

# Progress Report

## Link Light Rail Program

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*Exterior panel installation is ongoing at the OMF East*

November | 2019



Prepared by Project Control & VE | Design, Engineering & Construction Management





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## SOUND TRANSIT LINK LIGHT RAIL CURRENT SERVICE AND FUTURE EXTENSIONS

**Link Light Rail**

**Future service:**

- Everett–Seattle–West Seattle
- Redmond–Seattle–Mariner
- Ballard–Seattle–Tacoma
- Issaquah–Bellevue–South Kirkland
- Tacoma Dome–Tacoma Community College

**In service:**

- Univ. of Washington–Angle Lake
- Tacoma Dome–Theater District

○ New station  
 P Added parking  
 ○ Existing station  
 H Existing parking  
 ○ Provisional light rail station



**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. 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 Sound Transit Board adopted the baseline capital budget of \$2.77B on May 24, 2018.

**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 Station is forecast for June 2023 with a tunnel route in Downtown Bellevue. The Sound Transit Board adopted the baseline capital budget of \$3.67B in April 2015.

**Downtown Redmond Link Extension:** This project builds a new light rail from the Redmond Technology Station to downtown Redmond by 2024. Light rail will travel along SR-520 with two new stations in southeast Redmond, at Marymoor Park, and downtown Redmond. The ST Board adopted the baseline capital budget of \$1.53B on October 25, 2018.

**West Seattle and Ballard Link Extensions:** The West Seattle & Ballard Link Extensions are voter-approved projects under the ST3 Plan. West Seattle segment includes 4.7 miles of light rail from downtown Seattle to West Seattle's Junction neighborhood. It includes five light rail stations. The route will run primarily on elevated guideway with a new rail-only

bridge over Duwamish River. The Ballard segment includes 7.1 miles of light rail from downtown Seattle to Ballard's Market Street area. It includes nine light rail stations. The route will run through a new downtown Seattle rail-only tunnel, elevated guideway, and a rail-only bridge over Salmon Bay. The current budget for these projects through completion of Preliminary Engineering is \$286M.

**Federal Way Link Extension:** The Federal Way Link Extension adds approximately 7.8 miles of light rail from the Angle Lake Station in the City of SeaTac to the Federal Way City Center. The extension generally parallels SR 99 and I-5 freeway with stations at Kent/Des Moines, South 272nd Star Lake park-and-ride and the Federal Way Transit Center. The Sound Transit Board adopted the baseline capital budget of \$2.45B on September 27, 2018.

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

**Tacoma Dome Link Extension:** This project will extend light rail from the Federal Way Transit Center in the City of Federal Way to the Tacoma Dome area in the City of Tacoma a total distance of approximately 9.7 miles, generally along or near I-5 with three elevated stations at South Federal Way, Fife, and East Tacoma, and one at-grade/retained station at the Tacoma Dome. The budget for this project through completion of Preliminary Engineering in June 2019 is \$125.7M.

**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 bays, a LRV wash facility and storage for up to 96 light rail vehicles. The ST Board adopted the baseline capital budget of \$449.2M in July 2016.

**Light Rail Vehicle (LRV) Fleet Expansion:** This project includes the design, manufacturing, inspection, testing and delivery of 152 low floor LRVs for service requirements of Northgate, East Link and Lynnwood Link Extensions. The Sound Transit Board adopted the baseline capital budget of \$733M originally in 2015 and revised the baseline budget to \$740.7M in April 2017 to allow for the procurement of 30 additional vehicles.



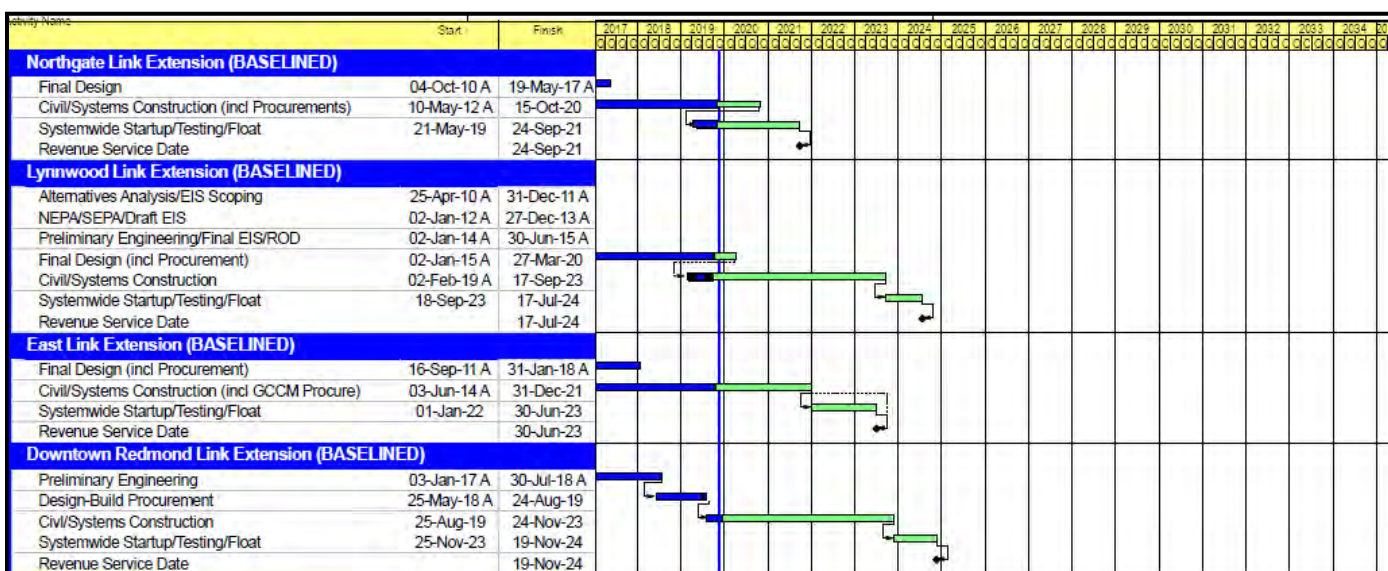
## Program Budget

Project figures for active projects are represented in millions below.

Project	Authorized Project Allocation	Commitment to Date	Incurred to Date	Forecast to Complete	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
University Link Extension	\$1,756.0	\$1,519.1	\$1,515.5	\$31.4	\$1,550.5	\$205.5
Northgate Link Extension	\$1,899.8	\$1,677.1	\$1,550.8	\$170.2	\$1,847.3	\$52.5
Lynnwood Link Extension	\$2,771.6	\$2,200.3	\$540.1	\$571.3	\$2,771.6	0
East Link Extension	\$3,677.2	\$3,078.4	\$2,227.9	\$598.8	\$3,677.2	0
Downtown Redmond Link Ext.	\$1,530.0	\$861.8	\$90.4	\$668.2	\$1,530.0	0
West Seattle and Ballard Link Ext.	\$285.9	\$95.6	\$49.0	\$190.3	\$285.9	0
Federal Way Link Extension	\$2,451.5	\$1,503.7	\$319.9	\$947.9	\$2,451.5	0
Hilltop Tacoma Link Extension	\$217.3	\$191.7	\$98.0	\$25.7	\$217.3	0
Tacoma Dome Link Extension	\$125.7	\$54.8	\$19.1	\$70.9	\$125.7	0
Link O & M Facility: East	\$449.2	\$361.5	\$278.0	\$87.7	\$449.2	0
LRV Fleet Expansion	\$740.7	\$668.1	\$163.6	\$72.6	\$740.7	0
<b>Total Link</b>	<b>\$15,904.9</b>	<b>\$12,212.0</b>	<b>\$6,852.3</b>	<b>\$3,434.9</b>	<b>\$15,646.9</b>	<b>\$258.0</b>

## Program Schedule

Schedules for active projects are summarized below.

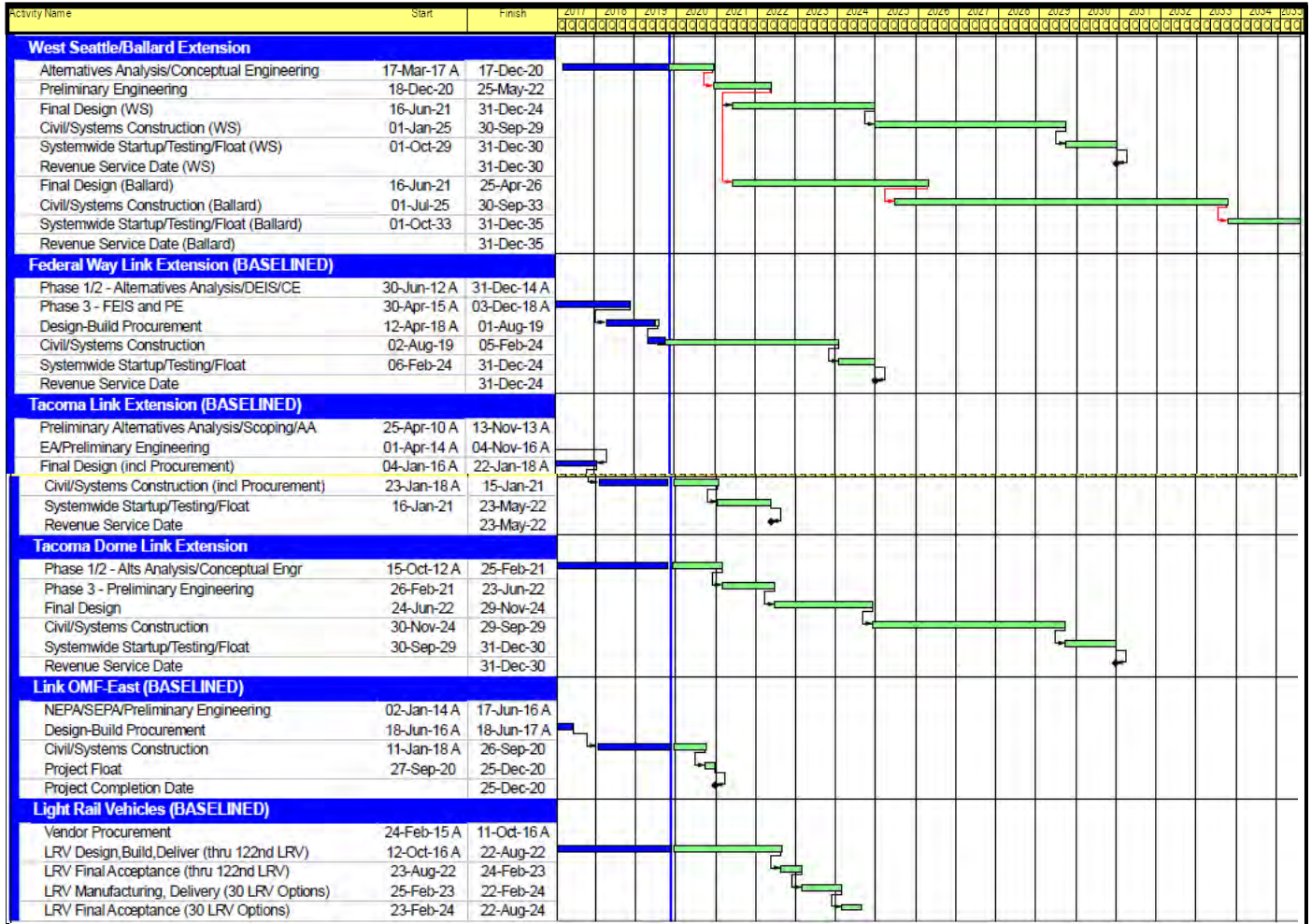


# Link Light Rail Program Overview



## Program Schedule

Schedules for active projects are summarized below.



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# Link Light Rail University Link Extension

## Project Summary

### 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** Two 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.

**Systems** 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 March 19, 2016



Map of Project Alignment

## Key Project Activities

- Certificate of Occupancy (C of O): University Link continues to operate under a temporary certificate of occupancy until all permit requirements are fully met. All C of O for stations has been issued. The request for system/tunnel C of O for the University Link, continues to await for Seattle Department of Transportation's approval. Seattle Fire Department has recommended for its approval.
- Miscellaneous follow-on commitments and restoration work remains including but not limited to the following: Additional UW escalator work, decommissioning of monitoring wells, restoration of the systems staging area on Pine Street, power reliability and vibration monitoring and other follow up on various minor commitments from the Record of Decisions.
- Before and After Study continues to progress. FTA's recommended "on to off" data collection to expand the survey data to more accurately reflect total ridership were incorporated. Study is complete. Report will be submitted in the 4th Quarter 2019.

## Project Cost Summary

The 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.

University Link's projected Estimated Final Cost (EFC) including Finance Cost remains at about \$1.75B. As the project inches closer to close out, the timing for expenditure becomes less predictable. This period, the project expenditure was negligible, total project expenditure remain at \$1.51B (Finance Cost excluded). Current activities continues to pertain to close out and miscellaneous follow on work. The Construction EFC continues to be approximately \$1.02B. This trend continues to hold as the project is substantially complete with only miscellaneous follow on scope and commercial issues remaining. The Total Incurred to Date for the Construction Phase is approximately \$997M and LRV is at about \$99.2M. Cost of LRV repairs were excluded from this project and tracked independently.

### Cost Summary by Phase

Project Phase	Baseline Budget	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$115.2	\$113.6	\$84.0	\$84.0	\$88.2	\$25.4
Preliminary Engineering	\$24.4	\$24.3	\$24.3	\$24.3	\$24.3	\$0.0
Final Design	\$77.9	\$90.3	\$86.8	\$86.8	\$88.0	\$2.3
Construction Services	\$68.5	\$94.8	\$86.6	\$86.6	\$88.4	\$6.4
3rd Party Agreements	\$18.6	\$18.6	\$11.7	\$11.3	\$13.2	\$5.4
Construction	\$1,180.0	\$1,158.2	\$1,000.2	\$997.0	\$1,019.7	\$138.5
Vehicles	\$103.9	\$103.9	\$99.2	\$99.2	\$101.9	\$2.0
ROW	\$167.3	\$152.3	\$126.4	\$126.4	\$126.8	\$25.5
<b>Capital Total</b>	<b>\$1,756.0</b>	<b>\$1,756.0</b>	<b>\$1,519.1</b>	<b>\$1,515.5</b>	<b>\$1,550.5</b>	<b>\$205.5</b>
Finance Cost	\$191.7	\$191.7	\$191.7	\$174.9	\$191.7	\$0.0
<b>Project Total</b>	<b>\$1,947.7</b>	<b>\$1,947.7</b>	<b>\$1,710.8</b>	<b>\$1,690.3</b>	<b>\$1,742.2</b>	<b>\$205.5</b>

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

Construction commitment under the SCC format remains relatively unchanged at about \$1B. Construction SCC expenditures to date is approximately \$984 this period and miscellaneous follow on work project level commitments prior to close out. Total capital cost incurred to date including non-construction cost (SCC 60 thru 90) is now just over \$1.51B or about 86% of total project budgeted scoped (Finance Cost excluded). Total project cost incurred to date at the end of this period including Finance Cost is at \$1.69B. The financing cost Incurred to Date is about \$175M. University Link EFC continues to be projected to close out with at least \$205M under budget excluding financing cost.

# Link Light Rail University Link Extension



## Cost Summary by SCC

SCC Element	Baseline Budget	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
10 Guideway & Track	\$626.8	\$450.5	\$456.5	\$456.4	\$461.6	(\$11.2)
20 Stations	\$366.3	\$350.8	\$349.2	\$347.3	\$353.1	(\$2.4)
30 Support Facilities: Yards,	\$7.0	\$24.8	\$23.5	\$23.5	\$24.8	\$0.0
40 Sitework & Special Conditions	\$59.0	\$67.4	\$55.9	\$55.2	\$55.2	\$12.2
50 Systems	\$69.6	\$116.4	\$102.0	\$102.7	\$101.9	\$14.6
<b>Construction Subtotal (10 - 50)</b>	<b>\$1,128.8</b>	<b>\$1,009.9</b>	<b>\$987.1</b>	<b>\$985.1</b>	<b>\$996.6</b>	<b>\$13.3</b>
60 Row, Land, Existing Improvements	\$167.3	\$126.6	\$126.4	\$126.4	\$125.8	\$0.8
70 Vehicles	\$99.8	\$100.2	\$99.9	\$99.9	\$100.2	\$0.0
80 Professional Services	\$306.4	\$346.6	\$305.7	\$304.0	\$316.5	\$30.1
90 Unallocated Contingency	\$53.7	\$172.8	\$0.0	\$0.0	\$11.5	\$161.3
<b>Capital Total (10 - 90)</b>	<b>\$1,756.0</b>	<b>\$1,756.0</b>	<b>\$1,519.1</b>	<b>\$1,515.5</b>	<b>\$1,550.5</b>	<b>\$205.5</b>
100 Finance Cost	\$191.7	\$191.7	\$191.7	\$174.9	\$191.7	\$0.0
<b>Project Total</b>	<b>\$1,947.7</b>	<b>\$1,947.7</b>	<b>\$1,710.8</b>	<b>\$1,690.3</b>	<b>\$1,742.2</b>	<b>\$205.5</b>

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# Link Light Rail Northgate Link Extension

## Project Summary

### 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 UW Station, continues under UW campus, then north to a portal at NE 94th Street, then transitioning to an aerial structure north to Northgate Mall.

**Stations** U District Station (UDS)  
Roosevelt Station (RVS)  
Northgate Station and Parking Garage

**Systems** Signals, track electrification, and SCADA communications

**Phase** Construction

**Budget** \$1.899 Billion

**Schedule** Revenue Service: September 2021



Map of Project Alignment

## Key Project Activities

- **U District Station/UW Campus (N140):** Crews continued installation of tile on platform and continued final setting of escalators 7 through 8 at circulation tubes; continued installation of Elevator 2 and tile on the platform level.
- **Roosevelt Station (N150):** Crews continue installation of metal panel trim on exterior of the north entrance, commenced installation of floor tile at the north head house lobby, continue to close out punchlist items and finalize commissioning activities.
- **Northgate Station (N160): Station:** At the main station Absher and subcontractor completed Stair 5 emergency egress formwork and rebar at south edge of platform and placed concrete. Crews completed placing steps for Stair 4. Mid-American is continuing work on Escalators 2 and 3, installing balustrade supports and preparing for L&I inspection.
- **Trackwork (N180):** Northbound and Southbound track is complete throughout work areas across the Northgate alignment. Crews continue installing the Pedestrian Cross Panels at the north and south ends of the trackway.
- **Environmental:** Environmental and safety site walks conducted on all Northgate contracts.



### Closely Monitored Issues

**N830 Northgate Systems Construction:** ST confirmed that any issues with the perforated aluminum panels for additional stair at the U District Station will not affect the follow on contracts, N830 nor the N140 Emergency Ventilation System (EVS) testing. ST is reviewing options to add lighting at escalators 1-4 at Roosevelt Station; current levels are insufficient.

### Project Cost Summary

The project cost is summarized in two cost categories. The first table summarizes cost in accordance with Sound Transit's budget 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 the project as of this reporting period is \$1,847.3 M, which is \$52.5 M below the current project budget, unchanged since last period. This period approximately \$14.1 M was incurred, primarily on the major construction and construction support contracts.

#### Cost Summary by Phase

Project Phase	Baseline Budget	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$144.9	\$144.9	\$79.3	\$78.7	\$129.5	\$15.4
Preliminary Engineering	\$15.1	\$15.1	\$15.1	\$15.1	\$15.1	\$0.0
Final Design	\$132.2	\$132.2	\$123.1	\$120.0	\$132.7	-\$0.5
Construction Services	\$118.3	\$118.3	\$103.0	\$89.2	\$116.9	\$1.4
3rd Party Agreements	\$11.8	\$11.8	\$8.4	\$7.2	\$11.4	\$0.4
Construction	\$1,343.0	\$1,343.0	\$1,247.0	\$1,139.3	\$1,335.1	\$7.9
ROW	\$112.3	\$112.3	\$101.2	\$101.2	\$106.7	\$5.6
Project Contingency	\$22.2	\$22.2	\$0.0	\$0.0	\$0.0	\$22.2
<b>Total</b>	<b>\$1,899.8</b>	<b>\$1,899.8</b>	<b>\$1,677.1</b>	<b>\$1,550.8</b>	<b>\$1,847.3</b>	<b>\$52.5</b>

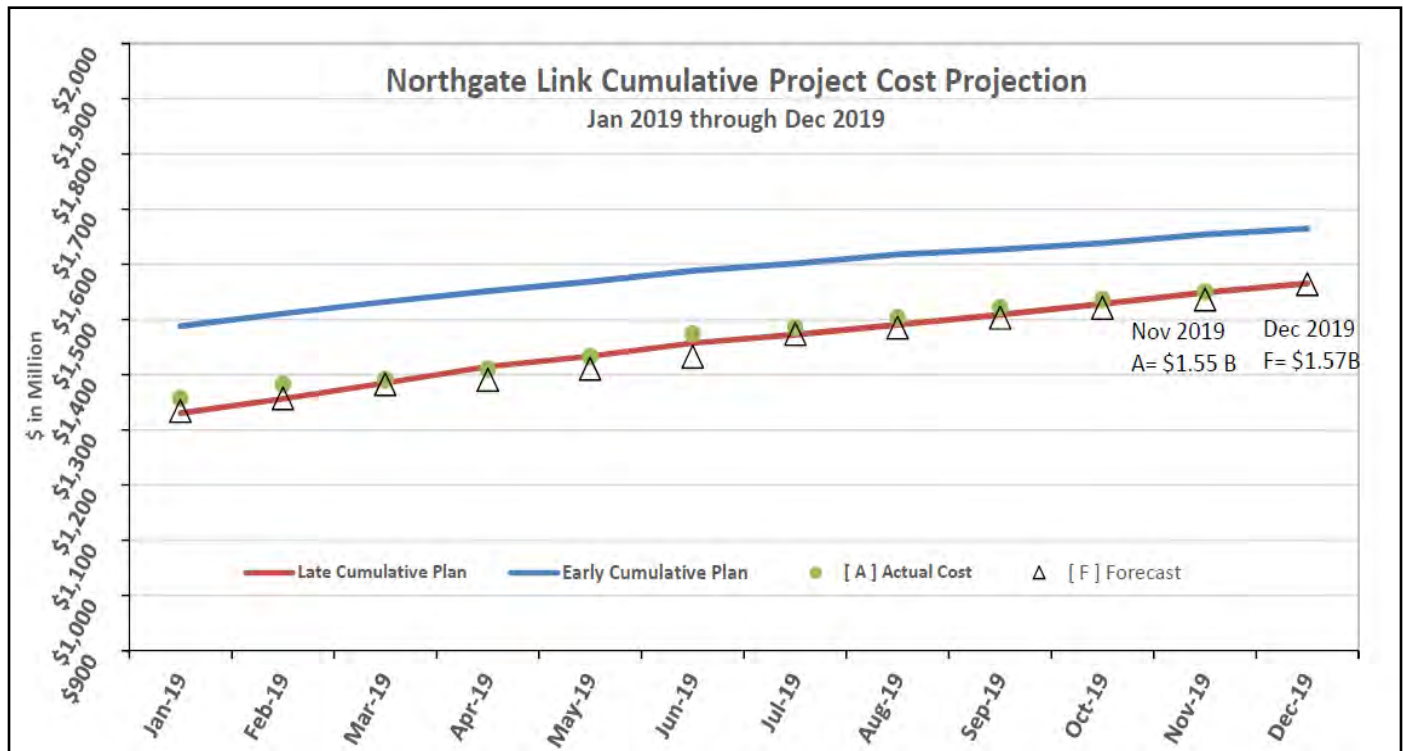
#### Cost Summary by SCC

SCC Element	Baseline Budget	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
10 Guideway & Track	\$595.6	\$548.2	\$517.6	\$510.1	\$531.7	\$16.5
20 Stations	\$376.1	\$425.1	\$434.5	\$401.3	\$455.3	-\$30.3
30 Support Facilities: Yard, Shop	\$5.3	\$6.1	\$6.5	\$6.5	\$6.5	-\$0.3
40 Sitework & Special Conditions	\$140.8	\$230.7	\$170.4	\$161.1	\$194.2	\$36.5
50 Systems	\$110.9	\$98.5	\$107.7	\$51.2	\$117.1	-\$18.6
<b>Construction Subtotal (10 - 50)</b>	<b>\$1,228.7</b>	<b>\$1,308.6</b>	<b>\$1,236.6</b>	<b>\$1,130.2</b>	<b>\$1,304.8</b>	<b>\$3.8</b>
60 Row, Land, Existing Improvements	\$119.9	\$110.9	\$101.2	\$101.2	\$105.5	\$5.4
80 Professional Services	\$420.7	\$431.6	\$339.3	\$319.4	\$424.3	\$7.3
90 Contingency	\$130.4	\$48.7	\$0.0	\$0.0	\$12.7	\$36.0
<b>Total (10 - 90)</b>	<b>\$1,899.8</b>	<b>\$1,899.8</b>	<b>\$1,677.1</b>	<b>\$1,550.8</b>	<b>\$1,847.3</b>	<b>\$52.5</b>

## Project Cash Flow Projection

The Northgate Link cost aligns with the planned expenditures as construction activities continue.

Total project cost to date reached \$1.55 B of which about \$1.14 B (73%) is attributed to construction. The project cost is currently predicted to increase to approximately \$1.57 B by December 2019, reflecting continued active construction activities.



## Risk Management

The 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 to continuously monitor project status and associated risks. The top project-wide risks are:

- Insufficient operations and maintenance staff to support testing and commissioning activities.
- Coordination with third parties (e.g. City of Seattle, WSDOT, UW etc.). This risk includes mitigation/restoration requests, extended submittal/permit reviews, and potential additional work or rework.
- Coordination of system installation, integration, and testing.
- Completion of station finishes before final systems installation could lead to rework.
- Long lead procurement items for systems (e.g. communications, traction power, signal bungalows, etc.) could cause delays.
- Late stage design changes or enhancement requests from operations at stations could lead to cost and schedule impacts.

## Contingency Management

The Northgate Link project budget was baselined in 2012 with a total contingency of \$396.2M.

