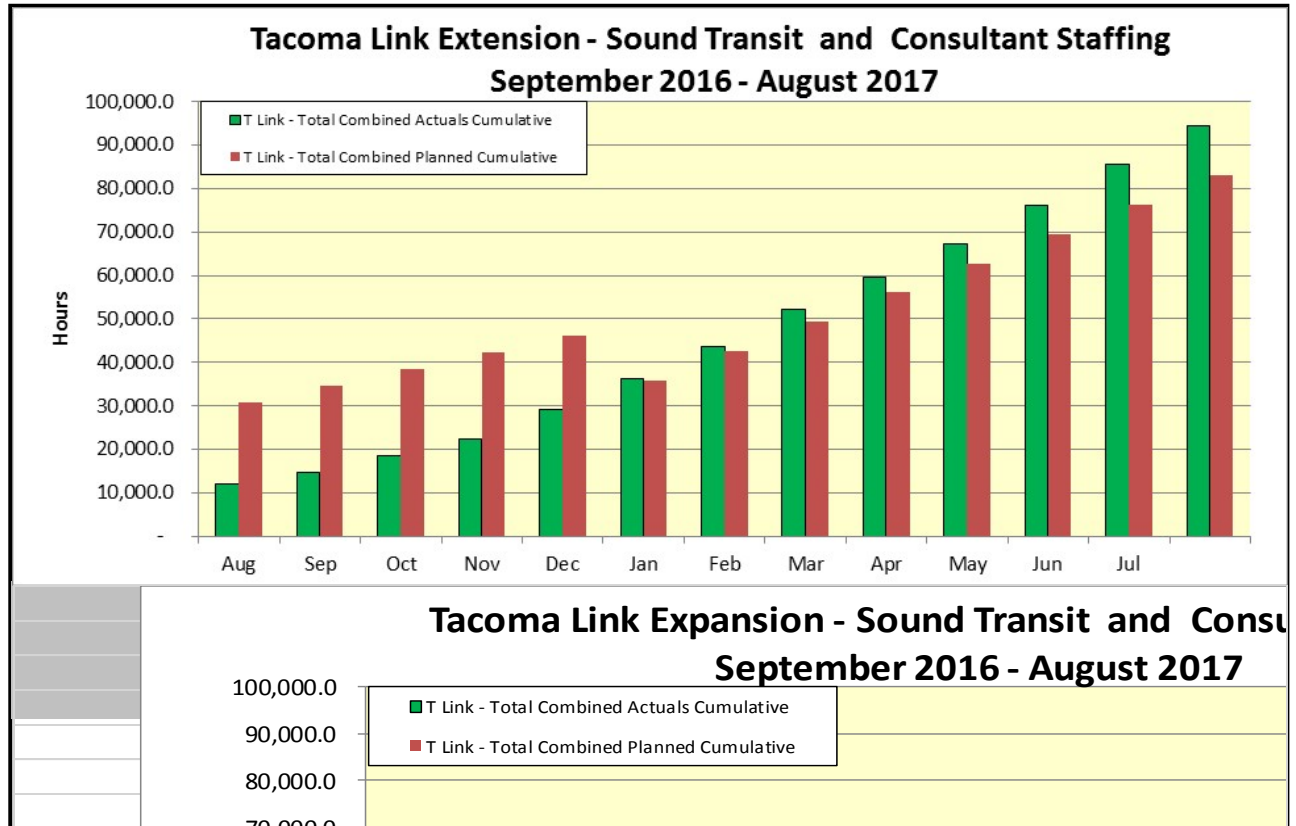
# Link Light Rail Staffing Report



## Tacoma Link Expansion

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

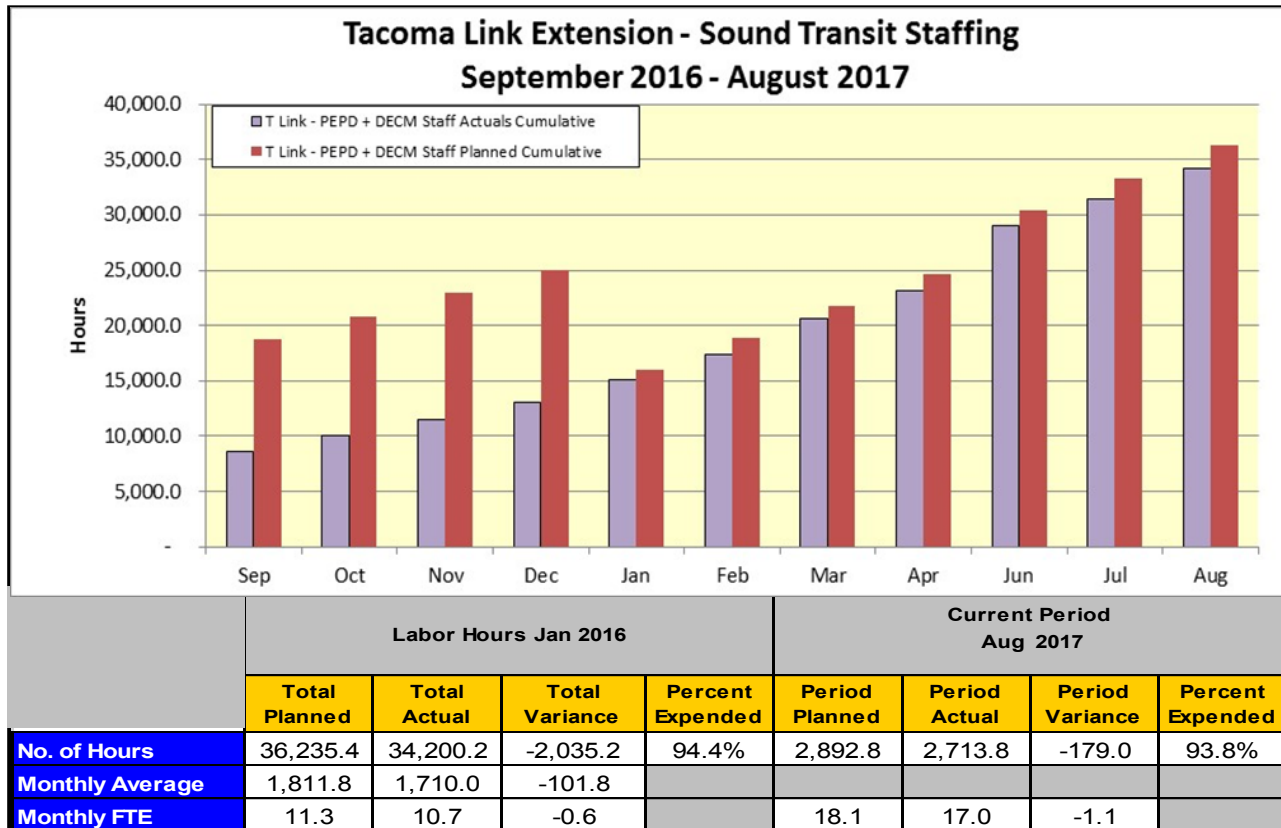
During August there were 55.6 FTE (132% of plan) assigned to the Tacoma Link Expansion including 38.6 consultant FTE (61% above plan) and 17 internal FTE (6% below plan). Average year-to-date staffing (48 FTE/mo.) is 14% (6 FTE/mo.) above plan; cumulatively since January 2016 staffing is trending 14% (3.6 FTE/mo.) above plan.



## Tacoma Link Expansion

### Internal – Tacoma Link Expansion

During August internal staffing for the Tacoma Link Extension (17 FTE) was 8% (1.3 FTE) above July staffing and was 6% (1.1 FTE) below plan. Cumulatively, since January 2016, average monthly internal staffing (10.7 FTE/mo.) is trending 5.6% (0.6 FTE/mo.) below plan.



