

# Progress Report

## Link Light Rail Program

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Sound Transit staff presenting final design for the Judkins Park Station at an East Link Extension Open House.

October | 2016







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## LINK LIGHT RAIL CURRENT SERVICE AND APPROVED EXTENSIONS



## 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 \$487.9M.

**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 \$383M in 2011. Revenue Service began on September 24, 2016.

**Federal Way Link Extension:** Sound Transit has identified the route and station location requirements for the extension of light rail to the Federal Way Transit Center; with preliminary engineering to be completed on the segment extending from S. 200<sup>th</sup> St. to Kent/Des Moines in the vicinity of Highline Community College. The proposed budget for this effort is \$48.8M.

**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 Final Design budget is \$33.02M.

**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 \$449M in July 2016.

**ST2 Light Rail Vehicles (LRV) Fleet Expansion:** This project includes the design, manufacturing, inspection, testing and delivery of 122 low floor LRVs for service requirements of Northgate, East Link and Lynnwood Link Extensions. The Sound Transit Board adopted the baseline capital budget of \$733M in September 2015.



# Link Light Rail Program Overview

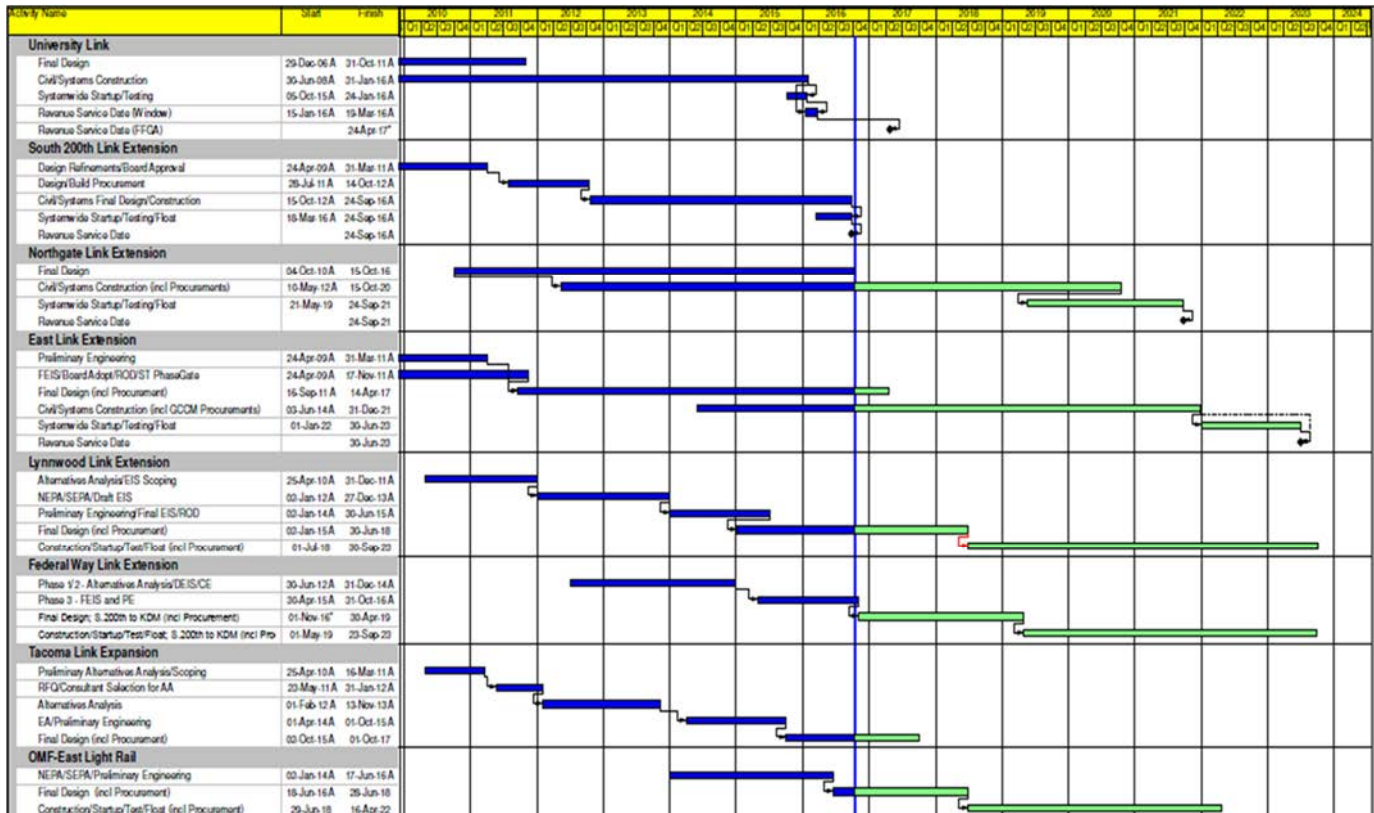
## Program Budget

Project	Adopted Budget	Committed to Date	Incurred to Date	Forecast to Complete	Estimated Final Cost	Adopted Budget vs. EFC
University Link	\$1,756.0	\$1,510.1	\$1,496.3	\$45.0	\$1,555.1	\$200.9
Northgate Link Extension	\$1,899.8	\$1,137.9	\$757.9	\$761.9	\$1,899.8	\$0
Lynnwood Link Extension	\$487.9	\$167.9	\$74.1	\$319.9	\$487.9	\$0
East Link Extension	\$3,677.2	\$1,068.3	\$555.8	\$2,608.9	\$3,677.1	\$0
South 200th Link Extension	\$383.2	\$329.0	\$313.1	\$14.3	\$343.2	\$40.0
Federal Way Extension	\$48.8	\$37.9	\$33.5	\$10.8	\$48.8	\$0
Tacoma Link Extension	\$33.0	\$18.1	\$8.7	\$14.9	\$33.0	\$0
Link O & M Facility: East	\$449.2	\$35.7	\$34.0	\$413.5	\$449.2	\$0
ST2 LRV Expansion	\$733.0	\$522.6	\$1.8	\$210.5	\$733.0	\$0
Downtown Redmond Link Ext.	\$28.6	\$0.1	\$0.2	\$28.5	\$28.6	\$0
<b>Total Link</b>	<b>\$9,496.6</b>	<b>\$4,827.6</b>	<b>\$3,275.4</b>	<b>\$4,428.2</b>	<b>\$9,255.8</b>	<b>\$240.9</b>

Table in millions.

## Program Schedule

Schedules for active projects are summarized below.



Changes this period: None.

# Link Light Rail University Link Extension



## Scope

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

**Tunnels:** Two twin bored tunnels. Two contract segments: U220 starts at Husky Stadium, continues beneath SR 520 and the Montlake Cut south to the Capitol Hill underground station. U230 commences at Capitol Hill Station and proceeds south under the I-5 freeway to the PSST.

**Stations:** 2 underground center platform stations – Capitol Hill (U240) and University of Washington (U250). U240 is approximately 65' underground with three station entrances. U250 is about 100' below ground, with three station entrances and connections to the UW campus by a pedestrian bridge.

**System:** 27 LRV; direct fixation tracks, signals, traction electrification, and SCADA communications

**Budget:** \$1.948 billion including finance cost (capital subtotal of \$1.756 billion)

**Schedule:** Revenue Service began on March 19, 2016.



## Key Project Issues

- Revenue Service commenced on March 19, 2016. Coordination between the Construction teams and the Operations group are ongoing to adjust the System for optimum operations. Contractors continue to perform punch list items but access to these activities poses to be challenging as they now have to work under Operations' rules and not Construction protocols. Availability of Operations personnel for oversight poses as a challenge as well as they are committed to prioritizing the newly - opened Angle Lake Station over University Link.
- *U830 Systems:* Contractor is now collaborating to incorporate the South 200th Extension points into the newly installed operating systems. Contractor is currently focusing on the SCADA integration with South 200th Link Extension while continuing to perform punch list on U-Link and systems refinement to achieve optimal operation status. U-Link Systems has encountered some issues related to this infancy period.
- *Certification of Occupancy:* University Link continues to operate under a temporary certification of occupancy until all permit requires are fully met. The final items remaining are the utilities as-built to be submitted to City of Seattle (SPU) and a final review of the emergency ventilation systems by the Seattle Fire Department
- Commercial issues with prime contractors are being negotiated as the project proceeds through the close out process.



## 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	\$ 80.63	\$ 79.68	\$ 88.24	\$ 25.32
PRELIMINARY ENGINEERING	\$ 24.39	\$ 24.26	\$ 24.26	\$ 24.26	\$ 24.26	\$ -
FINAL DESIGN	\$ 77.94	\$ 90.31	\$ 87.81	\$ 85.95	\$ 88.66	\$ 1.65
CONSTRUCTION SERVICES	\$ 68.53	\$ 94.81	\$ 86.70	\$ 86.41	\$ 88.72	\$ 6.10
3rd PARTY AGREEMENTS	\$ 18.65	\$ 18.65	\$ 12.01	\$ 11.28	\$ 13.55	\$ 5.10
CONSTRUCTION	\$ 1,180.00	\$ 1,158.18	\$ 993.45	\$ 983.55	\$ 1,022.58	\$ 135.61
VEHICLES	\$ 103.91	\$ 103.91	\$ 99.20	\$ 99.19	\$ 101.91	\$ 2.00
ROW	\$ 167.33	\$ 152.33	\$ 126.03	\$ 126.02	\$ 127.21	\$ 25.12
<b>Capital Total</b>	<b>\$ 1,755.97</b>	<b>\$ 1,756.01</b>	<b>\$ 1,510.09</b>	<b>\$ 1,496.35</b>	<b>\$ 1,555.12</b>	<b>\$ 200.88</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>\$ 1,701.80</b>	<b>\$ 1,671.22</b>	<b>\$ 1,746.83</b>	<b>\$ 200.88</b>

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

In October, the projected Estimated Final Cost (EFC) including Finance Cost remains at about \$1.75B. In this period, approximately \$1M was incurred and inching the project's Incurred to Date amount closer to \$1.5B (Finance Cost excluded). Direct construction cost in October is minimal as major construction activities have now winded down and only pertained to close out and follow on work. The construction EFC continues to be approximately \$1B. The trend continues to be intact as the project is completed with only miscellaneous follow on scope and commercial issues remain. Capitol Hill continues with punch list work, the Systems (U830) continues to fine tune and optimizes the systems as well as the integration South 200th Extension systems points. Operations took delivery of non-revenue vehicles. The Total Incurred to Date for the Construction Phase is about \$1M with a current commitments about \$1.16B. Cost for LRV is at about \$99.2M. Cost of repairs are excluded from this project and tracked independently.

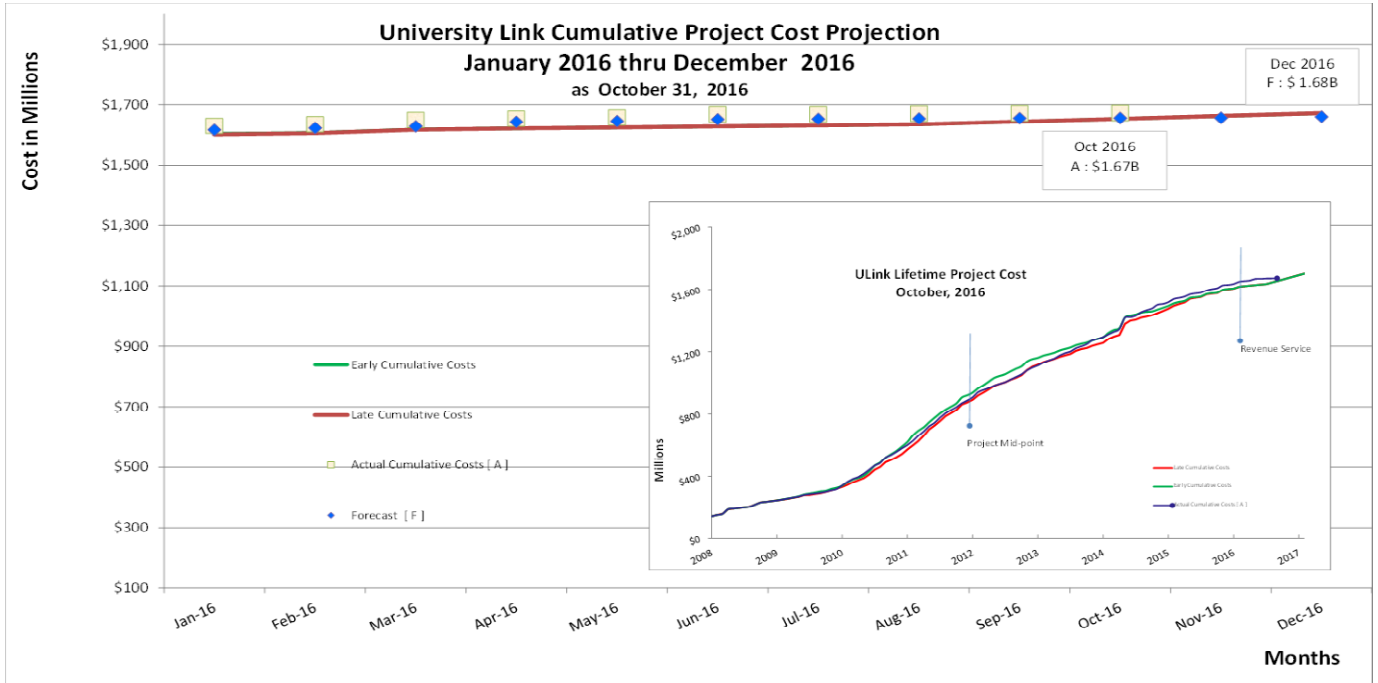
Construction EFC under the SCC format for this period remains stable and relatively unchanged at about \$1B. Construction SCC expenditures in September is about \$1M. This period, the bulk of U-Link construction cost has been attributed Station punch lists and Systems' continue optimization and resolutions to change order work and taking delivery of non-revenue vehicles. Incurred to date for Construction under the SCC is approaching \$972M and Vehicles \$99.9M 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).

Project Elements by SCC	Baseline Budget	Current Adopted Budget	Commitment to Date*	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
10 Guideway & Track Elements	\$ 626.83	\$ 450.46	\$ 456.15	\$ 455.77	\$ 461.24	\$ (10.78)
20 Stations	\$ 366.33	\$ 350.75	\$ 344.52	\$ 342.55	\$ 353.09	\$ (2.33)
30 Support Facilities: Yards, Shops	\$ 7.01	\$ 24.83	\$ 22.86	\$ 22.87	\$ 24.50	\$ 0.33
40 Sitework & Special Conditions	\$ 59.03	\$ 67.39	\$ 57.00	\$ 54.71	\$ 56.83	\$ 10.56
50 Systems	\$ 69.63	\$ 116.42	\$ 100.65	\$ 96.44	\$ 102.88	\$ 13.54
<b>Construction Subtotal (SCC 10-50)</b>	<b>\$ 1,128.82</b>	<b>\$ 1,009.85</b>	<b>\$ 981.17</b>	<b>\$ 972.34</b>	<b>\$ 998.53</b>	<b>\$ 11.32</b>
60 Row, Land, Existing Improvements	\$ 167.33	\$ 125.77	\$ 126.03	\$ 126.02	\$ 126.20	\$ (0.43)
70 Vehicles	\$ 99.76	\$ 100.16	\$ 99.87	\$ 99.87	\$ 100.16	\$ 0.00
80 Professional Services	\$ 306.41	\$ 346.58	\$ 303.01	\$ 298.12	\$ 318.75	\$ 27.83
90 Unallocated Contingency	\$ 53.65	\$ 173.64	\$ -	\$ -	\$ 11.48	\$ 162.16
<b>Capital Cost Total (SCC 10-90)</b>	<b>\$ 1,755.97</b>	<b>\$ 1,756.01</b>	<b>\$ 1,510.09</b>	<b>\$ 1,496.35</b>	<b>\$ 1,555.12</b>	<b>\$ 200.88</b>
100 Finance Cost	\$ 191.71	\$ 191.71	\$ 191.71	\$ 174.87	\$ 191.71	\$ -

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



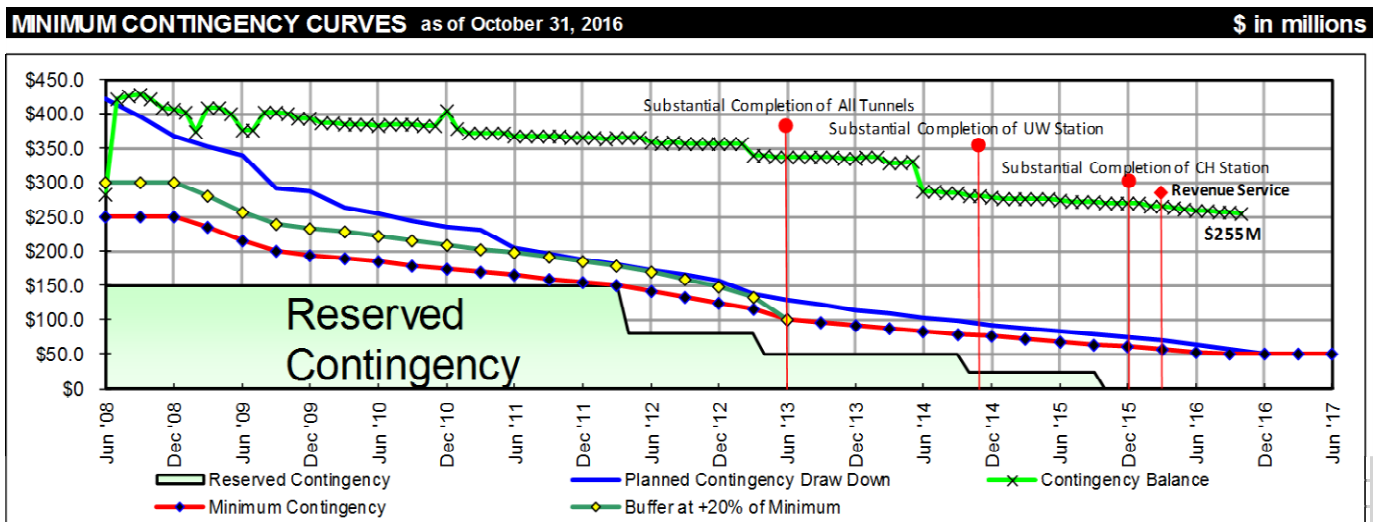
# Link Light Rail University Link Extension



Total project cost incurred to date at October 2016 close including Finance Cost is at \$1.67B. The financing cost incurred to date is about \$175M. University Link projects the cost will be at approximately \$1.68B by December 2016 as close out activities continues. University Link EFC is projected at approximately \$200M under budget excluding financing cost.

## Cost Contingency Management

Project contingencies remain at healthy at approximately \$255M due to the favorable construction bidding climate, ROW acquisition cost trends, diligent project risk management practices, and excellent tunneling conditions. October's overall contingencies notched down by about \$1.5M due to construction change orders and follow on project commitments. While major construction activities are now done, there are still considerable follow-on scope to complete (pertaining to close-out of the project, systems adjustments to optimize the operating systems as well as settlement of commercial issues). Barring any catastrophic event, the likelihood that this contingency stays on trend is high. The forecast indicates that approximately 78% of these contingencies will remain unused; thereby, generating approximately \$200M of budget savings excluding financing cost.



## **Project Schedule Summary**

Revenue Service began on March 19, 2016.

U240 Contractor achieved Substantial Completion in December 2015. A Temporary Certificate of Occupancy was achieved on Revenue Service date of March 19, 2016. The U830 Contract has not achieved Substantial Completion but System Integration Testing is complete. U835 EMI/Vibration Testing is completed. The U810 MOW Building is complete; reviewing/processing outstanding commercial issues.

## U240 Contract – Capitol Hill Station

### Close-out Progress

The U240 Contractor achieved Substantial Completion on December 31, 2015. Punchlist and close-out work is underway.

### 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

- Finalize all punch list items throughout the station. This activity is on hold pending traction power support from Sound Transit operations group, which is anticipated to happen in the 4th QTR 2016.
- 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.
- Contractor continues working on leak remediation. ST remains concerned about schedule to complete leak remediation work. A definitive date for completion of this work has not been determined, but anticipated to happen in the 4th QTR 2016.

### 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:	98%
Authorized Contingency	\$11,742,514
Contingency Drawdown	\$11,254,629
Contingency Index	1.02

## U250 Contract –University of Washington Sta.

### Close-out Progress

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

### Close-out Activities

#### Current Period

- Continued closing out of all remaining commercial issues.

#### Next Period

- Continue closing out of all remaining commercial issues.

### Closely Monitored Issues

- Multiple commercial issues remain unresolved. These issues continue to be reviewed and assessed by Sound Transit.
- Three Notices of Intent to Claim have been filed by the GC/CM. All three claims were denied. A request for mediation was received, and rejected until all claim issues can be mediated at one time.

### Cost Summary

Present Financial Status	Amount
<b>U250 Contractor - Hoffman Construction Co.</b>	
Original Contract Value	141,745,898
Change Order Value	8,670,311
Current Contract Value	150,416,209
Total Actual Cost (Incurred to date)	150,254,810
Financial Percent Complete:	99%
Physical Percent Complete:	99%
Authorized Contingency	9,152,295
Contingency Drawdown	8,670,311
Contingency Index	1.05

## U810 Contract – *Maintenance of Way*

### Close-out Progress

Processing outstanding commercial issues.

### Close-out Activities

#### Current Period

- Continued processing outstanding commercial issues.

#### Next Period

- Continue processing outstanding commercial issues.

### Closely Monitored Issues

- ST and Contractor continue to review outstanding commercial issues and continue working towards a possible negotiated settlement.

### Cost Summary

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

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

### Close-out Progress

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

### Close-out Activities

#### Current Period

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

#### Next Period

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

### Closely Monitored Issues

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

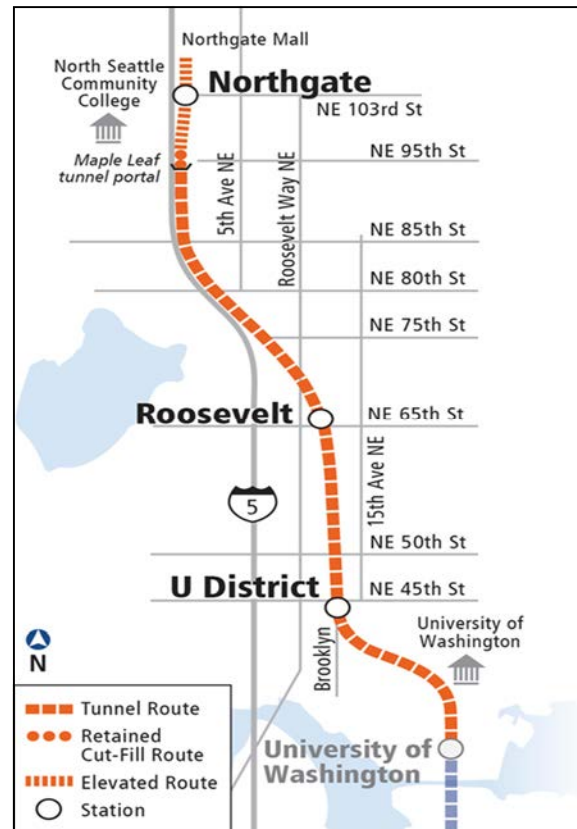
### Cost Summary

Present Financial Status	Amount
<b>U830 GC/CM Contractor - Stacy &amp; Witbeck</b>	
Original Contract Value	\$119,167,433
Change Order Value	\$4,335,415
Current Contract Value	\$123,502,848
Total Actual Cost (Incurred to date)	\$119,979,994
Financial Percent Complete	97.0%
Physical Percent Complete:	99.0%
Authorized Contingency	\$5,958,373
Contingency Drawdown	\$4,335,415
Contingency Index	1.4

# Link Light Rail Northgate Link Extension

## Scope

- Limits:** The Northgate Link Extension consists of 4.3 miles of light rail extending from the University of Washington to Northgate.
- Alignment:** The extension begins at the UW Station, boring tunnels under campus then continues north to a portal located north of NE 94<sup>th</sup> Street on the east side of I-5, then transitioning to an aerial structure running north to the Northgate Mall.
- Stations:** The *U District Station* is an underground station located on the west side of the UW campus near Brooklyn Ave. and NE 45<sup>th</sup> St. The *Roosevelt Station* is an underground station located near NE 65<sup>th</sup> St. and 12<sup>th</sup> Ave NE. The *Northgate Station* is an elevated station located at the southwest edge of the Northgate Mall property.
- Systems:** Include Signals, track electrification, and SCADA communications.
- Budget:** \$1.899 Billion
- Service:** September 2021



Map of Northgate Link Extension route and stations.

## Key Project Activities

- Conducted construction tour of Roosevelt site for Senator Patty Murray's staff.
- Substitute Motion directing staff to undertake process to use Scott White's name at Roosevelt or U District stations and Joni Earl's name at another ST facility was approved by the ST Board this period.
- Progressing various Final Design contract packages. (See *Final Design* section for details.)
- For N125 TBM Tunnels, Contractor completed drilling rebar dowel holes for SB tunnel and walkways between UDS and RVS.
- For N150 Roosevelt Station-CCB approved request to award N150 to Hoffman Construction.
- For N160 –Northgate Station – Held informal Partnering session with Absher Construction. ST project staff conducted a Northgate agency coordination meeting with WSDOT, KCM and SDOT to discuss ST construction work, KCM's TOD planning and SDOT's ped bridge redesign efforts. Preliminary Baseline Schedule was accepted with exceptions noted.

## Closely Monitored Issues

- DPD has reported that night time noise levels at RVS are consistently at 69dB, exceeding limit of 66dB. JCM lowered ventilation fan speed several times and is now close to compliance
- Cross passage activities continue to slip incrementally on schedule. JCM requested to submit September schedule update with more realistic duration and practical resources constraints.

## 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	\$42.3	\$42.2	\$147.9	\$0.0
PRELIMINARY ENGINEERING	\$15.1	\$15.1	\$15.1	\$15.1	\$15.1	\$0.0
FINAL DESIGN	\$129.2	\$129.2	\$116.6	\$100.6	\$129.2	\$0.0
CONSTRUCTION SERVICES	\$118.3	\$118.3	\$84.8	\$41.8	\$118.3	\$0.0
3rd PARTY AGREEMENTS	\$11.8	\$11.8	\$9.9	\$5.9	\$11.8	\$0.0
CONSTRUCTION	\$1,328.0	\$1,328.0	\$775.8	\$459.4	\$1,328.0	\$0.0
ROW	\$127.3	\$127.3	\$93.4	\$93.0	\$127.3	\$0.0
PROJECT CONTINGENCY	\$22.2	\$22.2	\$0.0	\$0.0	\$22.2	\$0.0
<b>Total</b>	<b>\$1,899.8</b>	<b>\$1,899.8</b>	<b>\$1,137.9</b>	<b>\$757.9</b>	<b>\$1,899.8</b>	<b>\$0.0</b>

The Estimated Final Cost (EFC) for the project as of this reporting period is \$1,899.8M, which is equal to the current project budget. This period approximately \$18.9M was incurred, of which \$16.0M was for the N125 tunneling contract, the N160 Northgate Station and Elevated Guideway contract, the N180 Trackwork contract and other miscellaneous construction; \$0.6M was incurred for civil and systems final design and design support during construction; and \$1.6 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	\$599.6	\$489.1	\$317.7	\$595.1	\$4.5
20 STATIONS	\$376.1	\$386.7	\$134.6	\$37.4	\$386.7	\$0.0
30 SUPPORT FACILITIES: YARD, SHOP	\$5.3	\$5.3	\$6.4	\$5.2	\$6.4	(\$1.1)
40 SITEWORK & SPECIAL CONDITIONS	\$140.8	\$190.5	\$132.4	\$93.0	\$191.6	(\$1.1)
50 SYSTEMS	\$110.9	\$95.1	\$3.2	\$1.0	\$97.4	(\$2.3)
<b>Construction Subtotal (SCC 10 - 50)</b>	<b>\$1,228.7</b>	<b>\$1,277.2</b>	<b>\$765.7</b>	<b>\$454.4</b>	<b>\$1,277.2</b>	<b>\$0.0</b>
60 ROW, LAND, EXISTING IMPROVEMENTS	\$119.9	\$119.9	\$93.4	\$93.0	\$119.9	\$0.0
80 PROFESSIONAL SERVICES	\$420.7	\$427.1	\$278.8	\$210.5	\$427.0	\$0.1
90 CONTINGENCY	\$130.4	\$75.6	\$0.0	\$0.0	\$75.6	(\$0.1)
<b>Capital Total (SCC 10 - 90)</b>	<b>\$1,899.8</b>	<b>\$1,899.8</b>	<b>\$1,137.9</b>	<b>\$757.9</b>	<b>\$1,899.8</b>	<b>\$0.0</b>

The Estimated Final Cost (EFC) for some contract packages have been reassessed and revised as a result of updated design development estimates and the award of Contract N125 at an amount lower than the adopted budget.

## Cost Contingency Management

Compared to the baseline amount of \$396M, the Total Contingency has decreased by \$121M to \$275.2M, which is 24.1% of project work remaining. During this reporting period, a net decrease of \$83.8M in the overall project contingency occurred. Detailed information is provided below.

**Design Allowance** – The baseline Design Allowance of \$113.9M has been fully depleted following the receipt of updated construction cost estimates on the N140, N150, and N160 Station Finishes contracts. DA has been utilized as scope development has progressed to 100% on N140, N150 and N160. No changes to DA occurred during this period.