**Design Allowance (DA)** was established to account for unquantified scope at the time of the cost estimate. DA has been fully depleted and all major contracts have been awarded.

**Allocated Contingency (AC)** is used to address risks, complexity and unforeseen conditions during the execution of work, including procurement.

**Unallocated Contingency (UAC)** is used to address general project-wide cost risks and uncertainties.

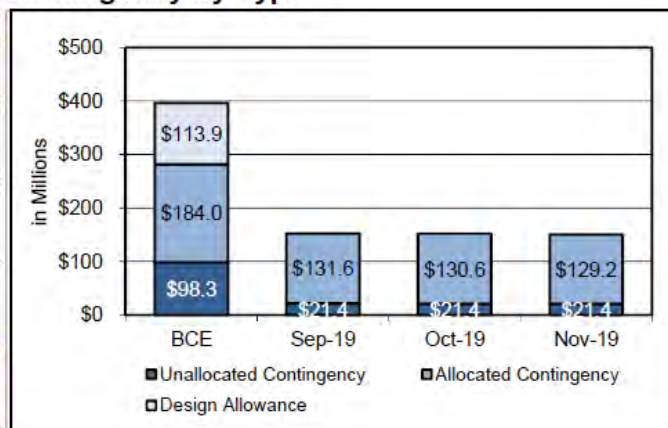
In this period, AC decreased by \$1.4 M, due to change orders on construction contracts. UAC was unchanged in this period. The overall UAC balance remains well above both the minimum and the buffer zone contingency levels.

### Contingency Status (Monthly)

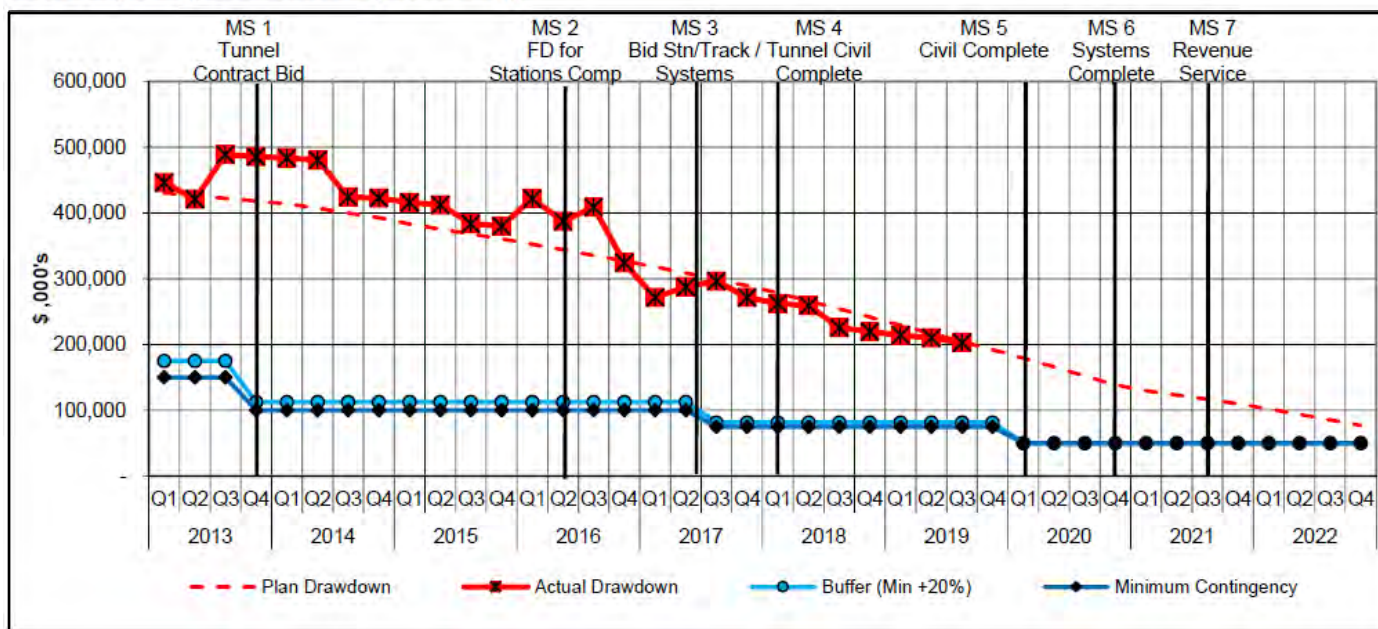
Type	Baseline		Current Status	
	Amount	% of Total Budget	Remaining Amount	% of Work Remaining
Design Allowance	\$113.9	6.0%	\$0.0	0.0%
Allocated Contingency	\$184.0	9.7%	\$129.2	43.6%
Unallocated Contingency	\$98.3	5.2%	\$21.4	7.2%
<b>Total:</b>	<b>\$396.2</b>	<b>20.9%</b>	<b>\$150.6</b>	<b>50.8%</b>

Table figures are shown in millions.

### Contingency by Type



### Contingency Drawdown (Quarterly)





# Link Light Rail Northgate Link Extension

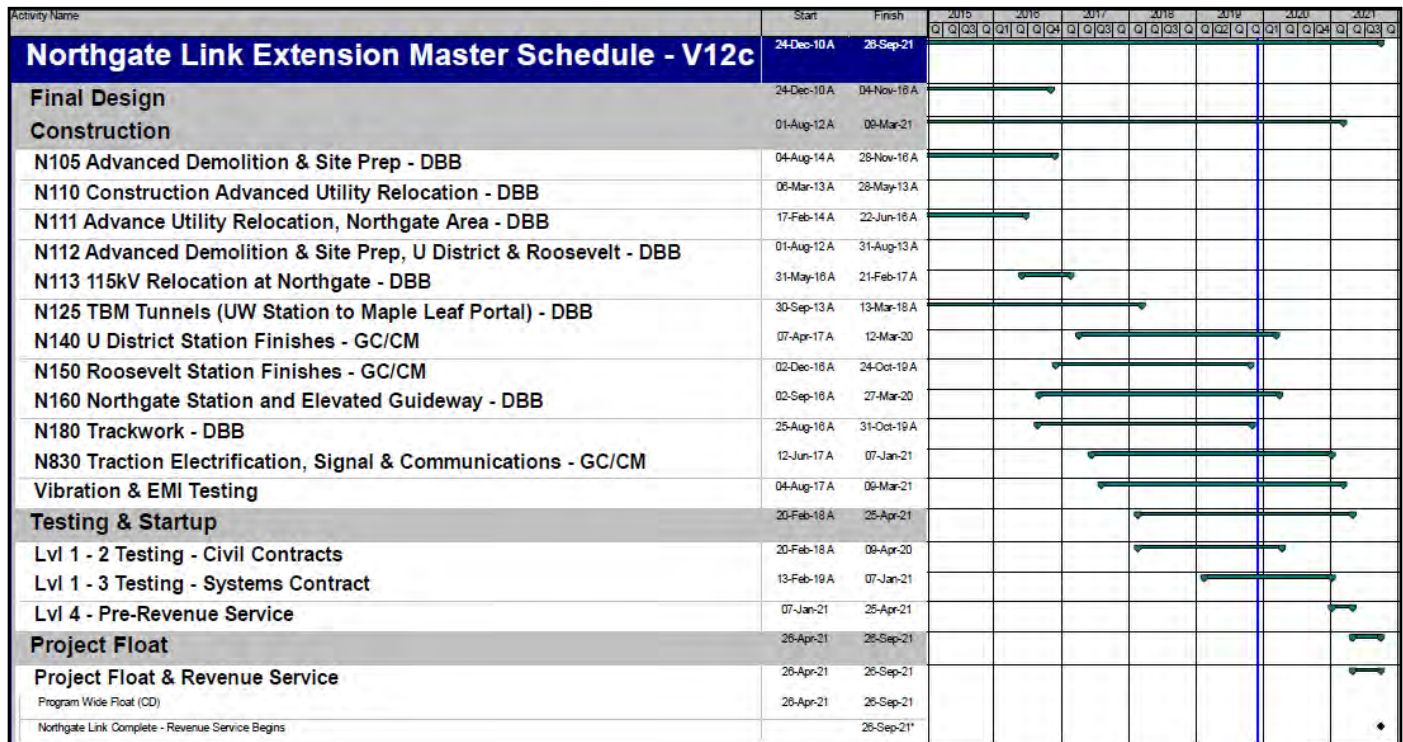


## Project Schedule

In November 2019, the physical percent complete for all Northgate Link construction contracts increased from 90.2% to 91.5%.

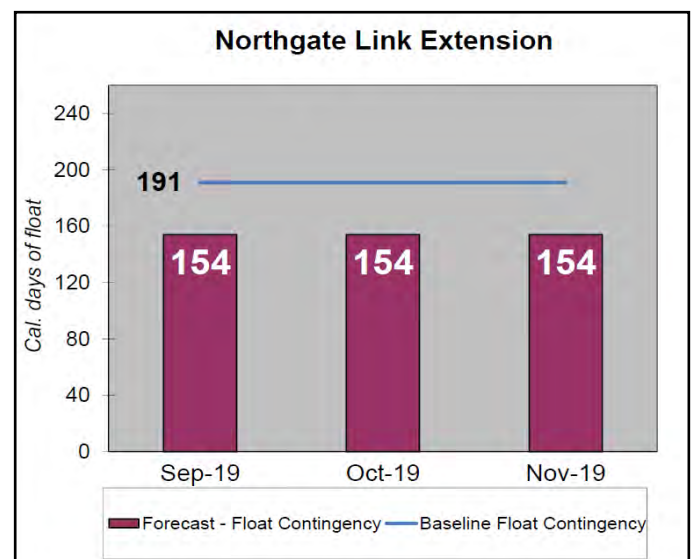
Completion of the civil construction remains in late 3rd QTR 2020, with systems construction & testing currently forecast to be complete in late 4th QTR 2020 as planned.

The Revenue Service Date remains late September 2021.



## Project Float

The Northgate Link Project currently retains 154 days of unallocated project float. The next significant re-evaluation of project float will likely occur as the rail activation plan continues to develop. Currently the project remains on schedule.



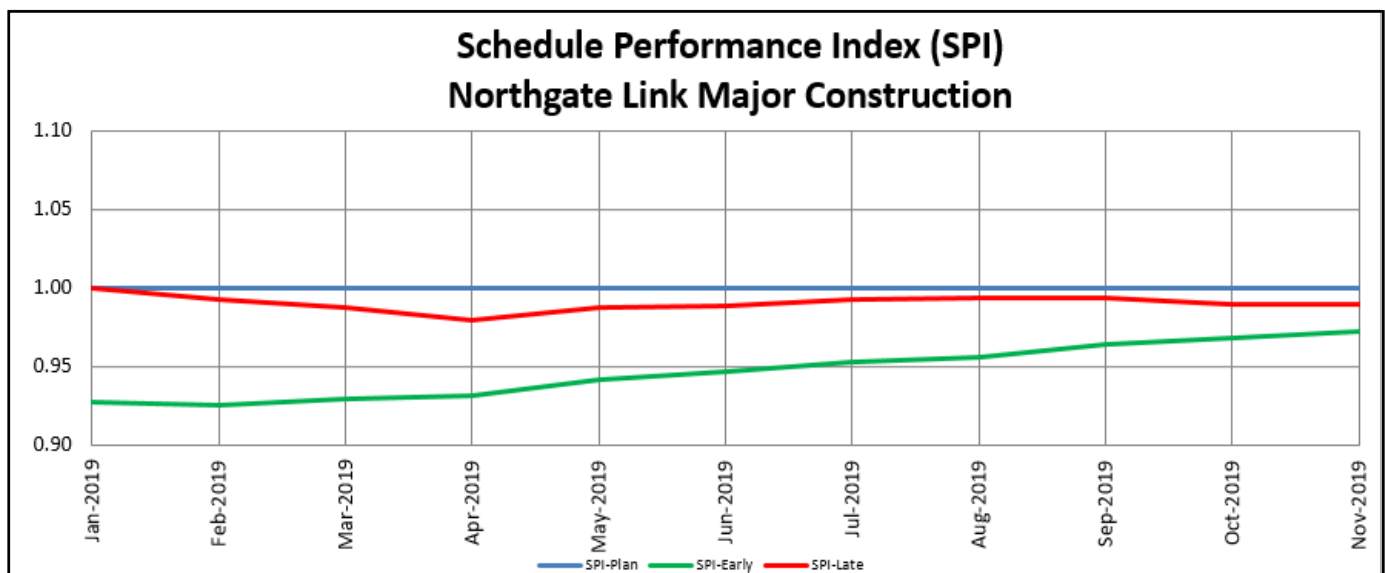
## Critical Path Analysis

The critical path for Northgate Link now runs through the N830 Systems contract entirely and this drives the testing & commissioning, preceding the pre-revenue service period. Procurement, manufacturing, and installation of the signal systems continues to be the driver of the critical path. Overhead Catenary Systems (OCS) installation is continuing, as final trackwork punchlist activities within the tunnel are wrapping up.

Activity ID	Activity Name	Start	Finish	TF	Float Path	2020												2021											
						N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
N830/E750 - Systems		01-Sep-19 A	25-Dec-20	0																									
N830 Project		01-Sep-19 A	25-Dec-20	0																									
N830 Engineering		17-Oct-20	25-Dec-20	3																									
N830 Submittals		17-Oct-20	25-Dec-20	3																									
N830 Train Control		17-Oct-20	25-Dec-20	3																									
NAAAT-0620	Signal As-Built's, NG	17-Oct-20	25-Dec-20	3	9																								
N830 Construction		01-Sep-19 A	25-Dec-20	0																									
N830 Milestones		01-Sep-19 A	25-Dec-20	3																									
N830 Access Dates		01-Sep-19 A	01-Sep-19 A																										
N830 Contract Milestones		25-Dec-20	25-Dec-20	3																									
NAAAM-1050	MS#05 Northgate: Substantial completion of N		25-Dec-20*	3	9																								
N830 Signals		02-Dec-19	09-Jul-20	1																									
N830 Testing and Commissioning		09-Jul-20	16-Oct-20	1																									

## Schedule Performance Index

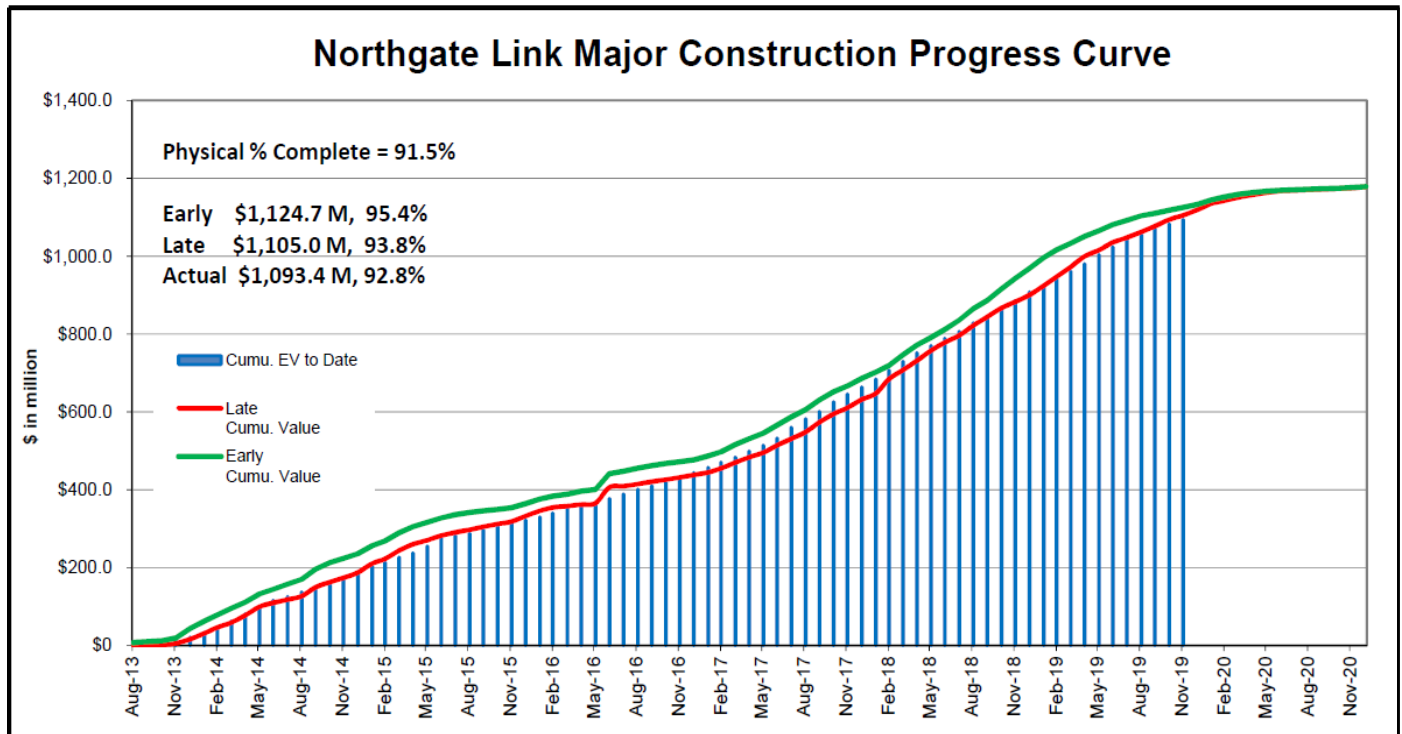
The early Schedule Performance Index (SPI) for the project is at 0.97 for this period, and the late SPI is at 0.99, showing that in general, performance continues to be satisfactory. Both the early and late numbers have been trending within a range of 0.06 above or below the current period numbers throughout the year.





## Cost Progress Analysis

Overall Northgate Link major construction percent complete analysis is based on a weighted measurement among the six major construction contracts' schedules, durations and costs. The graph below shows the aggregate cost progression for these construction contracts is trending toward the late projection as drawn from the master schedule.



## Community Outreach

**Northgate Link Extension Alignment:** Toured station sites with ST Communications division to begin planning opening festivities.

**University District Station (N140):** Distributed construction alerts via project page, government delivery list server, email, and door to door for the following activities around the station site:

- Partial opening of alleyway between NE 43rd and NE 45th Streets. Met with the business owners to discuss.

**Roosevelt Station (N150):** Distributed construction alerts via project page, government delivery list server, email, and door to door for the following activities around the station site:

- Panel replacement/sidewalk restoration along NE 67th St.
- Fire alarm testing at station.
- Sidewalks reopening around the station site.

**Northgate Station (N160):** Working with the City of Seattle on outreach related to the pedestrian bridge construction.

## Sound Transit Board Actions

Board Action	Description	Date
	No actions this period.	

## Construction Safety

Data/ Measure	November 2019	Year to Date	Project to Date
Recordable Injury/Illness Cases	0	8	112
Days Away From Work Cases	0	0	6
Total Days Away From Work	0	0	397
First Aid Cases	0	30	182
Reported Near Mishaps	1	26	147
Average Number of Employees on Worksite	323	-	-
Total # of Hours (GC & Subs)	54,530	955,383	4,995,411
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	0.00	1.67	4.48
Lost Time Injury (LTI) Rate	0.00	0.00	0.24
<b>Recordable National Average</b>	3.00		
<b>LTI National Average</b>	1.20		
<b>Recordable WA State Average</b>	6.00		
<b>LTI WA State Average</b>	1.90		

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

## Major Construction Contract Packages

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

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

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

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

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

**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 (Substantially Complete)

**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. (Substantially Complete)

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



*N140 – Precast Stair Treads on Added Stair 8.*

## Contract N140—U District Station Finishes

### Current Progress

The N140 Contractor, Hoffman Construction, is continuing architectural work above grade as well as mechanical, electrical, and plumbing (MEP) work below grade.

- Commenced installation of elevator 1 at south end.
- Continue final setting of escalators 5 through 8 at circulation tubes.
- Completed permanent power installation.
- Continued installation of light pole conduits at 43<sup>rd</sup> and Brooklyn Ave. intersection.

### Schedule Summary

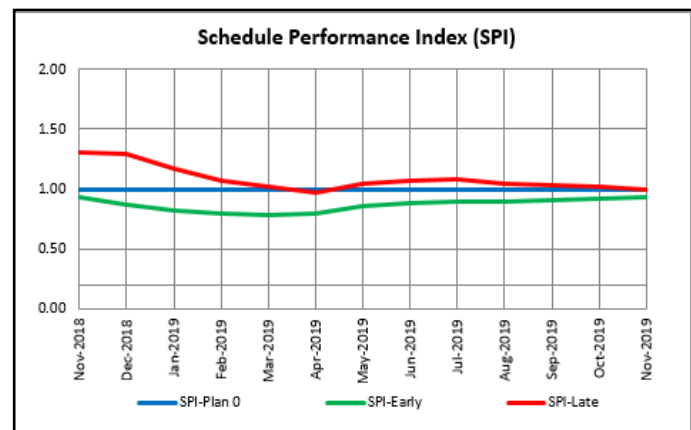
The November schedule forecasts a six day delay to substantial completion with the schedule progressing from 81% complete to 88%. Elevators and commissioning are the critical for achievement of Milestone 4, Substantial Completion. Milestone 4A, Stair 8, is on schedule for March completion. Milestone 4B, Deferred Work is thirteen days behind schedule, driven by restoration work on NE 43<sup>rd</sup> St. and on Brooklyn Ave. Delays to these contract milestones do not impact the Revenue Service Date.

Activity Name	OD	RD	Start	Finish	2017				2018				2019				2020		
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
N140 - U-District Station Finishes	827	125	10-Feb-17 A	27-May-20															
MILESTONES	0	0	12-Mar-20	12-Mar-20															
Milestone 4 - Substantial Completion	0	0		12-Mar-20*															
PRECONSTRUCTION	0	0	17-Jul-17 A	17-Jul-17 A															
Precon - Site Access Granted (Construction NTP)	0	0	17-Jul-17 A		◆ Precon - Site Access Granted (Construction NTP)														
CONSTRUCTION	827	125	10-Feb-17 A	27-May-20															
C. BL2 - Remove Composite Temp Work Deck at I	20	0	16-Aug-19 A	13-Sep-19 A															
Structure	751	35	10-Feb-17 A	10-Feb-20															
EXTERIOR SHELL / SKIN	274	40	28-Dec-18 A	28-Jan-20															
INTERIORS	422	77	23-Jul-18 A	19-Mar-20															
ELEVATORS	188	72	17-Jun-19 A	12-Mar-20															
ESCALATORS	437	68	18-Jun-18 A	06-Mar-20															
STAIRS	438	4	10-May-18 A	31-Jan-20															
SITWORK	494	125	18-Jun-18 A	27-May-20															
START-UP & COMMISSIONING	218	112	01-Jul-19 A	07-May-20															

### Schedule Performance Index

This period, the SPI early is at 0.93 and the SPI late is 1.00.

The early index is reflective of the of the forecast late achievement of MS-4A and MS-4B. The late index indicates that the remaining work is being performed close to or on the forecast late dates. As the project nears completion, the range of float separating early and late will continue to lessen, such that the difference between performing close to the early SPI and performing close to the late SPI will be small.



# Link Light Rail Northgate Link Extension

## Next Period's Activities

- Commence installation of precast stair treads on stair 8.
- Commence metal wall install on south platform.
- Continue installation of exterior stone panels on north headhouse.
- Commence L&I inspection of elevator 2 at north end for construction use.
- Commence grading and base installation at intersection of 43<sup>rd</sup> Ave. and Brooklyn Ave.
- Commence demolition of pavement and sidewalk at 43<sup>rd</sup> and Brooklyn Ave.
- Continue installing conduit, junction boxes and pulling wiring to various locations.

## Closely Monitored Issues

- Additional Stair: The aluminum perforated panels have been ordered. Once they are delivered, the contractor will use a water jet to trim them for final dimensions and send to a painter prior to installation in the field.
- CNWD 044A – Lid Level Stem Walls & 0053 N Plenum Insulation & Doors – An internal meeting was held to review the next steps and a revised offer has been revised offer to the contractor.
- Third party agency approvals: As previously reported, the delays caused by Seattle City Light and Seattle Public Utilities during their review and approval process has impacted the site work construction schedule. The sub-contractor (Mid-Mountain) submitted a revised schedule and the Contractor has reviewed it. They are working on making some adjustments will submit a new schedule for to Sound Transit for review.

## Cost Summary

Present Financial Status	Amount
<b>N140 Contractor—Hoffman Construction</b>	
Original Contract Value	\$ 159,836,688
Change Order Value	\$ 5,028,116
Current Contract Value	\$ 164,864,804
Total Actual Cost (Incurred to Date)	\$ 136,372,310
Percent Complete	88.2%
Authorized Contingency	\$ 15,491,834
Contingency Drawdown	\$ 5,028,116
Contingency Index	2.7



*North Face of South Headhouse.*



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# Link Light Rail Northgate Link Extension

## Contract N150 – Roosevelt Station Finishes

### Current Progress

Hoffman Construction focused on punchlist activities and change order work this period. Additional activities goes as follows:

- Continued Level 1 & 2 commissioning testing of electrical and mechanical equipment.
- Continue installation of irrigation system for the south entrance.
- Continued installation of ladders on vent shaft roofs.
- Continued installation of wall tile at north head entry lobby.

### Next Period's Activities

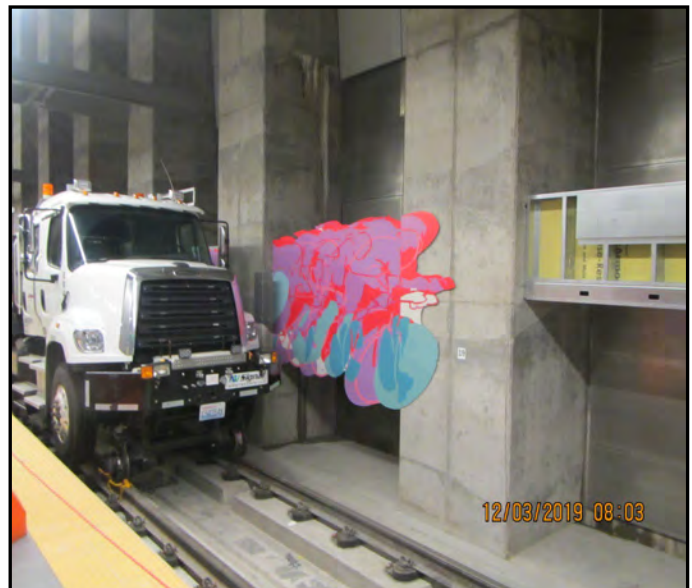
- Continue completion of punchlist items.
- Continue level 1 & 2 commissioning testing of electrical and mechanical equipment.
- Complete metal panels at north entrance TVM wall.
- Complete MP-1 column wraps at center platform.
- Continue installation of irrigation at north entrance planters.
- Commence installation of trees and plants at south entrance.