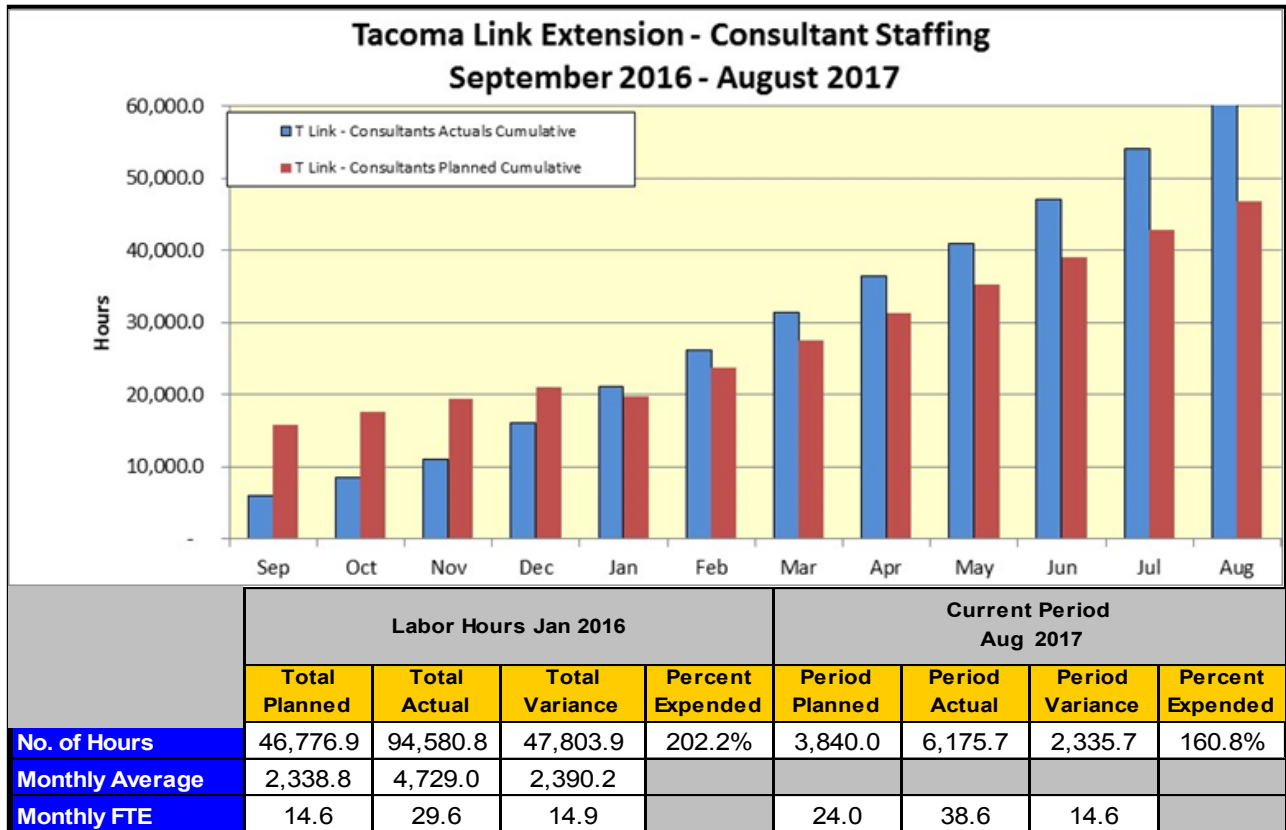
# Link Light Rail Staffing Report



## Tacoma Link Expansion

### Consultant Resource Commitments – Tacoma Link Expansion

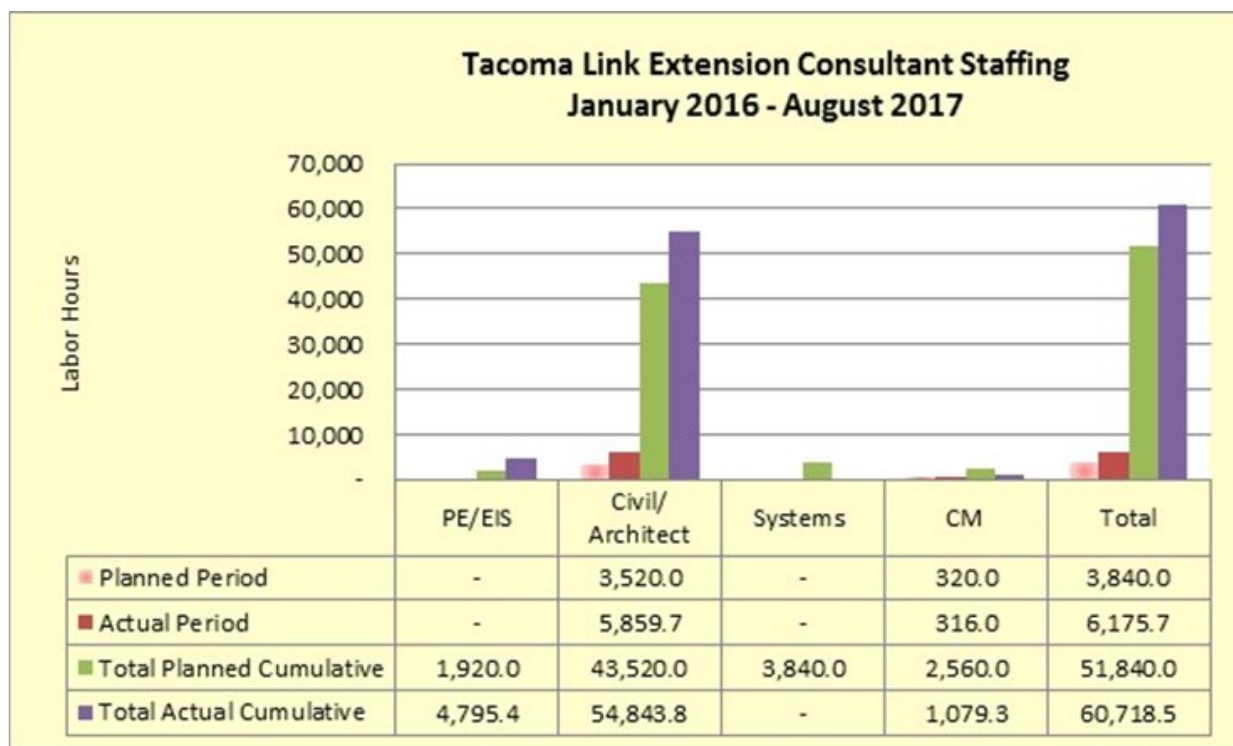
There were 38.6 consultant FTE assigned to the Tacoma Link Extension during August. Consultant staffing was 61% (14.6 FTE) above plan and was 12% (5.5 FTE) below July staffing. Cumulatively since January 2016, average monthly consultant staffing (29.6 FTE/mo.) is trending 102% (14.9 FTE/mo.) above plan.