# Link Light Rail Northgate Link Extension

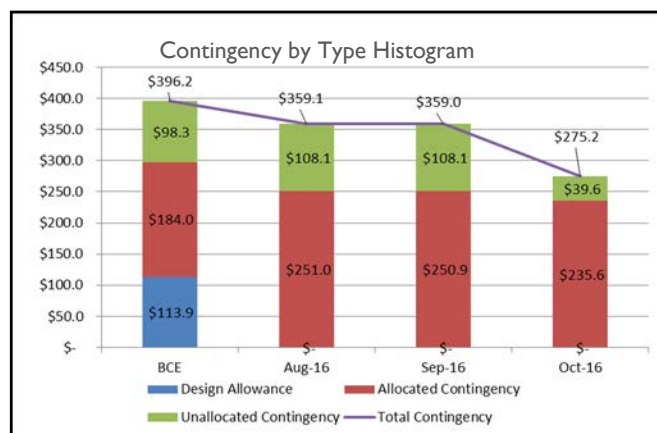


## Cost Contingency Management, continued

**Allocated Contingency** – Compared to the baseline amount of \$184.M, Allocated Contingency has increased by \$51.6M to \$235.6M. During this reporting period, AC was decreased by a total of \$0.9M as a result of contract change orders issued on the N111 and N125 contracts. In addition, \$15M was reallocated from future contingency available within the N125 budget to the N150 project budget.

**Unallocated Contingency** – Compared to the baseline amount of \$98.3M, Unallocated Contingency has decreased by \$58.7M to \$39.6M. During this reporting period, UAC was decreased following the use of \$15M from the construction UAC budget to the N150 project budget. In addition, the contingency amount was corrected to reflect the budget surplus from N125 which was previously reported under UAC.

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%	\$ 235.6	20.6%
Unallocated Contingency	\$ 98.3	4.6%	\$ 39.6	3.5%
<b>Total</b>	<b>\$ 396.2</b>	<b>18.6%</b>	<b>\$ 275.2</b>	<b>24.1%</b>



## Project Schedule

The N105 Contractor Pellco Construction completed the lighting and striping at the Northgate Site C (Silver Platters) and received Substantial Completion on October 7, 2016. At the Key Bank site near UDS, the contractor has completed excavation, soil nail wall installation, and is backfilling the site and placing the Regenesis remediation material. Completion of the work at the Key Bank site continues to move up and Pellco is working to complete the work prior to Thanksgiving 2016.

Work on the N111 contract is complete. Close-out is ongoing. ST is working with Walsh to resolve the issues associated with the late completion of the work. Walsh has yet to supply an adequate As-Built schedule.

The N113 SCL 115kV Relocation contractor Potelco successfully completed the rolling slowdown and removal of the existing conductors crossing I-5. Existing poles 1 and 8 have been removed. The new conductor installation is complete and connected to the existing lines. Removal and/or topping of the existing poles along 1st Ave NE is underway. Potelco will begin site restoration and the MSE wall in November. Substantial Completion is indicated as January 11, 2017 in the latest schedule update, contract completion is February 21, 2017.

The N125 Tunneling Contractor is continuing cross passage construction all along the tunnel alignment. The Contractor's September schedule update exhibited significant negative float in achieving the following milestones: MS-02 RVS Turnover has negative 36 calendar days (-36cd), MS-05 UDS Turnover - (-47 cd) and MS-06 Substantial Completion (-43cd). ST has reviewed the schedule and found issues that JCM will need to correct in order to gain a more accurate forecast of the milestone dates.

The N140 U District Station 100% Design was submitted August 5, 2016. Hoffman Construction received the pricing set of plans & specs and is continuing to prepare subcontractor bid packages. ST continues to work with the City of Seattle any final permitting comments.

## Project Schedule, continued

The Preconstruction contract for N150—Roosevelt Station has concluded with an agreed upon MACC that is currently scheduled to go to the ST board on November 29th for approval. The project team is targeting an early December 2016 Notice to Proceed for Construction.

The N160 contractor, Absher Construction, is continuing to mobilize personnel, complete tenant improvements at the Silver Platters, and prepare submittals. Absher has submitted the Preliminary CPM and is working on the Contract Baseline CPM and Schedule of Values. Mobilization for Drilled Shafts at the station (C-Series shafts) will begin in January 2017.

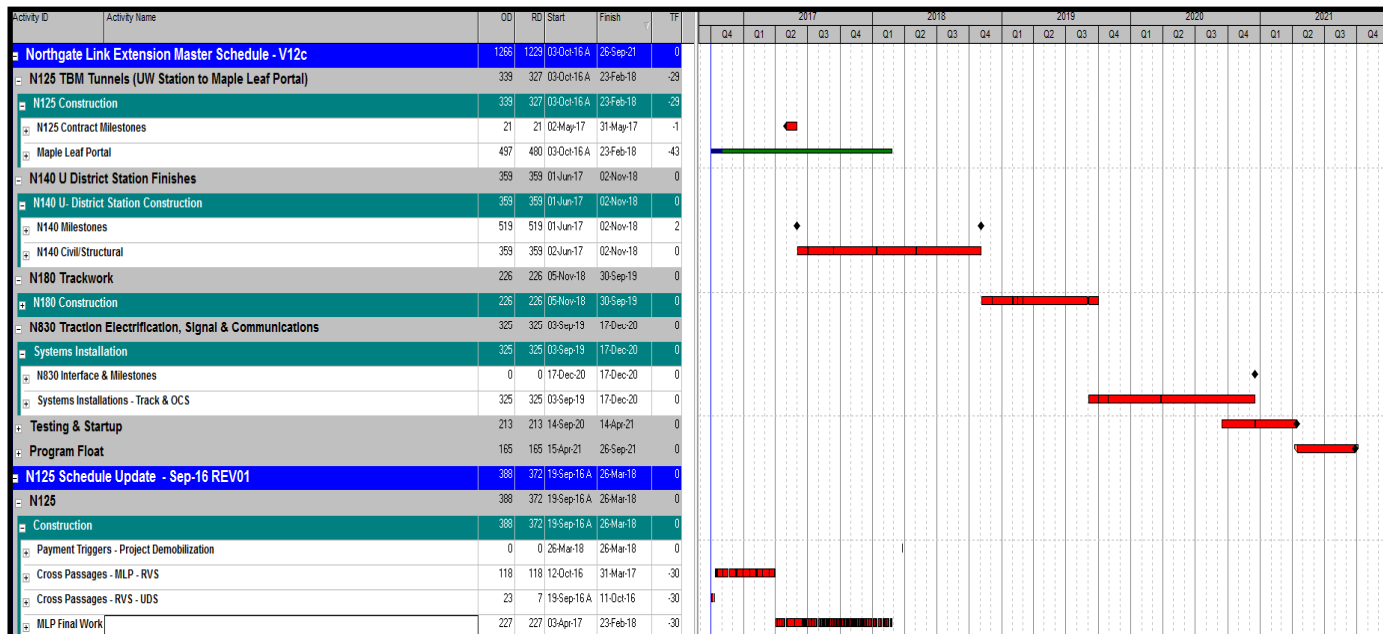
The N180 Trackwork contractor, Stacy and Witbeck, is continuing with pre-construction submittals, in preparation for procuring rail and pre-cast track slabs. ST is currently expecting the FTA to grant the Buy America waiver request for the Ultra-Straight Rail in early December 2016.

Activity Name	Start	Finish	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
			Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
<b>Northgate Link Extension Master Schedule - V12c</b>													
<b>N105 Advanced Demolition &amp; Site Prep</b>													
N105 Final Design	16-Jun-14 A	02-Nov-15 A											
N105 - Contract Procurement	13-Aug-15 A	06-Jun-16 A											
N105 IFB	28-Sep-15 A	02-Nov-15 A											
N105 Construction Summary	07-Jun-16 A	28-Nov-16											
<b>N110 Advanced Utility Relocation, Roosevelt Area</b>													
N110 - Roosevelt Advance Utility Relocation Construction	06-Mar-13 A	28-May-13 A											
<b>N111 Advance Utility Relocation, Northgate Area</b>													
N111 Advance Utility Relocation Final Design	31-May-12 A	14-Feb-14 A											
N111 - Ad, Bid & Award	17-Feb-14 A	16-Jan-15 A											
N111 Advance Utility Relocation Construction	19-Jan-15 A	26-Apr-16 A											
<b>N112 Advanced Demolition &amp; Site Prep, U District &amp; Roosevelt</b>													
N112 Roosevelt Station Site Prep	01-Aug-12 A	15-Mar-13 A											
N112 U District Station Site Prep	08-Apr-13 A	31-Aug-13 A											
<b>N113 115kV Relocation at Northgate</b>													
N113 SCL 115kV Relocation Final Design & Procurement	18-Dec-14 A	26-Jul-16 A											
N113 SCL 115kV Relocation Construction	31-May-16 A	20-Feb-17											
<b>N125 TBM Tunnels (UW Station to Maple Leaf Portal)</b>													
N125 Tunnel & Station Shell Construction	30-Sep-13 A	23-Feb-18											
Tunneling - NB Bore/TBM No. 1 - UDS to UW	04-Jan-16 A	26-May-16 A											
Tunneling - SB Bore/TBM No. 1 - UDS to UW	24-Mar-16 A	27-Aug-16 A											
Roosevelt Station - Utilities & Box Excavation	07-Oct-13 A	17-Mar-15 A											
Maple Leaf Portal - Utilities/Portal Construction/Launch Prep	28-Oct-13 A	15-Aug-14 A											
U-District Station - Utilities & Box Excavation	10-Dec-13 A	12-Aug-15 A											
Tunneling - NB Bore/TBM No. 1 - MLP to RVS	09-Jul-14 A	25-Mar-15 A											
Tunneling - NB Bore/TBM No. 1 - RVS to UDS	03-Apr-15 A	16-Jul-15 A											
Tunneling - SB Bore/TBM No. 2 - MLP to RVS	20-Nov-14 A	13-Aug-15 A											
Tunneling - SB Bore/TBM No. 2 - RVS to UDS	21-Jul-15 A	10-Jan-16 A											
Cross Passages - RVS-UDS	19-Jun-15 A	03-Mar-17											
Cross Passages - MLP-RVS	12-Oct-15 A	24-Jul-17											
Cross Passages - UDS-UW	07-Jun-16 A	19-Apr-17											
Maple Leaf Portal - Post-Tunneling	03-Oct-16 A	23-Feb-18											
<b>N140 U District Station Finishes</b>													
N140 U District Station Final Design	05-Jul-11 A	19-Aug-16 A											
N140 Prepare Bid Packages, Negotiate MACC	08-Feb-16 A	17-Nov-16											
N140 Bid Work Packages, Negotiate MACC, Contract Executi	08-Feb-16 A	10-Mar-17											
N140 U District Station Construction	31-Mar-17	26-Dec-19											
<b>N150 Roosevelt Station Finishes</b>													
N150 Roosevelt Station Final Design	21-Jul-11 A	15-Apr-16 A											
N150 Bid Work Packages, Negotiate MACC, Contract Executi	18-Apr-16 A	01-Dec-16											
N150 Roosevelt Station Construction	02-Dec-16	28-Sep-19											
<b>N160 Northgate Station and Elevated Guideway</b>													
N160 Northgate Station & Guideway Final Design	04-Jun-12 A	18-Mar-16 A											
N160 MACC Negotiations & Construction Contract Approval	17-Jul-15 A	12-Feb-16 A											
N160 Advertise, Bid & Award	14-Mar-16 A	02-Sep-16 A											
N160 Northgate Station & Guideway Construction	02-Sep-16 A	31-Jan-20											
<b>N180 Trackwork</b>													
N180 Trackwork Final Design	16-Feb-12 A	19-Feb-16 A											
N180 Prepare IFB Plan Set	19-Jan-16 A	19-Feb-16 A											
N180 Advertise, Bid & Award	23-Feb-16 A	25-Aug-16 A											
N180 Construction	25-Aug-16 A	31-Oct-19											
N180 Northgate Trackwork Construction	01-Dec-17	31-Oct-19											
<b>N830 Traction Electrification, Signal &amp; Communications</b>													
N830 Systems Final Design	21-Dec-12 A	04-Nov-16											
N830 Systems GC/CM Contract Procurement	09-Apr-15 A	19-Jan-16 A											
N830 Systems Precon Services/Submittals/Procurement	19-Jan-16 A	12-Nov-18											
N830 Systems Installation	14-Oct-18	17-Dec-20											
<b>Testing &amp; Startup</b>													
Northgate Link Testing, Commissioning, Start-up	14-Sep-20	14-Apr-21											
<b>Program Float</b>													
Northgate Link Project Float (CD)	15-Apr-21	26-Sep-21											



## Critical Path Analysis

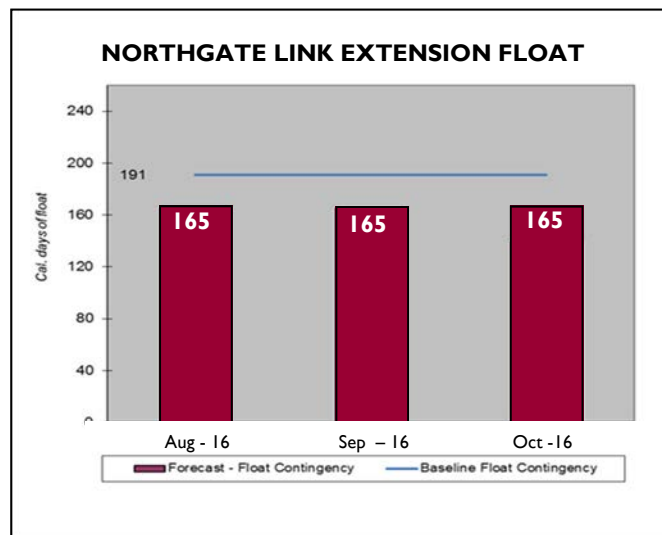
The longest path through the Northgate projects is driven by the N125 contract and turnover of the UDS box to N140, N140 turnover to N180 for trackwork, and subsequently to the N830 Systems contract. The N160 contract remains near critical due to access dates on site and overall duration of the contract.



## Critical Path Float

The Northgate Link Project currently retains 165 days of unallocated project float. To date, ST has been able to work with both the GC/CM contractors for the stations and the N125 Contractor to explore means of performing concurrent operations in order to maintain the overall project schedule.

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



## Construction Safety

Data/ Measure	October 2016	Year to Date	Project to Date
Recordable Injury/Illness Cases	0	11	46
Days Away From Work Cases	0	2	4
Total Days Away From Work	0	5	219
Restricted or Modified Work Cases	0	4	22
Total Days Restricted or Modified Work	0	33	896
First Aid Cases	5	26	51
Reported Near Mishaps	0	8	49
Average Number of Employees on Worksite	300	-	-
<b>Total # of Hours (GC &amp; Subs)</b>	<b>58,000</b>	<b>571,275</b>	<b>1,840,475</b>
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	3.96	3.85	5.00
DART Rate	3.96	2.10	2.83
<i>Recordable National Average</i>	<i>3.60</i>	<i>3.60</i>	<i>3.60</i>
<i>DART National Average</i>	<i>2.00</i>	<i>2.00</i>	<i>2.00</i>
<i>Recordable WA State Average</i>	<i>7.20</i>	<i>7.20</i>	<i>7.20</i>
<i>DART WA State Average</i>	<i>3.30</i>	<i>3.30</i>	<i>3.30</i>

## Right of Way

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

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

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

**Northgate Station** - Arbitration scheduled for two parcels.

**Tunnel Easements:** All parcels have been acquired.

Line Section	Total Parcels Certified	Offers Made	Signed Agreements	Admin. Settlements	Possession and Use (P&U)	Closings to date	Baseline Relocations Required	Relocations Completed
U District Station	15	15	0	0	0	15	3	3
Roosevelt Station	19	19	0	0	0	18	26	26
Tunnel Easements	190	188	0	0	0	188	0	0
Northgate Station	11	11	1	0	2	6	13	13
<b>Total</b>	<b>235</b>	<b>233</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>227</b>	<b>42</b>	<b>42</b>

## Quality Assurance Activities

### Activities

- None to report.

### Issues

- None to report.

### Summary

Description	Sep 2016	Notes
No. of Audits Planned	0	None
No. of Audits Completed	0	None
Reports in Progress	1	N160 100% Design Submittal
No. of Audits Postponed	0	None

## Sound Transit Board Actions

Board Action	Description	Date
M2016-106	Execute an agreement with Seattle City Light for relocation of its Transmission Line Utilities from City of Seattle right-of-way to WSDOT right-of-way as part of the Northgate Link Extension.	Oct 27

## Community Outreach

- Distributed various construction alerts which includes the following:
  - Nighttime work on the new transmission line in the Northgate area.
  - Conductor installation on N115th Street.
  - Dewatering wells on the NE 69th Street.
- Emailed weekly updates regarding surface cross passage work.
- Met with Northgate Mall management regarding the start of work on N160.

### *Business Mitigation*

- Met with U District directly impacted businesses regarding winter business relations promotion.

## Environmental

- None to report.

## Final Design Overview

Sound Transit has executed two key contracts with professional services consultants for the Final Design of the Northgate Link Extension. Jacobs Associates (JA) is providing civil engineering and architectural final design services. LTK Engineering Services (LTK) is providing systems engineering final design services.

### Final Design Activities

Contract Package N140 - U District Station Civil and Finishes:

- Completed Pricing Set for MACC sub bid package preparation.
- Continued bid support services as needed.

Contract Package N150 - Roosevelt Station Civil and Finishes:

- Continued bid support as needed.

Contract Package N830 – Traction Electrification, Signals, and Communications:

- Completed N830/E750 design clarifications log.

## Final Design Schedule

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

Work Packages	60%		90%		100% to ST	
	Plan	F/A*	Plan	F/A*	Plan	F/A*
N105 Key Bank Demolition and Remediation	7/31/2014	7/31/2014A	10/3/2014	10/3/2014A	2/23/2015	6/18/2015A
N111 Advanced Utility Relocation – Northgate	12/21/2012	5/23/2013A	3/29/2013	10/14/2013A	7/12/2013	1/31/2014A
N113 115kV Relocation at Northgate	10/29/2013	11/21/2014A	3/27/2014	8/5/2015A	6/19/2014	10/2/15A
N140 U District Station Finishes	12/24/2011	4/27/2012A	9/18/2012	12/11/2015A	5/10/2013	8/12/16A
N150 Roosevelt Station Finishes	4/13/2012	2/27/2012A	1/28/2013	12/18/2014	10/23/2013	11/20/15A
N160 Northgate Sta. Civil/Finishes/Guideway	6/27/2012	10/5/2012A	4/17/2013	3/7/2014A	11/26/2013	2/5/16A
N180 Trackwork	8/23/2012	8/23/2012A	5/22/2013	4/8/2013A	8/26/2013	1/14/16A
N830 Traction Electrification, Signals, Communications	12/12/2012	12/20/2012A	4/10/2014	1/29/16A	12/9/2014	9/6/16A

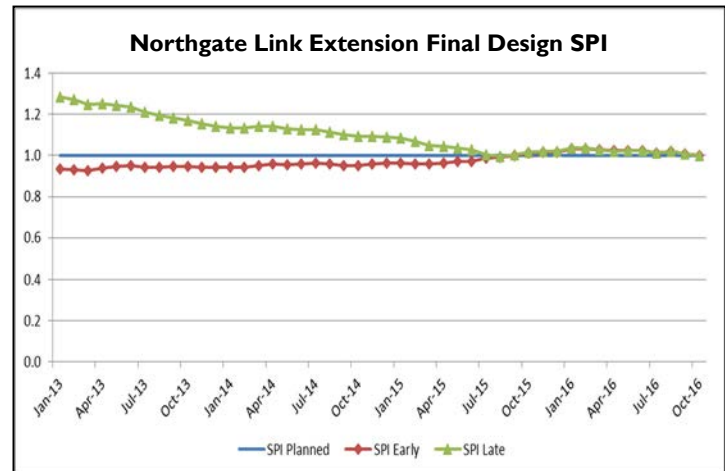
F/A\* = Forecast/Actual

# Link Light Rail Northgate Link Extension - Final Design



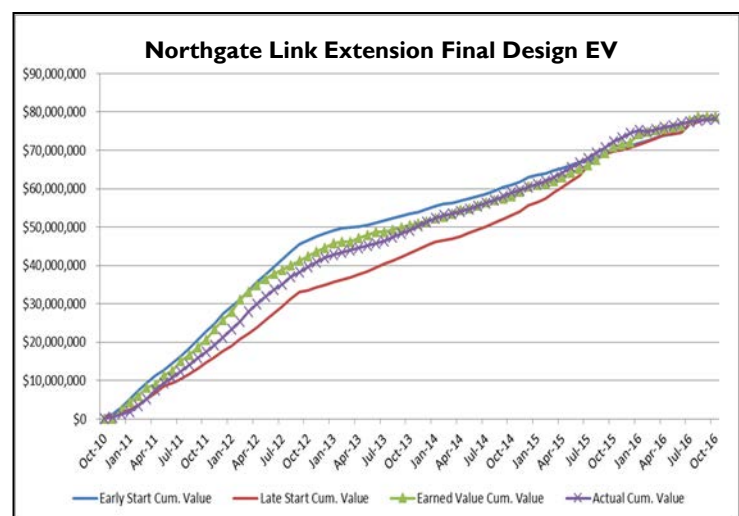
## Final Design Schedule Performance

For Final Design activities only, the Schedule Performance Index (SPI) reported this period is 1.00 based on the early start date, and the late start SPI is also 1.00. The final major deliverable for N140 Pricing Set has been provided under the Civil Final Design contract. The Systems N830 100% package was delivered in September.



## Final Design Cost Performance

Through this period, the total amount spent on the civil final design contract (including DSDC) is \$86.7M, which is approximately 88% of the total contract amount including change orders. For final design activities only, the total amount spent is \$78.2M, which is 99% of the current final design contract value. The consultant reported 100% complete for final design activities, resulting in an Earned Value of \$78.9M. The cumulative CPI remains 1.0, which indicates that overall expenditures are in line with planned cost.



## Other Key Final Design Activities

### Geotechnical Investigation

- None to report.

### Surveying and ROW

- Edited UW Transportation Easement exhibits as requested by ST.

### Traffic Engineering Report

- None to report.

### Permits

- Incorporated N140 90% SIP comments.
- Responded to N160 90% SIP comments.

### Noise Mitigation for At Grade and Elevated Guideway

- None to report.

### Ground Borne Noise and Vibration

- None to report.

### Construction Cost Estimating

- Continued N150 100% cost estimate/pricing set reconciliation.

### Quality Assurance

- Provided assistance with SSIMS Hazard mitigation.

### Design and Project Integration

- Integration and coordination with Systems Consultant (LTK) and continued as continued as required.

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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.

**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.

**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	Dec 2016
N111-Advanced Utility Relocation	Sept 2014A	Jan 2015A	Mar 2016A
N113-SCL 115kV Relocate	Feb 2016A	June 2016A	Feb 2017
N125-Station Box Exc. & TBM Tunnels	Jan 2013A	Sep 2013A	Jan 2018
N140-U District Station Finishes	Oct 2013A (GC/CM-Precon)	Jun 2017 (construction)	Dec 2019
N150-Roosevelt Station Finishes	Apr 2013A (GC/CM-Precon)	Jan 2017 (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 2015 (GC/CM-RFQ)A	Jan 2018 (construction)	Dec 2020

A = Actual

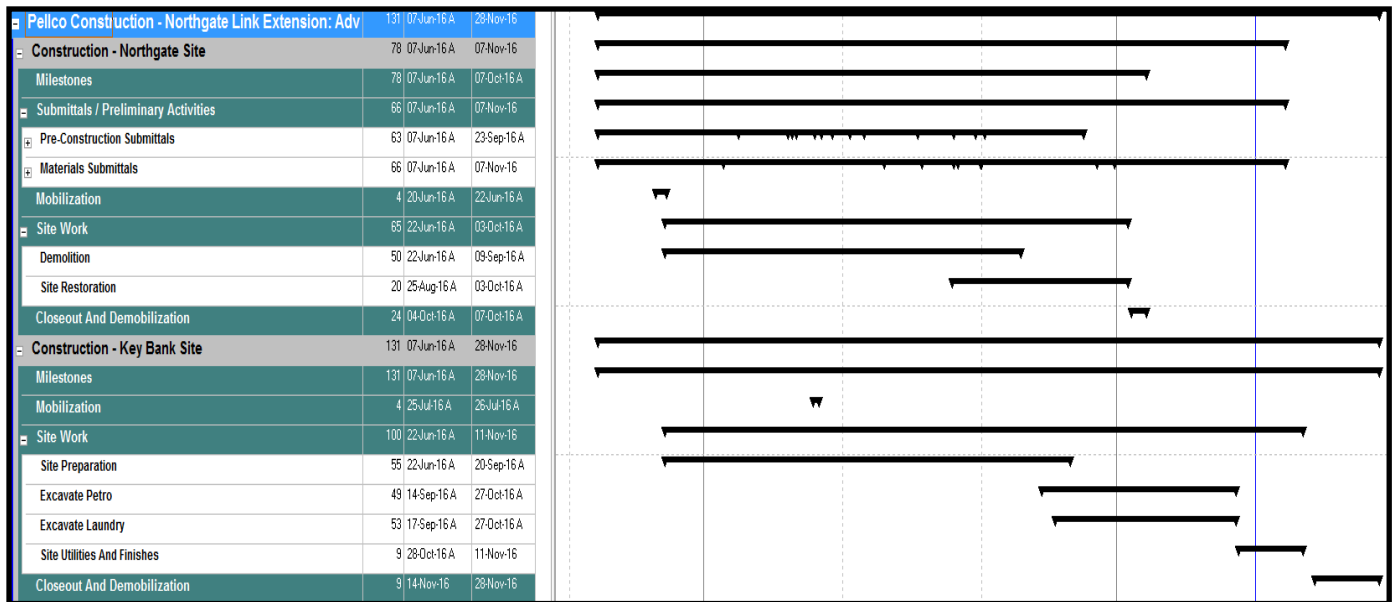
## Contract N105- Advanced Demolition and Site Prep

### Current Progress

The N105 Contractor, Pellco Construction, received Substantial Completion for the work at Site C on October 7th. Excavation, soil nails, and placement of the Regenesis remediation material is complete at the Key Bank Site. Preparations for asphalt paving of the site and concrete panel replacement in the alleyway are underway.

### Schedule Summary

The October schedule update submitted by Pellco, shows an improvement in the completion date to the end of November. Pellco has agreed to the 10 day extension offered by ST for the Asbestos Abatement at Key Bank.





# Link Light Rail Northgate Link Extension - Construction



## Key Activities

### Current Period

#### *Northgate Site*

- Completed installation of pavement markings and parking stall wheel stops.
- Completed installation of parking lot signage.
- Completed cleanup and demobilization of equipment.
- Obtained Substantial Completion for this site on October 7, 2016.
- Interim Park and Ride lot opened on October 10, 2016 for commuter use .

#### *Key Bank Site*

- Placed soil remediation material at the base of the east and west excavation areas.
- Completed backfilling of the east and west excavation areas.
- Completed all shotcrete work.
- Completed miscellaneous site demolition work.
- Commenced site cleanup and soft demobilization of equipment and materials.
- Surveyed site for chain link fence installation.

### Next Period

#### *Key Bank Site*

- Commence chain link fence installation.
- Complete site asphalt restoration.
- Continue site cleanup and demobilization of equipment.

## Closely Monitored Issues

- Contractor requested additional compensation for contaminated material removal quantities due to Department of Ecology Contained-Out determination.

## Cost Summary

Present Financial Status	Amount
<b><i>NI05 Contractor - Pellco Construction</i></b>	
Original Contract Value	\$2,691,500
Change Order Value	\$59,736
Current Contract Value	\$2,751,236
Total Actual Cost (Incurred to date)	\$2,385,796
Financial Percent Complete:	86%
Physical Percent Complete:	93%
Authorized Contingency	\$269,150
Contingency Drawdown	\$ 59,736
Contingency Index	4.2



Parking lot ready for commuter use.

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## Contract N111 – Advanced Utility Relocation

### Close-out Schedule

The N111 contract was Substantially Complete on April 26, 2016. The infrastructure has been turned over to Seattle City Light. Walsh Constructors have demobilized from the site. No further schedule updates will be made for this project. ST and Walsh are in the process of completing the remaining change orders and negotiating extended overhead and entitlement. Walsh's final schedule update was rejected because the schedule did not represent a time impact analysis that could be used to determine entitlement.

### Key Activities

#### Current Period

- Contractor working to complete final close-out paperwork.

#### Next Period

- Continue contract close-out tasks.
- Make final progress payment.
- Issue Acceptance.

### Closely Monitored Issues

- Contractor has submitted an RFC for extended overhead costs, but without required cost and schedule substantiation. A formal response is being prepared.