### Closely Monitored Issues

- Lighting at Escalators 1-4: L&I provided acceptance of Escalators 1-8 with a requirement to address low lighting issues within 90 days. Design provided options for review and Hoffman is pricing both options to assist Sound Transit on how to proceed.
- Switchgear Issue: Work directive was issued to commence development of shop drawings for switchgear modifications to add potential transformers to meet code requirement and convert switchgear to a main-tie-main configuration. Work directive revision is pending approval and will allow the Contractor to order materials and perform some work.

### Cost Summary

Present Financial Status	Amount
<b>N150 Contractor - Hoffman Construction</b>	
Original Contract Value	\$ 152,291,184
Change Order Value	\$ 10,638,588
Current Contract Value	\$ 162,929,772
Total Actual Cost (Incurred to Date)	\$ 159,548,815
Percent Complete	99.0%
Authorized Contingency	\$ 14,614,559
Contingency Drawdown	\$ 10,638,588
Contingency Index	1.4



*Installation of Artwork at Platform Level*

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

### Current Progress

The N160 prime contractor, Absher Construction, and its various subcontractors are continuing work in all areas of the project. Accomplishments through the end of November include:

- Continued landscape irrigation line installation and forming of raingarden bridge at North Plaza.
- Continued underground electrical from Maple Leaf Portal (MLP) headwall toward Traction Power Substation (TPSS).
- Completed placing steps for Stair 4 at main station. Continued electrical work, platform tiling, painting, fire piping, and escalator work.

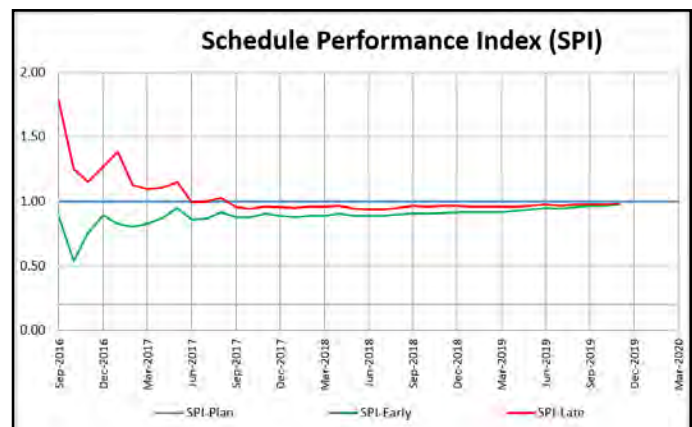
### Schedule Summary

The project schedule for November maintains a Substantial Completion date to March 27, 2020, with 14-days of negative float. The critical path is currently driven by electrical work within the station. Sound Transit and Absher are working closely with the Elcon, the electrical subcontractor, on strategies to improve the performance and avoid impacts to the Systems contractor.

Activity Name	OD	RD	Start	Finish	2017				2018				2019				2020			
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
N160 - Northgate Station Finishes	959	102	01-Sep-16 A	24-Apr-20																
1.00 - General Requirements	902	0	01-Sep-16 A	27-Mar-20																
1.10 - Project Start-up	0	0	01-Sep-16 A	01-Sep-16 A																
Contract Award/NTP (See Site Access Dates)	0	0	01-Sep-16 A																	
1.20 - Contractual Milestones	0	0	27-Mar-20	27-Mar-20																
Absher Contract Milestones	0	0	27-Mar-20	27-Mar-20																
MS08 - Substantial Completion [Site Access+1201c	0	0		27-Mar-20*																
2.00 - Procurement	791	17	02-Sep-16 A	24-Dec-19																
3.00 - Preparatory Work	861	82	17-Oct-16 A	27-Mar-20																
4.00 - Earthwork & Utilities	874	82	04-Jan-17 A	27-Mar-20																
5.00 - Guideway (inc. Station Unit)	753	10	03-Jan-17 A	13-Dec-19																
6.00 - Station Finishes	595	61	27-Mar-18 A	27-Feb-20																
7.00 - Garage	616	2	27-Jun-17 A	03-Dec-19																
8.00 - At-Grade Restoration	612	59	22-Sep-17 A	25-Feb-20																
9.00 - Transition to Operations	5	0	14-Jan-19 A	22-Jan-19 A																
10.00 - Project Close-out	76	76	09-Jan-20	24-Apr-20																

### Schedule Performance Index

This period, the SPI early is 0.98 (up from 0.97 last period) and the SPI late is at 0.98 (up from 0.97 last period), indicating no major change in performance since last month. However, the indices indicate that the contractor continues performing slightly behind plan when compared to the baseline schedule. Overall work progress has remained within 0.07 of its current trend over the last year.



# Link Light Rail Northgate Link Extension

## Next Period's Activities

- Continue painting, tiling, electrical, plumbing, construction of stairs, escalator and elevator installation, and ceiling grid panels at main station.
- Continue placing concrete pavement and sidewalks at South Plaza.
- Continue electrical work to Traction Power Substation (TPSS) at Maple Leaf Portal headwall.

## Closely Monitored Issues

- Following initial inspections, Seattle City Light (SCL) has identified a number of issues at the South Ancillary building, at the light poles along 1st Avenue, and at various electrical vaults that need addressing before permanent power can be established.

## Cost Summary

Present Financial Status	Amount
<b>N160 Contractor - Absher Construction</b>	
Original Contract Value	\$ 174,000,000
Change Order Value	\$ 10,620,881
Current Contract Value	\$ 184,620,881
Total Actual Cost (Incurred to Date)	\$ 170,247,829
Percent Complete	89.2%
Authorized Contingency	\$ 17,400,000
Contingency Drawdown	\$ 10,620,881
Contingency Index	1.5



*Sidewalk pour east of 1st Avenue.*

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# Link Light Rail Northgate Link Extension

## Contract N180 – Trackwork UWS to Northgate Station

### Current Progress

The N180 Contractor, Stacy and Witbeck, Inc. (SWI) achieved Substantial Completion of all Milestones on 10/31/19. Remaining work are the punch list items for all work areas and documentation prior to closeout, which is being carried out and ongoing.

### Next Period's Activities

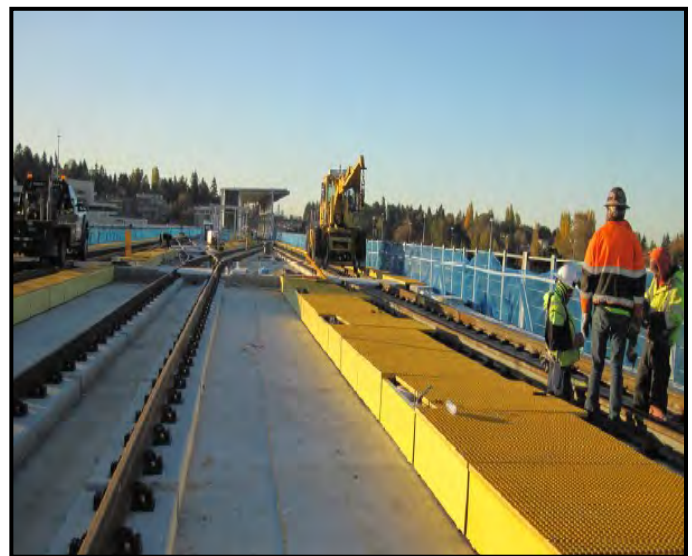
- Punchlist activities and final walk related to all work areas ongoing.

### Closely Monitored Issues

- Communication and coordination between contracts is ongoing, monitoring related activities to bring the contract to a successful close out.

### Cost Summary

Present Financial Status	Amount
<b>N180 Contractor - Stacy and Witbeck, Inc.</b>	
Original Contract Value	\$ 71,455,950
Change Order Value	\$ 4,311,104
Current Contract Value	\$ 75,767,054
Total Actual Cost (Incurred to Date)	\$ 74,481,491
Percent Complete	100%
Authorized Contingency	\$ 10,718,393
Contingency Drawdown	\$ 4,311,104
Contingency Index	\$ 2.4



*Working on top side of elevated guideway. Pedestrian walkway lighting slot exposed prior to installation.*

## Contract N830 – Northgate Link Systems, Heavy Civil GC/CM

### Current Progress

The N830 Contractor, Mass Electric Construction Co. (MEC), continued to prosecute the work as follows:

- Installed UPS, battery cabinets, isolation transformer, and network rack at Roosevelt Station (RVS).
- Installed conductor cable, inverter, and battery cabinets at U District Station (UDS). Tested 26kV cable UDS to RVS.
- Continued installing reverse running signals and testing at International District Station (IDS) / Downtown Seattle Transit Tunnel (DSTT).

### Schedule Summary

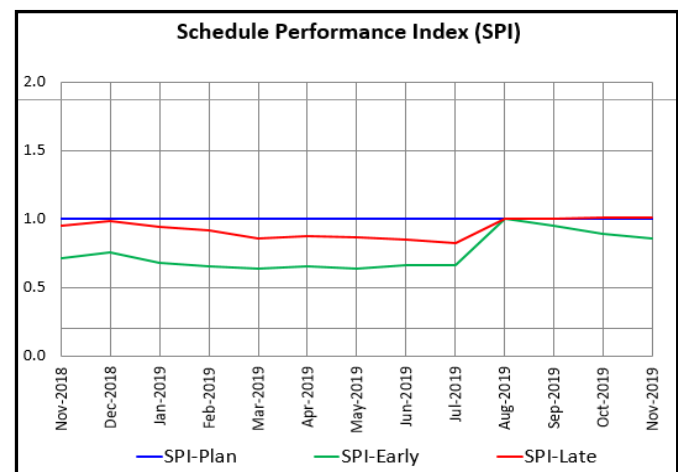
The November update from MEC continues to forecast an on-time completion. The critical path remains in the signals fabrication and installation. This is followed by testing of the equipment in the field and finally, systems integrated testing. Overhead Catenary System (OCS) installation is ongoing in the tunnels. MEC is also in the process of Factory Acceptance Testing (FAT) of the last Traction Power Substations (TPSS) prior to them being shipped to the site.

Activity Name	OD	RD	Start	Finish	2017	2018				2019				2020				2021					
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
N830/E750 - Systems	879	268	12-Jun-17 A	07-Jan-21																			
General	0	0	12-Jun-17 A	12-Jun-17 A																			
Key Dates	0	0	12-Jun-17 A	12-Jun-17 A																			
NTP - Notice to Proceed (NTP) Northgate and East Link	0	0	12-Jun-17 A																				
N830 Project	747	268	20-Dec-17 A	07-Jan-21																			
N830 Construction	747	268	20-Dec-17 A	07-Jan-21																			
N830 Milestones	0	0	25-Dec-20	25-Dec-20																			
MS#05 Northgate: Substantial completion of Northgate Li	0	0		25-Dec-20*																			
N830 OCS	465	159	10-Sep-18 A	26-Jul-20																			
N830 Traction Power / Substations Procurement	605	126	20-Dec-17 A	09-Jun-20																			
N830 Signals	453	147	15-Aug-18 A	09-Jul-20																			
N830 Communications	607	159	10-Feb-18 A	26-Jul-20																			
N830 Radio	458	129	09-Jul-18 A	12-Jun-20																			
N830 Trunk Fiber	421	115	28-Sep-18 A	21-May-20																			
N830 Testing and Commissioning	571	268	07-Sep-18 A	07-Jan-21																			

### Schedule Performance Index

This period, the SPI early is 0.86 (same from 0.86 last period) and the SPI late is 1.01 (slightly up from 0.97 last period). The indices indicate a slight improvement for the late SPI since last month. The Contractor continues performing slightly behind plan when compared to the baseline schedule.

ST and CMC continue to work closely with the Contractor/ Subcontractors to help strengthen the schedule and improve performance.



## Next Period's Activities

- Continue development and reviews of engineering submittals covering all disciplines: Traction Power Substations (TPSS) , Overhead Catenary Systems (OCS), train control signal systems, and communications.
- Ongoing coordination meetings between systems and civil contractors for interface and access points for respective contracts.
- Ongoing installation of TPSS switchgear, flooring and signal racks in train control equipment room and communication conduits/cables at University District Station.
- Ongoing installation of TPSS equipment in train control room, communications rack in equipment room, and pulling cable to field end devices at Roosevelt Station.
- Ongoing installation of communication speaker wiring at Northgate Station.
- Ongoing installation of OCS bracket, flooring in train control equipment and cables for trackside devices and communications fiber and radio radix cable and support brackets in the Northgate tunnels.

## Closely Monitored Issues

- ST and Construction Management Consultant (CMC) coordination ongoing for the IDS cutover change from full shutdown to single tracking.
- ST and CMC are receiving a large number of submittals for review and anticipate even more over the coming weeks. To mitigate delays in approval of reviews, ST, CMC, and contractor held joint workshops to expedite the review process without impacting the quality of the review.
- ST and CMC concerned Contractor's ramp-up of labor is not sufficient to meet the planned construction activities. ST and CMC closely tracking the planned ramp-up of labor in comparison to actual progress.

## Cost Summary

Present Financial Status	Amount
<b>N830 Contractor - Mass Electric Construction Co.</b>	
Original Contract Value	\$104,660,444
Change Order Value	\$853,785
Current Contract Value	\$105,514,228
Total Actual Cost (Incurred to Date)	\$48,726,178
Percent Complete	56%
Authorized Contingency	\$5,233,022
Contingency Drawdown	\$853,785
Contingency Index	3.5

*\*The N830 and E750 Systems is a joint procurement. The Cost Summary table above represents N830 Systems only.*



*Setting TPSS Switchgear at UDS Station*

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# Link Light Rail Lynnwood Link Extension

## Project Summary

### 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** Shoreline South/145th, Shoreline North/185th, Mountlake Terrace, Lynnwood City Center

**Systems** Signals, traction power, and communications (SCADA)

**Phase** Construction

**Budget** \$2.772 Billion (Baseline May 2018)

**Schedule** Revenue Service: July 2024



Map of Lynnwood Link Extension Alignment.

## Key Project Activities

- Continued integration of contract modification scopes into the schedules for each active heavy civil GC/CM contract.
- Continued building and noise wall demolition within the L200 and L300 package limits.
- Continued clearing, grading, and tree removals within the L200 and L300 limits, including site water management systems and Best Management Practices (BMPs).
- Completed planting for the Phase 1 mitigation area at the Ronald Bog site in Shoreline (L200)
- Continued construction of Phase 2 area mitigation work at the Ronald Bog site in Shoreline (L200).
- Started rebar cage fabrication in anticipation of drilled shaft work commencement on both L200 and L300.
- Started quantity reconciliation of the 100% systems design package with the L800 systems GC/CM in anticipation of negotiations starting Q1 2020.

## Project Cost Summary

The 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.

In November 2019, \$72.2 M was incurred. The major project expenditures were for civil construction, construction management, and work toward completion of civil & systems final design.

The remaining expenditures were for right of way, third party coordination, permits, staff, legal, and other direct charges.

### Cost Summary by Phase

Project Phase	Baseline Budget	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$98.2	\$98.1	\$35.8	\$35.7	\$98.1	\$0.0
Preliminary Engineering	\$39.1	\$39.1	\$39.1	\$39.1	\$39.1	\$0.0
Final Design	\$164.2	\$164.2	\$140.3	\$111.8	\$164.2	\$0.0
Construction Services	\$128.4	\$128.4	\$92.3	\$29.2	\$128.4	\$0.0
3rd Party Agreements	\$14.6	\$14.6	\$10.5	\$8.8	\$14.6	\$0.0
Construction	\$1,921.4	\$2,091.6	\$1,710.1	\$161.1	\$2,091.6	\$0.0
Light Rail Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$235.7	\$235.7	\$172.2	\$154.4	\$235.7	\$0.0
Project Contingency	\$170.2	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
<b>Total</b>	<b>\$2,771.6</b>	<b>\$2,771.6</b>	<b>\$2,200.3</b>	<b>\$540.1</b>	<b>\$2,771.6</b>	<b>\$0.0</b>

### Cost Summary by SCC

SCC Element	Baseline Budget	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
10 Guideway & Track	\$791.8	\$1,002.2	\$676.1	\$12.3	\$711.3	\$290.9
20 Stations	\$333.8	\$333.8	\$408.7	\$0.0	\$430.1	-\$96.3
30 Support Facilities	\$2.0	\$2.0	\$0.0	\$0.0	\$2.0	\$0.0
40 Sitework & Special Conditions	\$421.1	\$426.2	\$569.2	\$147.6	\$645.7	-\$219.5
50 Systems	\$244.4	\$244.4	\$46.1	\$0.0	\$219.4	\$25.0
<b>Construction Subtotal (10 - 50)</b>	<b>\$1,793.0</b>	<b>\$2,008.5</b>	<b>\$1,700.1</b>	<b>\$159.9</b>	<b>\$2,008.5</b>	<b>\$0.0</b>
60 Row, Land	\$235.7	\$235.7	\$172.2	\$154.4	\$235.7	\$0.0
70 Vehicles (Non-Revenue)	\$1.4	\$1.4	\$0.0	\$0.0	\$1.4	\$0.0
80 Professional Services	\$449.3	\$450.6	\$328.0	\$225.8	\$450.6	\$0.0
90 Unallocated Contingency	\$292.2	\$75.4	\$0.0	\$0.0	\$75.4	\$0.0
<b>Total (10 - 90)</b>	<b>\$2,771.6</b>	<b>\$2,771.6</b>	<b>\$2,200.3</b>	<b>\$540.1</b>	<b>\$2,771.6</b>	<b>\$0.0</b>



## Risk Management

The 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 to continuously monitor project status and associated risks.

The following are the top project risks:

- Changes during construction that impact cost and schedule.
- Coordination of civil/systems interface and potential for civil construction delays systems construction.
- Obtaining permits: Cities, WSDOT and resource agencies.
- Delays in long lead procurement of girders and other key material/equipment/resources.
- Timely completion of utility relocations and property acquisition.
- Tight budget and limited contingency.
- Relationship with GC/CM contractors and culture of each contract.

## Project Schedule

The November schedule update continues to forecast a Sept. 2024 revenue service date. The critical path now includes L300 construction, with completion of the retained fill walls and track subgrade of the between G and H bridges driving the start of the Bridge F trackwork, and the handover of the southern half of the L300 guideway to L800. Within the L200 contract, the City of Seattle Street Improvement Permit (SIP) is driving the start of the MSE Abutment for the C Bridge. ST continues to work with both contractors on scheduling issues including, calendars, level of detail, cost-loading, and scheduling best practices.

Activity Name	Start	Finish	Total Float	2019				2020				2021				2022				2023				2024			
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>LLE Master Schedule</b>	20-May-10 A	29-Apr-24	88																								
Project Administration	20-May-10 A	29-Apr-24	88																								
Final Design/Preconstruction	01-Sep-15 A	23-Nov-22	444																								
Permitting & Agreements	07-Jan-15 A	25-Jul-23	97																								
Utilities	02-May-16 A	03-May-22	588																								
L200 ROW Acquisitions	04-Jan-16 A	28-Apr-20	1294																								
L300 ROW Acquisitions	14-Jan-16 A	01-Jan-21	1093																								
L800 Construction 90Pct	02-Jul-20	01-Nov-23	0																								
L200 Construction	08-Dec-18 A	12-Sep-23	75																								
L300 Construction	25-Sep-18 A	28-Apr-24	88																								
LLE Rail Activation	28-Jun-23	02-Sep-24	0																								
Contracts	30-Jul-23	02-Nov-23	14																								
RA Tasks	28-Jun-23	01-Jan-24	245																								
Pre-Revenue Service	19-Oct-23	01-Jan-24	175																								
Pre-Revenue Tasks	19-Oct-23	01-Jan-24	175																								
Revenue Service	02-Jan-24	02-Sep-24	0																								
Program Wide Float (CD)	02-Jan-24	02-Sep-24	0																								
Revenue Service - 7/17/2024		02-Sep-24	0																								

## Contingency Management

The Lynnwood Link project budget was baselined in May 2018 with a total contingency of \$737.7 M.

**Design Allowance (DA)** was established to account for unquantified scope at the time of the cost estimate. DA is expected to be fully drawn when all construction contract packages are executed.

**Allocated Contingency (AC)** is used to address risks, complexity and unforeseen conditions during the execution of work, including procurement.

**Unallocated Contingency (UAC)** is used to address general project-wide cost risks and uncertainties.

Following a significant drawdown in project contingency in Q2/Q3 2019, Sound Transit revised the contingency forecast to align with the cash flow forecast of the major civil contracts.

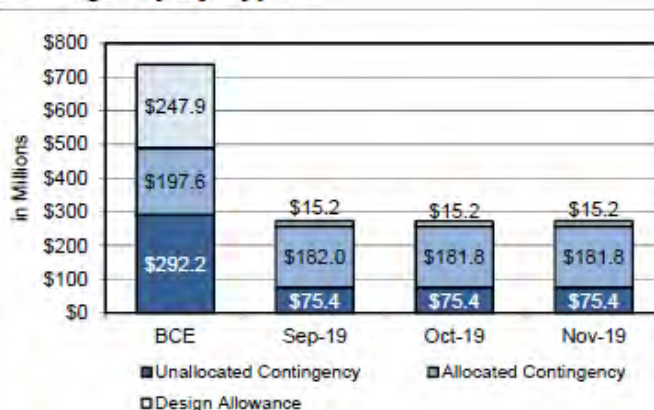
During this period, AC increased by \$26k for closeout of a third party agreement. DA and UAC are unchanged.

### Contingency Status

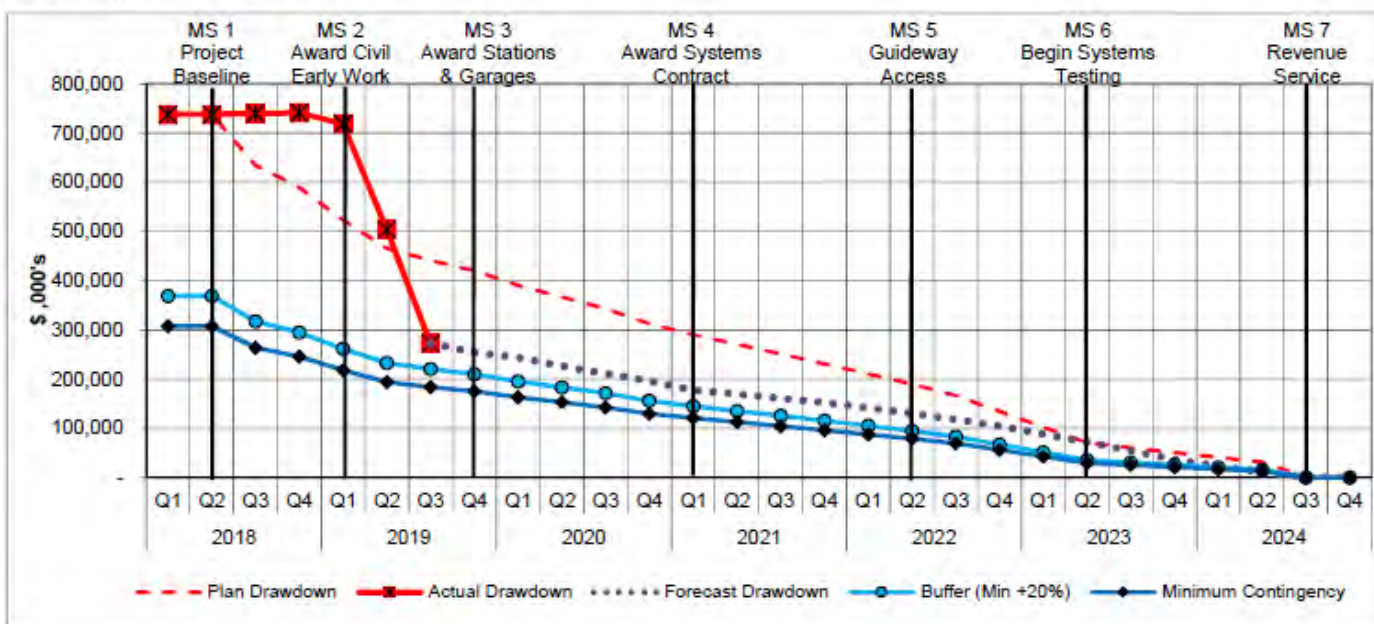
Type	Baseline		Current Status	
	Amount	% of Total Budget	Remaining Amount	% of Work Remaining
Design Allowance	\$247.9	8.9%	\$15.2	0.7%
Allocated Contingency	\$197.6	7.1%	\$181.8	8.1%
Unallocated Contingency	\$292.2	10.5%	\$75.4	3.4%
<b>Total:</b>	<b>\$737.7</b>	<b>26.6%</b>	<b>\$272.4</b>	<b>12.2%</b>

Table figures are shown in millions.

### Contingency by Type



### Contingency Drawdown



## Right-of-Way

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

Lynnwood Link Extension Property Acquisition Status					
ACQUISITION				RELOCATION	
Total Acquisitions	Board Approved	Offers Made to date	Closings to date *	Relocations Required	Relocations Completed to date
365	362	343	274	375	351
All numbers are cumulative totals, except where noted. Number of totals may differ from other reports due to the timing of reporting periods. *Total number of parcels available for construction = 321.					