## Tacoma Link Expansion

### Consultant Resource Commitments to Tacoma Link Expansion

Ninety-five percent of consultant staff assigned to the project (36.6 FTE) were supporting final design; there was 2 FTE providing construction management support.



# Link Light Rail

## Acronyms

### ACRONYMS

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



## ACRONYMS, continued

LRRP	Light Rail Review Panel
LRT	Light Rail Transit
LRV	Light Rail Vehicle
LTK	LTK Engineering Services
MACC	Maximum Allowable Construction Cost
MDA	Major Discharge Authorization
MLK	Martin Luther King, Jr. Way
MOA	Memorandum of Agreement
MOS	Minimum Operable Segment
MOU	Memorandum of Understanding
MPPCV	Major Public Project Construction Variance
MRB	Material Review Board
MTP	Montlake Triangle Project
MUP	Master Use Permit
NB	Northbound
NCR	Notification of Change Report
NCTP	North Corridor Transit Partners
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NTP	Notice to Proceed
OCS	Overhead Catenary System
OMF	Operations and Maintenance Facility
OMSF	Operations and Maintenance Satellite Facility
PE	Preliminary Engineering
PEP	Project Execution Plan
PEPD	Planning, Environment and Project Development
PMOC	Project Management Oversight Consultant
PSST	Pine Street Stub Tunnel
QA	Quality Assurance
QC	Quality Control
QTR	Quarter
RE	Resident Engineer
RFC	Request for Change
RFD	Request for Deviation
RFI	Request for Information
RFP	Request for Proposal
RFQ	Request for Qualifications
RIR	Recordable Injury Rates

## ACRONYMS, continued

RMP	Risk Management Plan
ROD	Record of Decision
ROW	Right of Way
SB	Southbound
SCADA	Supervisory Central and Data Acquisition
SCC	Standard Cost Categories
SCL	Seattle City Light
SDEIS	Supplemental Draft Environmental Impact Statement
SEPA	State Environmental Policy Act
SIP	Street Improvement Permitting
SPI	Schedule Performance Index
SR	State Route
ST	Sound Transit
START	Seattle Tunnel and Rail Team
SWI	Stacy & Witbeck, Inc.
TBM	Tunnel Boring Machine
TCE	Temporary Construction Easement
TE	Traction Electrification
TFK	Traylor Frontier Kemper Joint Venture
TOD	Transit Oriented Development
TVM	Ticket Vending Machine
UAC	Unallocated Contingency
U-Link	University Link project
UDS	University District Station
USFWS	U.S. Fish and Wildlife Service
UW	University Of Washington
UST	Underground Storage Tank
UWS	University of Washington Station
VE	Value Engineering
VECP	Value Engineering Cost Proposal
WBS	Work Breakdown Structure
WSDOT	Washington Department of Transportation