### Cost Summary

Present Financial Status	Amount
<b><i>N111 Contractor - Walsh Construction</i></b>	
Original Contract Value	\$9,370,000
Change Order Value	\$800,970
Current Contract Value	\$10,170,970
Total Actual Cost (Incurred to date)	\$9,812,850
Financial Percent Complete:	97%
Physical Percent Complete:	99%
Authorized Contingency	\$937,000
Contingency Drawdown	\$800,970
Contingency Index	1.16

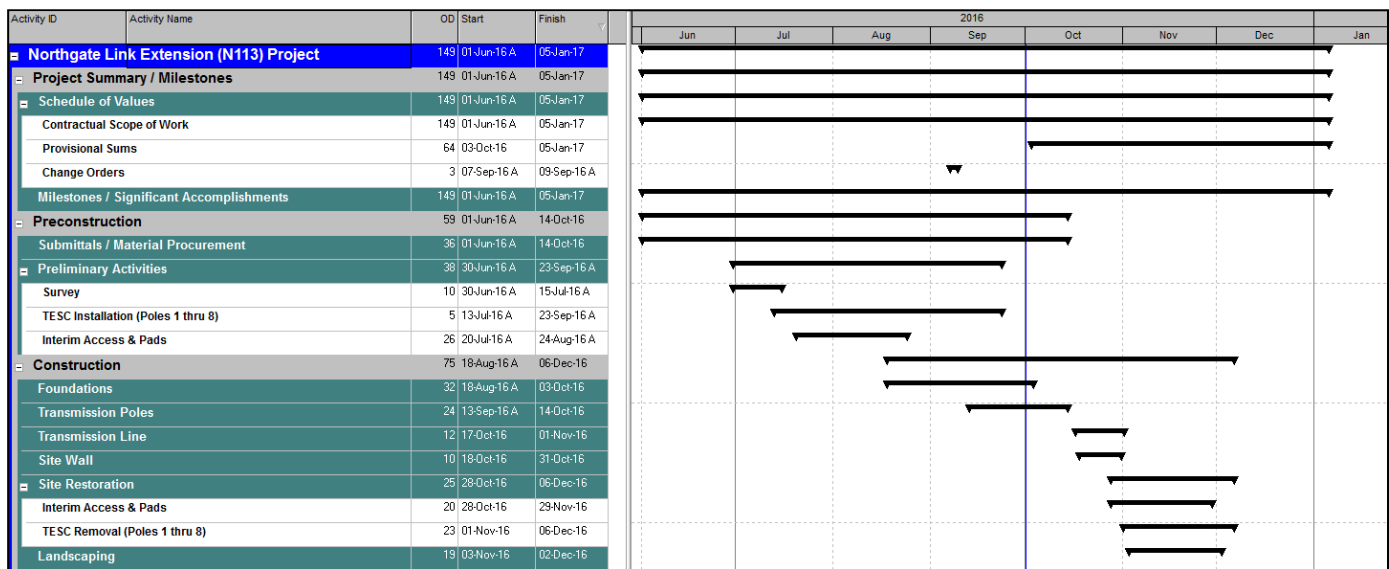
## Contract N113– 115kv Relocation at Northgate Station

### Current Progress

The N113 Contractor completed stringing of the new conductor, removed existing Poles 1 and 8, removed the existing conductor by means of a rolling slowdown on I-5 and connected the new lines to the existing grid. Potelco will continue removal of the existing poles and conductor along 1st Ave NE and site restorations.

### Schedule Summary

The N113 Contractor’s September schedule update continues to forecast an on-time completion of the work. Potelco has addressed the majority of technical issues. The remaining issues do not warrant a resubmittal.



# Link Light Rail Northgate Link Extension - Construction



## Key Activities

### Current Period

- Completed utility trench work and completed backfilling with CDF and asphalt sidewalk restored per CNWD-01.
- Set Poles 1 & 8; installed pole hardware.
- All three phases of new conductor strung from Pole 1 to Pole 8.
- Removed existing poles at Pole 1 and Pole 8 site.
- On 10/26/2016, rolling slowdown was completed on the NB/SB lanes of I-5 which allowed the removal of the north and south aerial crossings of the existing 115kV transmission lines.
- Completed new conductor installation for the entire alignment and connected to the existing transmission lines.
- Removed existing 115kV transmission lines along 1st Ave.
- Provided Seattle City Light notice to perform phasing and commissioning of the new conductor.

### Next Period

- Complete tree removal.
- Commence site restoration and MSE wall.
- Conduct Sound Transit Environmental Audit.

## Closely Monitored Issues

- Discussions are in progress with Department of Ecology for the development of criteria for the TESC plans related to construction of the MSE wall at Pole Site 1. This wall is located within a jurisdictional ditch, therefore, additional dewatering and TESC requirements will be implemented.

## Cost Summary

Present Financial Status	Amount
<b>NI 13 Contractor - Potelco, Inc</b>	
Original Contract Value	\$2,811,926
Change Order Value	\$ 34,000
Current Contract Value	\$2,845,926
Total Actual Cost (Incurred to date)	\$2,176,412
Financial Percent Complete:	76.5%
Physical Percent Complete:	82%
Authorized Contingency	\$281,194
Contingency Drawdown	\$ 34,000
Contingency Index	6.78



Review of MSE wall location, Pole Site 1. (Looking North)

## Contract N125 – TBM Tunnels

### Current Progress

JCM is currently continuing work on the Cross Passages, tunnel inverts, and troughs.

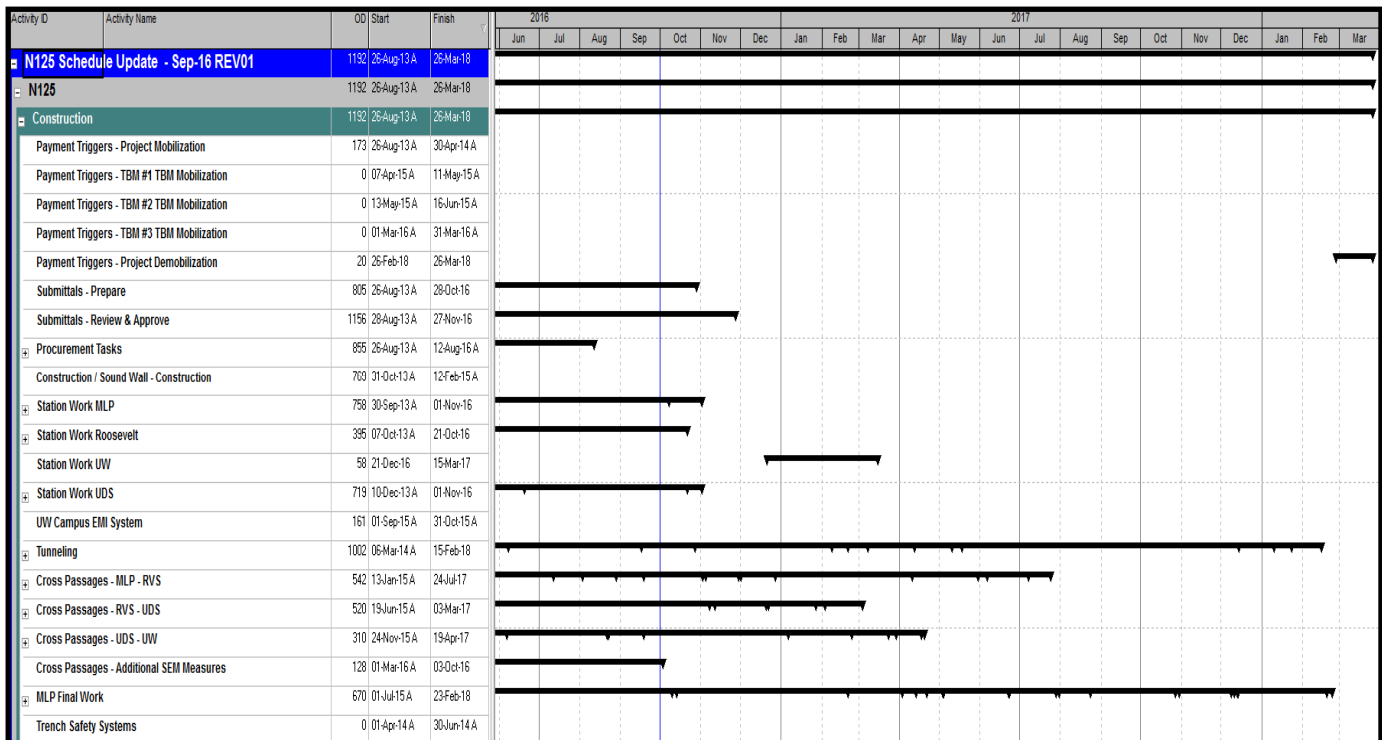
*Tunneling Operations* – With tunneling complete, JCM has demobilized operations at Area B and turned the area over to ST achieving Milestone No. 4.

*Cross Passage Construction*—Work in progress at the end of this period included ground freezing and in-tunnel freezing at multiple cross passages; and waterproofing installation, crown excavation, invert rebar installation and finishing work at various other CPs along the alignment.

### Schedule Summary

JCM has yet to submit the October schedule update.

It is anticipated that the critical path will remain in the Cross Passage construction. JCM is forecasting significantly increased negative float based on the progress of the cross passages. ST and the contractor are currently investigating higher than expected water infiltration at CP-23 which may be reflected in the coming update.

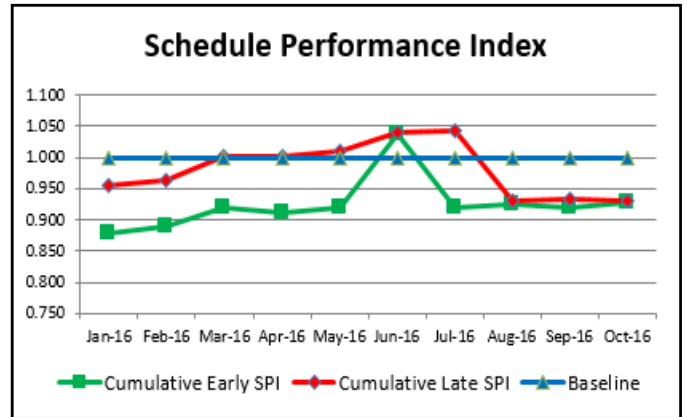


# Link Light Rail Northgate Link Extension - Construction



## Schedule Performance Index

The September schedule update reports a Performance Percent Complete of 84.4% with a Cost Percent Complete of 84.7%. The early SPI for this period remains 0.9, essentially unchanged from the 0.9 obtained in the previous period. The SPI continues to lag due to the pace of the cross passage work in comparison to the target dates for this work.



## Key Activities

### Current Period

- Continued installation of northbound (NB) tunnel fire standpipes and conduits.
- Continued installation of SB tunnel walkways, rebar, concrete and tunnel standpipe.
- Completed/continued various cross passage activities including, internal electrical work, repairing/patching spiles, draining holes and endcaps, installing endcaps rebar, installing arch lining formwork and waterproofing.
- Continued demo Area B treatment facilities.

### Next Period

- Continue cross passage waterproofing, formwork, patching and repairing spile, and excavation.
- Continue installation of walkway electrical conduits, rebar, and concrete pour in SB tunnel. Continue permanent fire standpipe.
- Continue installation of overhead electrical conduits in NB tunnel.

- Complete demolition of middle section of temporary concrete slabs at RVS shaft.

## Closely Monitored Issues

- Drilling operations at CP23 resulted in some ground loss, water ingress, and settlement at lower anchor of the nearest extensometer. Additional probing and grout injection is underway. Steps are being taken to potentially move the CP location or change excavation type if shown to be a DSC.

## Cost Summary

Present Financial Status	Amount
<b>NI25 Contractor - JCM Northlink</b>	
Original Contract Value	\$440,321,000
Change Order Value	\$ 44,969,809
Current Contract Value	\$485,290,809
Total Actual Cost (Incurred to date)	\$415,903,256
Financial Percent Complete:	85.7%
Physical Percent Complete:	86.0%
Authorized Contingency	\$66,048,150
Contingency Drawdown	\$44,969,809
Contingency Index	1.26



Completing drainage sump waterproofing at CP31.

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

### Current Progress

The N160 Contractor, Absher Construction, is preparing submittals and beginning mobilization activities including tenant improvements on the Silver Platters building for construction offices, and fencing at work areas handed over from the N125 Contractor.

Absher is preparing the contract Baseline Schedule and Schedule of Values submittals, which are expected to be delivered for review in late November.

### Key Activities

#### Current Period

- Notice to Proceed issued on September 2, 2016.
- Held Pre-Construction meeting on September 20, 2016.
- Began submittal and RFI process.
- Began tenant improvements for ST/CM office at Silver Platters building.
- Established construction fencing around Areas 2 and 3.1 as these areas were handed over to the Absher on October 17, 2016.

#### Next Period

- Continue to process and review submittals and RFIs.
- Continue tenant improvements for ST/CM Office at Silver Platters building.
- Continue start up activities.

- Absher to receive N125 Area B (N160 Areas 1.1 and 1.2). Continue installation of permanent fire standpipe in NB tunnel.

### Closely Monitored Issues

- Awaiting changes/redesign of the guideway alignment due to revisions to Lynnwood Link. Absher’s subcontractor has given notice that they have begun work on shop drawings and request formal direction as soon as possible.

### Cost Summary

Present Financial Status	Amount
<b><i>N160 Contractor - Absher Construction</i></b>	
Original Contract Value	\$174,000,000
Change Order Value	\$ -
Current Contract Value	\$174,000,000
Total Actual Cost (Incurred to date)	\$6,021,627
Financial Percent Complete:	3.5%
Physical Percent Complete:	1.0%
Authorized Contingency	\$17,400,000
Contingency Drawdown	\$ -
Contingency Index	N/A



# Link Light Rail Northgate Link Extension - Construction



## Contract N180 – Trackwork UWS to Northgate Station

### Current Progress

The N180 Contractor, Stacy and Witbeck, is continuing with submittal preparation and has identified a source for the Hematite aggregate specified for the floating slabs. ST has received notice from FTA that there were no adverse findings in the request for a waiver for procuring the Ultra-Straight Rail (USR). The comment period is currently underway. This waiver is early enough that a separate procurement for the USR will not be necessary.

The Contractor has resubmitted the Preliminary Baseline schedule, and is working on the Contract Baseline Schedule.

### Key Activities

#### Current Period

- Continued review of early submittals.
- Received first progress payment along with draft SOV and CPM schedule.
- RE conducted a site visit at the hematite quarry in Minnesota which will supply the aggregate for the floating slabs. Began review of early submittals.

#### Next Period

- Finalize SOV and baseline CPM schedule.
- Issue RFP for procurement of Ultrastraight Rail.
- Contactor to begin receiving first shipments of hematite aggregate for floating slab production at their Woodland, WA facility. Begin procurement of long-lead items.

### Closely Monitored Issues

- FTA Buy America waiver will be required to use foreign supplier of Ultra Straight Rail as no known domestic supplier exists.

### Cost Summary

Present Financial Status	Amount
<b><i>N180 Contractor - Stacy and Witbeck, Inc.</i></b>	
Original Contract Value	\$71,455,950
Change Order Value	\$0
Current Contract Value	\$71,455,950
Total Actual Cost (Incurred to date)	\$0
Financial Percent Complete:	0%
Physical Percent Complete:	0%
Authorized Contingency	\$10,718,393
Contingency Drawdown	\$0
Contingency Index	N/A

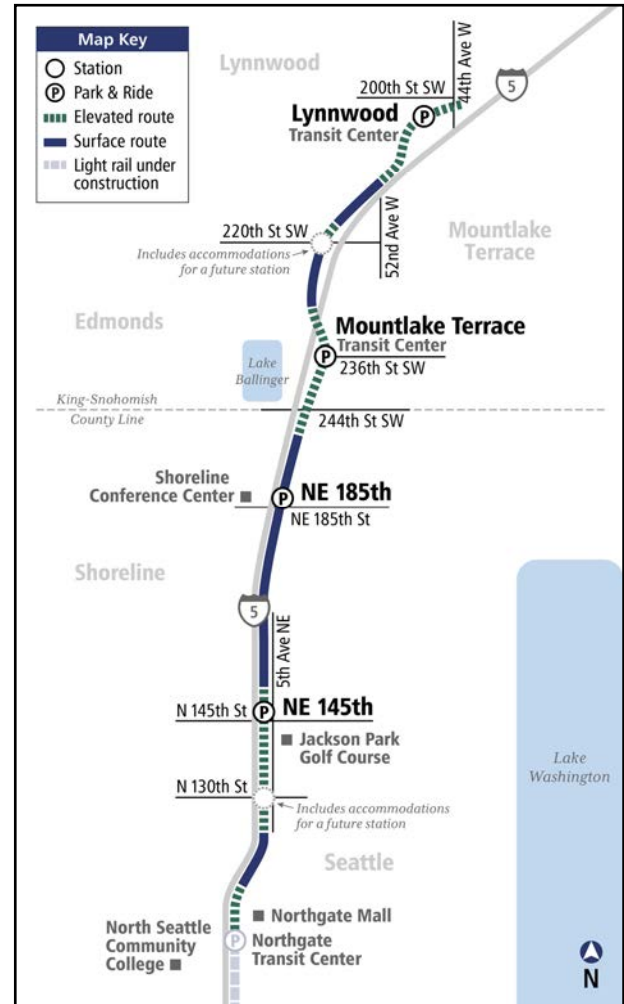
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# Link Light Rail Lynnwood Link Extension



## Scope

- Limits:** North Seattle to Shoreline, Mountlake Terrace, and Lynnwood Transit Center
- Alignment:** Lynnwood Link extends light rail 8.5 miles to Snohomish County along I-5 from Northgate Mall in Seattle to the Lynnwood Transit Center, with four new light rail stations. The configuration includes at-grade, elevated, and retained cut/fill alignment.
- Stations:** NE 145th (Shoreline), NE185th (Shoreline), Mountlake Terrace Transit Center, Lynnwood Transit Center
- Systems:** Signals, traction power, and communications (SCADA).
- Budget:** \$487.9 Million Phase Gate 4 budget; excludes Construction (Year of Expenditure Dollars)
- Phase:** Final Design
- Const. Starts:** 2018
- Service:** Late 2023



Map of Lynnwood Link Extension Alignment.

## Key Project Activities

### Final Design

- Executed Civil Final Design contract with HNTB Jacobs in April 2016. Advancing design to 60% and developing updated cost estimates.
- Executed Systems Final Design contract with LTK Engineering in July 2016.

### Pre-Construction Services

- Executed Civil Construction Management contract with PGH Wong in May 2016.
- Executed GC/CM contract with Stacy and Witbeck-Kiewit-Hoffman for L200 (south segment) pre-construction services in May 2016. Reviewing in-progress 60% design and developing construction strategy.
- Selected Skanska Constructors L300, JV as the GC/CM contractor for L300 (north segment) with pre-construction services contract awarded in Oct. 2016.
- Anticipate starting Systems pre-construction services in 2017.

### Third Parties

- Received Project Rating and Entry to Engineering Approval from FTA in February 2016.
- Executed a design review agreement with WSDOT.
- Executed design review agreements with City of Seattle and City of Shoreline. Agreements pending with City of Mountlake Terrace and City of Lynnwood. Advancing design agreements with utility providers.

## 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.

### 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	\$11.6	\$11.5	\$88.3	\$0.0
Preliminary Engineering	\$42.0	\$39.9	\$39.0	\$42.0	\$0.0
Final Design	\$111.5	\$80.0	\$10.5	\$111.5	\$0.0
Construction Services	\$104.9	\$18.0	\$1.3	\$104.9	\$0.0
3rd Party Agreements	\$17.4	\$2.4	\$0.8	\$17.4	\$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	\$123.8	\$15.9	\$10.9	\$123.8	\$0.0
<b>Total</b>	<b>\$487.9</b>	<b>\$167.9</b>	<b>\$74.1</b>	<b>\$487.9</b>	<b>\$0.0</b>

### Cost Summary by SCC

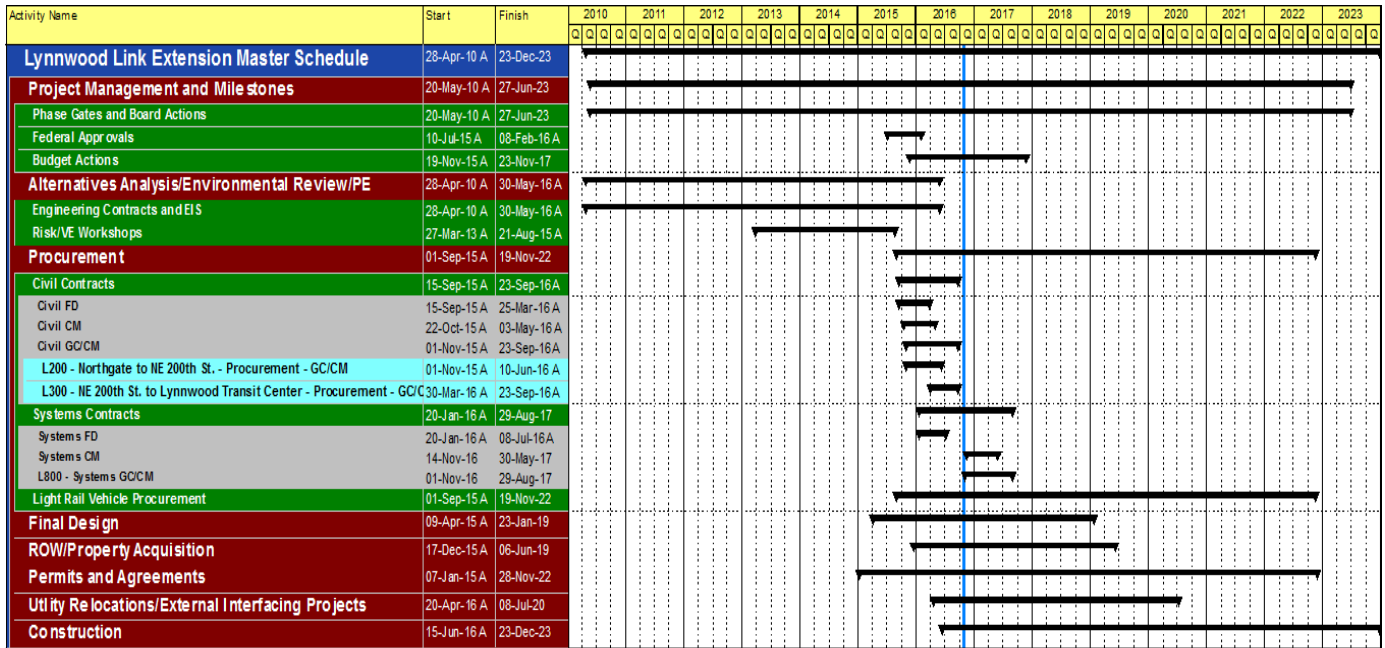
SCC Element	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
10 Guideway & Track	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
20 Stations	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
30 Support Facilities	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
50 Systems	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
<b>Construction Subtotal (10 - 50)</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>
60 Row, Land	\$123.8	\$15.9	\$10.9	\$123.8	\$0.0
80 Professional Services	\$364.1	\$152.1	\$63.2	\$364.1	\$0.0
90 Unallocated Contingency	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
<b>Total (10 - 90)</b>	<b>\$487.9</b>	<b>\$167.9</b>	<b>\$74.1</b>	<b>\$487.9</b>	<b>\$0.0</b>

## Risk Management

The Lynnwood Link Risk and Contingency Management Plan (RCMP) establishes a risk management and oversight process for identifying, assessing, and monitoring risks and develops risk reduction/mitigation plans. It provides a tool for the project team to proactively manage risks on the project. It is Sound Transit’s responsibility for continuously monitoring project status and associated risks, taking mitigation actions for known risks identified on the risk register, and effectively responding in a timely manner to those risks that pose a significant impact to the project cost or schedule forecast. The most recent Lynnwood Link Quarterly Risk Review Workshop was held in October and ST plans to hold the next risk workshop in December 2016.

## Project Schedule

The project schedule is shown below.



## Sound Transit Board Actions

Board Action	Description	Date
R2016-24	To acquire certain real property interests, including acquisition by condemnation to the extent authorized by law, and to reimburse eligible relocation and establishment expenses incurred by affected owners and tenants as necessary for the Lynnwood Link Ext.	Oct 27

## Community Outreach

- Provided a tour of the Angle Lake Station to five residents of Mountlake terrace that are interested in participating in the station design process.
- Continued preparation for three upcoming workshops in mid-November.

## Right-of-Way

- Beginning early right of way acquisition activities.
- Identifying critical acquisitions for L200 with GC/CM.

## Quality Assurance Activities

### Activities/Issues

- None to report.

### Summary

Description	Sep 2016	Notes
No. of Audits Planned	0	None
No. of Audits Completed	0	None
Reports in Progress	1	LLE
No. of Audits Postponed	0	None

## Civil Final Design Overview

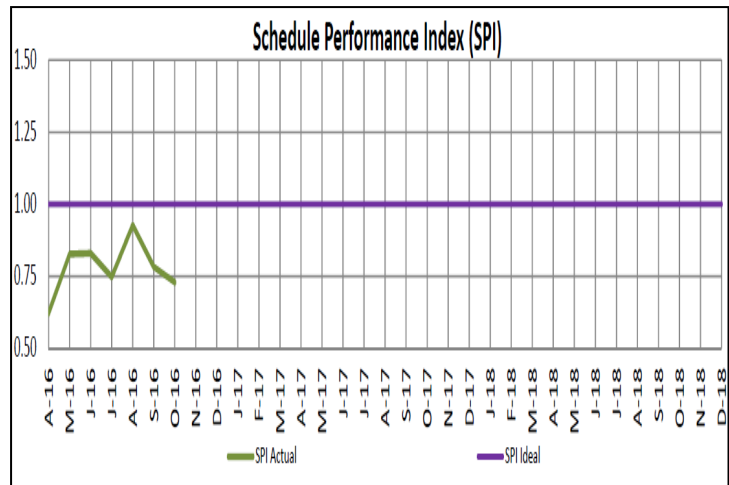
Sound Transit executed a professional services contract with HNTB Jacobs in April 2016 to perform Civil Final Design Services.

## Civil Final Design Activities

- Progressing L100, L200 & L300 60% Design.

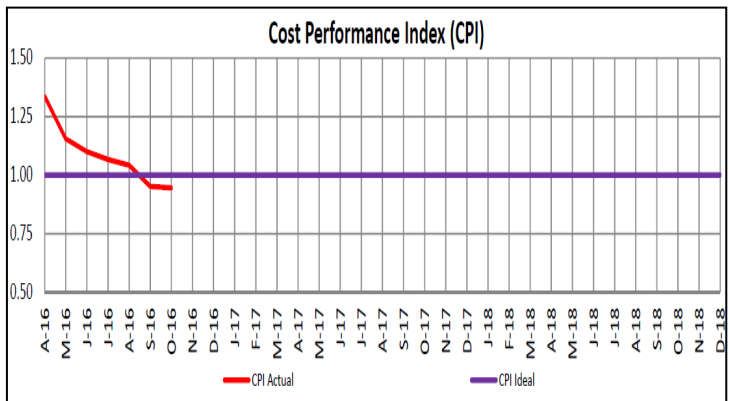
## Civil Final Design SPI

The cumulative Schedule Performance Index (SPI) trends at 0.73 through October 2016, which means that cumulative work accomplished is significantly less than work planned. Currently Civil Final Design is behind schedule due to modifications to the 30% design.



## Civil Final Design Cost Performance

\$9.8 M of the total contract amount, 14%, has been spent through October 2016. The Civil Final Design percent complete is 13%, with an earned value of \$9.3M. The cumulative Cost Performance Index (CPI) through October is 0.95 indicating that expenditures are more than the earned value.



Final Design Performance	Previous Period	Current Period	Cumulative To-date
Amount Invoiced	\$7,723,691	\$2,088,548	\$9,812,239
% Spent	11%	3%	14%
Earned Value	\$7,346,089	\$1,933,470	\$9,279,559
% Complete	10%	3%	13%
<b>SPI</b>	0.78	0.58	0.73
<b>CPI</b>	0.95	0.93	0.95

## 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

- Systems Final Design kickoff and coordination meetings
- Coordinating final design schedule and earned value data.

## Systems Final Design SPI

As of October, LTK has not yet finalized the design schedule. Schedule Performance reporting will begin upon completion of schedule, in November 2016

## Systems Final Design Cost Performance

\$66K of the total contract amount, 1%, has been spent through September 2016. As of the date of this report, LTK has not reported actual cost information for October. The Systems Final Design percent complete will be reported starting November 2016 begin upon completion of LTK's earned value plan.

## 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

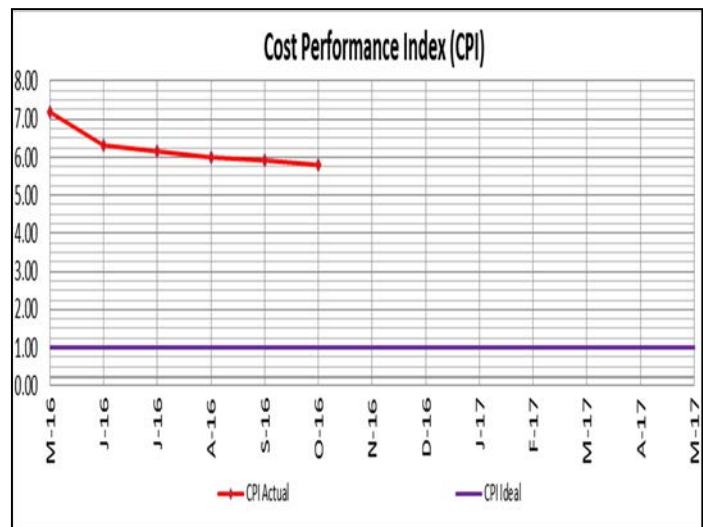
- Coordinating meetings with design, GC/CM, and ST teams.
- Coordination on various preconstruction activities including cost estimates, schedule, and constructability.

## Civil Construction Management SPI

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

## Civil Construction Management Cost Performance

\$288K of the total contract amount, 3.8%, is estimated to be spent through October 2016, with an earned value of \$1.66 M. The cumulative Cost Performance Index (CPI) through October is 5.79; indicating costs savings on the project. The monthly CPI for October was significantly high at 5.34. The Consultant assumed more support staff would be engaged early in the contract schedule but that has not been the case. This is leading to the inflated CPI.