## Community Outreach

In November, the Lynnwood Link Community Outreach team:

- Coordinated outreach for weekend and night closure of Lynnwood Transit Center direct access ramp, including public notices and notification to transit operations, Interurban Trail impacts near 48th Ave W, and closure of the temporary parking lot at Lynnwood Transit Center to prepare for the phase 2 parking plan.
- Finalized capital signage plan for Lynnwood Transit Center temporary parking and packaged it for contractor.
- Began coordination with ST operations about the upcoming closure of Mountlake Terrace freeway station in mid-2020.
- Performed property owner outreach to 12 properties activating temporary construction easements, and facilitated 11 additional construction-related property owner meetings.
- Coordinated response to questions from Lynnwood Times reporter about business impacts.
- Began working with team planning phase 3 parking changes at Lynnwood Transit Center.
- Provided notice to affected businesses of impending water outage.
- Responded to city staff question about I-976 by providing a statement from ST's Board chair.
- Attended a neighborhood meeting in Mountlake Terrace with ST real property staff.
- Responded to a concern about slippery steel construction plates at the Mountlake Terrace Transit Center.
- Responded to a City of Shoreline request to evaluate a potentially hazardous tree on private property.

## Sound Transit Board Actions

Board Action	Description	Date
	No board actions this period.	

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# Link Light Rail Lynnwood Link Extension



## Construction Safety

Data/ Measure	November 2019	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
First Aid Cases	0	5	5
Reported Near Mishaps	1	7	7
Average Number of Employees on Worksite	310	-	-
Total # of Hours (GC & Subs)	24,361	144,756	144,756
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	0.00	0.00	0.00
LTI Rate	0.00	0.00	0.00
<b>Recordable National Average</b>	<b>3.00</b>		
<b>LTI National Average</b>	<b>1.20</b>		
<b>Recordable WA State Average</b>	<b>6.00</b>		
<b>LTI WA State Average</b>	<b>1.90</b>		

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

*Data includes the L200 and L300 contracts.*



## Civil Final Design Overview

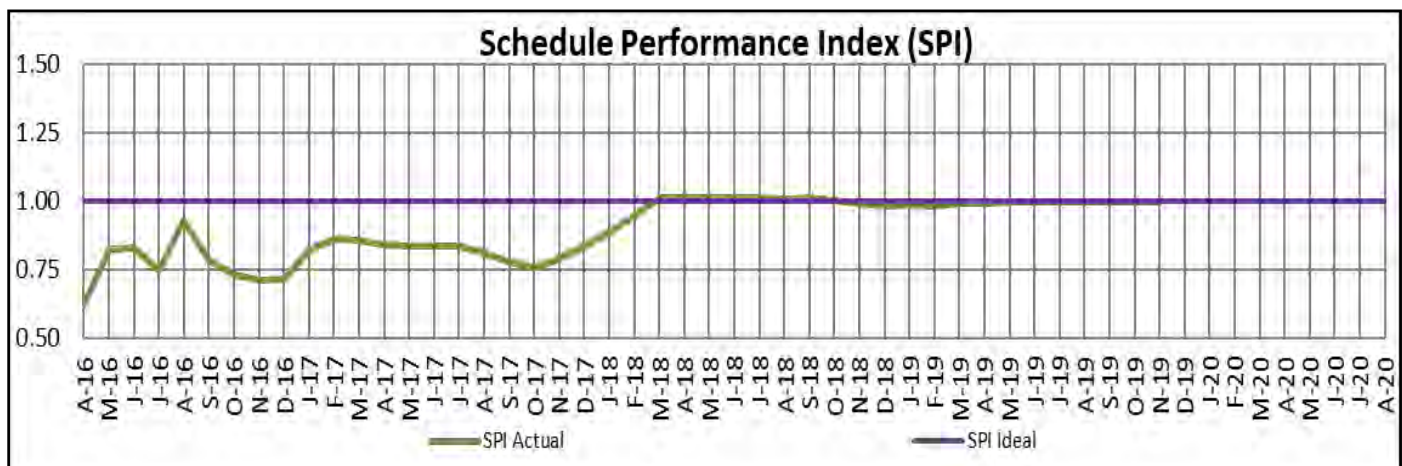
Sound Transit executed a professional services contract with HNTB Jacobs in April 2016 to perform civil final design along the entire Lynnwood Link alignment. Design services include preparation of comprehensive civil contract documents for construction, design coordination and cooperation with the GC/CM contractors, permit support, survey, geotechnical investigations, right-of-way planning and acquisition support, third party coordination support, risk assessment support, value engineering and constructability support, building and station systems design, cost estimating, and sustainability reports.

## Current Progress

- Delivered the Issued for Construction (IFC) documents for the 185th garage.
- Completed all final design IFC deliverables with the exception of the 200th Street widening in Lynnwood.
- Advanced design on additional Value Engineering (VE) items for the L300 guideway.
- Continued work to support Sound Transit in obtaining permits.
- Advanced work on the 200th Street widening, including beginning to incorporate VE items for the project.

## Schedule Performance Index

The cumulative Schedule Performance Index (SPI) trends at 1.00 through November 2019, which means that the cumulative amount of work accomplished is close to the value of work planned. As the work nears completion, the SPI will continue to be near 1.0.

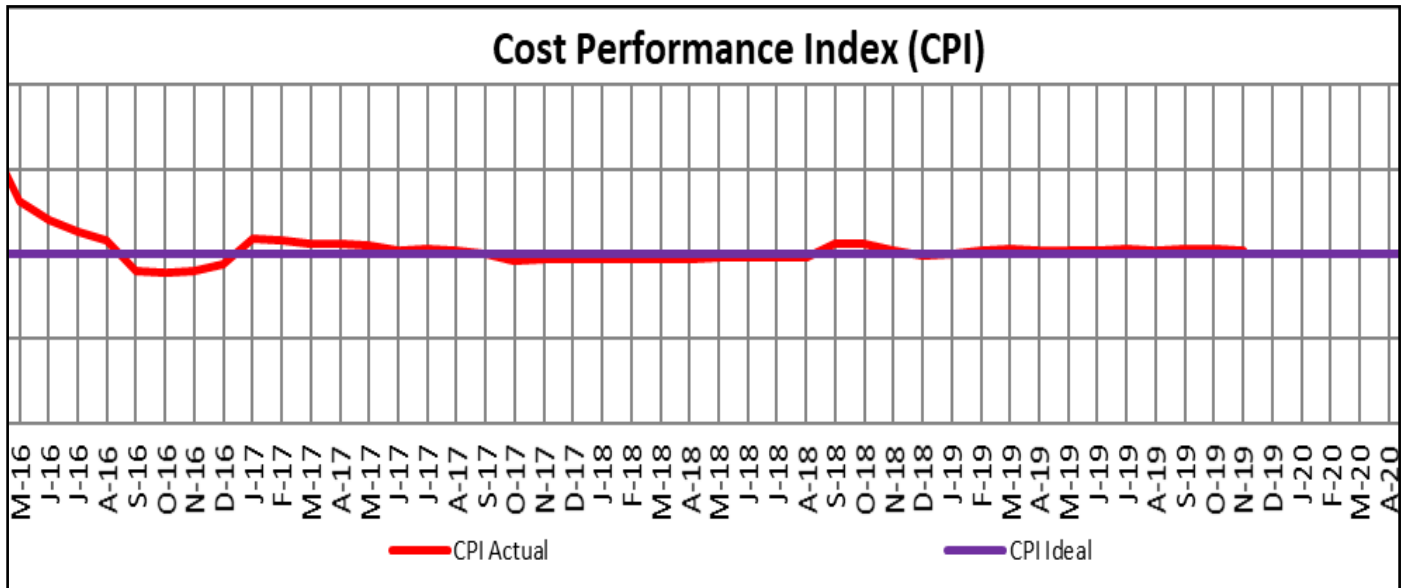




# Link Light Rail Lynnwood Link Extension

## Cost Performance Index

\$99.8 M of the total contract amount, 98%, has been spent through November 2019. The civil final design percent complete is 99%, with an earned value of \$100.6 M. The cumulative Cost Performance Index (CPI) through November is 1.01 indicating that actual costs are close to the earned value of work performed.



## Cost Summary

Present Financial Status	Amount
<b>HNTB Jacobs</b>	
Original Contract Value	\$70,256,263
Change Order Value	\$30,992,422
Current Contract Value	\$101,248,685
Total Actual Cost (Incurred to Date)	\$99,828,337
Financial Percent Complete	98.6%
Physical Percent Complete	99.4%
Authorized Contingency	\$30,992,422
Contingency Drawdown	\$28,493,758
Contingency Index	1.07



*Grading temporary access road in Work Area 3.*

## Systems Final Design Overview

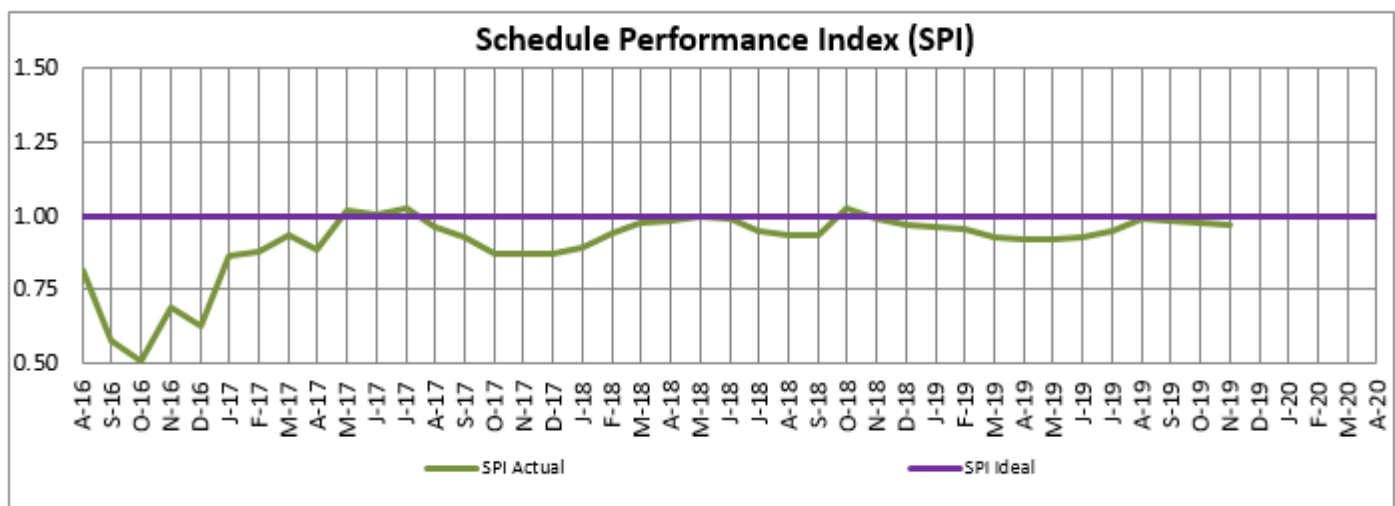
Sound Transit executed a professional services contract with LTK Engineering in July 2016 to perform systems final design along the entire Lynnwood Link alignment. Design services include preparation of comprehensive contract documents for construction, design coordination and cooperation with the civil final designer and GC/CM contractors, permit support, third party coordination support, risk assessment support, value engineering and constructability support, schedules and cost estimating.

## Current Progress

- Letter issued by Sound Transit to LTK to selectively delay completion of portions of design work effective October 31st. This delay allows better alignment of the Issue for Construction (IFC) documents and construction contract negotiations and notice to proceed. Exceptions may be directed for certain activities like signal systems, communication systems and cost estimating work, if the need arises.
- Minimal design revisions occurred in November.

## Schedule Performance Index

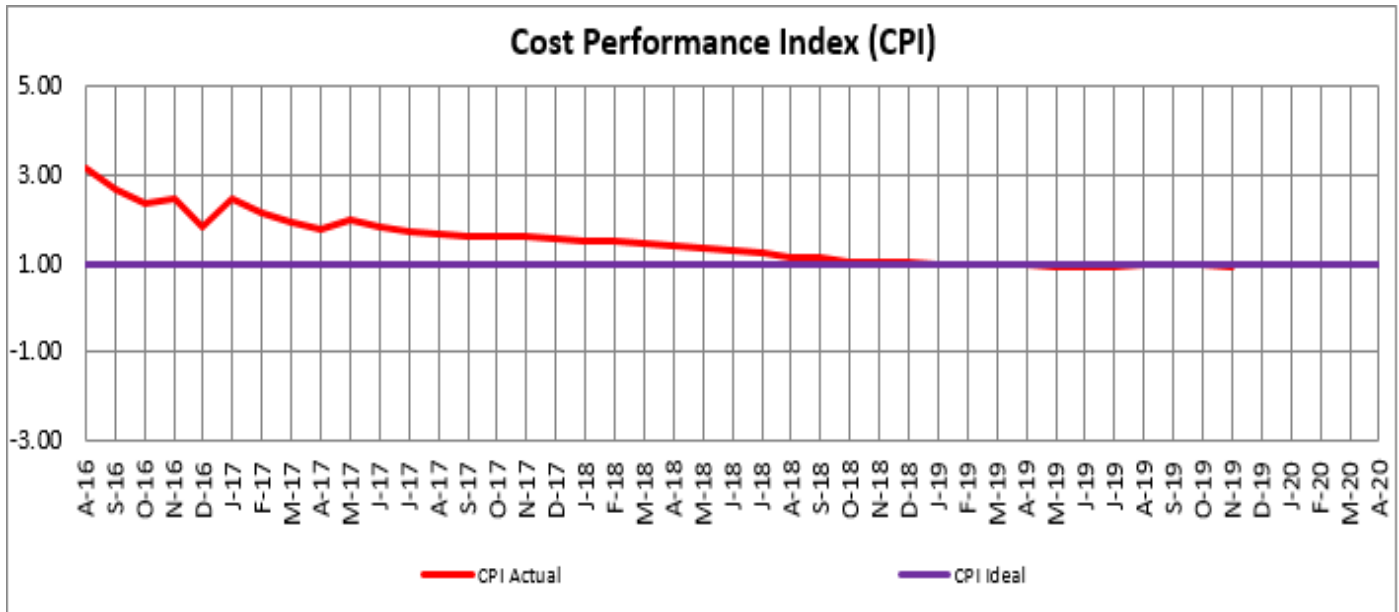
The cumulative Schedule Performance Index (SPI) trends at 0.97 through November 2019, which means that the cumulative amount of work accomplished is slightly lower than the overall work planned.



# Link Light Rail Lynnwood Link Extension

## Cost Performance Index

\$9.8 M (99.3%) of the total contract amount has been spent through November 2019. The systems final design percent complete is 94.1%, with an earned value of \$9.4 M. The cumulative Cost Performance Index (CPI) is 0.95 indicating the earned value of the work performed is lower than the actual cost incurred.



## Cost Summary

Present Financial Status	Amount
<b>LTK Engineering</b>	
Original Contract Value	\$9,293,684
Change Order Value	\$650,494
Current Contract Value	\$9,944,178
Total Actual Cost (Incurred to Date)	\$9,872,235
Financial Percent Complete	99.3%
Physical Percent Complete	94.1%
Authorized Contingency	\$650,558
Contingency Drawdown	\$650,494
Contingency Index	1.0



*Light Rail Train run by the Overhead Catenary System (OCS) powered from the Traction Power Substation (TPSS).*

## Contract L200 GC/CM—Northgate to NE 200th Street

### Current Progress

The ST Board approved the L200 construction contract with Stacy & Witbeck– Kiewit– Hoffman JV (SKH) in December 2018. In this period SKH performed the following work in work zones (WZ):

- WZ-1: Leveling/backfilling structure access A4-A15; clear/grub at 115th.
- WZ-2: Install ductbanks at 115th and 117th St; noise wall demolition and final tree removal.
- WZ-3: Completed clear/grub structures access C1-C6. Temporary lighting at structure access.
- WZ-5: Continue install Ronald sewer A and B. Cap abandoned utility gas and water piping.
- WZ-10: Utility potholing and station site access.



### Schedule Summary

The November schedule update indicates late completion of all work. ST is returning the schedule to the L200 contractor due to designation of non-work days in the primary construction calendar which do not conform to recognized holidays or weekends. These non-conforming exceptions were removed from the Lynnwood Master Schedule resulting in on time achievement of the planned contract milestones. ST is continuing to work with the contractor to resolve planning issues revolving around weather and productivity.

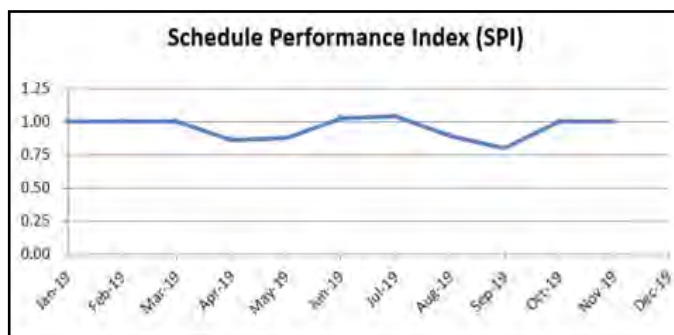
Activity Name	Start	Finish	Total Float	2020				2021				2022				2023				2024			
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
L200 Construction	08-Dec-18 A	14-Aug-23	90																				
L200 Construction	05-Dec-19	20-Jul-20	210																				
Project Wide	08-Dec-18 A	14-Aug-23	90																				
WZ-1 Elevated (1437+00 to 1458+63)	08-Apr-19 A	19-Apr-23	177																				
WZ-2 At Grade - Fill (1458+63 to 1492+45)	21-Mar-19 A	01-Jul-23	125																				
WZ-3 Elevated (1492+45 to 1559+17)	23-Mar-19 A	01-Jul-23	125																				
WZ-4 145th Station & Garage	09-Apr-19 A	28-Feb-23	88																				
WZ-5 At Grade - Fill (1559+17 to 1571+30)	26-Mar-19 A	01-Feb-23	232																				
WZ-6 155th Bridge (1571+30 to 1572+40)	22-May-19 A	03-Jan-23	252																				
WZ-7 At Grade - Retained (1572+40 to 1624+00)	27-Mar-19 A	01-Jul-23	125																				
WZ-8 175th Bridge (1624+00 to 1631+25)	25-Apr-19 A	07-Jun-22	386																				
WZ-9 At Grade - Cut (1631+25 to 1661+78)	15-Apr-19 A	01-Jul-23	125																				
WZ-10 185th Station & Garage	08-Apr-19 A	21-Dec-22	134																				
WZ-11 At Grade (1661+78 to 1694+01)	09-Apr-19 A	28-Apr-23	172																				
Provisional Sums	08-Jan-19 A	01-Jul-23	0																				
Change Orders	08-Jan-19 A	01-Jul-23	0																				

# Link Light Rail Lynnwood Link Extension

## Schedule Performance Index

The cumulative SPI is at 1.00 meaning the cumulative amount of work accomplished is equal to the planned.

Through November, the earned value represents only the early work portion of the contract. The major contract modification is not yet integrated into the earned value plan.



## Next Period Activities:

- WZ-1: Continue structures access A2-A3. Fabricate shaft cages.
- WZ-2: Continue ductbank install at 115th and 117th, start ductbank at 125th. Install temporary fencing at staging yard.
- WZ-3: Structures access C1-C13. Fabricate shaft cages.
- WZ-5: Continue install Ronald sewer A and B.
- WZ-7: Finish temp fencing and setup staging yards. Weld Basin D pipe.
- WZ-9: Connect Basin E to sump. Install temp fencing and setup staging yards.
- Ronald Bog: Finish trail construction, landscaping and bollards.

## Closely Monitored Issues:

- Monitoring timing of receipt of all permits necessary for construction.
- Evaluating cost impact of plan set revision between the early work pricing and Issue for Construction (IFC) sets.
- Coordination of construction impacts to bicycle/pedestrian path between 1st Ave NE and NE 116th St.
- Erosion and sediment control during the wet season.

## Cost Summary

Financial Status	Amount
<b>L200 Contractor - SKH</b>	
Original Contract Value	\$88,147,258
Change Order Value	\$752,351,006
Current Contract Value	\$840,498,264
Total Actual Cost (Incurred to Date)	\$111,220,099
Percent Complete	14.9%
Authorized Contingency	\$43,762,892
Contingency Drawdown	\$500,000
Contingency Index	9.0



WZ-1 guideway access



## Contract L300 GC/CM—NE 200th Street to Lynnwood Transit Center

### Current Progress

The Sound Transit Board approved the L300 construction contract with Skanska Constructors in February 2019. In this period Skanska performed the following work in work areas (WA):

- WA 2 - Completed the installation of the temporary storm water conveyance piping in areas 2 through 6.
- WA 3 - Completed Support of Excavation (SOE) soldier piles wall installation; preparing for temporary tieback tensioning.
- WA 10 - Continues to build the access to this storage yard from 220th Street SW.



### Schedule Summary

The November schedule update shows an improvement in the overall duration of the construction, with Substantial Completion currently six days late. The critical path for the project is the retain fill section between G and H Bridges with handover of the southern half of the guideway to the Systems Contractor currently twelve days behind the planned handover date. Continued improvement in the level of detail should improve the forecast for the critical milestones.

Activity Name	Start	Finish	Total Float	2020					2021					2022					2023					2024	
				Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2			
L300 Construction	25-Sep-18 A	29-Mar-24	117																						
L300 Construction			0																						
MILESTONES	25-Sep-18 A	29-Mar-24	114																						
ROW ACQUISITIONS (PARCELS & TCE'S)	04-Jun-19 A	09-Oct-20	781																						
PERMITTING	01-Feb-19 A	27-May-20	873																						
SUB-CONTRACTS	25-Oct-19 A	02-Jan-20	448																						
SUBMITTALS	12-Apr-19 A	11-Jun-20	791																						
MATERIAL PROCUREMENT	19-Aug-19 A	07-Apr-21	631																						
EARLY WORK	12-Apr-19 A	21-Jan-21	717																						
3RD PARTY UTILITIES	03-Oct-19 A	09-Mar-20	310																						
CONSTRUCTION	01-Nov-19	02-Oct-23	237																						

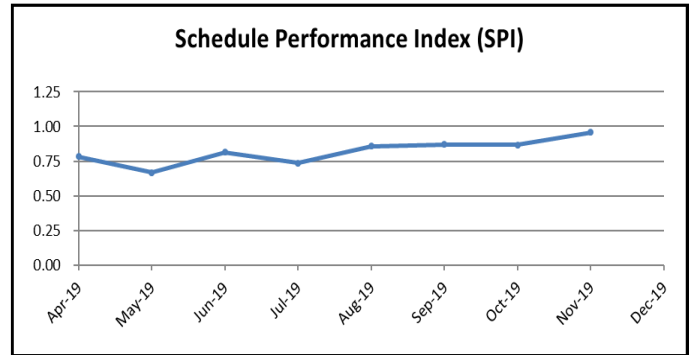


# Link Light Rail Lynnwood Link Extension

## Schedule Performance Index

This period the cumulative SPI is at 0.96, which means that cumulative amount of work accomplished is lower than the value of work planned.

Through November, the earned value represents only the early work portion of the contract. The major contract modification is not yet integrated into the earned value plan.



## Next Period's Activities

- General - Continue to grade, backfill, and place cover in exposed slope areas. Continue to maintain the temporary stormwater collection and treatment system.
- WA 1—Install wall tiebacks, test, and install lagging.
- WA 3-6 – Temporary access road excavation and grading. Continue to build the SOE walls.
- WA 7 – Install conduit at 236th Street SW and work on installing sewer saddle manhole.
- WA 10 – Prepare interim storage yard.
- WA 13 & 14 – Test & finalize water line at 52nd Ave. W.
- WA 16 – Install permanent drainage within the temporary storage yard. Place base course and grade the yard. Apply temporary paving over the utility work.

## Closely Monitored Issues

- Monitoring timing of receipt of all permits necessary for construction.
- Evaluating cost impact of plan set revision between the early work pricing and Issue for Construction (IFC) sets.
- Removal of contaminated materials former Chevron and dry cleaner sites in Lynnwood.
- Coordination of temporary parking at Lynnwood Transit Center.
- Erosion and sediment control during the wet season.

## Cost Summary

Present Financial Status	Amount
<b>L300 Contractor—Skanska</b>	
Original Contract Value	\$ 56,886,631
Change Order Value	\$ 778,790,129
Current Contract Value	\$ 835,676,760
Total Actual Cost (Incurred to Date)	\$ 39,335,135
Percent Complete	5.5%
Authorized Contingency	\$42,888,048
Contingency Drawdown	\$ 676,760
Contingency Index	2.98



*Drilling soldier piles for the SOE Walls in Work Area 1.*

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

## Project Summary

### Scope

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



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

### Phase

Construction

### Budget

\$225.6 Million

### Schedule

Construction Complete: 1st QTR 2019

## Major Contracts

	Scope	Agreement/Contract Amount
WSDOT	Final Design	\$ 20,942,000
WSDOT	CM Services	\$ 39,188,449
IMCO	Construction	\$131,515,559
City of Mercer Isl.	Transportation Mitigation	\$10,050,000

## Key Project Activities

- **Work outside the tunnels** – As-built plans review
- **Mercer Island Tunnel** – Complete punch list items
- **Mount Baker Ridge Tunnel** – Complete punch list items
- **SCADA** – Ongoing testing & commissioning
- **Simplex** – Complete punch list items

## Closely Monitored Issues

While the center roadway turnover to Sound Transit was completed on schedule, granting of Substantial Completion continues to slip; granting of Substantial Completion (retroactive to June 2017) is anticipated for early 1st Quarter 2020, due to the following:

- Challenges continue with final commissioning of the Fire/Life/Safety Systems, including incomplete Building Information Modeling (BIM), As-Built data, incomplete or missing Operations & Maintenance manuals, and missing test reports.
- Commissioning Agent Certification of all test.
- Final resolution of acceptance criteria.

### Project Cost Summary

The following tables summarize the cost information for the I-90 Two- way Transit and HOV Operations (Stage 3) project. Project expenditures for November were \$261.3K. Tables below are in millions.