Final Design Performance	Previous Period	Current Period	Cumulative To-date
Amount Invoiced	\$232,206	\$55,743	\$232,206
% Spent	3%	1%	4%
Earned Value	\$1,369,380	\$297,571	\$1,666,951
<b>CPI</b>	<b>5.90</b>	<b>5.34</b>	<b>5.79</b>



## GC/CM Pre-Construction Overview - L200 (South Segment)

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.

### GC/CM Pre-Con Activities

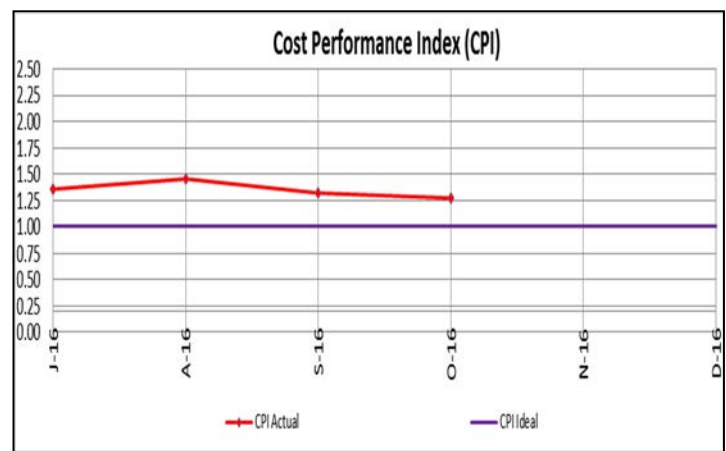
- Coordinating meetings with design, CM, and ST teams.
- Progress on various preconstruction activities including cost estimates, schedule, and constructability.

### GC/CM Pre-Con Schedule Performance

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

### GC/CM Pre-Con Cost Performance

\$895K of the total contract amount, 17%, is estimated to be spent through October 2016, with an earned value of \$1.14 M. The cumulative Cost Performance Index (CPI) through October is 1.28; indicating actual costs are lower than planned. The monthly CPI for October was steady at 0.94.



Final Design Performance	Previous Period	Current Period	Cumulative To-date
Amount Invoiced	\$788,802	\$105,905	\$894,707
% Spent	15%	2%	17%
Earned Value	\$1,044,285	\$108,543	\$1,143,623
<b>CPI</b>	1.32	0.94	1.28

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



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

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

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

### Major Contracts

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

## Key Project Activities

- *Work outside the tunnels* – Continued drainage work at 60th in Mercer Island, repaired bridge railing anchors, rebar/form/pour barrier, installed bridge pedestrian type railing, pulled wire for variable message signs (VMS).
- *Mercer Island Tunnel (MIT)* – Finalized adjustable speed drive supply fan repair, westbound supply plenum upgrades, dual zone drain stands, sealed seams in (eastbound) and installed dampers (westbound).
- *Mount Baker Ridge Tunnel (MBRT)* – Continued egress walkway repairs, install damper closure plates, supply fan 2 damper control modifications, generator day tank piping and vents, VMS sign Pre-check, jet fan control panel to MCC terminations, emergency egress anchors and strut, conduit fixtures, install sign lighters at WB, west of Mount Baker Ridge Tunnel.
- *SCADA* – Simplex interface, startup and testing of control supply fan.
- *Simplex* – Testing new software.

## Closely Monitored Issues

- Construction is currently 73% complete.
- *Schedule Update:* IMCO requested for the use of Owner Controlled Float; no float has been granted; Contractor's schedule indicates that without granting use of the float, Substantial Completion Milestone will not be met. WSDOT and Sound Transit are closely monitoring progress and elevating issues as required. WSDOT has implemented a schedule recovery plan to help ensure the May 31, 2017 date is met.
- Monitoring progress on UL and contract required changes to ASD (Adjustable Speed Drive) and VFD (Variable Frequency Drive) fan motors.
- Unit Substations corrective action, prior to bringing fans online.
- SCADA implementation remains to be a major risk.

## Project Cost Summary

Total Project Cost expended this period is \$5.8M. The following tables summarize the cost information for the I-90 Two-way Transit and HOV Operations (Stage 3) project. Tables in millions.

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	\$1.6	\$1.6	\$3.6	\$0.0
Preliminary Engineering	\$1.5	\$1.5	\$1.5	\$1.5	\$1.5	\$0.0
Final Design	\$22.1	\$22.1	\$18.6	\$17.9	\$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	\$166.3	\$118.9	\$198.3	\$0.0
<b>Total</b>	<b>\$225.6</b>	<b>\$225.6</b>	<b>\$188.1</b>	<b>\$140.0</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	\$166.3	\$118.9	\$180.6	\$0.0
80 Professional Services	\$26.3	\$26.3	\$21.7	\$21.0	\$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>\$188.1</b>	<b>\$140.0</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. Changes to the contingency level since last period are due to WSDOT executing change orders to the construction contract.

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%	\$15.1	17.6%
Unallocated Contingency	\$18.7	8.3%	\$18.7	21.8%
<b>Total</b>	<b>\$35.7</b>	<b>15.8%</b>	<b>\$33.8</b>	<b>39.4%</b>

*Note: Table in millions. Contract does not carry Design Allowance.  
Contingency % of Work Remaining based on Contingency Remaining as a % Budget Remaining.  
Allocated contingency includes WSDOT-controlled contingency & ST-controlled Contingency.*

## Project Schedule

Currently, the schedule includes 100 days of owner's control float. The Prime Contractor has submitted a request for the use owner's control float to mitigate anticipated delay for WSDOT consideration. Sound Transit is evaluating the potential impact to E130 schedule, and coordinating with WSDOT for mitigation. Should WSDOT & Sound Transit agree to allow the contractor to use this float, a schedule update may revise the remaining Project Milestones for construction; Current Project Milestones are indicated below:

Contract	Start of Final Tunnel Commissioning Period		Final Tunnel Commissioning Complete		Substantial Completion		Commence Final Pavement Marking		Physical Completion & Center Roadway Turnover	
	Baseline	Forecast / Actual	Baseline	Forecast / Actual	Baseline	Forecast / Actual	Baseline	Forecast / Actual	Baseline	Forecast / Actual
I-90 Two-Way Transit & HOV Operations Stage 3	12/6/2016	<b>11/17/2016</b>	2/16/2017	<b>2/16/2017</b>	2/20/2017	<b>2/20/2017</b>	5/20/2017	<b>5/20/2017</b>	5/31/2017	<b>6/31/2017</b>

Changes from previous update are indicated in **RED**

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# Link Light Rail East Link Extension



Map of East Link Extension Alignment.

## Scope

- Limits:** Downtown Seattle to Mercer Island, Bellevue and the Overlake area of Redmond.
- Alignment:** East Link extends light rail 14 miles to East King County from Downtown Seattle serving Mercer Island via I-90, Bellevue and the Overlake area of Redmond, with ten new light rail stations. The alignment configuration includes at-grade, elevated, bridges, new and retrofitted tunnels.
- Stations:** Judkins Park (formerly Rainier), Mercer Island, South Bellevue, East Main, Bellevue Downtown, Wilburton (formerly Hospital), Spring District/120th, Bel-Red/130th, Overlake Village and Redmond Technology Center (RTC).
- Systems:** Signals, traction power, and communications (SCADA).
- Budget:** \$3.677 Billion Baseline Budget (Year of Expenditure Dollars)
- Phase:** Construction
- Construction Starts:** 2016
- Service:** June 2023

## Key Project Activities

### Seattle to South Bellevue

- The 90% Design Plans for the Floating Bridge, Fixed Structures, and Judkins Park and Mercer Island Stations are under review.
- The DAP has been approved by the FHWA, and the PDA has started; the PDA is due in the 4th QTR 2016.
- Following subcontract packages were submitted to ST Contracts for review: Track Bridge Fabrication, Tunnel Fire Protection, and Tunnel Electrical. Completed review of 5 seismic retrofit packages which were advertised the week of October 24.

### South Bellevue to Redmond

- *E320 South Bellevue:* Project Approval (PDA) for E320 is in final WSDOT/FHWA signature process; Preparing Issue for Construction Contract Drawing and Contract Specifications. Received ROW use permit from City of Bellevue.
- *E330 Downtown Bellevue Tunnel:* South Portal soil nail work continues; painting sound wall continues; noise package; installation of instrumentation to monitor for settlement during construction continued; HJH continued developing 3-Drift tunnel design; contract package design was completed; HJH, ST, and Bellevue discussing extent of the cast iron water line replacement.

## South Bellevue to Redmond, continued

- *E335*: Project Design Approval (PDA) for E335 in final WSDOT/FHWA signature process; Subcontractor procurement continued; Working with WSDOT to relocate an existing camera. Preparing for GC/CM MACC negotiation.
- *E340*: Responding to RFIs. Preparing Clarifications and Addenda; continued working with Bellevue to address various project interface issues; Cost-to-Cure work on the MGI parcel continued; Held Pre-bid meeting; Received signed MOT concurrence with the City of Bellevue.
- *E360*: Presented Overlake Village Station 30% design to Redmond's Design Review Board (DRB). Design development continued. Review of 30% design packages continued; Coordinated Civil Review (CCR) process for drainage and site work at OVS and OTC continued; E360/E750 (systems) design coordination continued; Discussions regarding 40th Street drainage outfall extension continued; Discussions regarding changes to the OTC Ped Bridge continued; Environmental kickoff meeting held on October 24; Began interface coordination with the WSDOT/Redmond Overlake Access Project.

## Project Cost Summary

The East Link project cost is summarized below in two cost categories. In the first table, the cost is summarized in accordance with Sound Transit's Work Breakdown Structure (WBS). The second table summarizes the project in accordance with the FTA's Standard Cost Category (SCC) format. The figures in both tables are shown in millions. The Estimated Final Cost (EFC) for this project is \$3,677.2M in year of expenditure dollars. Approximately \$29.2M was incurred this period.

### 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	\$186.2	\$186.2	\$50.8	\$50.6	\$186.2	\$0.0
Preliminary Engineering	\$55.9	\$55.9	\$54.5	\$54.4	\$55.9	\$0.0
Final Design	\$283.0	\$283.0	\$231.3	\$185.6	\$283.0	\$0.0
Construction Services	\$257.5	\$257.5	\$137.2	\$19.0	\$257.5	\$0.0
3rd Party Agreements	\$52.2	\$52.2	\$34.7	\$8.6	\$52.2	\$0.0
Construction	\$2,544.3	\$2,544.3	\$373.2	\$55.0	\$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	\$186.5	\$182.5	\$298.2	\$0.0
<b>Total</b>	<b>\$3,677.2</b>	<b>\$3,677.2</b>	<b>\$1,068.3</b>	<b>\$555.8</b>	<b>\$3,677.2</b>	<b>\$0.0</b>

### 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	\$744.6	\$744.6	\$174.6	\$25.0	\$727.3	\$17.5
20 Stations	\$397.7	\$397.7	\$73.7	\$3.2	\$431.4	(\$33.6)
30 Support Facilities	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$808.5	\$808.5	\$97.4	\$24.6	\$795.8	\$12.5
50 Systems	\$353.8	\$353.8	\$6.3	\$0.4	\$352.6	\$1.2
<b>Construction Subtotal (10 - 50)</b>	<b>\$2,304.6</b>	<b>\$2,304.6</b>	<b>\$352.0</b>	<b>\$53.2</b>	<b>\$2,307.1</b>	<b>(\$2.4)</b>
60 Row, Land	\$288.5	\$288.5	\$186.5	\$182.5	\$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	\$900.3	\$529.8	\$320.1	\$897.8	\$2.4
90 Unallocated Contingency	\$182.9	\$181.0	\$0.0	\$0.0	\$181.0	\$0.0
<b>Total (10 - 90)</b>	<b>\$3,677.2</b>	<b>\$3,677.2</b>	<b>\$1,068.3</b>	<b>\$555.8</b>	<b>\$3,677.2</b>	<b>\$0.0</b>



## Risk and Contingency Management

### Contingency Status

Sound Transit has completed a draft Risk and Contingency Management Plan (RCMP) for East Link, and is currently addressing review comments from the Project Management Oversight Consultant (PMOC). The project's baseline budget, which was approved by the Sound Transit Board in April 2015, contained a total of \$795.9M contingency. This period, total contingency decreased by a net \$0.9M, to a new total amount of \$777.1M. The contingency balance remained higher than the anticipated draw down.

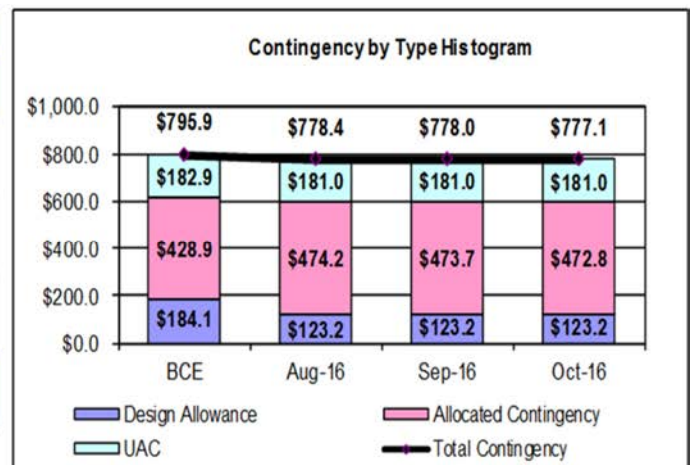
**Design Allowance** is used to account for scope that could not be quantified at the time of the cost estimate. The total amount of design allowance in the baseline cost estimate was \$184.1M. Design allowance had been drawn down in the prior periods to offset the increase in the base cost estimate as more design details are available for cost estimating. This period, the design allowance balance remained the same as the last period, which was \$123.2M. As the designs continue to be progressed to 100% level and the engineer's cost estimates are prepared, design allowance is expected to be reduced.

**Allocated Contingency** is used to address risks, complexity and unforeseen conditions during the execution of work, including procurement (market risk). This period, the total amount of allocated contingency decreased by a net \$0.9M. This was due to the execution of a change orders on the E330 contract, So. Bellevue to OTC Final Design and Track Bridge Design. Total allocated contingency balance is now \$472.8M.

**Unallocated Contingency** is used to address general project-wide cost risks and uncertainties. The total amount of unallocated contingency UAC in the baseline cost estimate is \$182.9M. UAC had been drawn down to \$181.0M in the Fall of 2015, but has not been changed since then.

Contingency Status	BCE		Current Status	
	Amount	% of Total Budget	Remaining Amount	% of Work Remaining
Design Allowance	\$184.1	5.0%	\$123.2	3.9%
Allocated Contingency	\$428.9	11.7%	\$472.8	15.1%
Unallocated Contingency	\$182.9	5.0%	\$181.0	5.8%
<b>Total:</b>	<b>\$795.9</b>	<b>21.6%</b>	<b>\$777.1</b>	<b>24.9%</b>

Dollar figures on this page are displayed in millions.



### Risk Management

The RCMP established a risk management and oversight process for identifying, assessing, and monitoring risks and develops risk reduction/mitigation plans. It provides a tool for the project team to proactively manage risks on the project. 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.

This period, Sound Transit continued the formal 3rd quarter risk assessment workshops, and began preparation of the report. Sound Transit included participation of construction management consultants and construction contractors who are already under contracts (E130, E330, E335, E360 and E750) in its risks management program.

## Project Schedule

The East Link schedule was finalized through a team review to ensure accuracy as ST ramps up the construction phase of the project. Revenue Service is forecasted for June 2023.

East Link contract procurements continue:

- E335 GC/CM (Downtown Bellevue to Spring District) Pre-construction awarded 1st QTR 2015
- E130 GC/CM (I-90 Heavy Civil) Pre-construction and I-90 CMC awarded 4th QTR 2015
- E330 (Downtown Bellevue Tunnel) NTP issued February 8, 2016
- E750 GC/CM (East Link Systems) Pre-construction awarded 1st QTR 2016
- E360 D/B (SR520 to Overlake Transit Center) NTP issued July 13, 2016
- Systems Construction Management Consultant (CMC) Phase 1 (pre-construction services) awarded 3rd QTR 2016
- E320 (South Bellevue) to awarded 3rd QTR 2016

Activity ID	Activity Name	Start	Finish	2016	2017	2018	2019	2020	2021	2022	2023
				Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
<b>East Link Integrated Project Master Schedule</b>											
East Link Integrated Project Master Schedule											
Preliminary Engineering											
<b>East Link Final Design</b>											
East Link Final Design - Bel-Red											
East Link Final Design - I-90 Corridor											
East Link Final Design - Systems											
<b>Property Acquisition</b>											
<b>Airspace Leases/Temporary Construction Airspace Leases</b>											
EL Permits and 3rd Party Agreements											
<b>EL Early Utilities Construction</b>											
<b>EL 130 - Seattle to I-90 Overpass (GC/CM)</b>											
E130 Preconstruction											
E130 Construction											
<b>EL 320 - I-90 Overpass to S. Bellevue (DBB)</b>											
E320 Procurement											
E320 Construction											
<b>EL 330 - Downtown Bellevue Tunnel (DBB)</b>											
<b>EL 335 - Downtown Bellevue to Spring District (GC/CM)</b>											
E335 Construction											
E335 Preconstruction											
<b>EL 340 - Spring District to SR 520 (DBB)</b>											
E340 Construction											
E340 Procurement											
<b>EL 360 - SR 520 to Overlake Transit Center (DB)</b>											
<b>EL 750 - Systems</b>											
N830/E750 - North Link/East Link Systems Construction											
N830/E750 Pre-Construction											
<b>EL RACT - East Link Rail Activation/System Integration/Project Float</b>											
East Link Rail Activation/System Integration/Project Close out											
Pre-Revenue Testing & Start Up											
EL5400	East Link System Integration Testing (3 Mo)	30-Mar-22	28-Sep-22								
EL11820	East Link Pre Revenue Operations (3 Mo)	30-Mar-22	28-Jun-22								
<b>Revenue Service Window</b>											
EL5410	East Link Program Float - 9 Months	29-Sep-22	28-Jun-23								
EL5420	East Link Target Revenue Service Date	29-Sep-22	28-Jun-23								

\*Note: This schedule represents East Link Schedule Progress.

## Critical Path Analysis

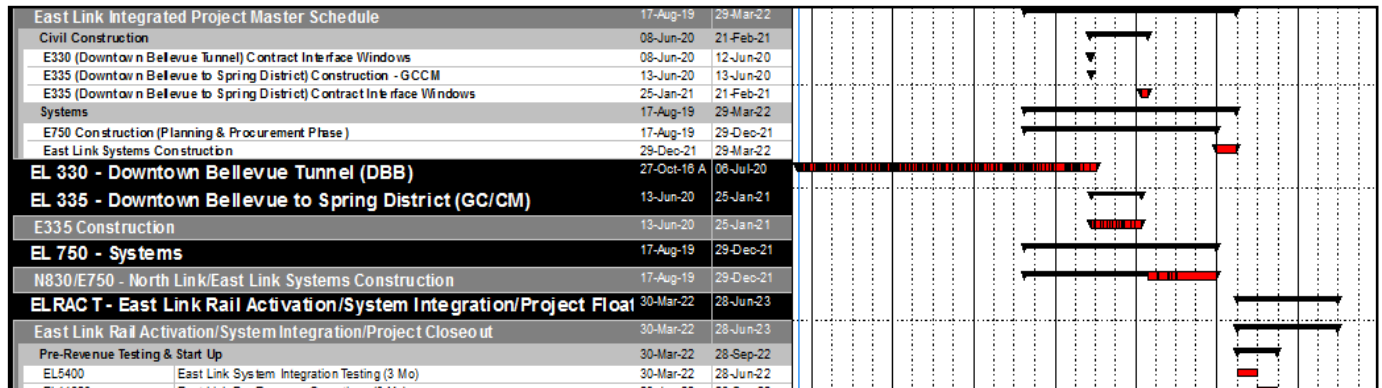
The critical path is currently running through the handover of the E330 tunnel to the E335 Contractor; work on the South Portal Electrical Building drives substantial completion of E335 and subsequently the critical path of E750. And, although the I-90 TCAL will not be activated before June 2017, the E130 PDA (to be signed with I-90 TCAL) needs to be signed prior to NTP, making I-90 TCAL near critical.

# Link Light Rail East Link Extension



## Critical Path Analysis, continued

The East Link critical path schedule is shown below.



## Right of Way

The East Link Extension involves the acquisition of a range of property interests including fee acquisitions for stations, guideway, staging areas, support facilities, and tunnel and guideway easements as well as permanent and temporary easements for construction. These acquisitions will result in owner and tenant residential and commercial relocations. The East Link Extension included the advance acquisition of approximately one mile of an existing railroad parcel (“Bellevue Mile”) that the Sound Transit Board approved in June 2011. The right-of-way program status for this period is summarized in the following table. Market value trends in both residential and commercial properties are exhibiting strong upward pressure. Appraisals are being adjusted to reflect this increasing trend in the market. The overall impact on the Right-of-Way (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.

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
Seattle to S. Bellevue	2	1	0	0	0	0	0	0
S. Bellevue to RTC	237	208	1	27	7	139	229	185
Bellevue Mile	1	1	1	0	0	1	0	0
<b>Total</b>	<b>240</b>	<b>210</b>	<b>2</b>	<b>27</b>	<b>7</b>	<b>140</b>	<b>229</b>	<b>185</b>

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 due time.

### Seattle to S. Bellevue

E130 IDS Rail Connection & IDS & I-90 Upgrades - Air Space Lease discussions with WSDOT continue.

### S. Bellevue to RTC parcels

E320 S. Bellevue- 3 parcels granted P & U. Air Space Lease discussions with WSDOT continue.

E330 Downtown Bellevue – 1 admin settlement approved.

E335 Downtown Bellevue to Spring District – 1 offer made; 5 parcels closed & 1 parcel vacated.

E340 Bel-Red - 2 parcels granted P&U;

E360 SR 520 to OTC – On new activity. Air Space Lease discussions with WSDOT continue.

## Construction Safety

Data/ Measure	October 2016	Year to Date	Project to Date
Recordable Injury/Illness Cases	0	0	0
Days Away From Work Cases	0	0	0
Total Days Away From Work	0	0	0
Restricted or Modified Work Cases	0	0	0
Total Days Restricted or Modified Work	0	0	0
First Aid Cases	0	4	4
Reported Near Mishaps	1	12	12
Average Number of Employees on Worksite	41	-	-
<b>Total # of Hours (GC &amp; Subs)</b>	<b>6,000</b>	<b>33,435</b>	<b>33,435</b>
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	0.00	0.00	0.00
DART Rate	0.00	0.00	0.00
<i>Recordable National Average</i>	<i>3.60</i>	<i>3.60</i>	<i>3.60</i>
<i>DART National Average</i>	<i>2.00</i>	<i>2.00</i>	<i>2.00</i>
<i>Recordable WA State Average</i>	<i>7.20</i>	<i>7.20</i>	<i>7.20</i>
<i>DART WA State Average</i>	<i>3.30</i>	<i>3.30</i>	<i>3.30</i>

## Quality Assurance Activities

### Activities/Issues

- None to report.

### Summary

Description	Sep 2016	Notes
No. of Audits Planned	0	None
No. of Audits Completed	0	None
Reports in Progress	2	E750/N830 90% Design Submittal Audit & E335 100% Design Submittal
No. of Audits Postponed	0	None

## Community Outreach

- Hosted Judkins Park Open House and 96 people attended.
- Attended Tunnel excavation drop-in session.
- Attended various meetings including:
  - Meeting by Rep. Clibborn regarding bicycle and pedestrian issues on Mercer Island and approx. 20 people attended.
  - Bellevue Mingle, a downtown Bellevue resident event and approx. 250 in attendance.
- Presented construction updates to various groups including the John L. Scott downtown Bellevue office (50 attendees) and Bellevue Commute Trip Reduction/Transportation Management Program Network Group.
- Door-to-door and email outreach in the Bel-Red area with more than 50 directly-project-adjacent businesses regarding Maintenance of Traffic potential one-way scenario.

## Sound Transit Board Actions

Board Action	Description	Date
M2016-100	Execute a contract with Shimmick/Parsons JV to construct the South Bellevue Contract E320 within the East Link Ext. in the amount of \$321,098,000 with a 12% contingency of \$38,532,000, for a total authorized contract amount not to exceed \$359,630,000.	Oct 27

## Environmental

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

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



## Final Design Scope

Final Design for the East Link Extension includes three major design contracts: two for civil improvements and one for systems improvements. This contract is for civil and architectural design services from South Bellevue to the Redmond Technology Center (RTC). The contract was awarded to H-J-H Final Design Partners, a joint venture of HNTB Corporation, Jacobs Engineering Group, Inc., and Hatch Mott MacDonald.

The scope of H-J-H services includes detailed designs of the corridor, preparation of comprehensive construction contract documents, permitting support, surveying, geotechnical investigations, right-of-way planning, third party coordination, systems coordination, cost estimating, scheduling, sustainability report, bid support, Preliminary Hazards Analysis, and community outreach.

The design is grouped into five Contract Packages: (1) E320 South Bellevue; (2) E330 Downtown Bellevue Tunnel; (3) E335 Downtown Bellevue to Spring District; (4) E340 Bel-Red, and (5) E360 SR-520 to Redmond Technology Center.



Map of South Bellevue to Redmond Technology Center.

## Final Design Key Activities

### E320 So. Bellevue

- Design of the E320 contract package is complete.
- Prepared to commence Design Services During Construction after construction contract is awarded.

### E330 Downtown Bellevue Tunnel

- Design of the E330 contract package is complete.
- Continued Design Services During Construction.

### E335 Downtown Bellevue to Spring District

- Completed E335 IFB Submittal.
- Provided responses to the City of Bellevue permit review comments.
- Continue the interface coordination on the City of Bellevue's 120th and 124th Ave NE Roadway Projects.

### E340 Bel-Red

- Completed E340 IFB Submittal.
- Continued coordination of work with PSE, Century Link and other private utilities.
- Commenced Bid Support services. IFB was advertised in early October 2016.

### E360 SR 520 to Redmond Technology Center

- Continued Design Support for the E360 Design/Build Contract.

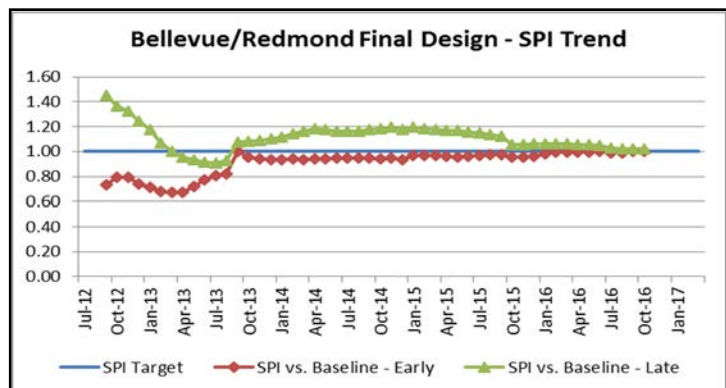
## Final Design Schedule

The table below shows the design submittal dates for each of the contract.

Contract Packages	60% Submittal		90% Submittal		100% Submittal		IFB Submittal	
	Baseline*	Forecast/Actual	Baseline*	Forecast/Actual	Baseline*	Forecast/Actual	Baseline*	Forecast/Actual
E320 So. Bellevue	12/6/2013	12/6/2013	9/19/2014	9/19/2014	4/3/2015	4/3/2015	1/25/2016	1/25/2016
E330 Downtown Bellevue Tunnel	11/18/2013	11/18/2013	6/2/2014	6/2/2014	10/20/2014	10/20/2014	5/11/2015 6/15/2015 (2 <sup>nd</sup> IFB)	5/11/2015 6/15/2015 (2 <sup>nd</sup> IFB)
E335 Downtown Bellevue to Spring District	12/20/2013	12/20/2013	10/19/2015	10/19/2015	3/8/2016	3/8/2016	6/13/2016 (9/6/2016 - 120 <sup>th</sup> Sta.)	7/11/2016 (9/16/2016 - 120 <sup>th</sup> Sta.)
E340 Bel-Red	7/15/2013	7/15/2013	4/04/2014	7/21/2014	12/8/2014	12/8/2014	5/23/2016	9/20/2016
E360 SR-520 to RTC	Draft RFP Submittal		Final RFP Submittal		*Baseline schedule dates revised to reflect final contract packaging and construction delivery methods.			
	Baseline*	Forecast/Actual	Baseline*	Forecast/Actual				
E360 SR-520 to RTC	2/18/2014	2/18/2014	8/14/2015	8/14/2015				

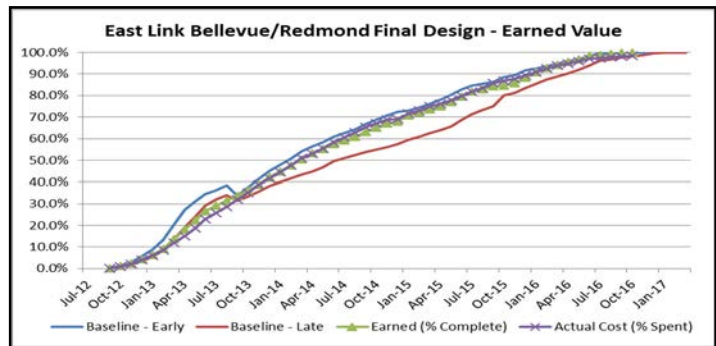
## Final Design Schedule Performance

Excluding Other Direct Expenses (ODCs), Profits and DSDC, the cumulative Schedule Performance Index (SPI) reported this period is at 1.00. The IFB for each contract package has now been completed and submitted. Final Design scope is 99.9% complete.