#### Cost Summary by Phase

Project Phase	Baseline Budget	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$3.6	\$3.6	\$2.3	\$2.3	\$3.6	\$0.0
Preliminary Engineering	\$1.5	\$1.5	\$1.5	\$1.5	\$1.5	\$0.0
Final Design	\$22.1	\$22.1	\$18.7	\$18.2	\$22.1	\$0.0
Construction Services	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
3rd Party Agreements	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Construction	\$198.3	\$198.3	\$182.7	\$174.2	\$198.3	\$0.0
<b>Total</b>	<b>\$225.6</b>	<b>\$225.6</b>	<b>\$205.3</b>	<b>\$196.3</b>	<b>\$225.6</b>	<b>\$0.0</b>

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

#### Cost Summary by SCC

SCC Element	Baseline Budget	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
40 Sitework & Special Conditions	\$180.6	\$190.7	\$182.7	\$174.2	\$190.7	\$0.0
80 Professional Services	\$26.3	\$26.3	\$22.6	\$22.1	\$26.3	\$0.0
90 Unallocated Contingency	\$18.7	\$8.7	\$0.0	\$0.0	\$8.7	\$0.0
<b>Total</b>	<b>\$225.6</b>	<b>\$225.6</b>	<b>\$205.3</b>	<b>\$196.3</b>	<b>\$225.6</b>	<b>\$0.0</b>

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

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



## Cost Contingency Management

In the table below, the Allocated Contingency includes both WSDOT-controlled construction contingency and the total ST-controlled allocated contingencies. Reduction of the remaining work budgeted during the month of November included payments for identified scope gap work and WSDOT staff & their consultants; this resulted in a net 0.3% increase from last month to the overall Current Contingency % when compared to the remaining work budgeted.

Contingency Status	Baseline Amount	Baseline % of Total	Current Amount	CTG as % of Remaining Work Budgeted
Design Allowance	\$0.0	0.0%	\$0.0	0.0%
Committed Allocated Contingency	\$17.0	7.5%	\$2.2	7.5%
Unallocated Contingency	\$18.7	8.3%	\$8.7	29.5%
<b>Total</b>	<b>\$35.7</b>	<b>15.8%</b>	<b>\$10.9</b>	<b>36.9%</b>

Note: Table in millions.

## Project Schedule

Project Milestones for construction are indicated below; the revised Substantial Completion date, retroactive to June 14, 2017, was negotiated by WSDOT with their contractor and approved by Sound Transit as part of a commercial issues resolution change order, final authorization anticipated by the end of the year.

Contract	Fire/Life Safety Systems Commissioning		Substantial Completion		Center Roadway Turnover		Physical Completion	
I-90 Two-Way Transit & HOV Operations Stage 3	Baseline	Forecast / Actual	Baseline	Forecast / Actual	Baseline	Forecast / Actual	Baseline	Forecast / Actual
	2/16/2017	Q4/2019	2/20/2017	6/14/2017	5/31/2017	6/14/2017 A	5/31/2017	Q4/2019

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

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# Link Light Rail East Link Extension

## Project Summary

### Scope

<b>Limits</b>	Fourteen-mile extension from Downtown Seattle to Mercer Island, Bellevue and the Overlake area of Redmond.
<b>Alignment</b>	East Link Extension expands light rail to East King County via I-90 from Downtown Seattle to the Overlake Transit Center area of Redmond.
<b>Stations</b>	Judkins Park, Mercer Island, South Bellevue, East Main, Bellevue Downtown, Wilburton, Spring District/120th, Bel-Red/130th, Overlake Village (OVS) and Redmond Technology Center (RTS).
<b>Systems</b>	Signals, traction electrification, and communications (SCADA).
<b>Phase</b>	Construction
<b>Budget</b>	\$3.677 Billion (Baseline April 2015)
<b>Schedule</b>	Revenue Service: June 2023



Map of East Link Extension Alignment.

## Key Project Activities

- **Floating Bridge Retrofit (E130):** Coupon bonding for cathodic protection continues; ongoing installation of plinths at East and West Bound transition spans; progress installation of modular track bridges.
- **Mercer Island (E130):** Continue interior finishes, platform construction, East / West Head House commissioning at Mercer Island Station; begin ballasting for track installation.
- **IDS to Mt. Baker Tunnel (E130):** Ongoing IDS plinth, rail installation; complete punchlist work at Pioneer Square Station temporary platform; continue utility, structural work in Mt. Baker Tunnel and Judkins Park Station; South Bellevue to Redmond.
- **South Bellevue (E320):** Continued garage and station buildout to include vertical conveyances at station and mechanical systems in garage. Continued shotcrete and rock faced wall work along Bellevue Way SE.
- **Downtown Bellevue Tunnel (E330):** Continued installing reinforcement and shotcrete of the crown in the mid-tunnel enlarged section; Continued construction of the center wall throughout the tunnel south of the enlarged section.
- **Downtown Bellevue to Spring District (E335):** Continued formwork, rebar, and concrete placement at Bellevue Downtown Station and Wilburton Station; ongoing track work; Continued footing excavation and placement at East Main Station.
- **Bel-Red (E340):** Continued forming and pouring curb on the aerial guideway. Continued station buildout, placing track slab. Built roadways and placed first lift of asphalt for NE Spring Blvd and 134<sup>th</sup> Ave NE.
- **SR520 to Redmond Technology Station (E360):** Completed bus loop paving. Ballast track-work is ongoing. Completed OVS Pedestrian Bridge paperclip ramp concrete placement. Demobilized field offices ahead of demolition work.
- **Systems (E750):** Continued with submittals, component design/manufacturing/fabrication, pre-work ahead of IDS tie-in.

## Closely Monitored Issues

- Bellevue Downtown Station (E335) and the Bel-Red Segment (E340) challenges and schedule slippage.
- Design change during construction phase particularly at our most technically challenging stations.
- Quality, construction safety and environment compliances.
- Coordination of pre-requisite work in 2019 that leads up to IDS single tracking in Q1 2020.

## Project Cost Summary

The 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.

The Estimated Final Cost (EFC) remains the same at approximately \$3.68B. This period's expenditure is over \$47M, pushes the total expenditure to date from \$2.18B to \$2.23B. Project commitments is over \$3B with all major construction contracts in place and construction is on-going throughout the alignment. This period's continues to somewhat under perform due to a combination of resequencing of work plan and construction challenges. It is anticipated to be made up throughout the current year.

### Cost Summary by Phase

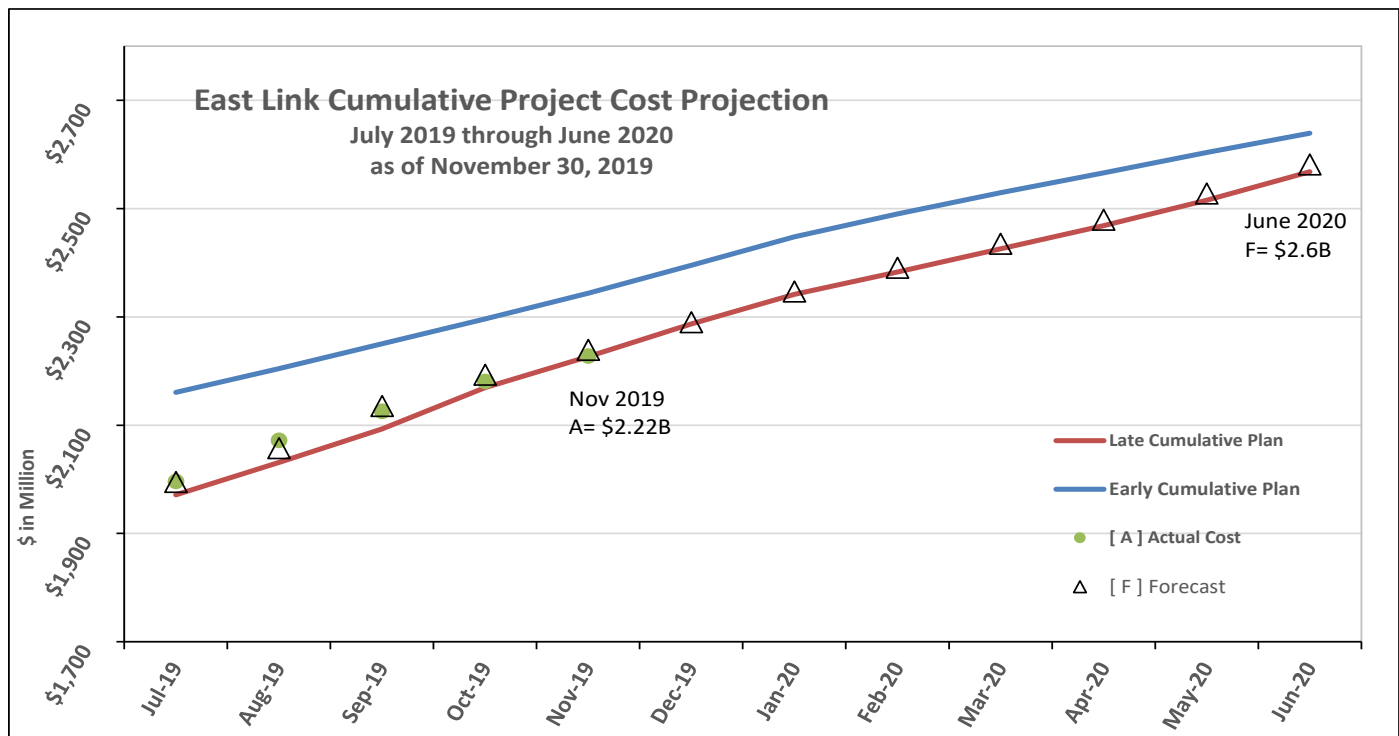
Project Phase	Baseline Budget	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$186.2	\$186.2	\$87.8	\$87.9	\$186.2	\$0.0
Preliminary Engineering	\$55.9	\$55.9	\$54.8	\$54.8	\$55.9	\$0.0
Final Design	\$283.0	\$283.0	\$245.9	\$222.2	\$283.0	\$0.0
Construction Services	\$257.5	\$257.5	\$196.7	\$115.0	\$257.5	\$0.0
3rd Party Agreements	\$52.2	\$52.2	\$38.3	\$27.4	\$52.2	\$0.0
Construction	\$2,544.3	\$2,544.3	\$2,184.1	\$1,450.8	\$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	\$270.8	\$269.9	\$298.2	\$0.0
<b>Total</b>	<b>\$3,677.2</b>	<b>\$3,677.2</b>	<b>\$3,078.4</b>	<b>\$2,227.9</b>	<b>\$3,677.1</b>	<b>\$0.0</b>

### Cost Summary by SCC

SCC Element	Baseline Budget	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
10 Guideway & Track	\$744.6	\$949.7	\$894.0	\$692.3	\$954.7	(\$210.1)
20 Stations	\$397.7	\$474.2	\$439.8	\$262.5	\$468.6	(\$70.9)
30 Support Facilities	\$0.0	\$0.0	\$0.0		\$0.0	\$0.0
40 Sitework & Special Conditions	\$808.5	\$568.3	\$478.6	\$356.2	\$567.3	\$241.2
50 Systems	\$353.8	\$367.9	\$347.3	\$121.6	\$369.0	(\$15.2)
<b>Construction Subtotal (10 - 50)</b>	<b>\$2,304.6</b>	<b>\$2,360.1</b>	<b>\$2,159.8</b>	<b>\$1,432.5</b>	<b>\$2,359.6</b>	<b>(\$55.0)</b>
60 Row, Land	\$288.5	\$288.5	\$270.8	\$269.9	\$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	\$889.1	\$647.7	\$525.5	\$889.5	\$8.9
90 Unallocated Contingency	\$182.9	\$136.6	\$0.0	\$0.0	\$136.6	\$46.2
<b>Total (10 - 90)</b>	<b>\$3,677.2</b>	<b>\$3,677.2</b>	<b>\$3,078.4</b>	<b>\$2,227.9</b>	<b>\$3,677.1</b>	<b>\$0.0</b>

## Project Cash Flow Projection

The East Link cost projection continues to progress within the planned expenditure as construction activities continue to pickup. This period's project to date expenditure topped out at approximately \$47.2M where Construction Phase is responsible for about 86% or approximately \$40.5M of November's expenditure. Total project cost incurred to date topped \$2.18B, to which over \$1.36B was recorded in the Construction Phase. The project expenditures continue to pick up and is predicted to rise to approximately \$2.6B by June 2020.



## Risk Management

The 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.

The 3rd QTR 2019 risks updates have been completed. The Risk Mitigation Milestone #4 (Completion of SEM Tunneling) report is completed and given the current risk profile in the project, there are sufficient schedule and budget in the project to complete in accordance to baseline. The 3rd QTR 2019 risk registers are being prepared for update. The following are the current top project wide risks areas:

- Compliance with quality, safety and environmental requirements.
- Design changes during construction, particularly at technically complex stations such as Mercer Island, Bellevue Downtown and Redmond Technology.
- Interfaces between contracts, agency supplied equipment and third party jurisdictions.
- International District Station coordination of pre-requisite work that leads up to East Link tie in to mainline operations work in 1st QTR 2020.

## Contingency Management

East Link project budget was baselined on April 2015 with a total contingency of \$795.9M. At the end of this period, all major construction contracts have been procured, the total contingency balance stands at \$361.5 (previously \$363.0). The current contingency balance is consistent with the project's planned contingency drawdown.

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

**Allocated Contingency (AC)** is used to address risks, complexity and unforeseen conditions during the execution of work, including procurement. This period, AC was drawn down for an aggregate of approximately \$1.5M due to predominantly construction changes, leaving a balance of \$221.2M. The contingency draw in this period is primarily driven by aggregation of construction change orders in the project, primarily the construction contracts.

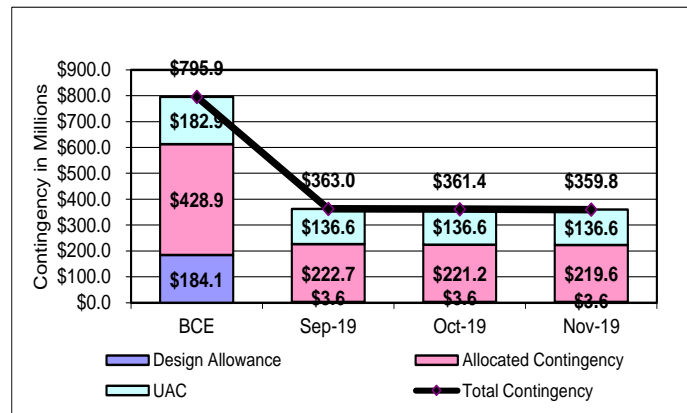
**Unallocated Contingency (UAC)** is used to address general project-wide cost risks and uncertainties. The UAC balance remains unchanged at \$136.6M.

### Contingency Status

Contingency Type	Baseline		Current Status	
	Amount	% of Total Budget	Amount Remaining	% of Work Remaining
Design Allowance	\$184.1	5.0%	\$3.6	0.3%
Allocated Contingency	\$428.9	11.7%	\$219.6	15.1%
Unallocated Contingency	\$182.9	5.0%	\$136.6	9.4%
<b>Total</b>	<b>\$795.9</b>	<b>21.6%</b>	<b>\$359.8</b>	<b>24.8%</b>

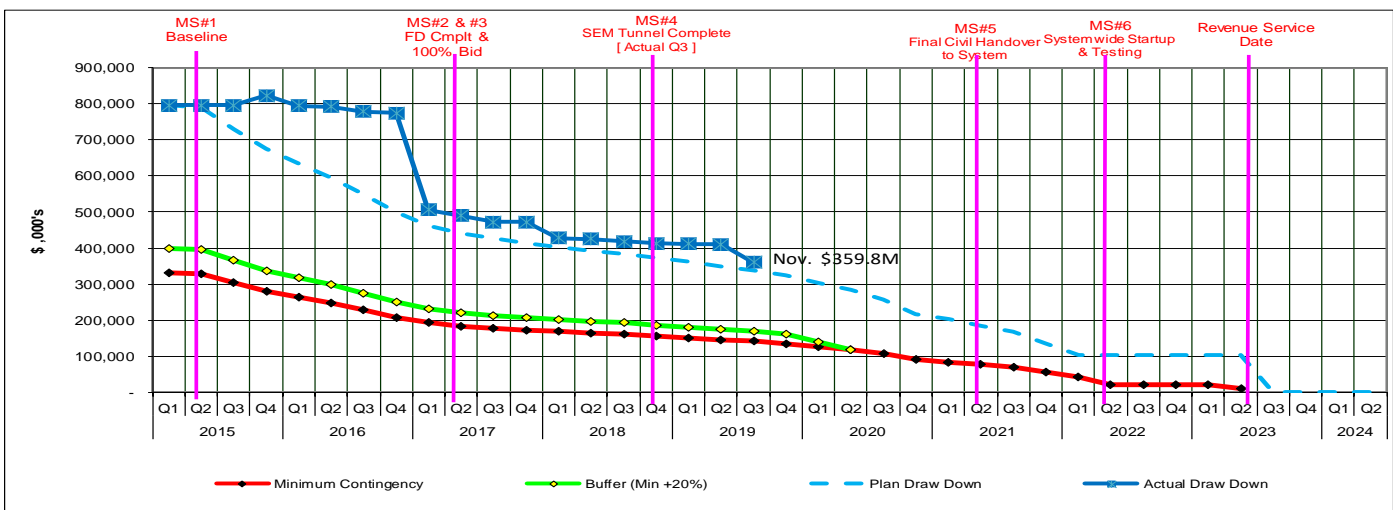
Table figures are shown in millions.

### Contingency by Type



### Contingency Drawdown

East Link Project's total contingency drawdown continues to trend within plan with an overall contingency balance at approximately \$359.8M (previously \$361.5M) and with all major construction contracts procured, remains above the baseline draw down projection and well above both the minimum contingency and the buffered (minimum plus 20%) contingency levels. The contingencies at the end of November represented the monthly draw of about \$1.7M due to various construction change orders.



Contingency Drawdown as of November 30, 2019

# Link Light Rail East Link Extension



## Project Schedule

The Integrated Master Schedule is presented below.

**E130** continued installing track and track bridges on the HMH floating bridge transition spans; work continued at both stations; continued work at International District Station and Pioneer Square Station in anticipation of Connect 2020.

**E320** continued preparation of TPSS foundation, and OCS foundations; continued elevator #2 installation at S. Bellevue Station; continued pouring sidewalks, curbs, and gutters along 112th.

**E330** continued placement of the center wall; commenced reinforcement and shotcrete of mid-tunnel crown.

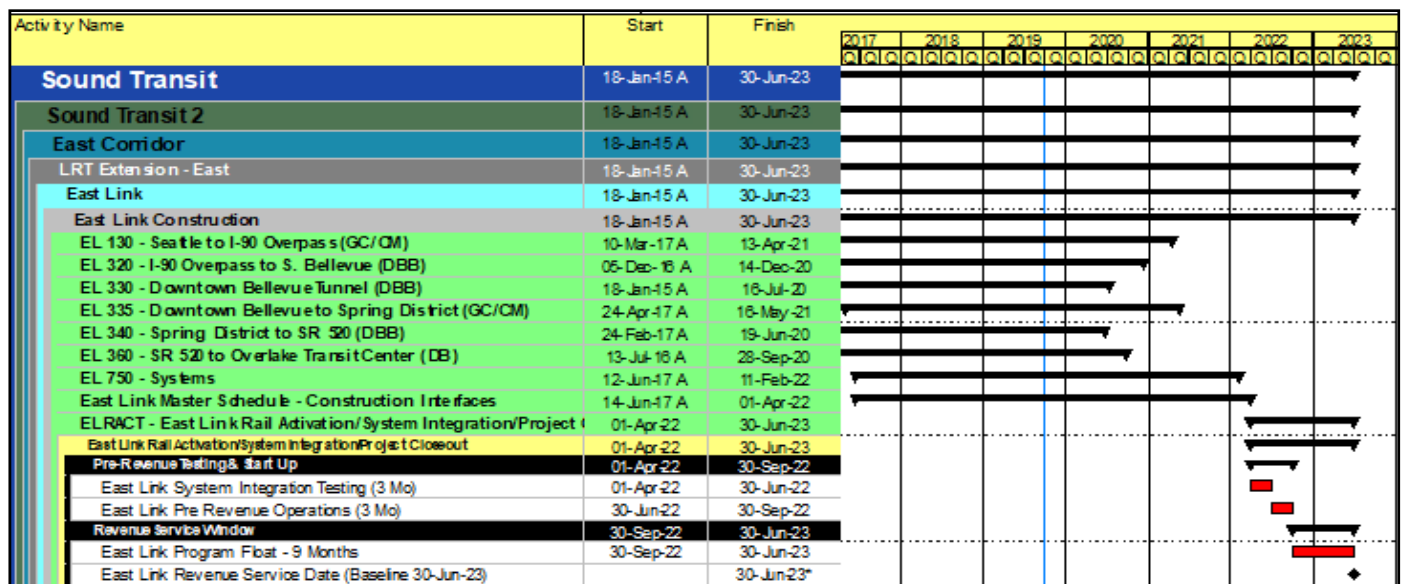
**E335** continued restoration at 110th Ave NE; continued plinth pours and ductbank installation on aerial guideway; continued work at all stations.

**E340** continued placing plinths and curbs on aerial guideway; began excavation for trackwall placement on 136th Pl; continued work at 130th Station.

**E360** continued placing track slab and skeleton track at the west end of the alignment; continued casting plinths and installing guardrail on aerial guideway; continued placing track on at-grade guideway; continued work at both stations.

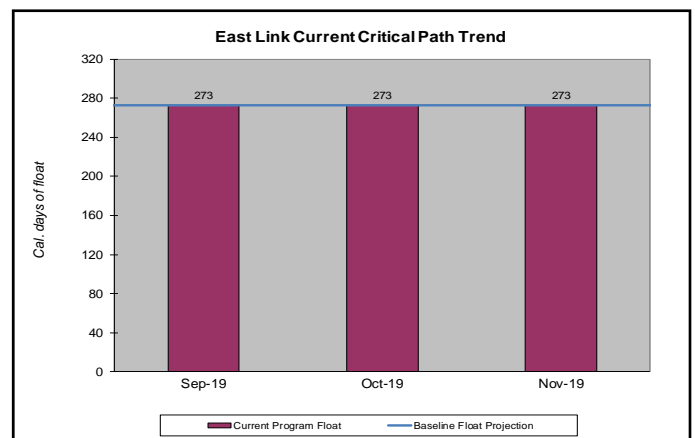
**E750** Systems contractor continued procuring equipment and continued mobilizing for construction; preliminary work continued at International District Station; prepared to start work on East Channel Bridge.

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



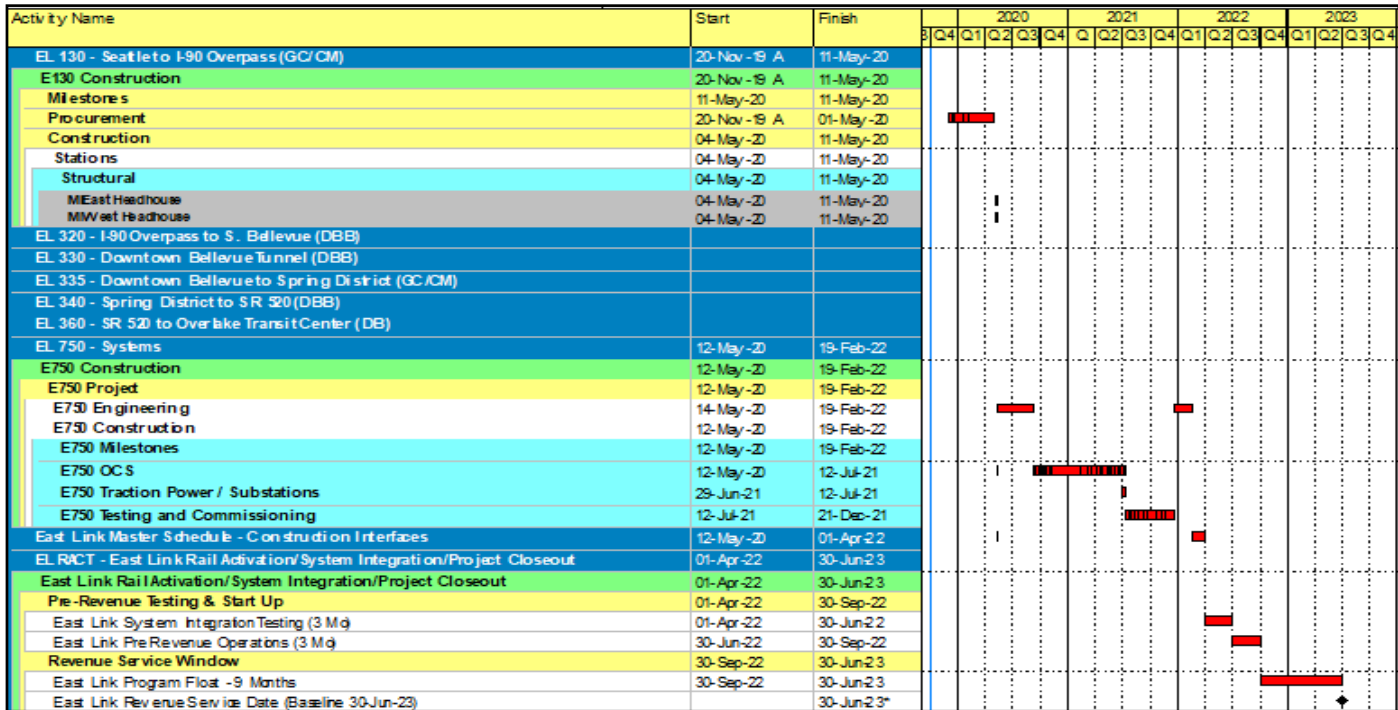
## Project Float

East Link was baselined with 273 days of program float. No float has been used to date.