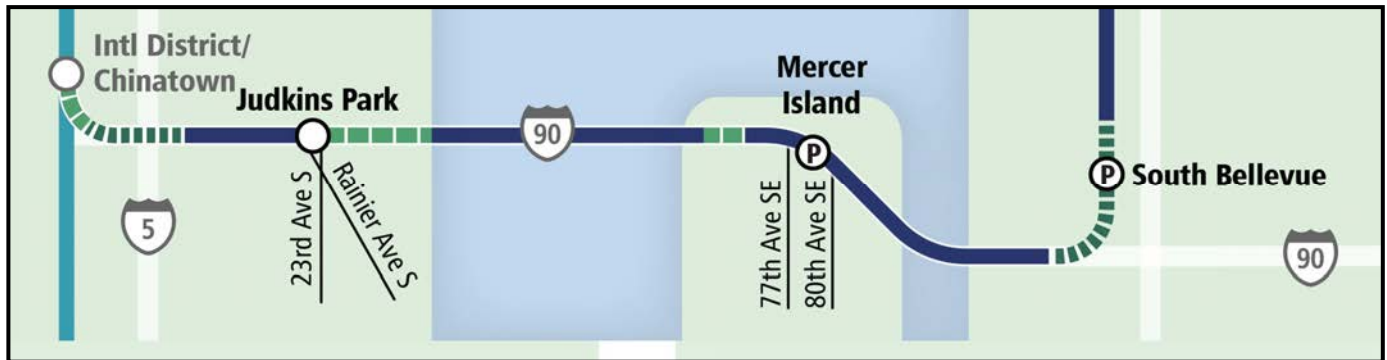
## Final Design Cost Performance

Labor cost (for Phase 2 Final Design) to-date is \$84.9M, or 98.5% of the budget. Progress earned through the same period is 99.9% or \$86.2M of earned value. This yields a cumulative Cost Performance Index (CPI) of 1.01, which indicates approximately on-budget cost efficiency of the current contract budget, including executed change orders. There are some pending change orders that are being negotiated to address design and specifications changes prior to final IFB submittals. However, Estimate At Completion (EAC) is within the approved budget by Sound Transit Board.



Performance	Previous Period	Current Period	Cumulative To Date
Labor Amt. Invoiced	\$84,778,616	\$156,496	\$84,935,112
% Spent	98.3%	0.2%	98.5%
Earned Value	\$86,157,629	\$42,371	\$86,200,000
% Complete	99.9%	0.0%	99.9%
<b>CPI</b>	1.02	0.27	1.01

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



Map of International District Station to South Bellevue.

## Final Design Scope

Final Design for the East Link Extension is delivered by three major design contracts: two for civil improvements and one for systems improvements. This Contract is for the civil and architectural design services from International District Station (IDS) to South Bellevue. The contract was awarded to Parsons Brinkerhoff, Inc. (PB).

The scope of the services includes detailed design of the corridor, preparation of comprehensive construction contract documents, permitting support, surveying, geotechnical investigation, right-of-way planning, third party coordination, systems coordination, cost estimating, scheduling, sustainability report, bid support, preliminary hazards analysis, and community outreach support.

The project in this segment has been aggregated into one Contract Package: E130 Rail Connection and Upgrades at IDS; seismic Retrofits of WSDOT Structures; and I-90 Civil/Architectural, which also includes the two at-grade stations, and Electrical/Mechanical Upgrades to existing Tunnels.

## Final Design Key Activities

### Design (Civil, Systems, Architecture, Art)

- The 100% submittal for QC for the Floating Bridge, Fixed Structures, and Judkins Park and Mercer Island Stations are due on November 28.
- The DAP has been approved by the FHWA, Phased PDA submittal being discussed with WSDOT and FHWA.
- E130 - Design Clarifications for pricing set received October 31.

### Third Party, Agreements, & Permits

- The East Link Construction Service Agreement is with the City of Seattle for signature.
- Continued collaboration with the City of Mercer Island on mobility and parking. The Mercer Island Advisory Group met and reviewed the station art and architecture. A debrief is set with Mercer Island staff to review the event.
- Work continues with WSDOT and FHWA on the I-90 Air Space Lease, and Temporary Construction Air Space Lease. Anticipated execution this quarter.

### Construction & Construction Management

- The floating bridge electrical task force completed reconnaissance work and submitted a work plan to WSDOT for review.
- Track Bridge Fabrication, Tunnel Electrical, and Tunnel Fire Protection subcontract packages submitted to ST Contracts for review.
- Conducted a pre-bid meeting for the five E130 seismic retrofit subcontract packages that Sound Transit is administering. It has been determined no temporary construction easement will be necessary from Urban Visions to construct the D2 seismic retrofits and the conversion of the International District Station.

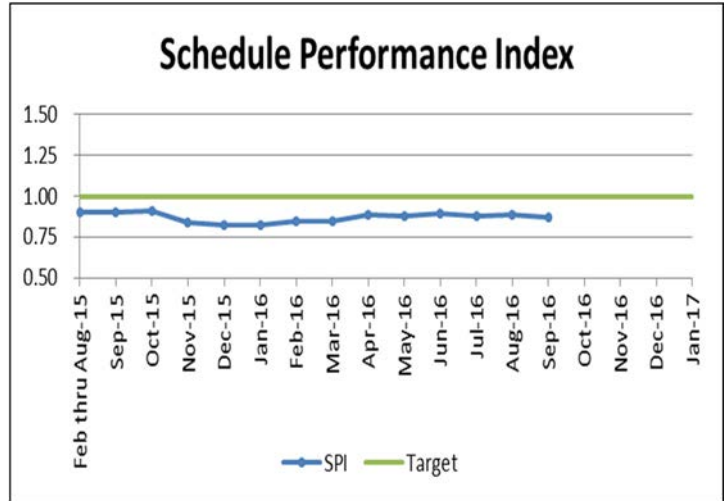
## Final Design Schedule

Contract Packages	60% Submittal		90% Submittal		100% Submittal	
	Baseline	Actual	Baseline	Forecast/ Actual	Baseline	Forecast/ Actual
EI 30 – Rail connection & IDS upgrades; Seismic retrofits; and I-90 Civil/Arch./Elect. & Mech. Upgrades	4/4/2014	7/11/2014A	6/16/2016	7/1/2016A	12/14/2016	9/2/2016 A

A = Actual

## Final Design Schedule Performance

Excluding Other Direct Expenses (ODCs) and Profit, the Schedule Performance Index (SPI) reported this period dropped slightly to 0.87 when measuring against the Phase 2 Early Schedule Baseline, indicating the project continues to trend behind schedule by about 2 months. The below optimal schedule performance may be due to changes to design or additional analysis requested by third parties that the design team has to react to. The Pricing Set has been submitted, although some design work remains to complete the package. As the Consultant realigns staff to perform remaining design tasks, the SPI is anticipated to remain below 1.00 as Final Design is nearing completion and there may not be enough time to recover schedule performance.



## Final Design Cost Performance

Reporting is for Phase 2 Direct Labor & Overhead performance only measured against the Phase 2 Cost to Complete, which is \$20.7M. Cumulative CPI is 0.93, indicating the project continues to trend slightly over budget. The over-budget trend may be due to additional work efforts to complete the plans for the Pricing Set. It is anticipated the CPI will continue to trend near 1.00 for the duration of final design. Cost performance will be closely monitored to ensure project completion in a cost-effective and successful manner.



Performance	Previous Period	Current Period	Cumulative To Date
Labor Amt. Invoiced	\$20,247,352	\$740,728	\$20,988,080
% Spent	87.1%	3.6%	99.9%
Earned Value	\$18,995,220	\$484,731	\$19,479,951
% Complete	82.0%	2.4%	84.4%
<b>CPI</b>	<b>0.94</b>	<b>0.65</b>	<b>0.93</b>



# Link Light Rail East Link Extension Final Design - Systems



## Final Design Scope

Final Design for the East Link Extension is delivered by three major design contracts: two for civil improvements and one for systems improvements. This contract is for the systems design services for the entire alignment. The contract was awarded to LTK Engineering Services, Inc. The scope of the services include detailed design of the corridor, preparation of comprehensive construction contract documents, 3rd party coordination, cost estimating, scheduling, and bid support.

## Final Design Key Activities

- Completed the N830/E750 Design Clarifications Log.
- Received WSDOT concurrence on attaching the overhead catenary to the existing overcrossing bridges along the I-90 corridor.
- Provided the E130 Contractor with updated electrical retrofit plans incorporating constructability recommendations for the I-90 floating bridge.

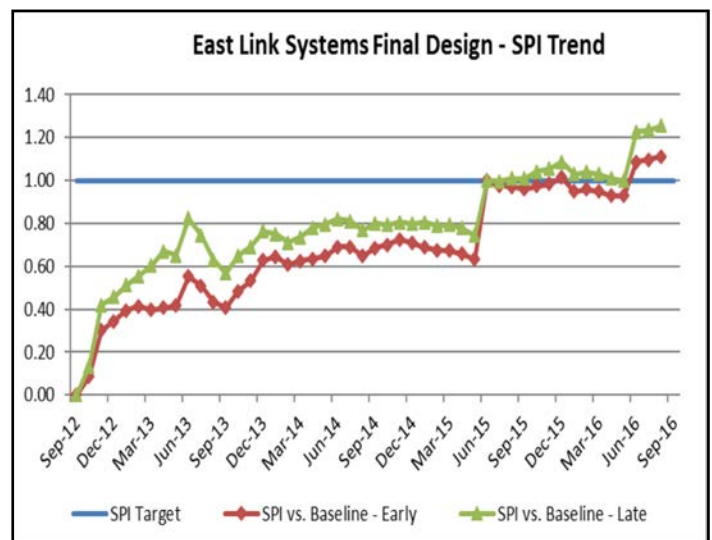
## Final Design Schedule

	60% Submittal		90% Submittal		100% Submittal		IFB Submittal	
	Baseline	Actual	Baseline	Actual	Baseline	Forecast/Actual	Baseline	Forecast/Actual
E750- LRT Systems	10/24/2014	10/24/2014A	2/1/2016	1/29/2016A	9/6/2016	9/6/2016A	3/1/2017	3/1/2017

A = Actual

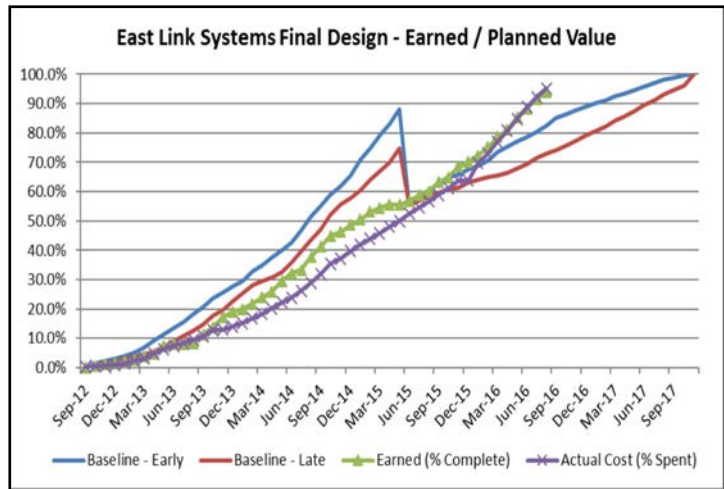
## Final Design Schedule Performance

The project is 93.9% complete (Final Design) resulting in an Earned Value of \$16.5M. The project has an early SPI of 1.00 and a late SPI of 1.09 which indicates that the contract is on schedule.



## Final Design Cost Performance

The project has spent approximately 95.9% (Final Design) of the budget resulting in CPI of 1.0. A cost to complete has been requested from LTK.



Performance	Previous Period	Current Period	Cumulative To Date
Labor Amt. Invoiced	\$16,761,411	\$425,000	\$17,186,411
% Spent	94.5%	1.4%	95.9%
Earned Value	\$16,562,993	\$425,000	\$16,987,993
% Complete	93.9%	2.5%	96.4%
<b>CPI</b>	1.0	1.0	1.0

## Major East Link Construction Contract Packages

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

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

*Status: Completed.*

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

*Status: Continued work on the mock-up of track and plinths attachment on the floating bridge.*

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

*Status: Incorporating E160 into E130.*

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

*Status: In procurement, pending ST Board approval of contract.*

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

*Status: See following pages.*

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

*Status: Continued procurement of subcontract packages.*

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

*Status: Advertise 3rd QTR 2016*

**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: NTP issued on July 13, 2016. Advancing design to 30%.*

**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: GC/CM reviewing design documents, and coordinating with designers.*

## Contract E330 – Downtown Bellevue Tunnel

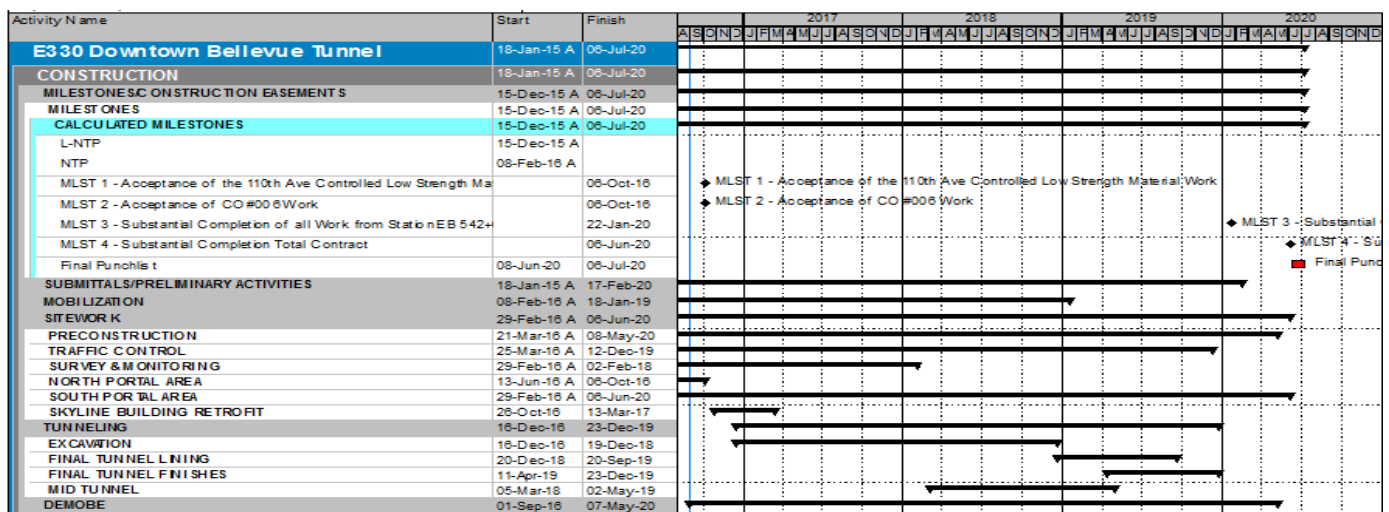
### Current Progress

**South Portal:** The Contractor continued finalizing the exterior painting of the sound wall as weather permits. The Contractor continued soil nail wall excavation, completing lifts 2 thru 5 during the month. Continued drilling the top row of pipe canopy at tunnel headwall and started grouting of them. The Contractor continued to maintain TESC and Traffic Control measures, and continued installation of tunnel monitoring equipment throughout the site in preparation for tunneling.

**North Portal:** Installation of the monitoring equipment for piezometers, inclinometers, and extensometers continued. Began installation of dewatering wells in front of the Marriott and the PSE building.

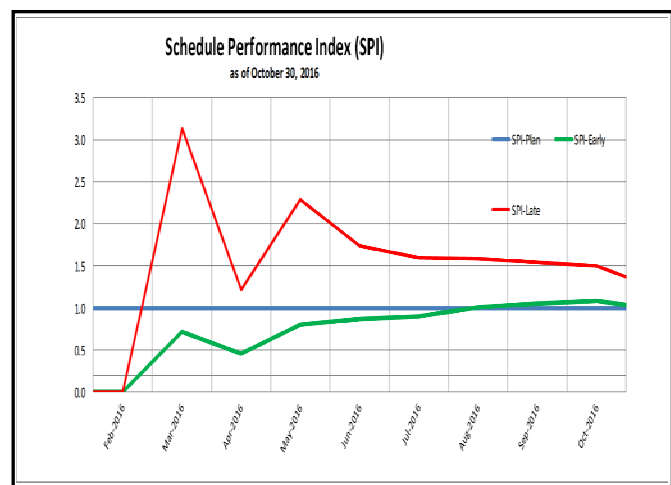
### Schedule Summary

The critical path for this contract continues to follow the South Portal excavation through the tunnel excavation and the completion of the South Portal structure. The decision to use CLSM in lieu of the grouted pipe canopy at the North Portal allowed for a resequencing of work which removes the need for an interim interface with E335, providing some schedule relief. The contractor is currently modeling a change in excavation method for the southern 60% of the tunnel which, if approved, could realize up to three months of additional schedule savings.



### Schedule Performance Index

This period, the SPI early (.98) trends slightly behind of schedule and the SPI late (1.24) is holding its trend on completion ahead of the baselined schedule. The index indicates that the contractor is now on a similar timeframe to the baseline schedule. This trend is supported by the fact that the south portal work, specifically the soil nail wall installation is taking longer than expected. Additionally, the contractor experienced severe weather days during the month of October. Both the severe weather and the additional time taken in the soil nail installation are the cause for the decreased productivity.



# Link Light Rail East Link Extension - Construction

## Next Period's Activities

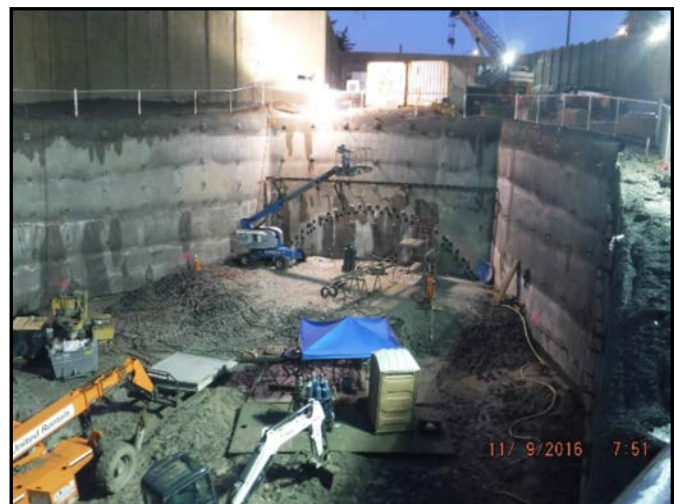
- Layout Piezometers, Inclinometers and Extensometers throughout the site. This activity could be delayed further if right of entries are not obtained in time.
- Continue excavation and installation of the soil nail walls at the South Portal. Lifts 5-8 should be completed and the last lift 9 started.
- Continue installation of the pipe canopy and begin preparations ahead of tunneling.

## Closely Monitored Issues

- Alternate SEM excavation sequence proposed by the contractor decision continues to be pending, awaiting additional design reviews.
- Obtaining right of entry agreements and temporary construction easements for properties along alignment.
- The TCE for the Skyline property does not match the requirements in the Contract Documents. The TCE requires the use of property owner approved MEPS subcontractors, night and weekend only work hours, and performing work on one floor at a time. CMC team currently negotiating with the contractor and Skyline building management on a solution.

## Cost Summary

Present Financial Status	Amount
<b>E330 Contractor– Guy F Atkinson Construction, LLC.</b>	
Original Contract Value	\$121,446,551
Change Order Value	\$935,054
Current Contract Value	\$122,381,605
Total Actual Cost (Incurred to date)	\$20,069,023
Financial Percent Complete:	16.4%
Physical Percent Complete:	16.4%
Authorized Contingency	\$12,244,655
Contingency Drawdown	\$935,054
Contingency Index	2.2



South Portal pipe canopy headwall in cut-and-cover.

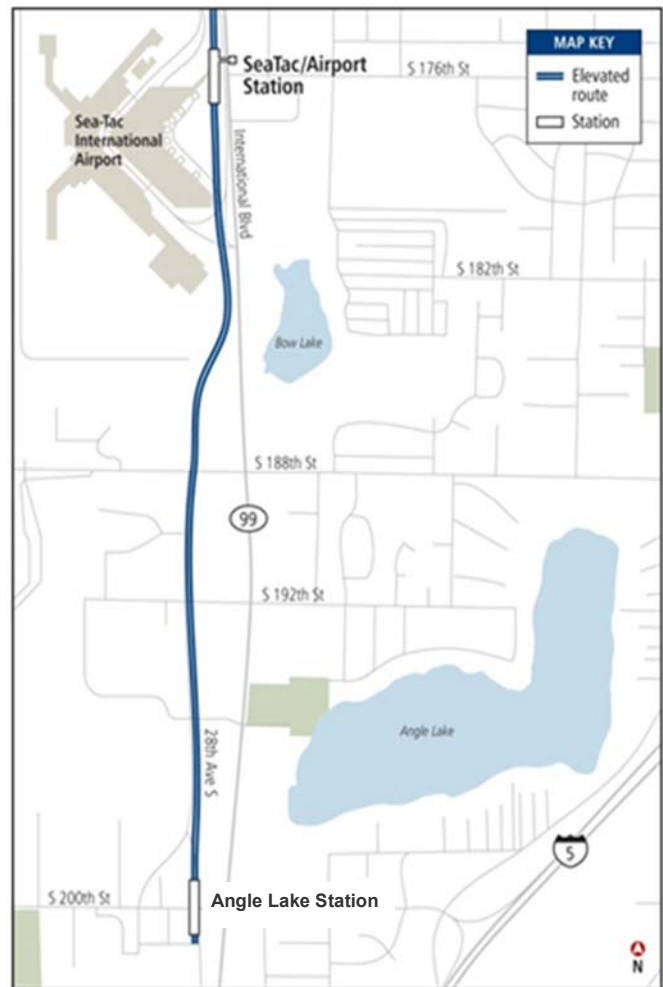
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# Link Light Rail

## S. 200th Link Extension

### Scope

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



Map of S. 200th Link Extension.

### Key Project Activities

- Finalize Plaza licensing agreement with City of SeaTac and advertise Retail Space; working with PEPD to determine  $\frac{3}{4}$  acre property qualifies for TOD or surplus.
- *Design Build Guideway and Station (S440):* The project team continued working with the Contractor and Operations to identify remaining work to achieve Acceptance on the contract.
- *Design Build Parking Garage (S445):* One elevator cab in service this period. The second cab required parts and scheduled to arrive early November, followed by L&I inspection.
- *Military Road/South 200th (S446):* Construction work managed by WSDOT continues.
- *Roadway Improvements (S447):* Construction nearing completion (final grading and asphalt paving, traffic controllers) and punch list being developed.

### Closely Monitored Issues

- *S440:* Completion of Training, O&M Manuals – corrective actions need to be completed.
- *S440, S445, S447:* Need to evaluate/negotiate Contractor request for change.

## 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	\$16.8	\$15.2	\$15.3	\$16.4	\$0.4
Preliminary Engineering	\$5.9	\$5.7	\$5.7	\$5.7	\$5.7	\$0.0
Final Design	\$20.0	\$9.9	\$8.7	\$8.7	\$8.8	\$1.1
Construction Services	\$15.1	\$17.3	\$16.2	\$16.2	\$17.2	\$0.1
3rd Party Agreements	\$6.9	\$7.1	\$5.7	\$3.8	\$5.7	\$1.4
Construction	\$275.7	\$282.9	\$234.6	\$225.3	\$245.8	\$37.1
Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$43.5	\$43.5	\$42.9	\$38.0	\$43.5	\$0.0
<b>Capital Total</b>	<b>\$383.2</b>	<b>\$383.2</b>	<b>\$329.0</b>	<b>\$313.1</b>	<b>\$343.2</b>	<b>\$40.0</b>
Finance Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
<b>Project Total</b>	<b>\$383.2</b>	<b>\$383.2</b>	<b>\$329.0</b>	<b>\$313.1</b>	<b>\$343.2</b>	<b>\$40.0</b>

The overall project Estimated Final Cost (EFC) for this period reflects \$343M, a savings projection of \$40M. This period incurred cost increased by approximately \$1M, of this \$0.6M was for construction services, \$0.2M for construction closeout activities, and the remaining expenditures for \$0.3M were related to administrative charges.

The EFC grouped by SCC is also reflecting \$343M, a savings projection of \$40M. 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	\$98.8	\$98.8	\$108.1	\$24.9
20 Stations	\$46.4	\$51.3	\$39.6	\$39.9	\$40.3	\$11.0
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	\$56.2	\$46.9	\$57.8	-\$2.5
50 Systems	\$30.8	\$19.9	\$19.2	\$19.1	\$19.4	\$0.6
<b>Construction Subtotal (SCC 10-50)</b>	<b>\$256.6</b>	<b>\$259.6</b>	<b>\$213.8</b>	<b>\$204.7</b>	<b>\$225.6</b>	<b>\$34.0</b>
60 Row, Land, Existing Improvements	\$43.5	\$43.5	\$42.9	\$38.0	\$43.5	\$0.0
70 Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
80 Professional Services	\$64.1	\$72.1	\$72.3	\$70.4	\$67.9	\$4.2
90 Unallocated Contingency	\$19.0	\$8.0	\$0.0	\$0.0	\$6.2	\$1.8
<b>Project Total (SCC 10-90)</b>	<b>\$383.2</b>	<b>\$383.2</b>	<b>\$329.0</b>	<b>\$313.1</b>	<b>\$343.2</b>	<b>\$40.0</b>
100 Finance Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
<b>Project Total (SCC 10-90)</b>	<b>\$383.2</b>	<b>\$383.2</b>	<b>\$329.0</b>	<b>\$313.1</b>	<b>\$343.2</b>	<b>\$40.0</b>



## Cost Contingency Management

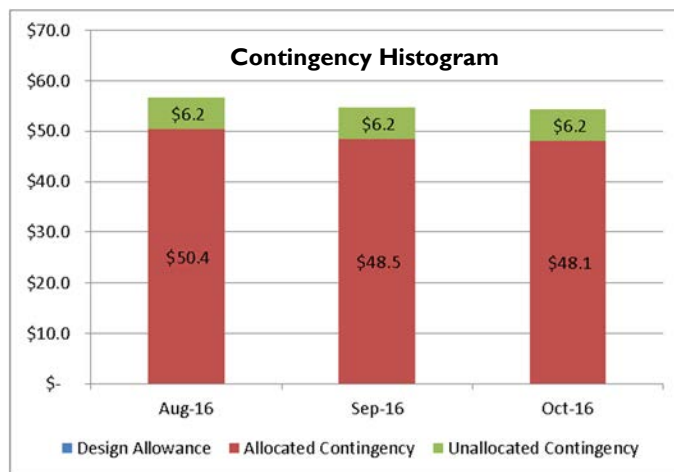
The overall project contingency balance as of this period is \$54.3M.

*Design Allowance (DA):* N/A

*Allocated Contingency (AC):* This period the AC shows a current balance of \$48.1M, a small decrease of \$0.4M from the previous period. The reduction was primarily due to Administration commitments of \$.4M and construction change orders of \$0.02M.

*Unallocated Contingency (UAC):* This period the UAC balance is \$6.2M, no change from previous period.

Contingency Status	Baseline		Current	
	Amount	% of Total	Amount	% of Work Remaining
Design Allowance	\$26.7	7.0%	\$ -	0.0%
Allocated Contingency	\$29.8	8.0%	\$48.1	159.5%
Unallocated Contingency	\$19.0	5.0%	\$ 6.2	20.6%
<b>Total</b>	<b>\$75.5</b>	<b>20.0%</b>	<b>\$54.3</b>	<b>180%</b>



## Project Schedule

Revenue Service commenced on September 24, 2016. The S440 contractor continues to work on closeout and punchlist items. S445 DB Parking Garage Design/ Builder has opened to the public and continues to work on closeout documentation, and punchlist items. Completed elevator installation and Final L & I inspections only for Elevator #1.



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

### Close-out Progress

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

### Key Activities

#### Current Period

- Continue post revenue work arounds.
- Continued punch list work for Guideway Substructure, Site Restoration, Landscaping, and Communication Systems.
- Safety certification and work around items continues.
- Continue troubleshooting cistern at Station (south plaza).
- Continue change order work and address contract close-out items.
- Continue coordination meetings for Systems Task Force, Commissioning, Change Management, and Punch List.
- Troubleshoot cistern at Station platform.

#### Next Period

- Continue punch list and work around work.
- Continue troubleshooting cistern and relocate cameras at Station plaza and platform.

### Closely Monitored Issues

- Need to complete Training and O&M Manuals, Safety Certification, and as-builts to transfer maintenance responsibilities to Operations and Facilities.

### Cost Summary

Present Financial Status	Amount
<b>S440 Contractor—PCL Civil Contractors, Inc.</b>	
Original Contract Value	\$169,000,000
Change Order Value	\$4,862,840
Current Contract Value	\$173,862,840
Total Actual Cost (Amount Billed)	\$172,296,729
Financial Percent Complete:	99%
Physical Percent Complete:	99%
Authorized Contingency	\$13,520,000
Contingency Drawdown	\$5,123,402
Contingency Index*	2.8



Artwork visible at night.

**S445 Contract—Design -Build Parking Garage**

**Close-out Progress**

The S445 parking garage is now open to the public. Completed elevator installation and L&I inspection of Elevator #1; final acceptance was issued on October 13, 2016. Continued procurement of replacement transformer for Elevator #2.

**Key Activities**

Current Period

- Completed elevator installation and L&I inspection of Elevator #1 and final acceptance was issued on October 13, 2016.
- Completed installation of decorative woven screen on south façade.
- Completed cleaning and video inspection of storm and sewer connections.
- Completed PSE substation fencing.
- Continued elevator adjustments and procurement of replacement transformer for Elevator #2.
- Continued garage signage and theme painting.
- Continued clearing and demobilization of Contractor staging area.