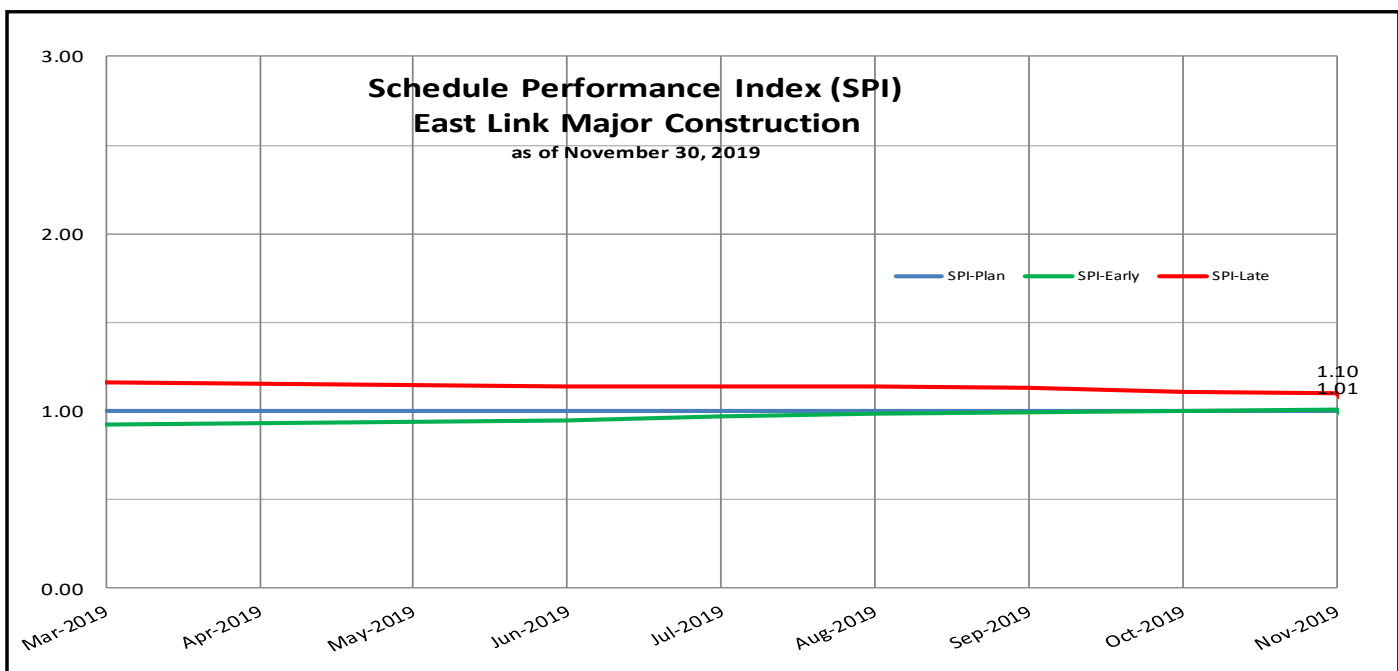
## Critical Path Analysis

The East Link critical path this month runs through Mercer Island Station on the E130 contract to the handover to the E750 systems contractor. It then follows OCS installation. Other civil contracts continue to be closely monitored for potential impacts to the E750 schedule.



## Schedule Performance Index

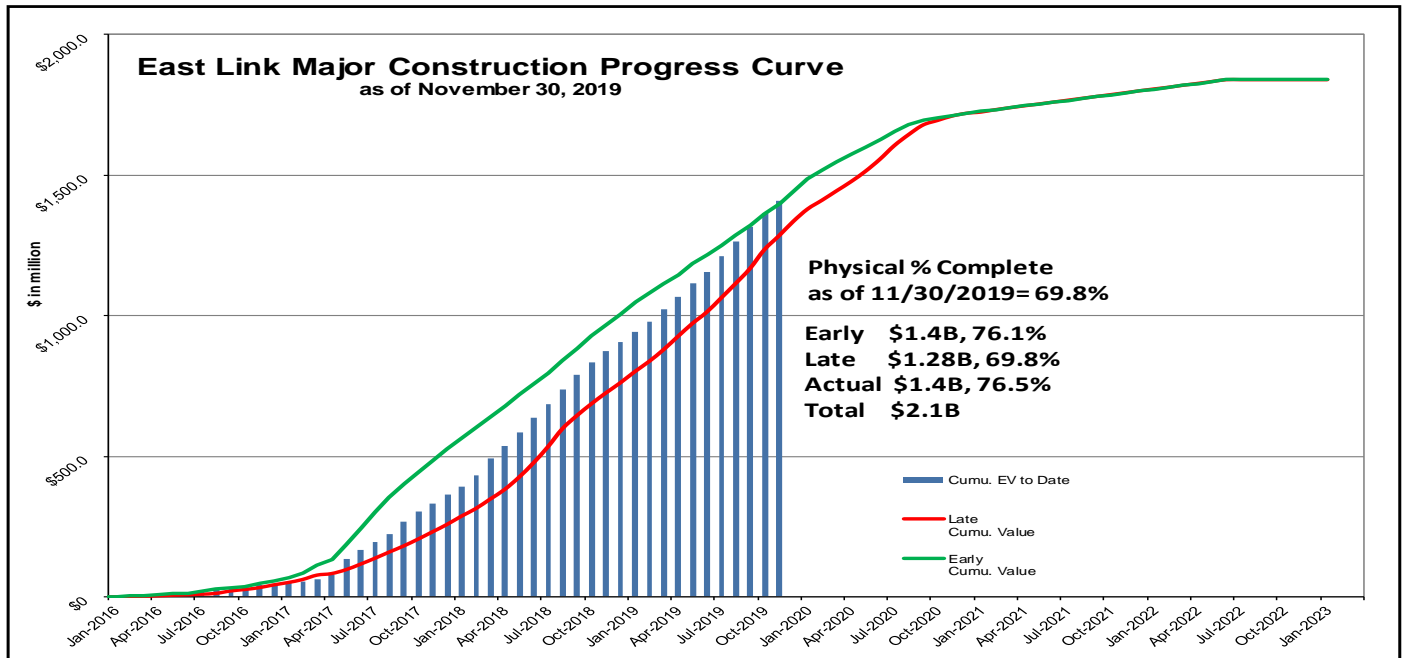
The early Schedule Performance Index (SPI) for East Link's Major Construction Packages increased to 1.01 for this period, which indicates continued steady performance. The late SPI of 1.10 shows that in general, performance is satisfactory.





## Project Cash Flow Projection

The overall East Link Major Construction percent complete analysis is based on a weighted measurement among the seven major construction contracts' schedule, duration and cost. The graph below shows the aggregate cost progression for these construction contracts. As of the end of November, performance continues to trend positively toward the early projection as drawn from the master schedule. The overall physical percent complete for East Link construction is 69.8%.



*E330 Downtown Bellevue Tunnel: Rebar and formwork on south end of the tunnel portal.*

## 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 resulted in owner and tenant residential and commercial relocations. Property acquisition and relocations are mostly complete, with limited processing of relocation claims and coordination of property transfers with the City of Bellevue remaining. The right-of-way program status for this period is summarized in the following table:

East Link Extension Acquisition Status					
ACQUISITION				RELOCATION	
Total Acquisitions	Board Approved	Offers Made to date	Closings to date	Relocations Required	Relocations Completed to date
239	246	234	228	229	226
* All numbers are cumulative totals, except where noted. Number of totals may differ from other reports due to the timing of reporting periods.					

## Community Outreach

- Ongoing distribution of weekly construction alerts for maintenance of traffic activities for Mercer Island, Bellevue and Redmond. Coordinated many briefings and meetings with impacted neighbors about upcoming major traffic changes including but not limited to full closures.
- Ongoing engagement with individual property owners, members of the public, and impacted neighbors on a variety of concerns including demolition, noise wall construction, dust control, signage, night time noise, traffic, access, maintenance of traffic.
- Continue coordination many agency staff and work products for the bus loop traffic switch at Overlake Transit Center slated for December 23rd.
- Robust outreach effort for closures of 112th Ave SE; major traffic switch and detours in Bel-Red; closures of Spring Boulevard and restoration of 136th.



*E335 Downtown Bellevue to Spring District: Bridge spanning over Highway I-405 along NE 6th Street on November 30, 2019*

## Sound Transit Board Actions

Board Action	Description	Date
	None this period	

## Construction Safety

Data/ Measure	November 2019	Year to Date	Project to Date
Recordable Injury/Illness Cases	2	32	71
Days Away From Work Cases	0	7	14
Total Days Away From Work	60	642	1026
First Aid Cases	8	90	211
Reported Near Mishaps	3	49	239
Average Number of Employees on Worksite	1430	-	-
<b>Total # of Hours (GC &amp; Subs)</b>	208,844	2,128,312	4,598,494
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	1.92	3.01	3.09
LTI Rate	0.00	0.66	0.61
Recordable National Average	<b>3.00</b>	<b>3.00</b>	<b>3.00</b>
LTI National Average	<b>1.20</b>	<b>1.20</b>	<b>1.20</b>
Recordable WA State Average	<b>6.00</b>	<b>6.00</b>	<b>6.00</b>
LTI WA State Average	<b>1.90</b>	<b>1.90</b>	<b>1.90</b>

*Note1: Due to the timing of contractor's reporting periods, the current month's numbers above are a combination of actuals and estimates. All previous months' numbers are reconciled and replaced with actuals.*

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## Major Construction Contract Packages

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

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

*Status: Completed and Operational.*

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

*Status: See following pages under Contract E130.*

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

*Status: See following pages under Contract E320.*

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

*Status: See following pages under Contract E330.*

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

*Status: See following pages under Contract E335.*

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

*Status: See following pages under Contract E340.*

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

*Status: See following pages under Contract E360.*

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

*Status: Contractor continues with critical submittal, reviews of plans, component and product designs as well as meetings with civil contractors with regards to the Coordinated Installation Plan (CIP), off site TPSS worksite interface inspections and surveys of E130.*



*E320 South Bellevue: South Bellevue Station platform looking south.*

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

### Current Progress

**West Segment:** Ongoing IDS plinth, rail installation; complete punchlist work at Pioneer Square Station temporary platform; continue utility, structural work in Mt. Baker Tunnel and Judkins Park Station; advance D2 structure seismic retrofit.

**Center Segment:** Coupon bonding for cathodic protection continues; ongoing installation of plinths at EB / WB transition spans; progress installation of modular track bridges.

**East Segment:** Continue interior finishes, platform construction, East / West Head House commissioning at Mercer Island Station; begin ballasting for track installation, East Ballasted 1 area.

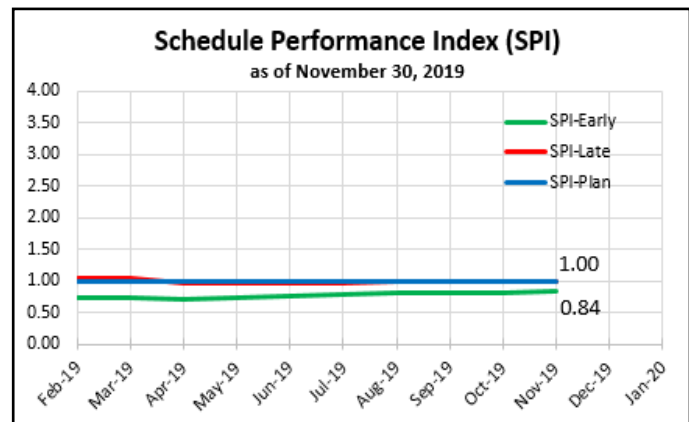
### Schedule Summary

The critical path for this project currently runs through cathodic protection on the floating bridge. The contractor is currently behind on all milestones 1 and 4; however, they have been coordinating with the E750 systems contractor to ensure that access is preserved. None of the work which impacts the milestones is expected to delay the start of systems work.

Activity Name	Start	Finish	2020
			Q4 Q1 Q2 Q3 Q4 Q1
<b>E130 Construction</b>	10-Mar-17 A	13-Apr-21	
<b>Milestones</b>	10-Mar-17 A	13-Apr-21	
<b>Access Milestones</b>	10-Mar-17 A	12-May-17 A	
16. Notice to Proceed - Package 1	10-Mar-17 A		
16. Notice To Proceed - Remaining Scope	12-May-17 A		
<b>Major Project Complete Milestones</b>	21-Aug-19 A	13-Apr-21	
16. MS#02 - Substantial Completion of IDS Conversion - Reinstat NB Operations (10-Feb-20)		08-Feb-20*	
16. MS#03 - Substantial Completion of IDS Conversion - Reinstat SB Operations (16-Mar-20)		12-Mar-20*	
16. MS#01 - Acceptance		10-Jun-20	
16. MS#04 - Substantial Completion West Mercer Island Lid to East End of Project (29-Jan-20)		28-Oct-20*	
16. MS#04 - Substantial Completion All Work (12-Dec-20)		14-Mar-21*	
16. Acceptance		13-Apr-21	
<b>Milestone 1 Interim Dates</b>	21-Aug-19 A	28-Oct-20	
<b>Construction</b>	20-Mar-17 A	12-Feb-21	
<b>Preliminary Activities</b>	03-Apr-17 A	28-Apr-20	
Sitework	23-Aug-17 A	08-Dec-19	
Demolition	20-Jul-17 A	30-Dec-19	
Tunnel Modifications	18-Sep-17 A	08-Oct-20	
Stations	31-May-17 A	28-Oct-20	
OCS Bases/Frames	02-Apr-18 A	13-Aug-20	
Civil/Utilities	05-Jul-17 A	08-Jan-21	
Electrical	20-Mar-17 A	19-Aug-20	
Structures Retrofit	20-Mar-17 A	12-Feb-21	
Trackwork	29-Jan-18 A	23-Dec-20	
Systems	26-Jun-17 A	06-Nov-20	
IDS Modification	16-Jan-19 A	23-Jun-20	

### Schedule Performance Index

This period, the SPI early is 0.84, while SPI late is 1.00; these indices show the Contractor remains behind their early plan, but remains on-target with their late finish plan and should reach Substantial Completion by the required finish date. Pressures to the schedule have been identified which may affect the Contractor's ability to achieve Milestone 2 and complete remaining work as planned. The critical path continues to run primarily through cathodic protection and final commissioning.





# Link Light Rail East Link Extension

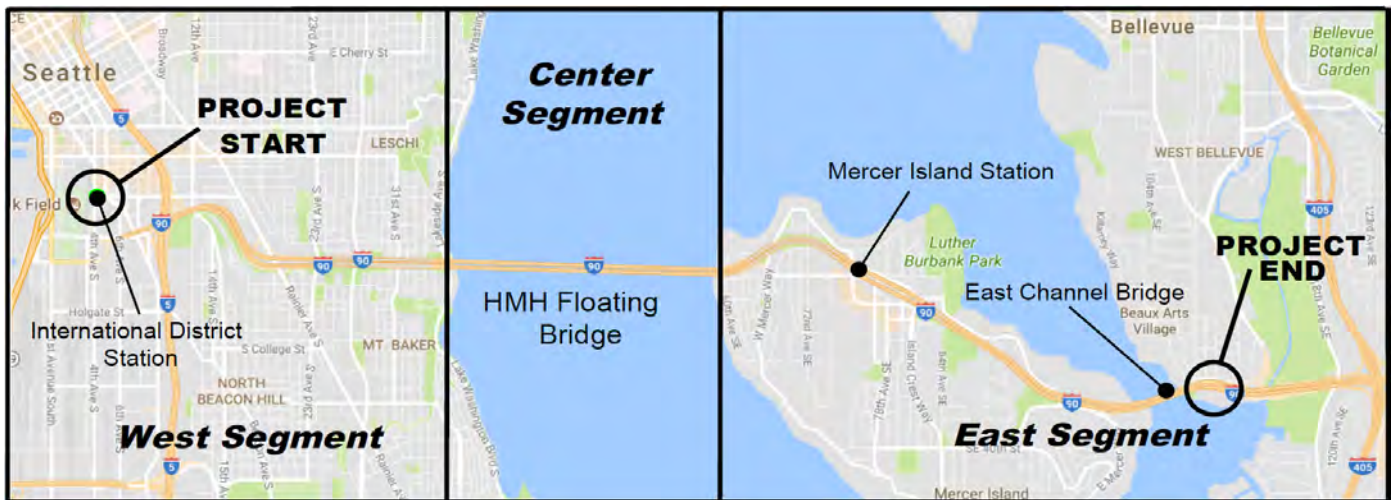
## Next Period's Activities

- **West Segment:** Progress Judkins Park Station structures and platform construction; continue IDS retrofit work
- **Center Segment:** Progress cathodic protection coupon bonding; continue placement of Corkelast for direct rail attachment to floating bridge
- **East Segment:** Advance MI Station commissioning; progress guideway, track installation in MI Tunnel; continue ballasting, East Ballasted 1 transition area to Mercer Island Station

## Closely Monitored Issues

- Current East Segment activity progress to reach Milestone 2 and potential impacts to E750
- Coordination of rail tie-in activities at the International District Station
- Requirement for shielding non-conductive wires for the cathodic protection on floating bridge

## E130 Construction Segments



## Cost Summary

Present Financial Status	Amount
<b>E130 Contractor - Kiewit-Hoffman</b>	
Original Contract Value (incl. Phase 2 MACC)	\$665,000,000
Change Order Value	\$25,624,170
Current Contract Value	\$689,669,170
Total Actual Cost (Incurred to Date)	\$491,538,886
Percent Complete	69.89%
Authorized Contingency	\$46,660,541
Contingency Drawdown	\$25,624,170
Contingency Index	1.3

*Contract Value excludes Betterment*



*Sub-ballast placement, East Ballasted 1 transition area /MI Station*

## Contract E320 – South Bellevue

### Current Progress

**I-90 Flyover:** Continued excavation/foundation work at traction power substation (TPSS); grade stair tower pads and form, rebar and pour (FRP) foundations for overhead catenary system (OCS).

**Bellevue Way SE:** Continued rock faced retaining wall work; continued installation of OCS poles; shotcrete and underground conduit work.

**S. Bellevue Sta./P&R:** Continued install of elevator #2; install stairs on north end of garage and continued work on all mechanical systems in all levels of garage; FRP bus shelter foundations and footings for ticket vending machines and kiosks; Continued steel framing for curtain wall at station, as well as setting skylights in station.

**Wye-to-East Main:** Continued FRP OCS poles; continued pouring sidewalks and curb and gutter work.

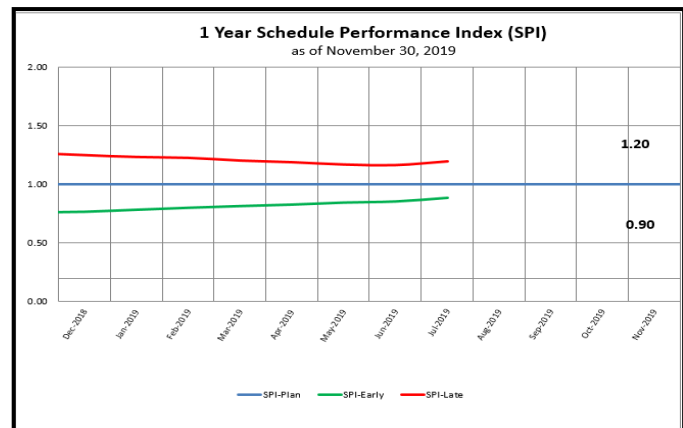
### Schedule Summary

The critical path for this project continues to run through the 112th undercrossing and trench along Bellevue Way SE. The contractor's current schedule forecasts a delay to the completion of S. Bellevue Station which impacts the remainder of the project; however, the impact is related to equipment testing and subsequent commissioning and closeout activity which will not impact E750 access.

Activity Name	Start	Finish	2019	2020
			Q4	Q1 Q2 Q3 Q4
<b>E320 Construction</b>	06-Dec-18 A	13-Dec-20		
<b>Milestones and Summary</b>	06-Dec-18 A	13-Dec-20		
<b>Contract Milestones</b>	06-Dec-18 A	13-Dec-20		
Limited Notice to Proceed	06-Dec-18 A			
Notice to Proceed	13-Feb-17 A			
Milestone 3A - Clear & Grub Swaylocken (Start of "Wetland Fill" Work 365D)		21-Dec-18 A		
Milestone 1 - (Alternate) Phase B21 Not Used		31-May-19 A		
Milestone 3B - Clear & Grub Coal Creek		22-Nov-19 A		
Milestone 2 - Final Restoration of Bellevue Way (Start 897D)		09-Aug-20*		
Milestone 4 - SIFT & SCADA Complete (NTP+1160D)		17-Oct-20*		
Milestone 5 - Acceptance of South Bellevue Station (NTP+1225D)		25-Nov-20*		
Milestone 6 - Required Substantial Completion (NTP+1364D)		13-Dec-20*		
<b>Construction-1</b>	21-Apr-17 A	25-Nov-20		
<b>Mobilization</b>	21-Apr-17 A	16-Jul-18 A		
Area A - I-90 Mainline to Bellevue Interchange - Sta EB405+54 to EB438+20	16-Jun-17 A	20-Oct-20		
Area B - Bellevue Way SE, SE 30th St to 112th Ave SE Wye - Sta EB438+20 to EB476+75	30-May-17 A	25-Nov-20		
Area C - 112th Ave SE, 112th Ave SE Wye to SE 8th - Sta EB476+75 to EB508+00	13-Jun-17 A	16-Sep-20		
Area D - 112th Ave SE to SE 8th St to Main St - Sta 508+00 to EB528+25	22-May-17 A	11-Sep-20		
Area E - Coal Creek Stream Enhancement	09-Jul-18 A	22-Nov-19 A		
Area F - Swaylocken Mitigation	23-Apr-18 A	21-Dec-18 A		

### Schedule Performance Index

The SPI early remains at 0.9 this month and the SPI late remains at 1.2. The contractor continues to remain ahead of their late finish plan and are slightly behind their early plan. Affecting the schedule are the station and garage which are running behind plan. Critical path remains the work on 112th with ballasted track install, weld and de-stress and eastbound track wall work.





# Link Light Rail East Link Extension

## Next Period's Activities

- **I-90 Flyover:** Continue TPSS, OCS foundations work and installation of emergency guardrail on guideway.
- **Bellevue Way SE:** Continue constructing rock retaining walls; continue underdrain work; continue shotcrete work.
- **S. Bellevue Sta./P&R:** Continue work on elevator #2 in the garage; continue curtain wall work on mechanical on all levels in the garage; prepare for elevator #1 install.
- **Wye-to-East Main:** Continue underground raceway work and install permanent electrical service.

## Closely Monitored Issues

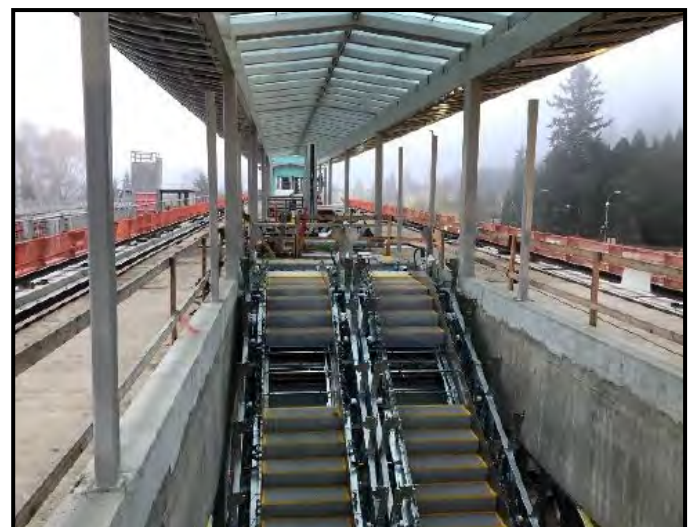
- Working adjacent to wetland areas, environmental compliance concerns.
- Refinement to the three-lane reversible Maintenance of Traffic (MOT) on Bellevue Way SE.



## Cost Summary

Present Financial Status	Amount*
<b>E320 Contractor - Shimmick/Parsons JV.</b>	
Original Contract Value	\$319,859,000
Change Order Value	\$3,993,803
Current Contract Value	\$323,852,804
Total Actual Cost (Incurred to Date)	\$247,040,292
Percent Complete	75.2%
Authorized Contingency	\$38,532,000
Contingency Drawdown	\$3,993,803
Contingency Index	6.7

\* \$ Amount excludes betterments and STArt.



*Escalator installations in South Bellevue's elevated station*

## Contract E330 – Downtown Bellevue Tunnel

### Current Progress

**Tunnel:** Continued installing reinforcement and place concrete of the center wall throughout the tunnel. Commenced installing reinforcement and shotcrete of the crown in the mid-tunnel enlarged section.

**South Portal:** Continued to maintain the temporary erosion/sediment control and the traffic control at the South Portal (SP) and at the mid-access shaft. Forming and tying rebar for exterior walls and bulkhead of cut and cover area, ahead of permanent wall installation which will resume in January 2020 as the contractor focuses on tunnel work.

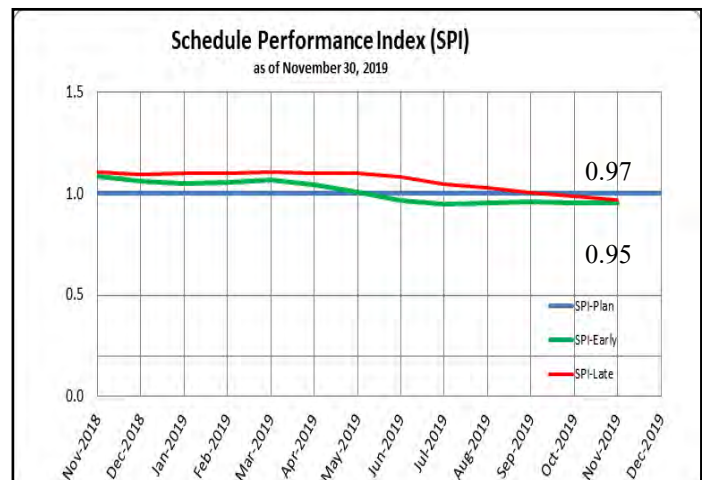
### Schedule Summary

The critical path for this contract follows the final tunnel lining and the completion of the South Portal structure. The contractor is forecast to achieve Substantial Completion in time to meet their contractual requirements.