Next Period

- Complete remaining installation of garage signage.
- Continue miscellaneous construction activities.
- Continue preliminary punch list reviews.
- Continue addressing preliminary punch-list items.

**Closely Monitored Issues**

- Received RFC #30 on October 19, 2016 requesting additional time and cost associated with elevator procurement and installation. Partnering meetings are being held to discuss this issue.

**Cost Summary**

Present Financial Status	Amount
<b>S445 Contractor—Harbor Pacific/Graham</b>	
Original Contract Value	\$29,978,000
Change Order Value	\$2,183,709
Current Contract Value	\$32,161,709
Total Actual Cost (Amount Billed)	\$31,950,040
Financial Percent Complete:	99%
Physical Percent Complete:	99%
Authorized Contingency	\$2,798,240
Contingency Drawdown	\$2,183,709
Contingency Index*	1.27



*Completed decorative woven screen on south façade.*

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

### Current Progress

S447 Contractor continues pre-punchlist work.

### Key Activities

#### Current Period

- Completed grade, subgrade and placed final asphalt paving.
- Continued installing traffic controller and service foundations at Des Moines Creek.
- Completed cameras and emergency phone work at surface parking lot.
- Pre-punch list work ongoing as substantial completion approaches.
- Began weekly closeout meeting and continue change management meetings.

#### Next Period

- Continue punchlist work and any work around items.
- Continue closeout and change management meetings.

### Closely Monitored Issues

- None at this time.

### Cost Summary

Present Financial Status	Amount
S447 Contractor – Johansen Excavating, Inc	
Original Contract Value	\$8,426,400
Change Order Value	\$2,642,640
Current Contract Value	\$11,069,040
Total Actual Cost (Amount Billed)	\$11,063,497
Financial Percent Complete:	99%
Physical Percent Complete:	99%
Authorized Contingency	\$2,642,640
Contingency Drawdown	\$2,642,640
Contingency Index*	1.0



Adding bike lane markings on S. 200th.

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# Link Light Rail Federal Way Extension

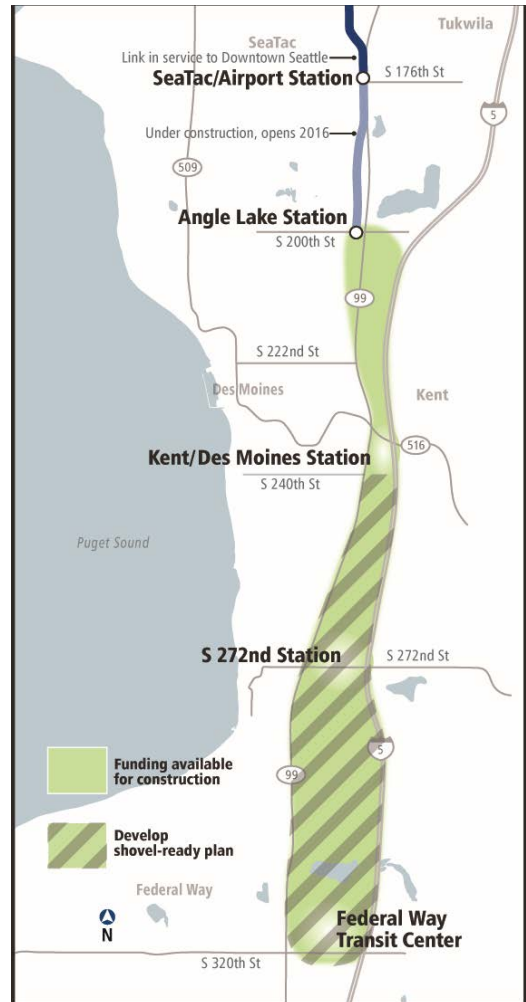


## Scope

The Federal Way Link Extension includes alternatives analysis, environmental work and conceptual engineering for an extension of Link Light Rail from S. 200<sup>th</sup> St. in SeaTac to the Federal Way Transit Center. Preliminary engineering will be performed for the segment from S. 200<sup>th</sup> St. to Kent/Des Moines (in the vicinity of Highline College) and to the Federal Way Transit Center.

## Key Project Activities/Issues

- Completed Phase 1 work (Alternatives Analysis) in Sept. 2013.
- DEIS alternatives identified by the Board in Sept. 2013.
- Executed Phase 2 contract amendment with HDR for Conceptual Engineering and Draft EIS work in October 2013.
- Published Draft EIS on April 2015. Comment period ended May 26, 2015.
- Board identified a Preferred Alternative and approved Phase 3 contract amendment on July 23, 2015.
- Executed Phase 3 contract amendment with HDR for Final EIS and Preliminary Engineering on July 24, 2015.
- ST Board approved contract amendment in February 2016 to extend Preliminary Engineering from Kent/Des Moines to the Federal Way Transit Center.



Map of Federal Way Link Extension.

## Project Cost Summary

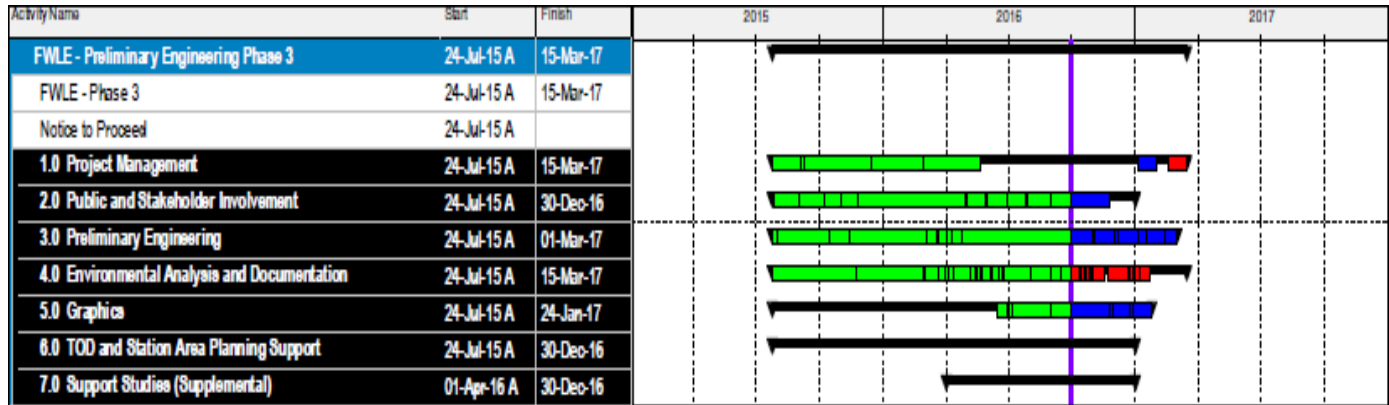
In July 2015, the Sound Transit Board identified the preferred alternative and station locations and approved the Federal Way Link Extension Phase 3 (PE and Final EIS) contract amendment.

The Federal Way Link Extension is currently funded through the completion of preliminary engineering (PE) and environmental documentation, with the exception of the segment from Kent/Des Moines to Federal Way, which is only funded through environmental documentation. Table (below) figures in millions.

Phase	Adopted Budget	Commitment to Date	Incurred to Date	Forecasts and Trends	Estimated Final Cost (EFC)	Budget Versus EFC
Administration	\$9.4	\$5.0	\$5.1	\$4.3	\$9.4	\$0.0
Preliminary Engineering	\$33.3	\$30.7	\$27.2	\$2.7	\$33.3	\$0.0
Third Parties	\$2.4	\$1.2	\$0.5	\$1.2	\$2.4	\$0.0
Right of Way	\$3.6	\$1.0	\$0.7	\$2.6	\$3.6	\$0.0
<b>Total</b>	<b>\$48.8</b>	<b>\$37.9</b>	<b>\$33.5</b>	<b>\$10.8</b>	<b>\$48.8</b>	<b>\$0.0</b>

## Project Schedule

The Final EIS and Preliminary Engineering was extended to 1st QTR 2017.



## 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 neighborhood briefings with residents in various neighborhoods.
- Met with property owners regarding the project.
- Attended Commute Trip Reduction meeting.
- Held property owner outreach in the Kent/Des Moines Station area.

## Environmental

- None to report.



## Phase 3 Preliminary Engineering (PE)

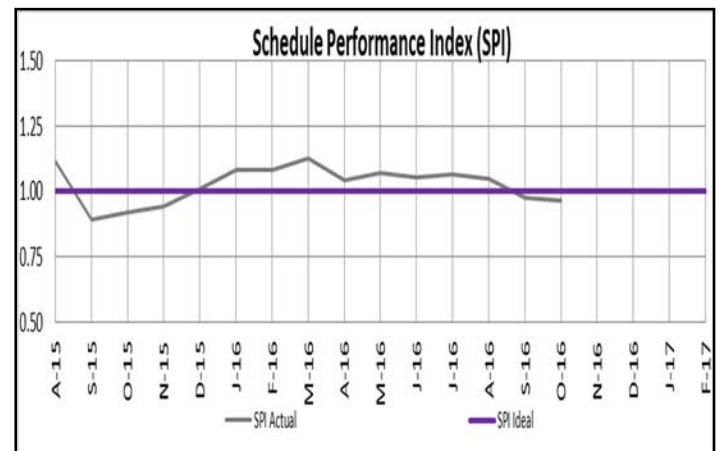
In July 2015, Sound Transit executed an amendment to the professional services agreement with HDR Engineering, Inc. for Phase 3 professional services, including completion of a Final Environmental Impact Statement (FEIS) using the preferred alternative and the other alternatives in the Draft EIS, preliminary 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

- Distributed Pre-Final PE submittal for internal and third party review. Continued coordination with third parties regarding design, permitting and construction coordination issues.
- Continued development of the Final EIS. Current activities include review of administrative drafts by FTA.
- Continued coordination with potentially affected property owners including neighborhood briefings and one-on-one meetings.
- Continued discussion of term sheets with affected jurisdictions to address code/permitting requirements and design review process for next phase of project development.
- Continued discussion with FTA regarding New Starts requirements for Entry to Engineering.

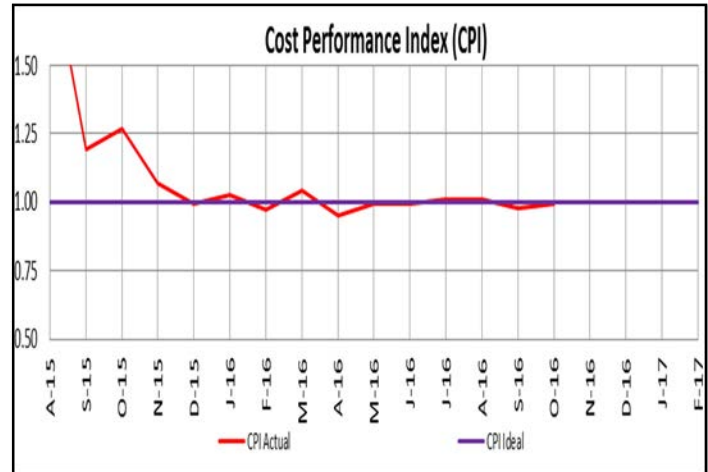
### Phase 3 Schedule Performance

The cumulative Schedule Performance Index (SPI) is 0.97 through October 2016, indicating the overall amount of work accomplished is slightly less than planned. Review of the consultants draft Phase 3 schedule indicates that completion of the FEIS document is currently on the critical path.



## Phase 3 Cost Performance

\$25.9M of the total contract amount, approximately 86%, has been spent through October 2016. Phase 3 expenditures totaled \$14.78M, approximately 81% of the Phase 3 contract total. The Phase 3 percent complete reported at 80%, with an earned value of \$14.6M. The cumulative Cost Performance Index (CPI) is 0.99, indicating costs are on track with work accomplished. Based on the current trend, the Phase 3 cost is expected to be on budget.



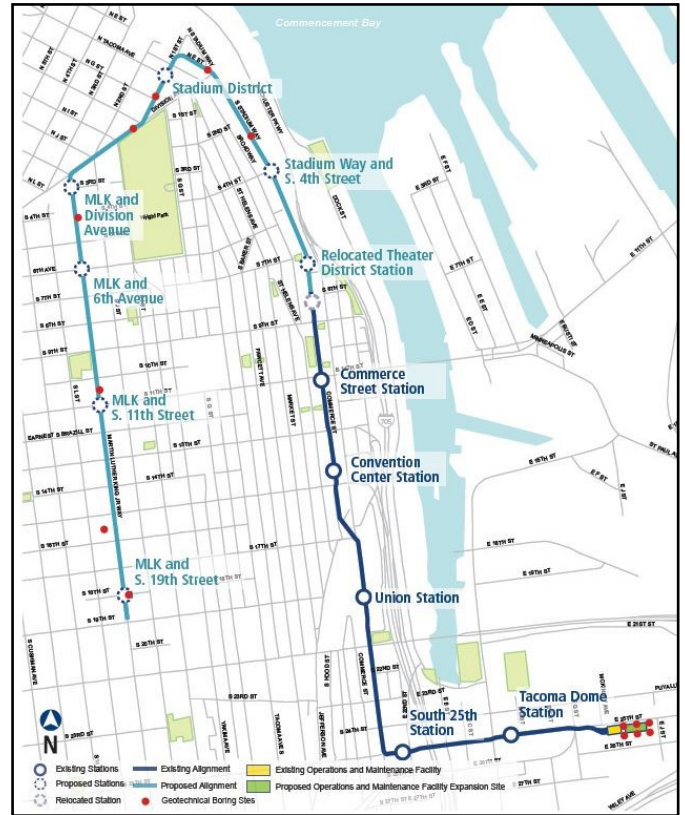
Phase 3 Performance	Previous Period	Current Period	Cumulative To Date
Amount Invoiced	\$14,054,419	\$733,179	\$14,787,598
% Spent	77%	4%	81%
Earned Value	\$13,737,958	\$916,618	\$14,654,576
% Complete	75%	5%	80%
<b>SPI</b>	0.98	0.84	0.97
<b>CPI</b>	0.98	1.25	0.99

# 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 extension 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:** \$33.02 Million Phase Gate 4 budget; excludes Construction (Year of Expenditure Dollars)
- Phase:** Final Design
- Const. Starts:** 2018



Map of Tacoma Link Extension.

## Key Project Activities

### Final Design

- Executed the contract for the Final Design Consultant.

### Pre-Construction Services

- Continued procuring CMC contract.

### Third Parties

- Advancing formal agreements with City of Tacoma and utility providers.

### Right of Way

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

## Project Cost Summary

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

### Cost Summary by Phase

WBS Phase Elements	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
Administration	\$10.6	\$2.7	\$2.8	\$10.6	\$0.0
Preliminary Engineering	\$5.9	\$5.6	\$5.6	\$5.9	\$0.0
Final Design	\$10.8	\$7.7	\$0.0	\$10.8	\$0.0
Construction Services	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
3rd Party Agreements	\$0.5	\$0.0	\$0.0	\$0.5	\$0.0
Construction	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Vehicles	\$2.0	\$2.0	\$0.2	\$2.0	\$0.0
ROW	\$3.2	\$0.2	\$0.1	\$3.2	\$0.0
<b>Total</b>	<b>\$33.0</b>	<b>\$18.1</b>	<b>\$8.7</b>	<b>\$33.0</b>	<b>(\$0.0)</b>

### Cost Summary by SCC

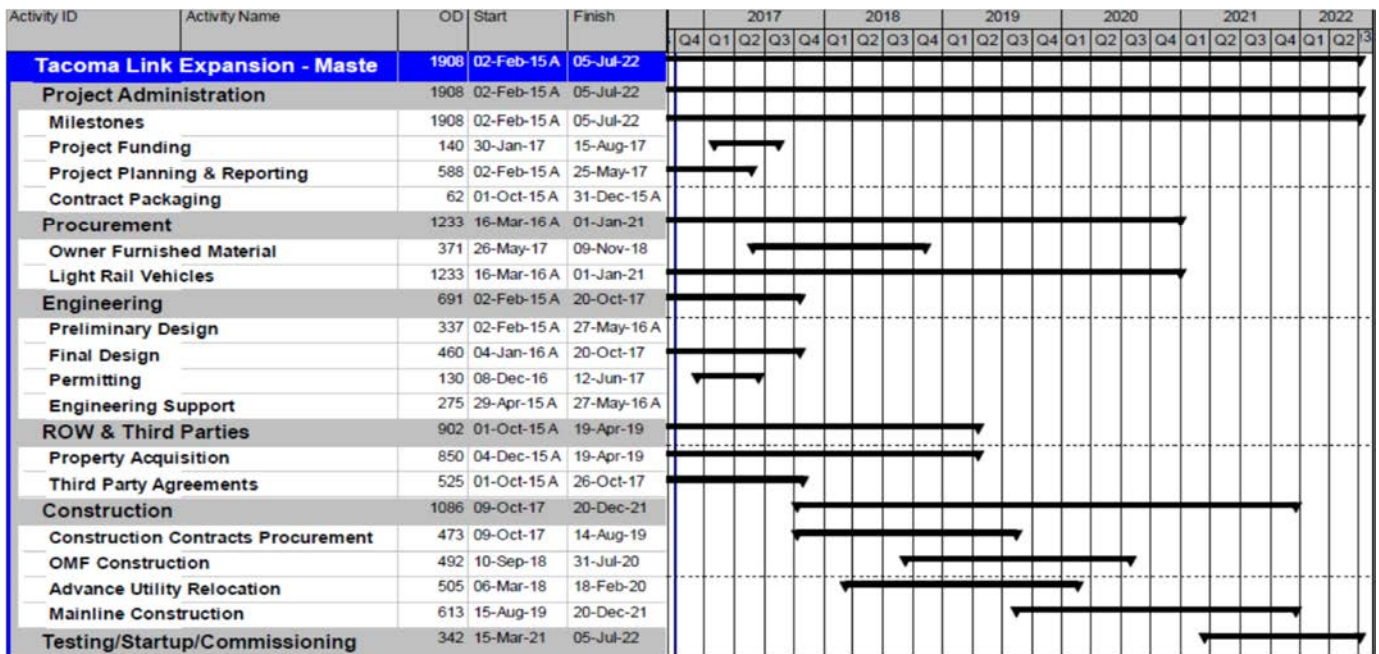
Project Elements by SCC	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
10 Guideway & Track	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
20 Stations	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
30 Support Facilities	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
50 Systems	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
<b>Construction Subtotal (10 - 50)</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>
60 Row, Land	\$3.2	\$0.2	\$0.1	\$3.2	\$0.0
70 Vehicles (non-revenue)	\$2.0	\$2.0	\$0.2	\$2.0	\$0.0
80 Professional Services	\$27.8	\$16.0	\$8.4	\$27.8	\$0.0
90 Unallocated Contingency	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
<b>Total (10 - 90)</b>	<b>\$33.0</b>	<b>\$18.1</b>	<b>\$8.7</b>	<b>\$33.0</b>	<b>(\$0.0)</b>

## Risk Management

The Tacoma Link Risk and Contingency Management Plan (RCMP) will be completed in 2nd QTR 2017. This establishes a risk management and oversight process for identifying, assessing, and monitoring risks and develops risk reduction/mitigation plans. It will provide a tool for the project team to proactively manage risks on the project. It is Sound Transit’s responsibility for continuously monitoring project status and associated risks, taking mitigation actions for known risks identified on the risk register, and effectively responding in a timely manner to those risks that pose a significant impact to the project cost or schedule forecast. The Tacoma Link Quarterly Risk Review Meeting is targeted for November 29, 2016.

## Project Schedule

HDR has begun the final design and has submitted a second draft of their baseline schedule. 60% Design of the Mainline and Utilities is scheduled for February 2017 with the OMF 60% design scheduled for March 2017. Field investigations for utilities will begin in the next month. ST continues to work with the City to finalize the Right of Use and City services agreements. ST is preparing to file condemnation on the property for the future OMF in order to gain Possession & Use. This process is expected to take approximately 4 months. The project team continues to work toward a strategy to avoid condemnations during the process of acquiring TCEs.



## Sound Transit Board Actions

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

Motion Number	Description	Date
	None to report.	

## Community Outreach

- None to report.

## Final Design

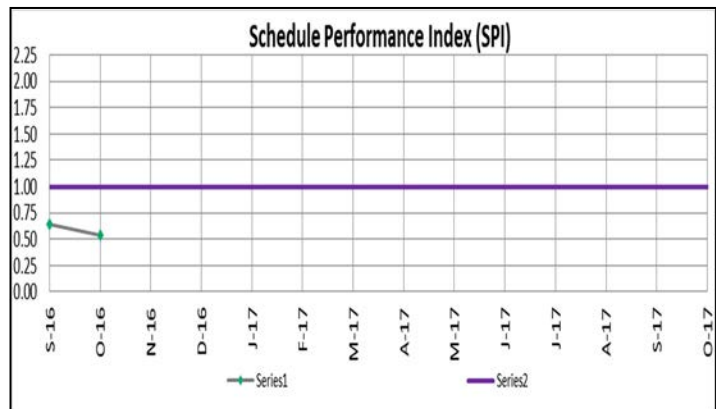
In July 2016 Sound Transit executed a contract with HDR Engineering, Inc. to provide civil and systems final design services for Tacoma Link.

### Final Design Key Activities

- HDR is working towards the 60% Submittal.

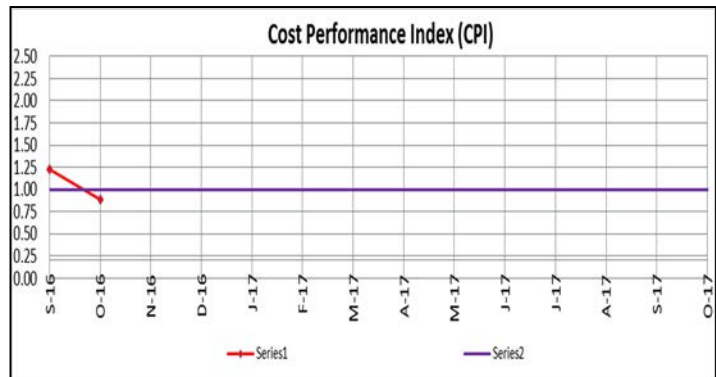
### Final Design Schedule Performance

The cumulative Schedule Performance Index (SPI) for the Final Design contract is .64 through October, indicating that the project Earned Value is less than planned. This low SPI is a result of delayed onboarding by the Consultant; ST to closely monitor the progress.



### Final Design Cost Performance

Contract expenditures through October totaled \$508K, approximately 7% of the Final Design contract total. The Final Design contract percent complete reported at the end of October is 6%, with an earned value of \$452K. The cumulative Cost Performance Index (CPI) through October is .89; indicating cost on the project is more than earned value.



Phase 3 Performance	Previous period	Current Period	Cumulative To-Date
Amount In-voiced	\$185,858	\$314,051	\$185,858
% Spent	2%	5%	7%
Earned Value	\$228,338	\$224,341	\$452,729
% Complete	3%	3%	6%
<b>SPI</b>	.64	.47	.64
<b>CPI</b>	1.23	.71	.89



### Project Cost Summary

In July 2016, the Sound Transit Board authorized the project to be baselined (Gate 5) and advance to construction (Gate 6). This increased the Adopted Capital Budget for the OMFE from \$133.6M to \$449.2M. The OMFE cost is summarized into two cost tables. The first table is in accordance with Sound Transit's Work Breakdown Structure (WBS) displaying the cost summary by phase. The second table summarizes project cost by SCC, in accordance to the FTA Standard Cost Categories (SCC) format. Both tables show figures in millions.

#### Cost Summary by Phase

WBS Phase Elements	Baseline Budget	Current Adopted Budget	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Adopted Budget vs. EFC
Administration	\$17.6	\$17.6	\$2.1	\$2.1	\$17.6	\$0.0
Preliminary Engineering	\$9.5	\$9.5	\$8.9	\$8.4	\$9.5	\$0.0
Final Design	\$0.4	\$0.4	\$0.0	\$0.0	\$0.4	\$0.0
Construction Services	\$19.3	\$19.3	\$0.0	\$0.0	\$19.3	\$0.0
3rd Party Agreements	\$3.1	\$3.1	\$0.0	\$0.0	\$3.1	\$0.0
Construction	\$264.8	\$264.8	\$0.0	\$0.0	\$264.8	\$0.0
ROW	\$134.5	\$134.5	\$24.7	\$23.5	\$134.5	\$0.0
<b>Total</b>	<b>\$449.2</b>	<b>\$449.2</b>	<b>\$35.7</b>	<b>\$34.0</b>	<b>\$449.2</b>	<b>\$0.0</b>

The Estimated Final Cost (EFC) for the project as of this reporting period is \$449.2M, which is equal to the current project budget. This period incurred cost for the project reflects a negative \$0.3M mostly from PE phase that required an incorrect accrual adjustment. The remaining expenditures were very minor, \$0.078M were for right-of-way and direct staff charges.

The Estimated Final Cost (EFC) reflects the current adopted budget values due to project baselined this period. ROW and Professional Services categories are active at this stage of the project.

#### 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	\$37.9	\$37.9	\$0.0	\$0.0	\$37.9	\$0.0
20 Stations	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
30 Support Facilities: Yards, Shops	\$104.8	\$104.8	\$0.0	\$0.0	\$104.8	\$0.0
40 Sitework & Special Conditions	\$43.6	\$43.6	\$0.0	\$0.0	\$43.6	\$0.0
50 Systems	\$43.0	\$43.0	\$0.0	\$0.0	\$43.0	\$0.0
<b>Construction Subtotal (SCC 10-50)</b>	<b>\$229.3</b>	<b>\$229.3</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$229.3</b>	<b>\$0.0</b>
60 Row, Land, Improvements	\$134.5	\$134.5	\$24.7	\$23.5	\$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	\$11.0	\$10.5	\$71.6	\$0.0
90 Unallocated Contingency	\$13.8	\$13.8	\$0.0	\$0.0	\$13.8	\$0.0
<b>Project Total (SCC 10-90)</b>	<b>\$449.2</b>	<b>\$449.2</b>	<b>\$35.7</b>	<b>\$34.0</b>	<b>\$449.2</b>	<b>\$0.0</b>



### Cost Contingency Management

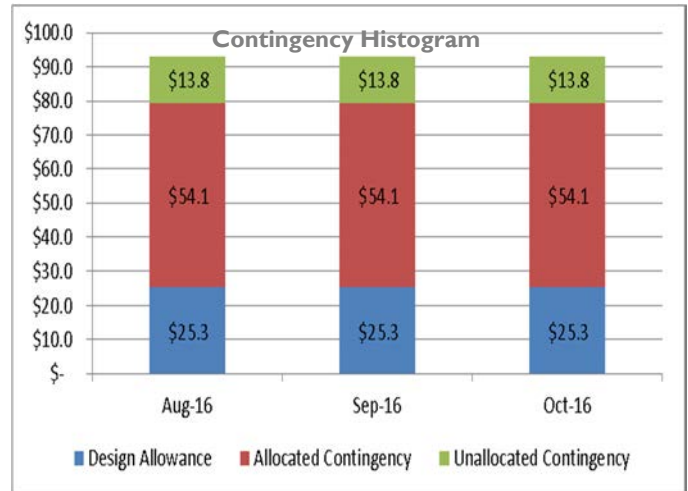
Compared to the Baseline amount of \$93.2M, the current Total Contingency remains the same at \$93.2M.

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

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

*Unallocated Contingency (UAC)* – The baseline UAC amount 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%	\$ 25.3	6.1%
Allocated Contingency	\$ 54.1	12.0%	\$ 54.1	13.0%
Unallocated Contingency	\$ 13.8	3.1%	\$ 13.8	3.3%
<b>Total</b>	<b>\$ 93.2</b>	<b>20.7%</b>	<b>\$ 93.2</b>	<b>22.4%</b>



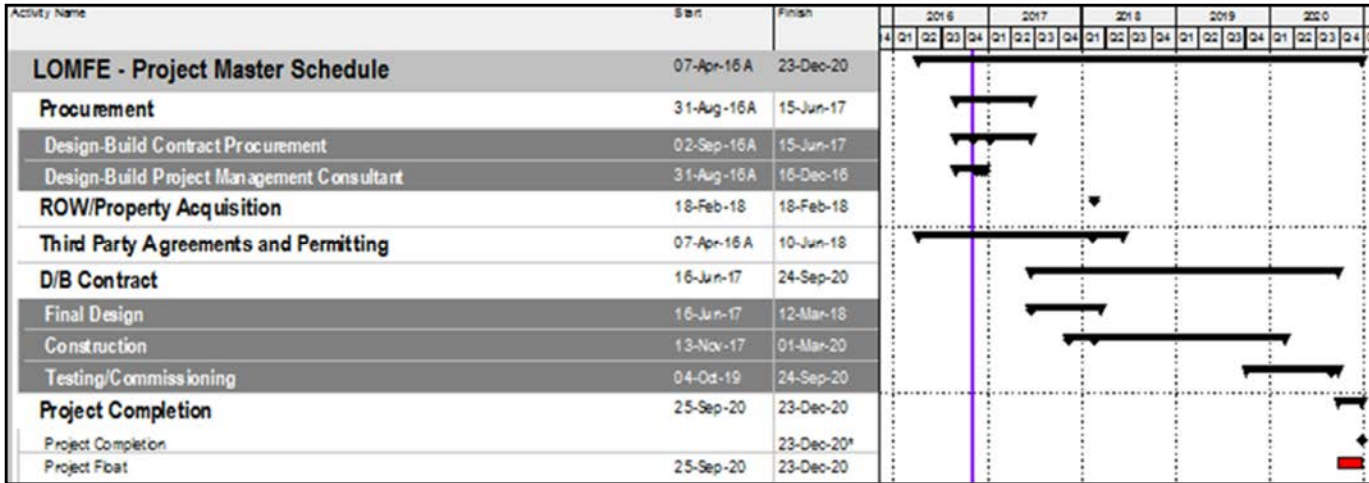
### Risk Management

The Project has a Risk Register and is actively managing risks. The following are the top five risks:

- Volatility in property values around the Bel-Red area.
- City of Bellevue requesting additional site improvements not included in the agreements.
- Authorities Having Jurisdiction not fully communicating all of their requirements to Sound Transit.
- Changes in storm water facility estimate assumptions by DB contractor.
- Designing and procuring special track-work.