Activity Name	Start	Finish	Q4	Q1	Q2
<b>E330 Construction</b>	15-Dec-15 A	17-Jun-20			
<b>CONSTRUCTION</b>	15-Dec-15 A	17-Jun-20			
<b>MILESTONES/CONSTRUCTION EASEMENTS</b>	15-Dec-15 A	17-Jun-20			
<b>MILESTONES</b>	15-Dec-15 A	17-Jun-20			
<b>CALCULATED MILESTONES</b>	15-Dec-15 A	17-Jun-20			
L-NTP	15-Dec-15 A				
NTP	08-Feb-16 A				
MLST1 - Acceptance of the 110th Ave Controlled Low Strength Material Work		14-Oct-16 A			
MLST2 - Acceptance of CO #006 Work		14-Oct-16 A			
MLST3 - Substantial Completion of all Work from Station EB 542+64.52 to Station EB 562+47.91		18-Feb-20			
MLST4 - Substantial Completion Total Contract		17-Jun-20			
<b>MOBILIZATION</b>	08-Feb-16 A	18-Dec-19			
<b>SITWORK</b>	29-Feb-16 A	17-Jun-20			
<b>PREC ON STRUCTION</b>	21-Mar-16 A	03-Jun-20			
<b>TRAFFIC CONTROL</b>	25-Mar-16 A	27-Jan-20			
<b>SURVEY &amp; MONITORING</b>	29-Feb-16 A	03-May-18 A			
<b>NORTH PORTAL AREA</b>	13-Jun-16 A	14-Oct-16 A			
<b>CAST IRON PIPE REPLACEMENT</b>	08-Feb-17 A	08-Apr-17 A			
<b>SOUTH PORTAL AREA</b>	29-Feb-16 A	17-Jun-20			
<b>SKYLINE BUILDING RETROFIT</b>	17-Jan-17 A	18-Oct-17 A			
<b>TUNNELING</b>	01-Feb-17 A	24-Jan-20			
<b>EXCAVATION</b>	01-Feb-17 A	20-Jul-18 A			
<b>FINAL TUNNEL LINING</b>	20-Jul-18 A	21-Dec-19			
<b>FINAL TUNNEL FINISHES</b>	09-Sep-19 A	24-Jan-20			
<b>MID TUNNEL</b>	08-Mar-18 A	08-Nov-19 A			
<b>DEMOBE</b>	13-Mar-17 A	04-Jun-20			

### Schedule Performance Index

In November, the SPI early is at 0.95 and the SPI late is at 0.97. The SPI curves are lagging behind as the expanded zone crown shotcrete installation and duct bank placement took longer than planned.





# Link Light Rail East Link Extension

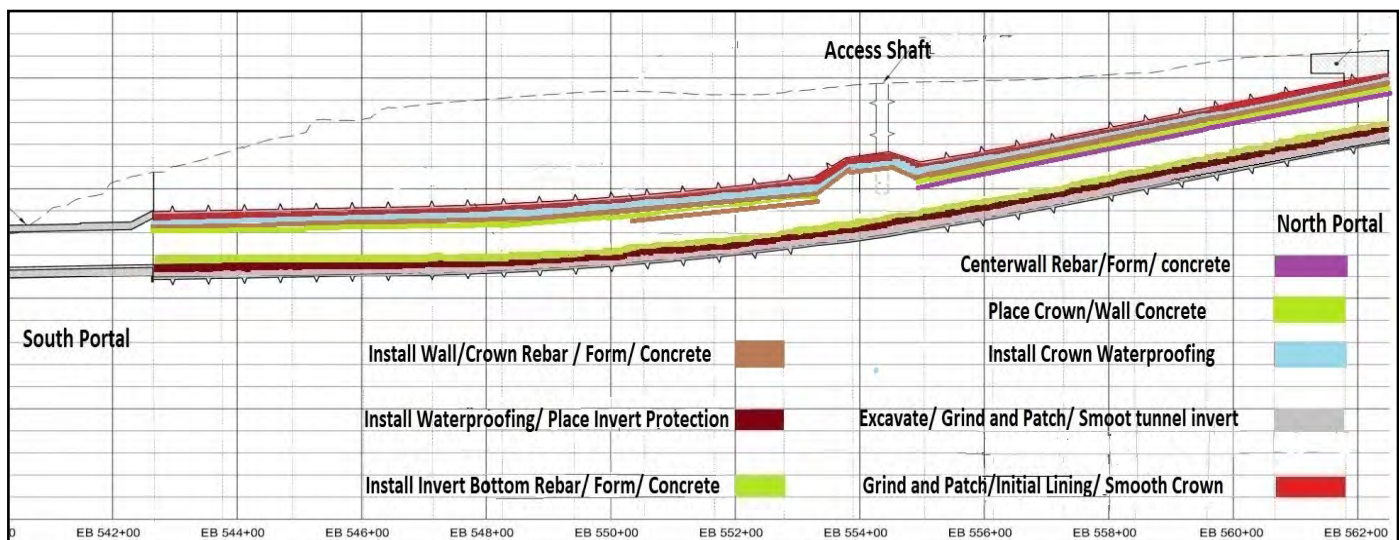
## Next Period's Activities

- **South Portal:** Patching waterproofing for exterior walls and Continue rebar, form and placing exterior permanent walls of cut and cover.
- **Tunnel:** Continue installing reinforcement and shotcrete of the crown in the mid-tunnel enlarged section; Continue construction of the center wall throughout the tunnel south of the enlarged section.

## Closely Monitored Issues

- Center wall reinforcing is high in some locations. Working through clearance requirements between Top of Wall and tunnel crown for installation of fire rated material .
- Shotcrete in the crown through the enlarged section of the tunnel continues progressing slower than anticipated. ST and contractor are monitoring the progress closely.

## E330 Downtown Bellevue Tunnel overall progress (As of 11/30/2019)



## Cost Summary

Preset Financial Status	Amount
<b>E330 Contractor– Guy F Atkinson Construction, LLC.</b>	
Original Contract Value	\$121,446,551
Change Order Value	\$1,418,628
Current Contract Value	\$120,027,923
Total Actual Cost (Incurred to Date)	\$110,332,405
Percent Complete	91.07%
Authorized Contingency	\$13,604,087
Contingency Drawdown	\$1,418,628
Contingency Index	N/A



*Waterproofing expanded zone crown.*

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

### Current Progress

**Area 3:** North Portal (NP)/ Bellevue Downtown Station (BDS): Continued restoration 110th Ave by laying asphalt and pavement. Continued formwork, reinforcing, concrete placement for mid level slab, waterproofing public plaza level and install underground utility platform.

**Area 4:** Aerial Guideway/ Wilburton Station: Continued track works, form and concrete pour tracks plinth. Continued install duct bank. Completed install acoustic panels on Aerial Guideway. At Wilburton Station: Continued formwork, rebar, concrete placement of interior beams and install shoring towers for platform deck.

**Area 6:** 120th-124th Trench/Station: Continued install wall tile and curtain wall, fire protection, HVAC and MEP rough-ins. Completed waterproofing at plaza level. Continued installing pumps, wiring, entrance for elevators and installing handrail decking wiring, and test escalators.

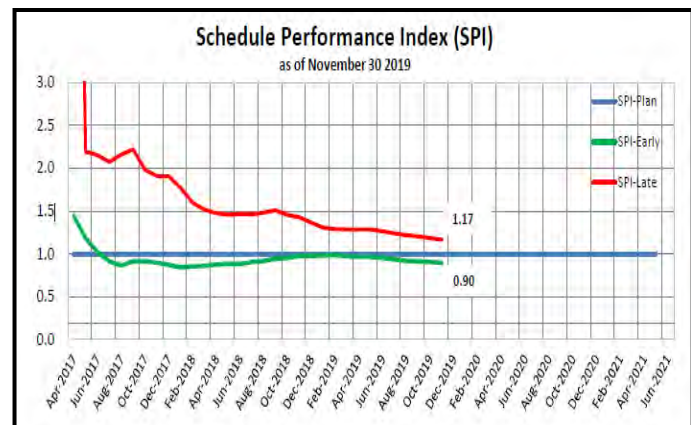
### Schedule Summary

There are two primary critical paths on this contract, corresponding to the two handovers to the E750 Systems Contractor — one runs through BDS, and the other follows access to E330 tunnel in Area 2 and goes through the South Portal and its electrical building. Tunnel work will not start until mid-2020. The contractor is currently expected to achieve all milestones on time.

Activity Name	Start	Finish	2020							
			Q4	Q1	Q2	Q3	Q4	Q1	Q2	2021
<b>E335 Construction</b>	24-Apr-17 A	16-May-21								
<b>Milestones</b>	04-May-18 A	16-May-21								
<b>Contract Milestones</b>	30-Sep-18 A	16-May-21								
Milestone#1- Complete North Portal Headwall Temporary Storing		30-Sep-18 A								
Milestone#2- Complete SIDs for Interface to SCADA		14-Jan-20*								
Milestone#3- Complete Trackway and Stations for Primary Systems Access -BTC to EOP		21-May-20*								
Milestone#4- Complete SEM Tunnel Trackwork for Primary Systems Access		16-Jan-21*								
Milestone#5- Complete All Trackway and Stations for Primary Systems Access		16-Mar-21*								
Milestone#6- Substantial Completion of all Work		16-May-21*								
<b>Calculated Milestones</b>	04-May-18 A	23-Apr-21								
E335 Achieves Milestone #1		04-May-18 A								
E335 Achieves Milestone #2		12-Jan-20								
E335 Achieves Milestone #3		03-Jun-20								
E335 Achieves Milestone #4		10-Jan-21								
E335 Achieves Milestone #5		11-Feb-21								
E335 Achieves Milestone #6		23-Apr-21								
<b>Mobilization</b>	24-Apr-17 A	24-Apr-17 A								
<b>Construction</b>	24-Apr-17 A	24-Mar-21								
Area 1: E Main Station to South Portal (531+55 - 538+00)	11-Oct-17 A	24-Mar-21								
Area 2: South Portal to SEM Tunnel (538+00 - 562+47.91)	30-Nov-18 A	24-Mar-21								
Area 3: North Portal to Aerial Guideway (562+50 - 568+45)	24-Apr-17 A	24-Mar-21								
Area 4: Aerial Guideway (568+45 - 606+59)	24-Apr-17 A	24-Mar-21								
Area 5: Pine Forest to 120th (606+59 - 619+00)	07-Jul-17 A	24-Mar-21								
Area 6: 120th - End of Project (619+00 - 634+99)	01-Aug-17 A	24-Jun-20								
Testing and Commissioning	11-Mar-20	15-Dec-20								

### Schedule Performance Index

This period, the SPI early is at 0.90 and the SPI late is at 1.17. The numbers indicate that the contractor continues to lag the early plan yet ahead of late planned curve. These factors contributed to SPI's early falls behind: Construction progress for Stations—Eastmain, BDS, Wilburton and 120th—are behind schedule and slower than planned. Several activities, such as roadwork at intersections and the excavation of the channel for Sturtevant Creek, are happening later than shown in the baseline. Track construction on Aerial Guideway is behind and cause delay to installation of signal ductbank.





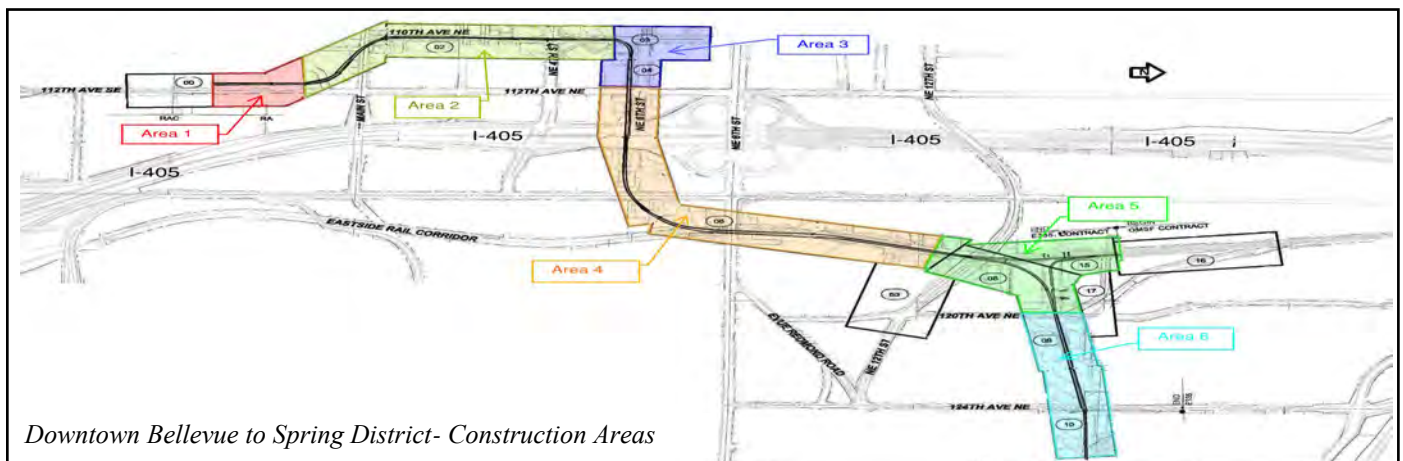
# Link Light Rail East Link Extension

## Next Period's Activities

- **Area 1:** Eastmain Station: Continue excavate for sound walls. Continue rebar, form, pour wall footings and install ductbank and drainage in the area.
- **Area 3:** North Portal (NP)/ Bellevue Downtown Station (BDS): Continue backfill and utility tie-ins at the North Portal and Plaza Demo. Continue 110th full closure for removal of temporary roadway and restoration. Continue footing/columns/wall formwork, reinforcing, and concrete placement at BDS .
- **Area 6:** 120th-124th Trench/Station: Continue finishes, Back Of House, and vertical transportation installation at 120th Station. Continue track work and Thermo Weld Special Track at BNSF Wye and trestle/aerial areas.

## Closely Monitored Issues

- Design revisions for Mechanical, Electrical and Plumbing (MEP) stations, impacted City of Bellevue and permits issuance taking longer than anticipated. Currently all changes are finalized and issued to contractor. ST closely monitor the progress of work on site and installation of infrastructure to support these systems at Wilburton and BDS Stations.



## Cost Summary

Present Financial Status	Amount
<b>E335 Contractor– Stacy &amp; Witbeck/Atkinson Joint Venture (SWA-JV).</b>	
Original Contract Value (includes station scope)	\$393,798,210
Change Order Value	\$8,970,692
Current Contract Value	\$402,768,902
Total Actual Cost (Incurred to Date)	\$252,197,585
Percent Complete	69.70%
Authorized Contingency	\$19,689,911
Contingency Drawdown	\$8,970,692
Contingency Index	1.4



*Aerial Trackwork — BDS Area*

## Contract E340 – Bel-Red

### Current Progress

**Aerial Guideway Decks:** Continued placing typical plinth, rebar, forming and pouring curbs.

**130th Ave Station:** Placed stem wall for north-side canopy. Placed station slabs, stripped light pole bases. Repaired pre-cast concrete panels at entry canopies. Placed track slab near the east-side entry.

**136th Pl NE:** Began excavation for track wall placement. Pavement removal for center lane of NE 20th. St Curb, gutter, and sidewalk placement. Water service work at NE Spring Spur. Roadway grading at driveways and additional paving.

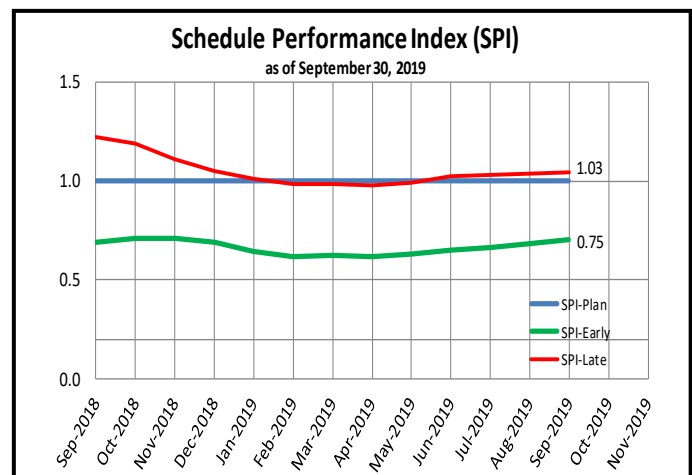
### Schedule Summary

Critical path of this project segment now runs through the 130th Avenue Station, followed closely by work on 136th Place. The contractor's September recovery update is presented below. ST continues to work with the contractor to recover schedule progress and to minimize any potential impacts to the E750 systems contractor.

Activity Name	Start	Finish	Q4	Q1	Q2
<b>E340 Construction</b>	24-Feb-17 A	19-Jun-20			
<b>CONSTRUCTION</b>	24-Feb-17 A	19-Jun-20			
~MILESTONE S/EASEMENTS~	24-Feb-17 A	19-Jun-20			
~Milestones	24-Feb-17 A	19-Jun-20			
Contract Milestones	24-Feb-17 A	19-Jun-20			
Limited Notice to Proceed (LNTP - Feb 24 2017)	24-Feb-17 A				
Notice to Proceed (NTP - March 27, 2017)	27-Mar-17 A				
MS #1 West Tributary Mitigation Site - NTP + 537 DAYS (September 15, 2018)		14-Sep-18 A			
MS #2 Substantial West Tributary Mitigation Site - NTP + 826 DAYS (July 1, 2019) Ref. C		10-Jun-19 A			
MS #3 Acceptance of SDIT - NTP + 976 DAYS (Nov 27, 2019)		23-Nov-19*			
MS #4 Substantial Completion - NTP + 1156 DAYS (May 28, 2020)		19-Jun-20*			
~SUBMITTALS/PRELIMINARY ACTIVITIES~	24-Feb-17 A	07-Mar-20			
~MOBILIZATION~	24-Feb-17 A	18-Mar-20			
~SITEWORK~	04-Apr-17 A	18-May-20			
~RETRAINING WALLS~	12-Feb-18 A	12-Mar-20			
~AERIAL STRUCTURES~	15-May-17 A	04-Feb-20			
~STATIONS~	01-Aug-18 A	18-May-20			
~ELECTRICAL ITS~	02-Jan-18 A	13-Dec-19			
~FINISHES~	01-Oct-19	18-Mar-20			
~TRACKWORK~	13-Jul-18 A	15-May-20			
~LANDSCAPING/FLATWORK~	22-May-18 A	14-Feb-20			
~TESTING AND COMMISSIONING~	27-Aug-19 A	30-Apr-20			

### Schedule Performance Index

There has not been updated information received from the contractor to update the SPI or financial information this month. The Schedule Performance Index chart and Cost Summary section remain as of September 2019 pending the contractor submittal of their recovery schedule.



# Link Light Rail East Link Extension

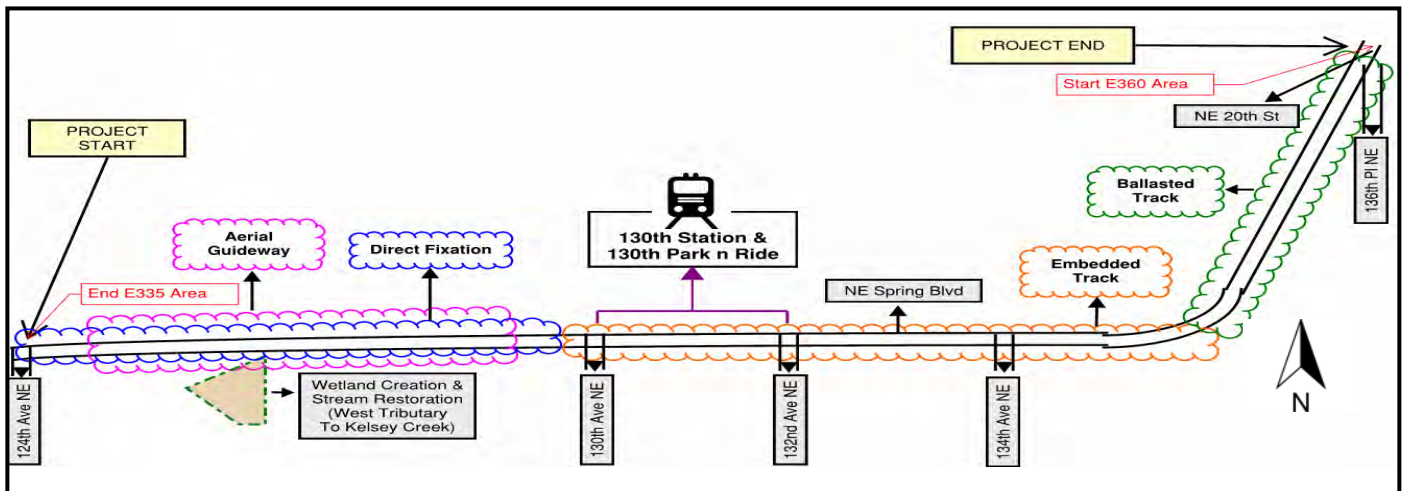
## Next Period's Activities

- **Aerial Guideway:** Continue curb placement, rebar and form placement, place of typical plinths.
- **130th Ave Station:** Repair precast panel. Finish placing track slab in east area. Grade area at west entry and center slab.
- **NE Spring Blvd:** Curb and gutter placement. Sidewalk grading along 134th NE and NE Spring Blvd.
- **136th PI NE:** Finish excavation for track wall placement. Place systems duct bank, signal conduit. Grade for concrete paving for NE 20th St.

## Closely Monitored Issues

- The City of Bellevue Mid-Lakes Pump Station and a late start on the 124<sup>th</sup> Ave NE Bridge have potential to impact overall project schedule. Seattle City Light has agreed to allow early works while compatibility is discussed.
- NE Spring Blvd was opened on November 22nd. There are outstanding elements of permanent work that may require road closures on the new alignment to complete.
- Precast artistic panels arrived on site were not acceptable. Panels may need to be recast. This would result in an impact to the overall schedule.

## E340 Construction Work Areas



## Cost Summary

Present Financial Status	Amount
<b>E340 Contractor– Max J Kuney</b>	
Original Contract Value	\$93,170,012
Change Order Value	\$4,258,489
Current Contract Value	\$97,428,501
Total Actual Cost (Incurred to Date)	\$69,974,536
Percent Complete	71.1%
Authorized Contingency	\$9,317,000
Contingency Drawdown	\$4,258,489
Contingency Index	1.56



Forming the north-side station platform slab, looking north-west.



## Contract E360 – SR 520 to Redmond Technology Station (RTS)

### Current Progress

**Design:** All design packages are issued for construction. Notice of Design Change work is still ongoing to include ST and KH initiated changes. Sound Transit initiated design changes: Rectangular Rapid Flashing Beacon, PSE Meter Relocation, Track Access at Signal House, Sweeper Site Alternate Design, and RTS Garage Insulation Cover.

#### Construction:

- Work Area (WA) #1: Forming and place track slab at E340/E360. Continue Skeletonize direct fixation track.
- WA #2: Continue aerial guideway guardrail, fire standpipe and drainage. Continue track skeletonize, plinths and final line.
- WA #3/4: Ballast track-work ongoing. Moved out of existing site offices.
- WA #5: Final systems duct bank and mandrel test. Continue cross over and surface ballast.
- WA #6: Completed bus loop paving and islands under garage. Start Kiosk flashing/sheathing and installed artwork. Exterior façade ongoing. Station platform canopy steel infill for glazing installation. Complete fit-out of electrical room for permanent power. Ancillary rooms ongoing finish activities.
- WA #7: Completed OVS Pedestrian Bridge paperclip ramp concrete placement.

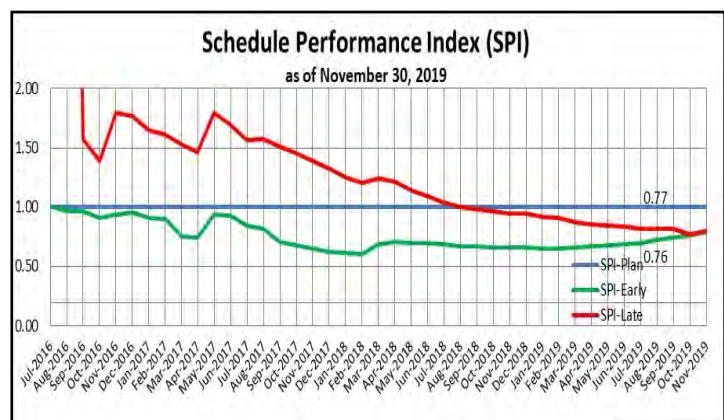
### Schedule Summary

The critical path currently goes through the structural work at RTS and into the Leased Office Building near the station. The contractor's November update, presented below, shows approximately one month of impact to their handover milestone to E750. A recovery schedule has been requested, and ST will work with the contractor to minimize impacts to follow-on work.

Activity Name	Start	Finish	24	Q1	Q2	Q3	Q4
<b>E360 Construction</b>	13-Jul-16 A	08-Aug-20					
<b>Base Contract</b>	13-Jul-16 A	08-Aug-20					
<b>Design</b>	13-Jul-16 A	21-Jan-20					
<b>Design Milestones</b>	03-Oct-16 A	02-Dec-19					
Design Submittals Start		03-Oct-16 A					
30% Design Submittals Complete		28-Oct-16 A					
60% Design Submittals Complete		28-Feb-18 A					
100% Design Submittals Complete		06-May-19 A					
IFC Design Submittals Complete		02-Dec-19					
<b>Design Overhead</b>	13-Jul-16 A	18-Jul-17 A					
<b>Design and Engineering</b>	13-Jul-16 A	21-Jan-20					
<b>Construction</b>	13-Jul-16 A	08-Aug-20					
<b>General</b>	13-Jul-16 A	08-Aug-20					
<b>Project Milestones</b>	13-Jul-16 A	08-Aug-20					
Notice to Proceed	13-Jul-16 A	10-Apr-17 A					
Civil/Systems 100% Design Submittal (NTP +300d) (09-May-2017)		03-Mar-20*					
Milestone 3A for E750 Work		06-Aug-20*					
Milestone 3B Substantial Completion							
WA #1 - Track Slab Guideway	22-May-17 A	13-Jan-20					
WA #2 - Aerial Guideway	01-Jun-17 A	28-Feb-20					
WA #3 - Ballasted Guideway Block #1	01-May-17 A	20-Mar-20					
WA #4 - Overlake Village Station	14-Jul-16 A	15-Jun-20					
WA #5 - Ballasted Guideway Block #2	15-Aug-17 A	30-Mar-20					
WA #6 - Overlake Transit Center	01-May-17 A	09-Jul-20					
WA #7 - OVS Pedestrian Bridge	01-Oct-18 A	30-Jun-20					
WA #8 - OTC Pedestrian Bridge	07-Aug-20	07-Aug-20					

### Schedule Performance Index

This period, early SPI is .76 and late SPI is .77. 164 days was added to the schedule due to City of Redmond delay in their permitting process (150 days) and weather impacts (14 days). Milestone 3 has been split in two; 3A for the systems handoff and 3B for completion of all other work (Substantial Completion). The removal of the OTC Pedestrian Bridge is still being negotiated and is still reflected in the EV (Earned Value).