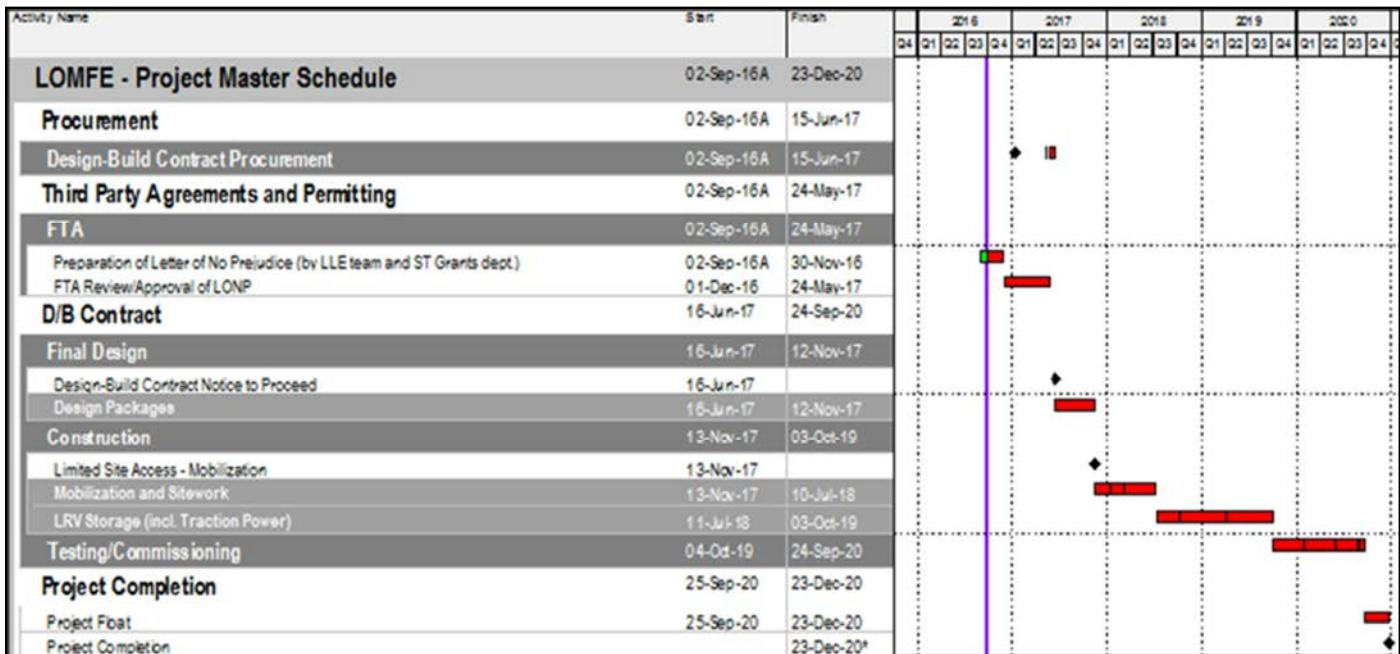
## Project Schedule

The project schedule is presented below as baselined this period. The RFP for the Design-Build contractor was issued in early September. Property acquisitions are on schedule to be completed in late 2017 or early 2018, in time for construction to start as planned.



## Critical Path Analysis

The project critical path this period is through the Letter of No Prejudice to allow work to progress ahead of the Full Funding Grant Agreement for Lynnwood Link Extension. The current conceptual construction plan shows a critical path through the foundation design and subsequently the construction of the LRV storage yard.



## Sound Transit Board Actions

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

Motion Number	Description	Date
	None to report.	

## Environmental

- None to report.

## Community Outreach

- None to report.

## Phase 2 Preliminary Engineering and FEIS

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

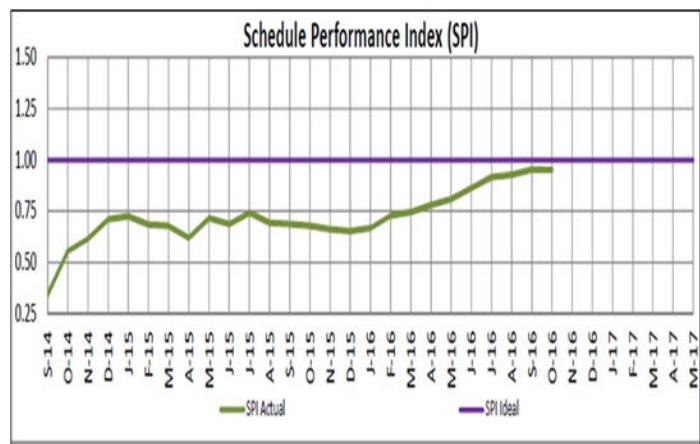
### Phase 2 Key Activities

- RFP issued to shortlisted proposers on September 2. Conducting one-on-one meetings with proposer teams.
- Drafting agreement with King County regarding mainline sewer replacement - continues.
- Final Mitigation Screening Memo and In Lieu Fee Use Plan; submitted to ST as an appendix to the CAR. Finalized Critical Areas Report, JARPA application, and exhibits; submitted to ST for submittal to jurisdictions.
- HZ supporting addenda and RFI issuance during procurement.

### Phase 2 Schedule Performance

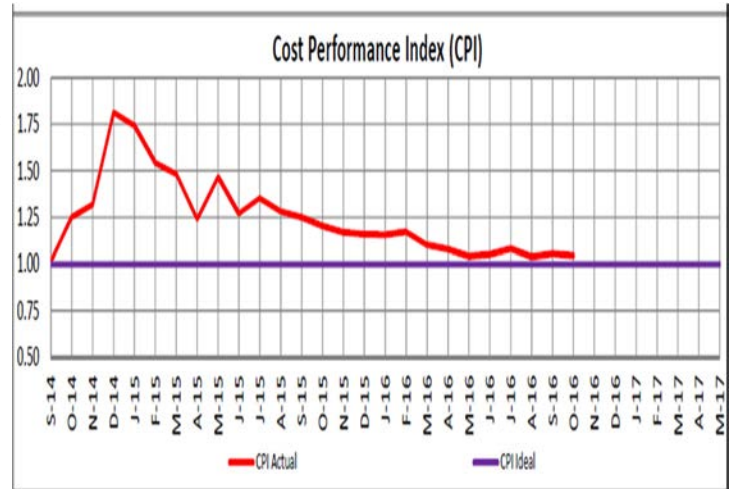
The cumulative Schedule Performance Index (SPI) trends at 0.95 through October 2016, which means that cumulative work accomplished is slightly less than work planned.

Change Order 008 incorporated Phase 2A of the project on February 2016. The remaining Phase 2 scope has been re-negotiated to reflect the recent Design Build Project Delivery decision. The consultant has been directed to focus efforts on delivering Design Build bridging documents to help inform the procurement of the final design build team starting February 2016 as Phase 2A.



## Phase 2 Cost Performance

\$4.9M of the total Phase 2 contract amount, approximately 91%, was spent through October 2016. The Phase 2 percent complete is 95%, with an earned value of \$5.1M. The cumulative Cost Performance Index (CPI) is 1.05, meaning that expenditures are slightly less than the earned value.



Phase 2 Performance	Previous Period	Current Period	Cumulative To Date
Amount Invoiced	\$4,821,349	\$38,579	\$4,858,161
% Spent	90%	1%	91%
Earned Value	\$5,080,583	\$1,189	\$5,081,772
% Complete	95%	<1%	95%
<b>SPI</b>	<b>0.95</b>	<b>0.00</b>	<b>0.95</b>
<b>CPI</b>	<b>1.05</b>	<b>0.03</b>	<b>1.05</b>

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# Link Light Rail ST2 LRV Fleet Expansion



## Project Summary

**Scope:** Design, manufacturing, assembly, inspection, testing and delivery of 122 low floor light rail vehicles for service requirements of Northgate, East Link and Lynnwood Link Extensions.

**Budget:** \$733 Million (Baseline September 2015)

**Schedule:** Project completion 3rd QTR 2024



Graphic rendering of the new light rail vehicles.

## Key Activities

- Negotiated with Siemens for manufacture and delivery of LRVs. Received Sound Transit Board approval for contract award and Notice-to-Proceed issued in October.

## Project Cost Summary

The ST2 LRV Fleet Expansion project cost is summarized below by two cost categorizations. In the first table, the cost is summarized in accordance with Sound Transit’s Work Breakdown Structure (WBS) at the Phase Level. The second table summarizes the project in accordance with the FTA’s Standard Cost Category (SCC) format. Both tables below are shown in millions. TIFIA is financing 28% of this project.

To date, approximately \$1.8M has been expended; Buy America Audit was completed, and the conformed specifications was completed. ST also collaborated with the manufacturer on project deliverables.

### 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	\$4.7	\$4.7	\$0.2	\$0.2	\$4.7	\$0.0
Construction Services	\$14.1	\$14.1	\$4.8	\$1.6	\$14.1	\$0.0
Vehicles	\$714.2	\$714.2	\$517.6	\$0.0	\$714.2	\$0.0
<b>Total</b>	<b>\$733.0</b>	<b>\$733.0</b>	<b>\$522.6</b>	<b>\$1.8</b>	<b>\$733.0</b>	<b>\$0.0</b>

### 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
<b>Construction Subtotal (SCC 10-50)</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>
60 ROW, Land, Existing Improvements	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
70 Vehicles	\$696.7	\$696.7	\$522.4	\$1.6	\$696.7	\$0.0
80 Professional Services	\$4.5	\$4.5	\$0.2	\$0.2	\$4.5	\$0.0
90 Contingency	\$31.7	\$31.7	\$0.0	\$0.0	\$31.7	\$0.0
<b>Capital Total (SCC 10-90)</b>	<b>\$733.0</b>	<b>\$733.0</b>	<b>\$522.6</b>	<b>\$1.8</b>	<b>\$733.0</b>	<b>\$0.0</b>

## Cost Contingency Management

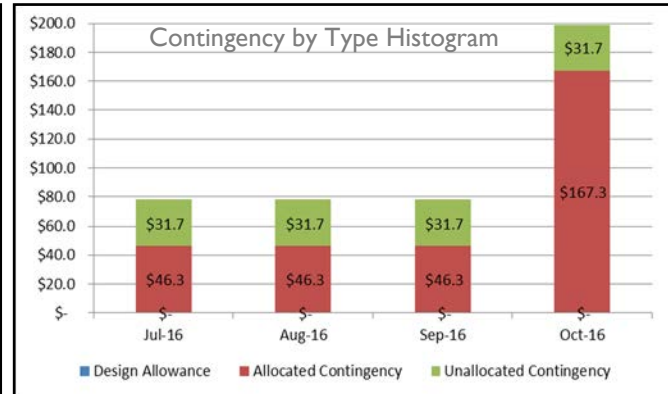
The project's baseline budget, which was approved by the Sound Transit Board in September 2015 and includes a total of \$78.0M of Total Contingency. Overall contingency is currently 27.2% of remaining work.

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

*Allocated Contingency* – The project baseline contains \$46.3M of allocated contingency. The allocated contingency has been increased to \$167.3 due to a favorable contract procurement.

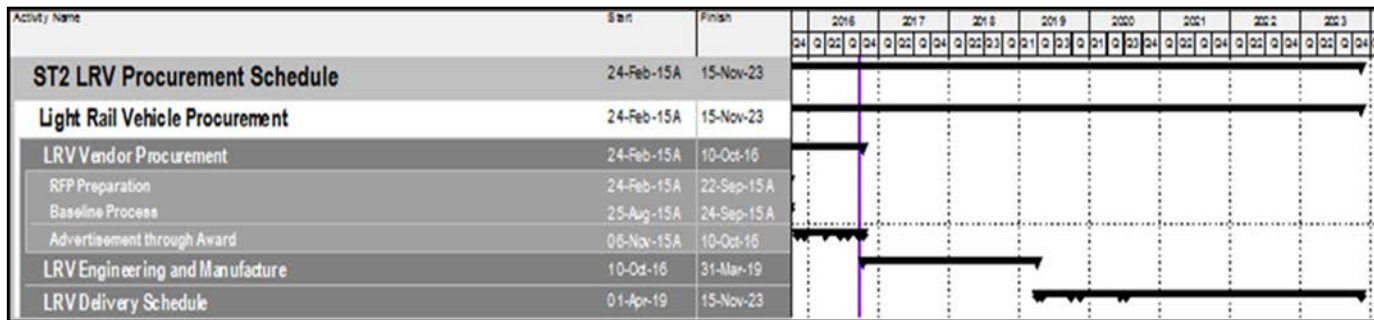
*Unallocated Contingency* – The project baseline contains \$31.7M of unallocated contingency. There was no change in unallocated contingency this period.

Contingency Status	Baseline		Current	
	Amount	% of Total	Amount	% of Work Remaining
Design Allowance	\$ -	0.0%	\$ -	0.0%
Allocated Contingency	\$ 46.3	6.4%	\$ 167.3	22.9%
Unallocated Contingency	\$ 31.7	4.3%	\$ 31.7	4.3%
<b>Total</b>	<b>\$ 78.0</b>	<b>10.7%</b>	<b>\$ 199.0</b>	<b>27.2%</b>



## Project Schedule

The ST2 LRV Expansion project schedule is shown below.



## Sound Transit Board Actions

Motion Number	Description	Date
	None to report.	



# Link Light Rail Staffing Report



## Project Staffing – Link Light Rail Program – September 2016

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

Position	Project Assignment	Planned Hire Date
Deputy Director	Civil & Structural Engineering	2016 Attrition*

\*Attrition resulting from internal promotion.

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

Position	Project Assignment	Planned Hire Date
Construction Manager	Systems	April 2014
Construction Manager	O&M Facility: East	2015 Reclass.
Sr. Project Manager	O&M Facility: East	2015 Reclass.
Sr. Project Manager	Northgate Link Extension	2016 Attrition*
Civil Engineer	Right-of-Way	2016 Attrition*
Civil Engineer	East Link Extension	2016 Attrition*
Community Outreach Specialist	East Link Extension	2016 Attrition*
Design Technology Specialist	Civil and Structural Engineering	2016 Attrition*
Electrical Engineer	Systems Engin. and Integration	2016 Attrition*
Director	Civil and Structural Design	2016 Attrition
Sr. Design Technology Specialist	Civil and Structural Engineering	2016 Attrition
Deputy Director	Systems Engin. and Integration	2016 Attrition
Sr. Systems Engineer	LRV Procurement and Testing	2016 Attrition
Director	Architecture and Art	2016 Attrition
Deputy Director	Real Property	2016 Attrition
Sr. Real Property Agent	Appraisals	2016 Attrition
Construction Manager	Federal Way Link Extension	March 2016
Deputy Executive Director	Project Management	April 2016

\*Attrition resulting from internal promotion.

## Project Staffing – Link Light Rail Program continued

There were 587.7 (105% 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 September. Staffing for the Northgate, East, and Lynnwood Link Extensions was within 10% of plan; the University Link Extension staffing was 67% of plan. Staffing for the S. 200th Link Extension was over two times plan.

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

Project	September 2016 Staffing Plan Variance Summary								2016 Average Monthly Staffing Variance			
	Consultant Staff				Sound Transit Staff				Total (YTD)			
	FTE		Variance		FTE		Variance		FTE		Variance	
	Planned	Actual	FTE	% of Plan	Planned	Actual	FTE	% of Plan	Planned	Actual	FTE	% of Plan
University Link Extension	0.0	4.0	4.0		20.3	9.6	-10.7	47%	20.3	49.9	29.6	246%
Northgate Link Extension	73.9	74.1	0.2	100%	47.7	35.9	-11.8	75%	121.6	124.7	3.1	103%
South 200th Extension	9.4	27.5	18.1	293%	17.4	28.8	11.5	166%	26.8	47.2	20.4	176%
East Link Extension	132.4	166.6	34.2	126%	79.7	66.7	-13.0	84%	212.1	259.9	47.8	123%
Lynnwood Link Extension	115.0	122.6	7.6	107%	40.3	35.7	-4.6	88%	155.3	80.1	-75.3	52%
Tacoma Link Expansion	11.0	7.9	-3.1	72%	13.0	8.1	-4.9	62%	24.0	10.0	-14.0	42%
<b>Total</b>	<b>341.7</b>	<b>398.9</b>	<b>57.2</b>	<b>117%</b>	<b>218.5</b>	<b>175.3</b>	<b>-33.6</b>	<b>80%</b>	<b>560.1</b>	<b>570.2</b>	<b>11.6</b>	<b>102%</b>

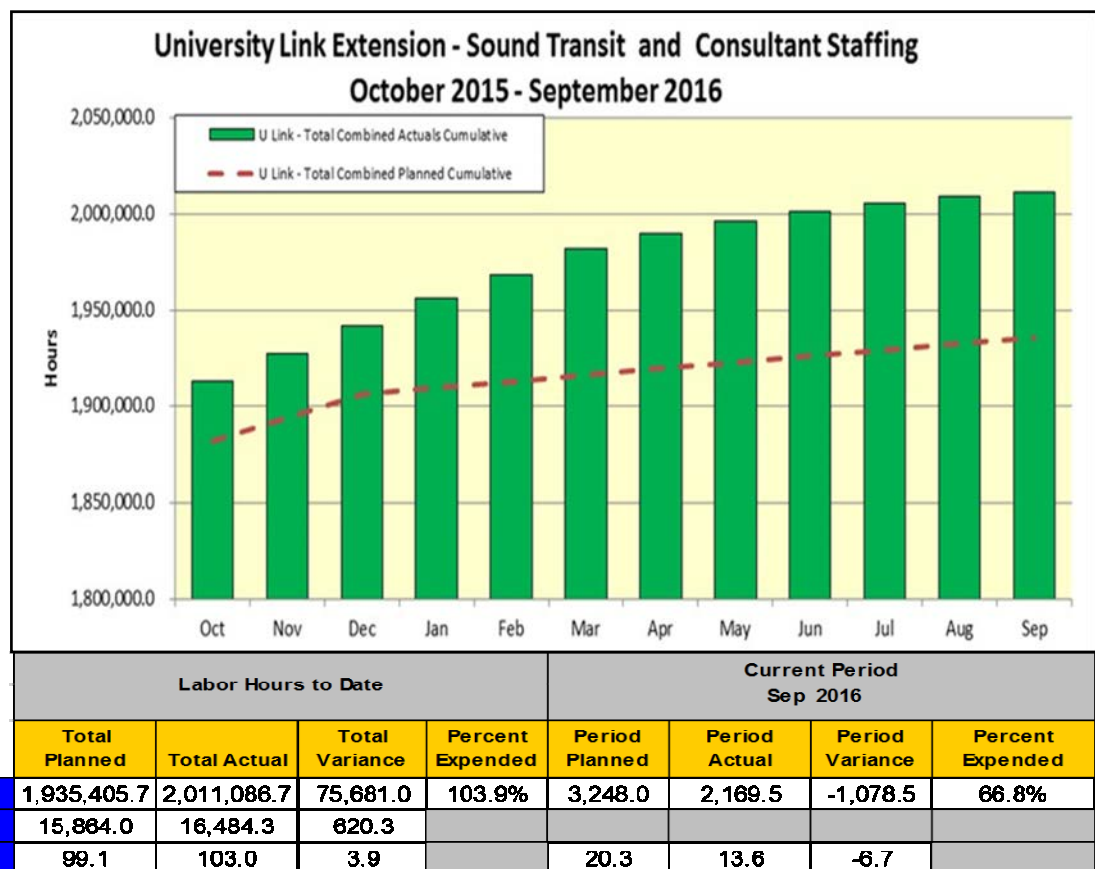
# Link Light Rail Staffing Report



## University Link Extension Staffing

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

There were 13.6 FTE assigned to the University Link Extension in September including 4 consultant and 9.6 internal FTE. As was expected with the wrapping up of operational work arounds, and resolution of punch list items, staffing for the month decreased 40% (8.9 FTE) from August. Consultant staffing was well ahead of plan as the 2016 Staffing Plan assumed that all construction and system testing would be completed in late 2015 and did not account for on-going resolution of punch list items and work arounds. Staffing for the University Link Extension was 6.7 FTE below plan (67% of plan). Average year-to-date staffing (49.9 FTE/mo.) is trending 146% (29.6 FTE/mo.) above plan. Cumulatively, since August 2006, average monthly project staffing is within 4% (4 FTE/mo.) of plan.



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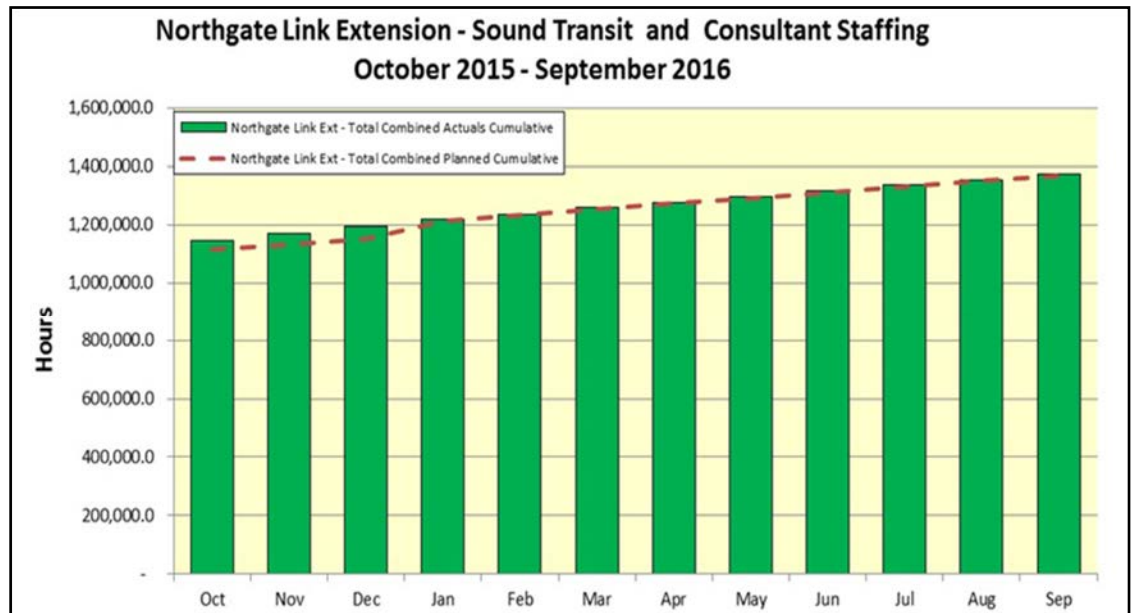
# Link Light Rail Staffing Report



## Northgate Link Extension Staffing

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

During September, 35.9 internal and 74.1 consultant FTE were assigned to the Northgate Link Extension. This is 2% (2.2 FTE) above staffing in August and is 90% of plan (121.6 FTE); average year-to-date staffing of 124.7 FTE/mo. is trending 3% (3.1 FTE/mo.) above plan. Cumulatively since January 2011 average monthly staffing is trending with plan.

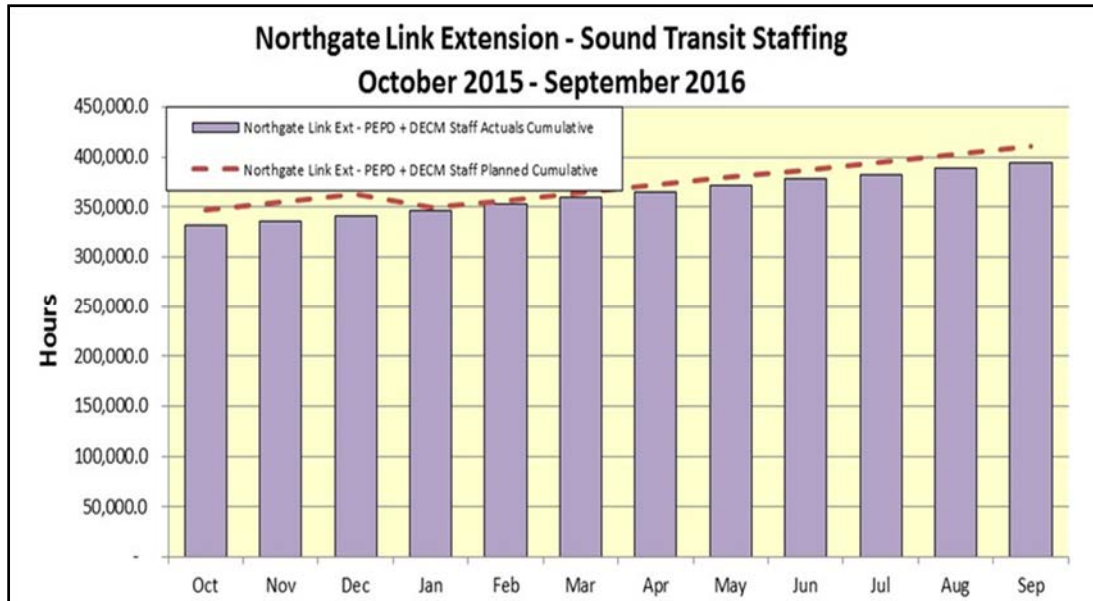


	Labor Hours Jan 2011 - Sep 2016				Current Period Sep 2016			
	Total Planned	Total Actual	Total Variance	Percent Expended	Period Planned	Period Actual	Period Variance	Percent Expended
<b>No. of Hours</b>	1,370,194.3	1,373,266.7	3,072.4	100.2%	19,460.8	17,605.7	-1,855.1	90.5%
<b>Monthly Average</b>	19,857.9	19,902.4	44.5					
<b>Monthly FTE</b>	124.1	124.4	0.3		121.6	110.0	-11.6	

## Northgate Link Extension Staffing

### Internal Resource Commitments to Northgate Link Extension

Internal staffing in September (35.9 FTE) decreased 5% (1.7 FTE) from August and was 25% (11.8 FTE) below plan. Cumulatively, since January 2011, average monthly internal staffing (35.7 FTE/mo.) is trending within 4% of plan.



	Labor Hours Jan 2011 - Sep 2016				Current Period Sep 2016			
	Total Planned	Total Actual	Total Variance	Percent Expended	Period Planned	Period Actual	Period Variance	Percent Expended
<b>No. of Hours</b>	410,148.3	394,233.2	-15,915.2	96.1%	7,636.8	5,748.0	-1,888.8	75.3%
<b>Monthly Average</b>	5,944.2	5,713.5	-230.7					
<b>Monthly FTE</b>	37.2	35.7	-1.4		47.7	35.9	-11.8	

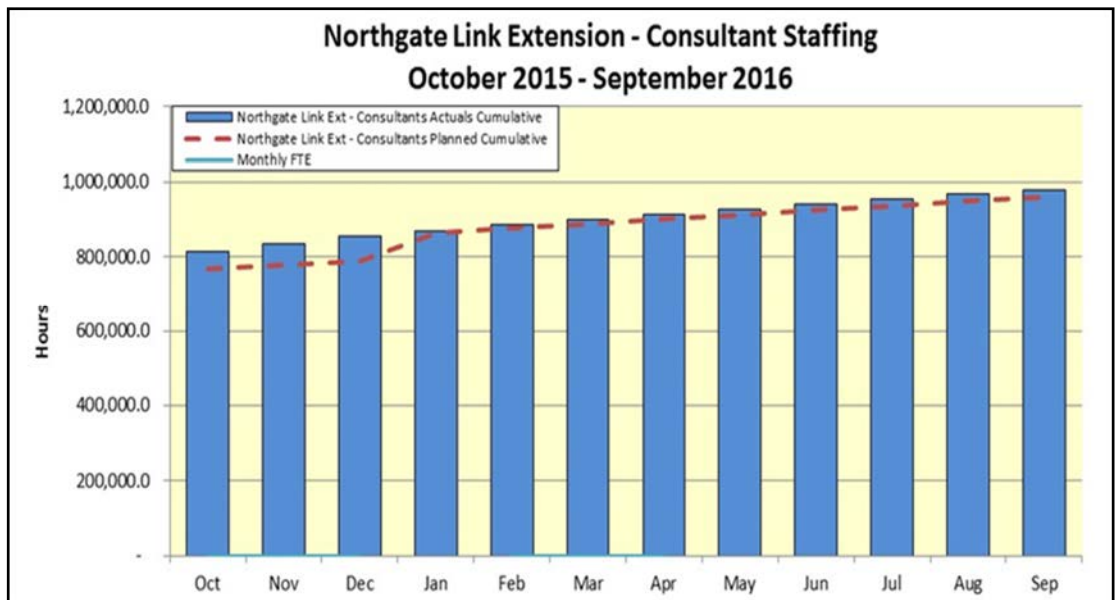
# Link Light Rail Staffing Report



## Northgate Link Extension Staffing

### Consultant Resource Commitments to Northgate Link Extension

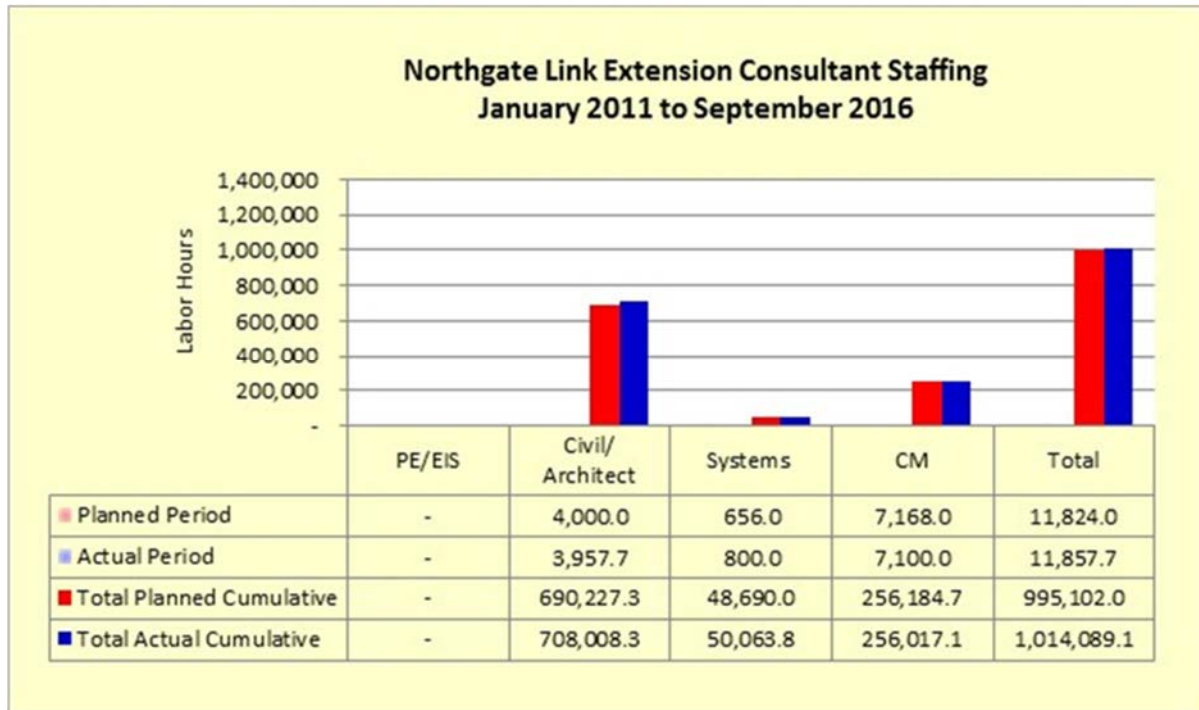
In September, 74.1 consultant FTE were assigned to the Northgate Link Extension; consultant staffing was consistent with plan and was 5% (3.8 FTE) above August staffing. Cumulatively, since January 2011, average monthly consultant utilization (88.7 FTE/mo.) is trending 2% above plan.



	Labor Hours Jan 2011 - Sep 2016				Current Period Sep 2016			
	Total Planned	Total Actual	Total Variance	Percent Expended	Period Planned	Period Actual	Period Variance	Percent Expended
<b>No. of Hours</b>	960,046.0	979,033.5	18,987.5	102.0%	11,824.0	11,857.7	33.7	100.3%
<b>Monthly Average</b>	13,913.7	14,188.9	275.2					
<b>Monthly FTE</b>	87.0	88.7	1.7		73.9	74.1	0.2	

## Northgate Link Extension Staffing

### Consultant Resource Commitments to Northgate Link Extension



Consultant utilization by discipline follows:

- Civil/architecture consultant utilization in September (24.7 FTE) was 18% (3.8 FTE) above August staffing and was consistent with plan. Cumulatively since January 2011, average civil engineering/architecture consultant staffing of 64.1 FTE/mo. continues to trend within 3% of plan.
- Systems consultant utilization (5 FTE) was 34% (2.6 FTE) below August staffing and was 22% (0.9 FTE) above plan. Since January 2011, average monthly Systems consultant staffing (1.4 FTE/mo.) is trending within 10% of plan.
- CM consultant staffing in September (44.4 FTE) was 6.25% (2.6 FTE) above August staffing and was consistent with plan. Cumulatively, since January 2011, average monthly CM consultant staffing (23.2 FTE/mo.) is trending with plan.



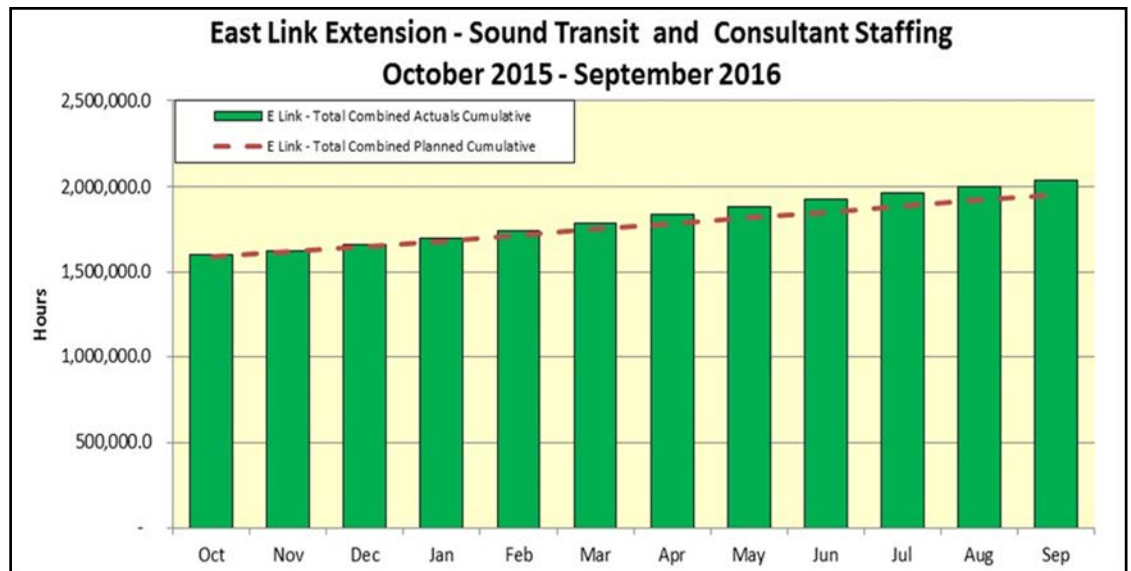
# Link Light Rail Staffing Report



## East Link Extension Staffing

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

Staffing for the East Link Extension in September (233.4 FTE) increased 3% (6.9 FTE) from August and was 10% (21.3 FTE) above plan. Year-to-date staffing of 259.9 FTE/mo. is 23% (47.8 FTE/mo.) above plan; cumulatively since January 2011, average monthly staffing of 184.5 FTE/mo. is 4.2% (7.4 FTE/mo.) above plan.

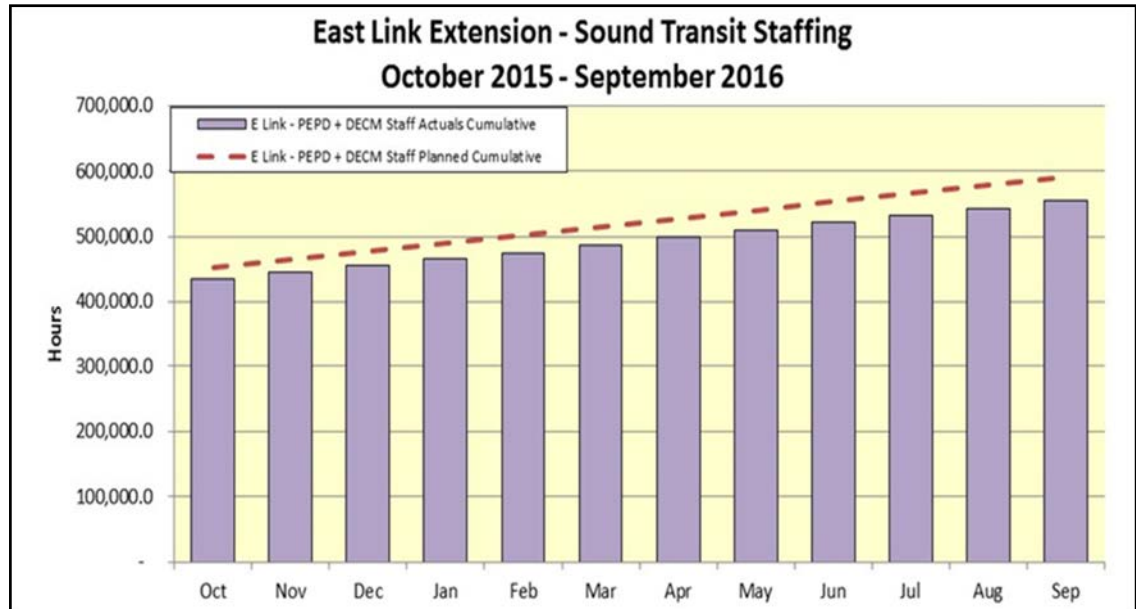


	Labor Hours Jan 2011 - Sep 2016				Current Period Sep 2016			
	Total Planned	Total Actual	Total Variance	Percent Expended	Period Planned	Period Actual	Period Variance	Percent Expended
<b>No. of Hours</b>	1,955,882.3	2,037,396.2	81,513.9	104.2%	33,932.4	37,338.7	3,406.3	110.0%
<b>Monthly Average</b>	28,346.1	29,527.5	1,181.4					
<b>Monthly FTE</b>	177.2	184.5	7.4		212.1	233.4	21.3	

## East Link Extension Staffing

### Internal Resource Commitments to East Link Extension

During September internal staffing for the East Link Extension (66.7 FTE) was 8% (5.4 FTE) below August staffing and was 16% (13 FTE) below plan. Cumulatively, since January 2011, average monthly internal staffing 50.2 FTE/mo. is trending 6% (3.4 FTE/mo.) below plan.



	Labor Hours Jan 2011 - Sep 2016				Current Period Sep 2016			
	Total Planned	Total Actual	Total Variance	Percent Expended	Period Planned	Period Actual	Period Variance	Percent Expended
<b>No. of Hours</b>	591,283.8	553,890.4	-37,393.4	93.7%	12,753.6	10,676.4	-2,077.2	83.7%
<b>Monthly Average</b>	8,569.3	8,027.4	-541.9					
<b>Monthly FTE</b>	53.6	50.2	-3.4		79.7	66.7	-13.0	

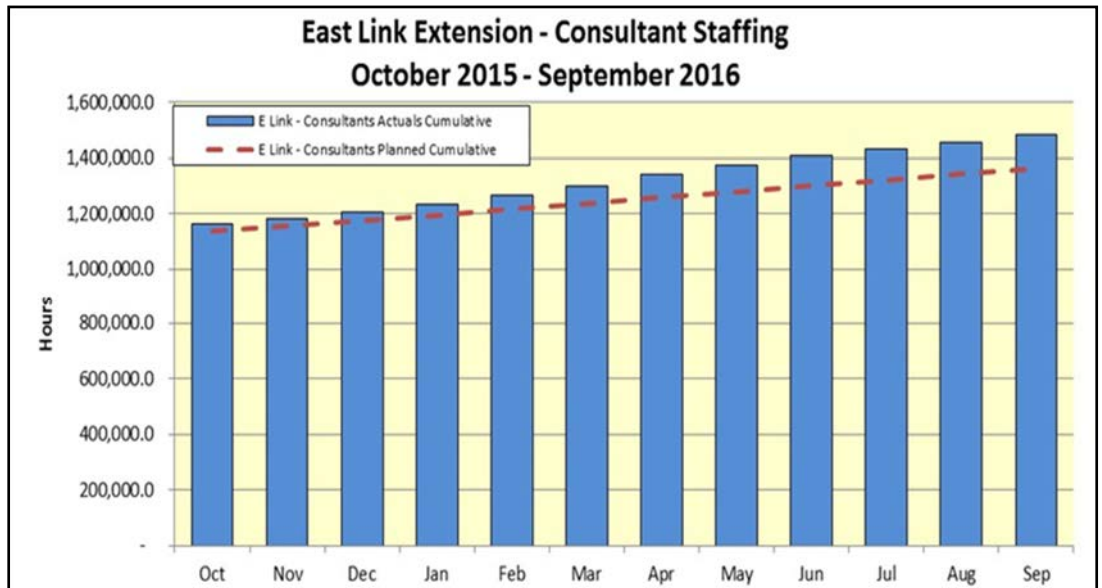
# Link Light Rail Staffing Report



## East Link Extension Staffing

### Consultant Resource Commitments to East Link Extension

There were 166.6 consultant FTE assigned to the East Link Extension during September. Consultant staffing increased 8% (12.3 FTE) from August and was 26% (34.2 FTE) above plan. Cumulatively since January 2011, average monthly consultant staffing is trending 8.7% (10.8 FTE/mo.) above plan.

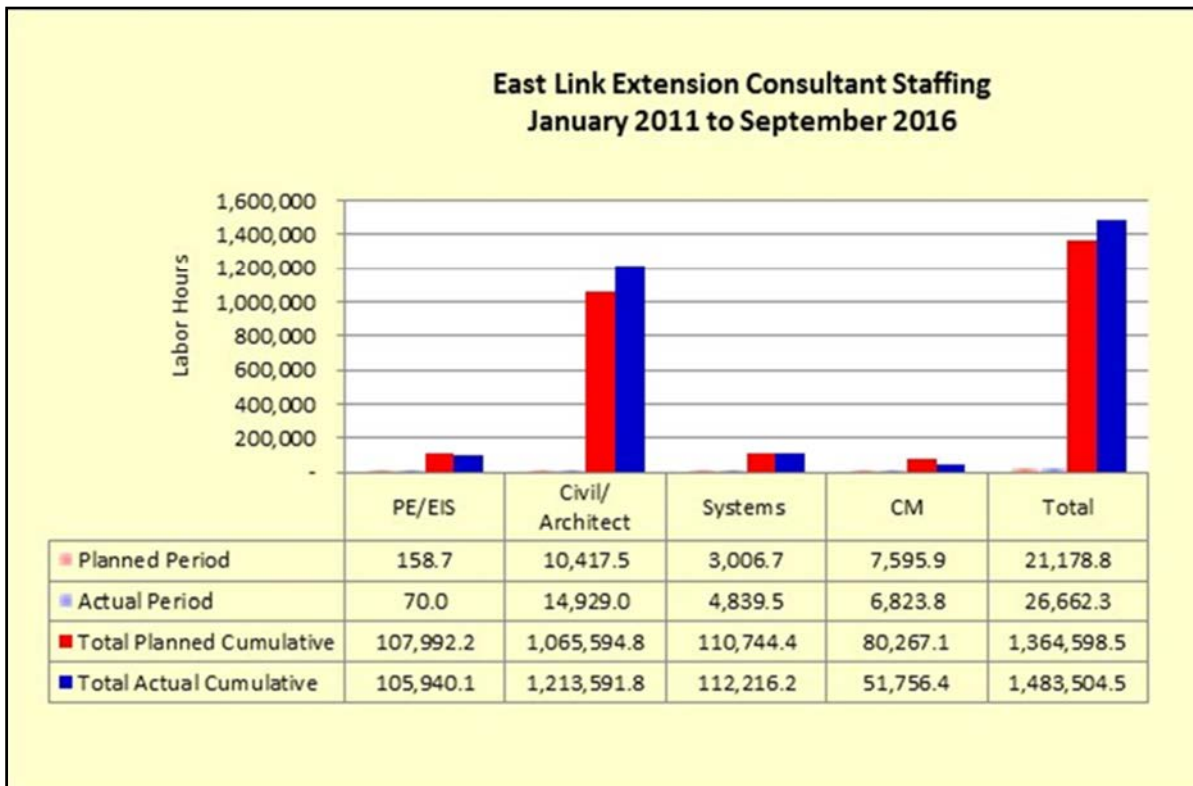


	Labor Hours Jan 2011 - Sep 2016				Current Period Sep 2016			
	Total Planned	Total Actual	Total Variance	Percent Expended	Period Planned	Period Actual	Period Variance	Percent Expended
<b>No. of Hours</b>	1,364,598.5	1,483,505.8	118,907.3	108.7%	21,178.8	26,662.3	5,483.5	125.9%
<b>Monthly Average</b>	19,776.8	21,500.1	1,723.3					
<b>Monthly FTE</b>	123.6	134.4	10.8		132.4	166.6	34.3	

## East Link Staffing

### Consultant Resource Commitments to East Link, continued

In September, civil engineering consultant staffing (93.3 FTE) was 56% of consultant staffing. Civil engineering consultant staffing was 8.4% (7.2 FTE) above August staffing and 43% (28.2 FTE) above plan. Systems consultant staffing (30.2.1 FTE) was 61% (11.5 FTE) above plan and was 5.7% (1.7 FTE) below August staffing. There were 0.4 consultant FTE performing Preliminary Engineering (PE) and 42.6 FTE (10% below plan) providing construction management. Construction management consultant staffing was 7.9% (3 FTE) above August staffing.



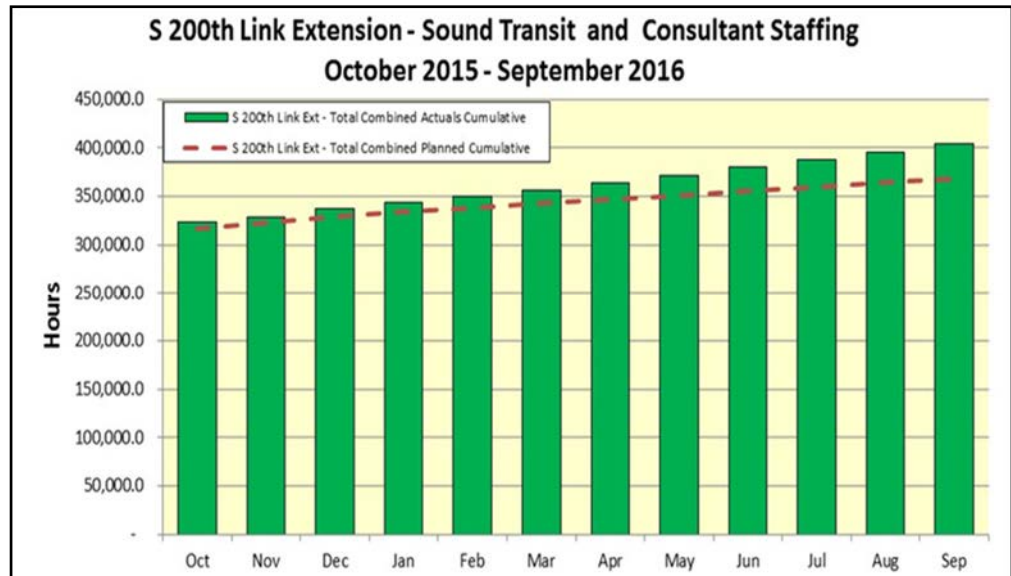
# Link Light Rail Staffing Report



## S. 200th Link Extension Staffing

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

Staffing for the South 200th Link Extension in September (55.4 FTE) was 107% above plan and 13% (6.4 FTE) above August staffing. Average year-to-date staffing is 47.2 FTE/mo. and is 76% (20.4 FTE/mo.) above plan. Since January 2011, average monthly internal and consultant staffing (36.6 FTE/mo.) is 9.8% (3.3 FTE/mo.) above plan.

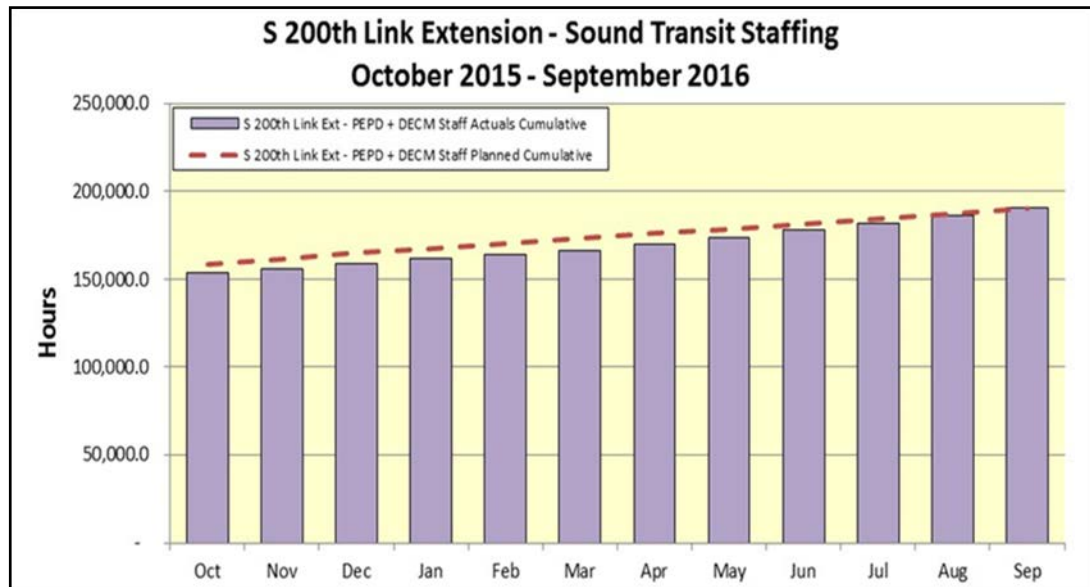


	Labor Hours Jan 2011 - Sep 2016				Current Period Sep 2016			
	Total Planned	Total Actual	Total Variance	Percent Expended	Period Planned	Period Actual	Period Variance	Percent Expended
<b>No. of Hours</b>	368,134.7	404,087.9	35,953.2	109.8%	4,285.9	8,866.6	4,580.7	206.9%
<b>Monthly Average</b>	5,335.3	5,856.3	521.1					
<b>Monthly FTE</b>	33.3	36.6	3.3		26.8	55.4	28.6	

## S. 200th Link Extension Staffing

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

Internal staffing in September (27.9 FTE) decreased 7% (2.2 FTE) from August and was 60% (10.5 FTE) above plan. Cumulatively, since January 2011, average monthly internal staffing is trending with plan.



	Labor Hours Jan 2011 - Sep 2016				Current Period Sep 2016			
	Total Planned	Total Actual	Total Variance	Percent Expended	Period Planned	Period Actual	Period Variance	Percent Expended
<b>No. of Hours</b>	190,069.7	190,973.1	903.3	100.5%	2,779.2	4,461.3	1,682.1	160.5%
<b>Monthly Average</b>	2,754.6	2,767.7	13.1					
<b>Monthly FTE</b>	17.2	17.3	0.1		17.4	27.9	10.5	

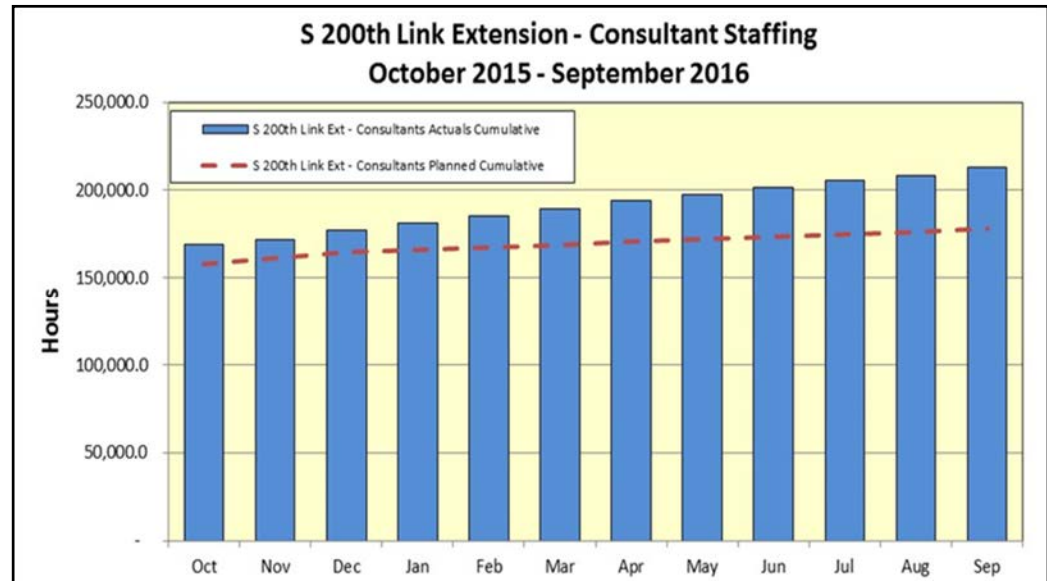
# Link Light Rail Staffing Report



## S. 200th Link Extension Staffing

### Consultant Resource Commitments to S. 200<sup>th</sup> Link Extension

Consultant staffing on the S. 200th Link Extension in September (27.5 FTE) increased 39% (7.7 FTE) from August and was 192% (18.1 FTE) above plan. Cumulatively since January 2011, average consultant staffing (19.3 FTE/mo.) is trending 19.7% (3.2 FTE/mo.) above plan. Design/build project management consultants accounted for 100% of consultant staffing in September.



	Labor Hours Jan 2011 - Sep 2016				Current Period Sep 2016			
	Total Planned	Total Actual	Total Variance	Percent Expended	Period Planned	Period Actual	Period Variance	Percent Expended
<b>No. of Hours</b>	178,065.0	213,114.8	35,049.9	119.7%	1,506.7	4,405.3	2,898.6	292.4%
<b>Monthly Average</b>	2,580.7	3,088.6	508.0					
<b>Monthly FTE</b>	16.1	19.3	3.2		9.4	27.5	18.1	





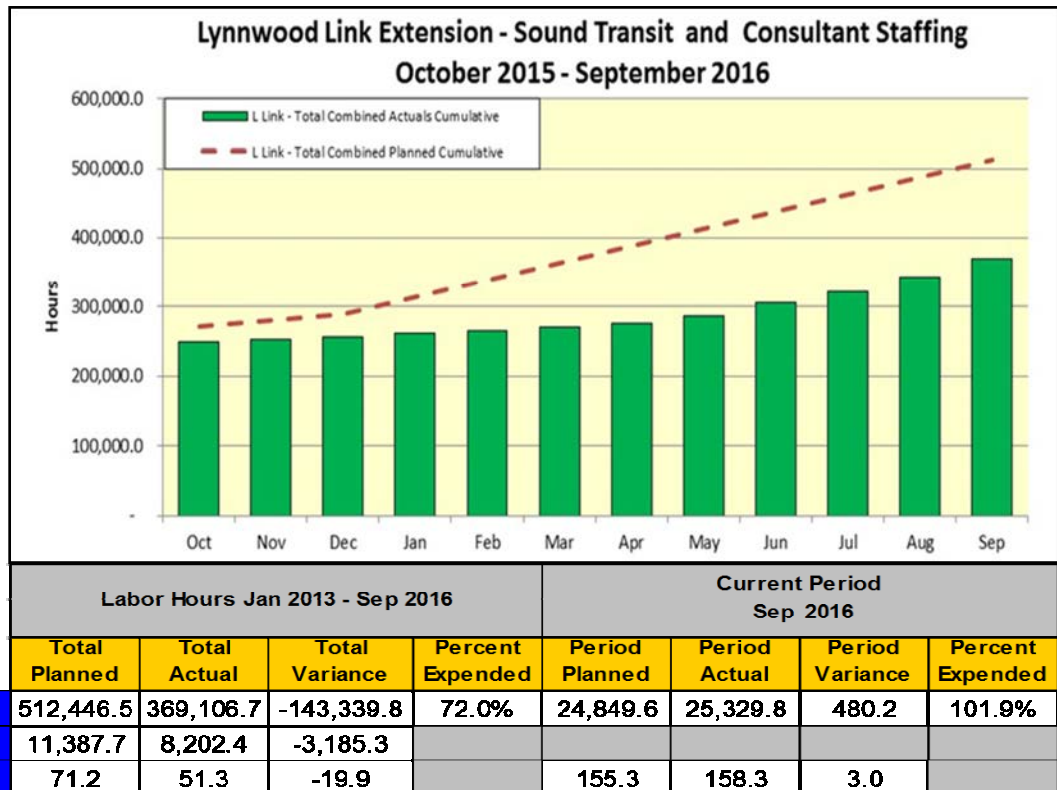
# Link Light Rail Staffing Report



## Lynnwood Link Extension Staffing

### Total Internal and Consultant Staffing – Lynnwood Link Extension

During September Lynnwood Link Extension staffing was 158.3 FTE (102% of plan) and included 122.6 consultant FTE (7% above plan) and 35.7 internal FTE (88% of plan). Internal staffing for September was 21% (8.2 FTE) above August staffing; consultant staffing increased 19% (25.4 FTE) from August. Average year-to-date staffing (80.1 FTE/mo) for the Lynnwood Link Extension is 52% of plan.



Nearly 90% of consultant staffing (109.32 FTE) were civil engineering consultants. Additional consultant staffing (11 FTE) provided construction management and systems design (2.4 FTE) support. Since January 2013, average project staffing for the Lynnwood Link Extension (51.3 FTE/mo.) is 28% (19.9 FTE/mo.) below plan.

## Tacoma Link Extension

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

During September there were 16.1 FTE (67% of plan) assigned to the Tacoma Link Expansion including 7.9 consultant FTE (72% of plan) and 8.1 internal FTE (38% of plan). Average year-to-date staffing is 10 FTE/mo. (42% of plan).

All consultant staff assigned to the project were supporting preliminary engineering.

	Labor Hours Jan 2016				Current Period Sep 2016			
	Total Planned	Total Actual	Total Variance	Percent Expended	Period Planned	Period Actual	Period Variance	Percent Expended
<b>No. of Hours</b>	34,603.2	14,639.2	-19,964.0	42.3%	3,844.8	2,573.4	-1,271.4	66.9%
<b>Monthly Average</b>	3,844.8	1,626.6	-2,218.2					
<b>Monthly FTE</b>	24.0	10.2	-13.9		24.0	16.1	-7.9	

# 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

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ACRONYMS, continued

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