# Link Light Rail East Link Extension

## Next Period's Activities

- **Work Area #1:** Skeletonize and final line track.
- **Work Area #2:** Complete guard rail. Drainage and track final line. Ongoing patching and pigment sealer.
- **Work Area #3/4:** WA 3 Complete track wall fencing and final ballast track. WA4 continue canopy structure and kiosk finishes. Demo existing site offices.
- **Work Area #5:** Continue landscape and ballasted track work to include the crossover welding and distress.
- **Work Area #6:** Continue finishes at ancillary rooms. Establish permanent power and begin commissioning systems for TCO bus loop turnover on Dec 23. Site grading and concrete. Station platform finishes & MEP.

## Closely Monitored Issues

- PSE construction schedule for establishing permanent power.
- OVS Pedestrian Bridge - Fabrication delays due to welding and fabrication criteria.
- Permanent bus loop transition under the OTC Garage that will require garage Temporary Cert. Occupancy from the City of Redmond.
- Commercial issues for revised OTC Pedestrian Bridge, As-Built Specification, Safety/Security, City of Redmond CDF, Bike Storage and Exothermic welding.
- Shared access road for the WSDOT Aggregate Disposal Site and Valley Creek vault.

## E360 Construction Work Areas



## Cost Summary

Present Financial Status	Amount
<b>E360 Contractor— Kiewit-Hoffman</b>	
Original Contract Value	\$225,336,088
Change Order Value	\$5,149,785
Current Contract Value	\$230,485,873
Total Actual Cost (Incurred to Date)	\$177,128,138
Percent Complete	83.12%
Authorized Contingency	\$22,533,609
Contingency Drawdown	\$5,149,785
Contingency Index	3.5

*Excludes Betterment*



Work Area 6 RTS — Glazing Station Canopy

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# Link Light Rail

## Downtown Redmond Link Extension

### Project Summary

#### Scope

<b>Limits</b>	The Downtown Redmond Link Extension builds new light rail from the Redmond Technology Station to downtown Redmond.
<b>Alignment</b>	The extension starts at Redmond Technology Station and travels generally along SR-520 and SR-202 to downtown Redmond.
<b>Stations</b>	Two Stations—SE Redmond (at Marymoor Park) and Downtown Redmond
<b>Systems</b>	Signals, traction electrification, and communications (SCADA)
<b>Phase</b>	Planning
<b>Budget</b>	\$1.530 Billion (Baselined October 2018)
<b>Schedule</b>	Revenue Service: December 31, 2024



*Map of Downtown Redmond Link Extension*

### Key Project Activities

- Contractor began field work to support final design (survey, geotechnical borings, potholing).
- Baseline Critical Path Method schedule submitted by contractor and is in review.
- Contractor refined permitting plan.
- Condemnation filed on Microsoft property.
- Continued to work with the Tribes, WSDOT and WDFW on design options for the unnamed tributary to accommodate fish passage per the WSDOT injunction with the Tribes.
- Microsoft Betterment Agreement for the 40<sup>th</sup> St. Pedestrian Underpass was executed.
- Army Corps moving forward to review and certify the Keller Farm Mitigation Bank after months of delay.
- Tree surveys in Marymoor Park being conducted by the contractor.
- Examining feasibility of relocating cell tower facilities to the SE Redmond parking garage.
- Finalized documents for the King County Purchase and Sale Agreement. Council action expected Q1 2020.
- The Change Control Board approved a Construction Services Task Order with WSDOT.
- Special use permit with King County approved for geotechnical and survey work in Marymoor Park.

## Project Cost Summary

Voters approved funding for preliminary engineering for the Redmond Link Extension (DRLE) in the 2008 in the Sound Transit 2 ballot measure. In response to the 2007-2009 Great Recession, the ST Board suspended the project. In February 2016, the ST Board restored funding to support preliminary engineering of the project prior to funding approval for final design and construction as part of the Sound Transit 3 Plan. Table (below) figures in millions. This project has now been baselined. The baseline budget has been incorporated into the tables below. The first table below summarizes costs in accordance with Sound Transit's budget Work Breakdown Structure (WBS), while the second table in FTA's Standard Cost Categories (SCC) format. The figures in both tables are shown in millions.

In this period, DRLE incurred approximately \$8.2M of expenditure; however, due to an accounting adjustment of \$16.5M in the ROW phase, this period's expenses netted out at a reduction of \$8.3M. This adjustment will be offset in December. Total cumulative expenditure to date is at \$90.4M.

### Cost Summary by Phase

Project Phase	Baseline Budget	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$77.0	\$77.0	\$7.9	\$7.7	\$77.0	\$0.0
Preliminary Engineering	\$23.0	\$23.0	\$19.0	\$18.2	\$23.0	\$0.0
Final Design	\$4.5	\$4.5	\$0.7	\$0.2	\$4.5	\$0.0
Construction Services	\$58.0	\$58.0	\$49.7	\$3.3	\$58.0	\$0.0
Third Party Agreements	\$17.0	\$17.0	\$6.7	\$2.0	\$17.0	\$0.0
Construction	\$1,151.5	\$1,151.5	\$726.8	\$28.0	\$1,151.5	\$0.0
ROW	\$199.0	\$199.0	\$51.1	\$30.9	\$199.0	\$0.0
<b>Total</b>	<b>\$1,530.0</b>	<b>\$1,530.0</b>	<b>\$861.8</b>	<b>\$90.4</b>	<b>\$1,530.0</b>	<b>\$0.0</b>

### Cost Summary by SCC

SCC Element	Baseline Budget	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
10 Guideway & Track	\$332.4	\$332.4	\$229.5	\$11.9	\$332.4	\$0.0
20 Stations	\$261.9	\$261.9	\$182.5	\$5.7	\$261.9	\$0.0
30 Support Facilities	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$287.1	\$287.1	\$181.2	\$5.7	\$287.1	\$0.0
50 Systems	\$108.6	\$108.6	\$65.2	\$2.0	\$108.6	\$0.0
<b>Construction Subtotal (10 - 50)</b>	<b>\$990.0</b>	<b>\$990.0</b>	<b>\$658.4</b>	<b>\$25.3</b>	<b>\$990.0</b>	<b>\$0.0</b>
60 Row, Land	\$168.5	\$168.5	\$51.1	\$30.9	\$168.5	\$0.0
70 Vehicles (Non-Revenue)	\$4.1	\$4.1	\$0.0	\$0.0	\$4.1	\$0.0
80 Professional Services	\$289.3	\$289.3	\$152.4	\$34.1	\$289.3	\$0.0
90 Unallocated Contingency	\$78.2	\$78.2	\$0.0	\$0.0	\$78.2	\$0.0
<b>Total (10 - 90)</b>	<b>\$1,530.0</b>	<b>\$1,530.0</b>	<b>\$861.8</b>	<b>\$90.4</b>	<b>\$1,530.0</b>	<b>\$0.0</b>

# Link Light Rail Downtown Redmond Link Extension



## Risk Management

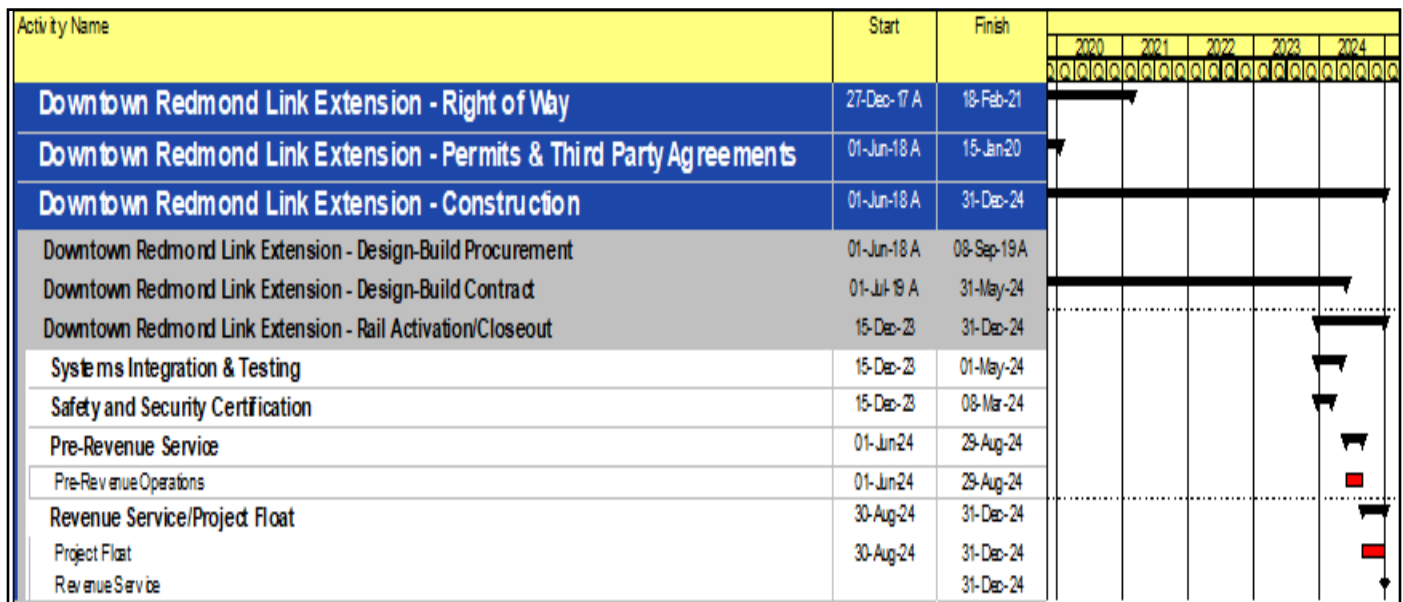
The Risk and Contingency Management Plan (RCMP) establishes a risk management and oversight process for identifying, assessing, and monitoring risks and develops risk reduction/mitigation plans. It provides a tool for the project team to proactively manage risks on the project. It is Sound Transit's responsibility to continuously monitor project status and associated risks.

The project completed its quantitative risk assessment risk workshop as part of the process project baseline in Q4 2018. The quantitative risk assessment report is completed and finalized with good probability that supported the DRLE baseline cost and schedule assumptions. The externality conditions remains the same this period and may have reduced in some instances, therefore, the project's risk profile remains unchanged. The qualitative risk assessment risk meeting for Q3 was performed in August 2019. Q4 risk register is planned for January 2020. The following continues to be the current top project risk areas:

- Property acquisition - market conditions; protracted durations of attaining control of properties; evolving design impacts property needs; however, the current cost risk seems to be subsiding due to appraisals and offers aligning to the baseline budget assumptions.
- Permitting and third party requirements - construction adjacent to SR520; flood prone areas by Sammamish River and Bear Creek; archaeological discovery; betterment requests increases complexity of projects; construction impacts to traffic; storm water discharge requirements by King County Parks; protracted negotiation with third parties.
- Construction market conditions - inflationary pressure due to competitiveness for resources and labor; higher materials pricing due to demand as well as regulations (tariffs and taxes); However, since the DB contract bid and awarded for less than baseline estimate, a very significant cost pressure to this project has been averted.
- Agency staffing capacity - developing and mobilizing resources and coordinating start up activities across multiple extensions within a short time frame.

## Project Schedule

The project schedule is presented below. NTP was issued to the DB contractor on September 9th. Property acquisition and environmental permitting are ongoing. The contractor's baseline schedule was received in early November and is under review. The project is currently forecast for completion near the end of 2024.



### Right-of-Way

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

Downtown Redmond Link Extension Property Acquisition Status					
ACQUISITION				RELOCATION	
Total Acquisitions	Board Approved	Offers Made to date	Closings to date	Relocations Required	Relocations Completed to date
93	93	94	26	1552	1347
* All numbers are cumulative totals, except where noted. Number of totals may differ from other reports due to the timing of reporting periods.					

### Community Outreach

- Continued meetings with potentially impacted property owners in southeast and downtown Redmond to provide updated project information and real estate process information and timing.
- Kicked off construction with some geotechnical field work and preparation for the building of the test shaft near the Redmond Central Connector (RCC) trail. Close coordination with property owners and property management of impacted parcels.
- Activation of temporary construction easements along the RCC in downtown Redmond.

### Sound Transit Board Actions

Board Action	Description	Date
	None to report this period.	

# Link Light Rail West Seattle and Ballard Link Extensions

## Project Summary

### Scope

**Limits** The West Seattle extension includes 4.7 miles of light rail from downtown Seattle to West Seattle's Junction neighborhood. The Ballard extension includes 7.1 miles of light rail from downtown Seattle to Ballard's Market Street area.

**Alignment** The West Seattle extension route is assumed to run primarily on elevated guideway with a new rail-only bridge over the Duwamish River. The Ballard extension route is assumed to run through a new downtown Seattle rail-only tunnel, elevated guideway, and a rail-only bridge over Salmon Bay.

**Stations** Five stations planned for West Seattle Segment. Nine stations planned for the Ballard Segment.

**Phase** Planning

**Budget** \$286M through completion of Preliminary Engineering

**Schedule** Revenue Service: 2030 (West Seattle), 2035 (Ballard)



Map of Project Alignment

## Key Project Activities

- Held neighborhood forums for the Downtown and West Seattle segments for the communities to learn more about light rail route and station location options being studied in the Draft EIS.
- Per direction from the Board, began advancing the study of two additional alternatives to be included in the Draft EIS.
- Continued defining alignment and station footprints for evaluation in the Draft EIS.
- Continued collecting data, geotechnical boring and conducting fieldwork for environmental and engineering evaluation in support of design.
- Continued engagement with partner and regulatory agencies, tribes, waterway users, stakeholder groups and property owners regarding initial assessment, environmental process and next steps.
- Continued coordinating with City of Seattle to develop timeline for external engagement, environmental review, station planning, engineering and permit streamlining working groups, as well as negotiating Task Order 2 of the Project Administration Agreement with the City.
- Continued discussion of agreement structure for the RapidRide C and D Improvements and Madison Street BRT, and roles and responsibilities moving forward with partner agencies.

### Project Cost Summary

The West Seattle and Ballard Link Extensions are voter-approved projects under the ST3 Plan. The current Authorized Project Allocation (budget) for the project that has been approved by the Sound Transit Board allows staff to conduct alternatives development, followed by an Environmental Impact Statement, leading to ST Board selection of the project to be built and FTA issuance of a Record of Decision no later than 2022.

Out of the total Authorized Project Allocation, the project is authorized and planned to incur approximately \$31M in 2019 for completing alternatives development and evaluation; EIS Scoping; Draft EIS; conceptual engineering work; project administration and stakeholder engagement.

The 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	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$63.1	\$9.8	\$9.3	\$63.1	\$0.0
Preliminary Engineering	\$205.4	\$82.4	\$38.9	\$205.4	\$0.0
Final Design	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Construction Services	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
3rd Party Agreements	\$11.4	\$1.4	\$0.3	\$11.4	\$0.0
Construction	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Light Rail Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$6.0	\$2.0	\$0.5	\$6.0	\$0.0
<b>Total</b>	<b>\$285.9</b>	<b>\$95.6</b>	<b>\$49.0</b>	<b>\$285.9</b>	<b>\$0.0</b>

#### Cost Summary by SCC

SCC Element	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation 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	\$5.0	\$2.0	\$0.5	\$5.0	\$0.0
80 Professional Services	\$263.4	\$93.6	\$48.5	\$263.4	\$0.0
90 Unallocated Contingency	\$17.5	\$0.0	\$0.0	\$17.5	\$0.0
<b>Total (10 - 90)</b>	<b>\$285.9</b>	<b>\$95.6</b>	<b>\$49.0</b>	<b>\$285.9</b>	<b>\$0.0</b>



# Link Light Rail West Seattle and Ballard Link Extensions



## Risk Management

Sound Transit has a vigorous risk management program and is committed to identifying, assessing, and monitoring risks and implementing risk reduction/mitigation actions. Risk Assessment for the West Seattle and Ballard Link Extensions Project was conducted as part of the ST3 Planning process.

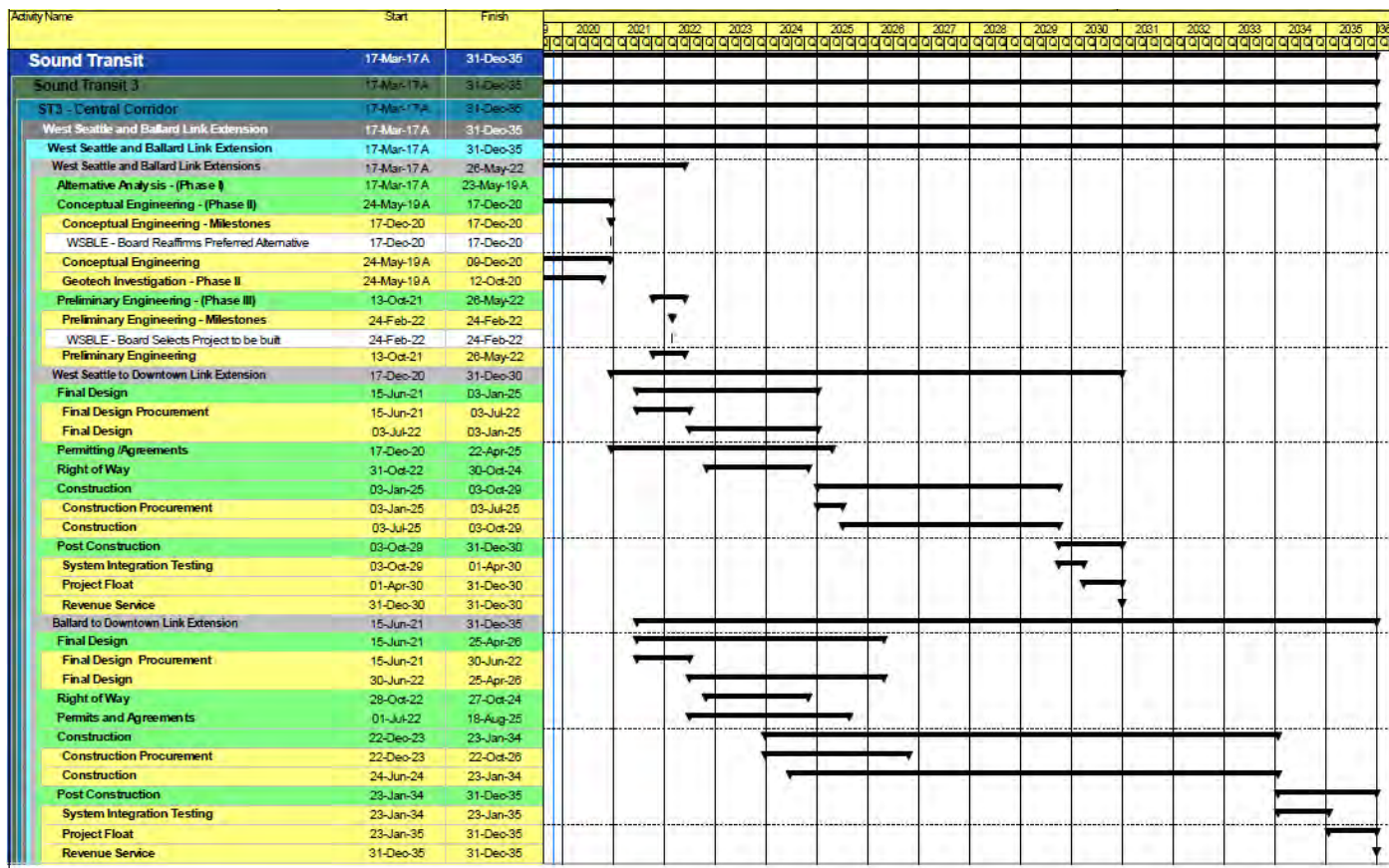
Project issues and risks identified at this stage include:

- Reaching stakeholder consensus on a preferred alternative, including Third Party Funding;
- Complexity of alignments in constrained environment with challenging topography and waterway crossings;
- Complexity associated with tunneling through a mature urban environment;
- Potential construction effects in a constrained environment;
- Potential effect on Central Link operations during construction;
- ROW and property impacts.

## Project Schedule

The preliminary project schedule can be found below. ST Board identified preliminary preferred alternatives (DEIS) on May 23, 2019. FTA issuance of ROD and Final Design are expected to begin in 2022.

Revenue Service between West Seattle and Downtown Seattle is targeted for 2030, and revenue service between Ballard and Downtown Seattle is targeted for 2035.



## Community Outreach

- Held and prepared for multiple neighborhood forums to be held in November and December 2019 for the communities to learn more about light rail route and station location options being studied in the Draft EIS. The specific dates of those forums are:
  - Downtown - November 20, 2019
  - West Seattle - November 21, 2019
  - Chinatown / International District - December 3, 2019
  - Interbay / Ballard - December 5, 2019
  - Delridge - December 7, 2019

## Sound Transit Board Actions

Board Action	Description	Date
	None to report this period.	

# Link Light Rail Federal Way Link Extension

## Project Summary

### Scope

<b>Limits</b>	The Federal Way Link Extension adds approximately 7.8 miles of light rail from the Angle Lake Station in the City of SeaTac to the Federal Way City Center.
<b>Alignment</b>	The extension generally parallels SR 99 and I-5 freeway.
<b>Stations</b>	Stations at Kent/Des Moines, South 272nd Star Lake Park –and-Ride and the Federal Way Transit Center
<b>Systems</b>	Signals, traction power, and communications (SCADA)
<b>Phase</b>	Proceed to Final Design/Construction
<b>Budget</b>	\$2.451 Billion (Baseline Sep 2018)
<b>Schedule</b>	Revenue Service: December 2024



*Map of Federal Way Link Extension.*

## Key Project Activities

- Full Funding Grant Agreement (FFGA) application continues to be under review by FTA.
- Design Build (DB) contractor (F200) held monthly meeting with Authorities-having-Jurisdiction (AHJs) to facilitate coordination issues and design development.
- DBPM staff developing Construction Quality Plan and on critical path for FTA's Notice-to-Proceed (NTP) approval.
- Continue preparing task order scope of work for advanced utility relocation with Century Link.
- Execution of Developer Extension Agreements with Lakehaven and Midway is in progress.
- Puget Sound Energy (PSE) master executed. First task order agreement is being finalized for utility relocation early work.
- Discussions continue with Seattle Public Utility (SPU), WSDOT, Ecology, EPA and FTA for Midway Landfill agreement; goal to reach agreement resolution by Q4 2019.
- Discussions continue with King County Metro for temporary lease parking during construction at Starlake Park & Ride.
- Project team is preparing King County Fee In-Lieu Environmental Mitigation Agreement to procure mitigation credits.
- Washington Department of Fish and Wildlife issued the Hydraulic Permit Approval (HPA) for Federal Way Link Extension for work affecting streams and wetlands.

## Project Cost Summary

The 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.

This period approximately \$29.2M was incurred for November 2019, of which \$4.3M incurred was for Right-Of-Way; \$0.9M incurred for Construction Services; \$23M for Construction phase comprised mainly of \$22.7 for Design Build construction contract and \$0.2M for Construction Permits. Remaining major expenditures of \$1.1M were for Preliminary Engineering, Third Party and Administration. Overall the project Estimate at Completion continues to reflect \$2.45B.

NOTE: Pending future board approval, a Project Reserve of \$459.3M shall be added representing additional contingency FTA recommended the project carry following their independent risk assessment, is anticipated. FFGA application reflects this amount.

### Cost Summary by Phase

Project Phase	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$96.5	\$20.3	\$20.4	\$96.5	\$0.0
Preliminary Engineering	\$46.5	\$45.5	\$44.5	\$46.5	\$0.0
Final Design	\$3.1	\$1.0	\$0.9	\$3.1	\$0.0
Construction Services	\$107.0	\$15.6	\$8.3	\$107.0	\$0.0
3rd Party Agreements	\$27.7	\$21.0	\$4.4	\$27.7	\$0.0
Construction	\$1,831.9	\$1,278.9	\$130.7	\$1,831.9	\$0.0
ROW	\$338.8	\$121.5	\$110.9	\$338.8	\$0.0
<b>Total</b>	<b>\$2,451.5</b>	<b>\$1,503.7</b>	<b>\$319.9</b>	<b>\$2,451.5</b>	<b>\$0.0</b>

### Cost Summary by SCC

SCC Element	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
10 Guideway & Track	\$517.7	\$392.7	\$26.5	\$517.7	\$0.0
20 Stations	\$316.1	\$244.5	\$16.4	\$316.1	\$0.0
30 Support Facilities	\$5.3	\$11.5	\$0.8	\$5.3	\$0.0
40 Sitework & Special Conditions	\$557.7	\$407.2	\$26.7	\$550.8	\$6.9
50 Systems	\$153.0	\$116.5	\$7.8	\$153.0	\$0.0
<b>Construction Subtotal (10 - 50)</b>	<b>\$1,549.9</b>	<b>\$1,172.4</b>	<b>\$78.1</b>	<b>\$1,543.0</b>	<b>\$6.9</b>
60 Row, Land	\$338.8	\$121.5	\$110.9	\$338.8	\$0.0
70 Vehicles	\$1.8	\$0.0	\$0.0	\$1.8	\$0.0
80 Professional Services	\$383.0	\$209.7	\$130.9	\$391.9	(\$8.3)
90 Unallocated Contingency	\$178.1	\$0.0	\$0.0	\$176.1	\$1.4
<b>Total (10 - 90)</b>	<b>\$2,451.5</b>	<b>\$1,503.7</b>	<b>\$319.9</b>	<b>\$2,451.5</b>	<b>\$0.0</b>



# Link Light Rail Federal Way Link Extension



## Risk Management

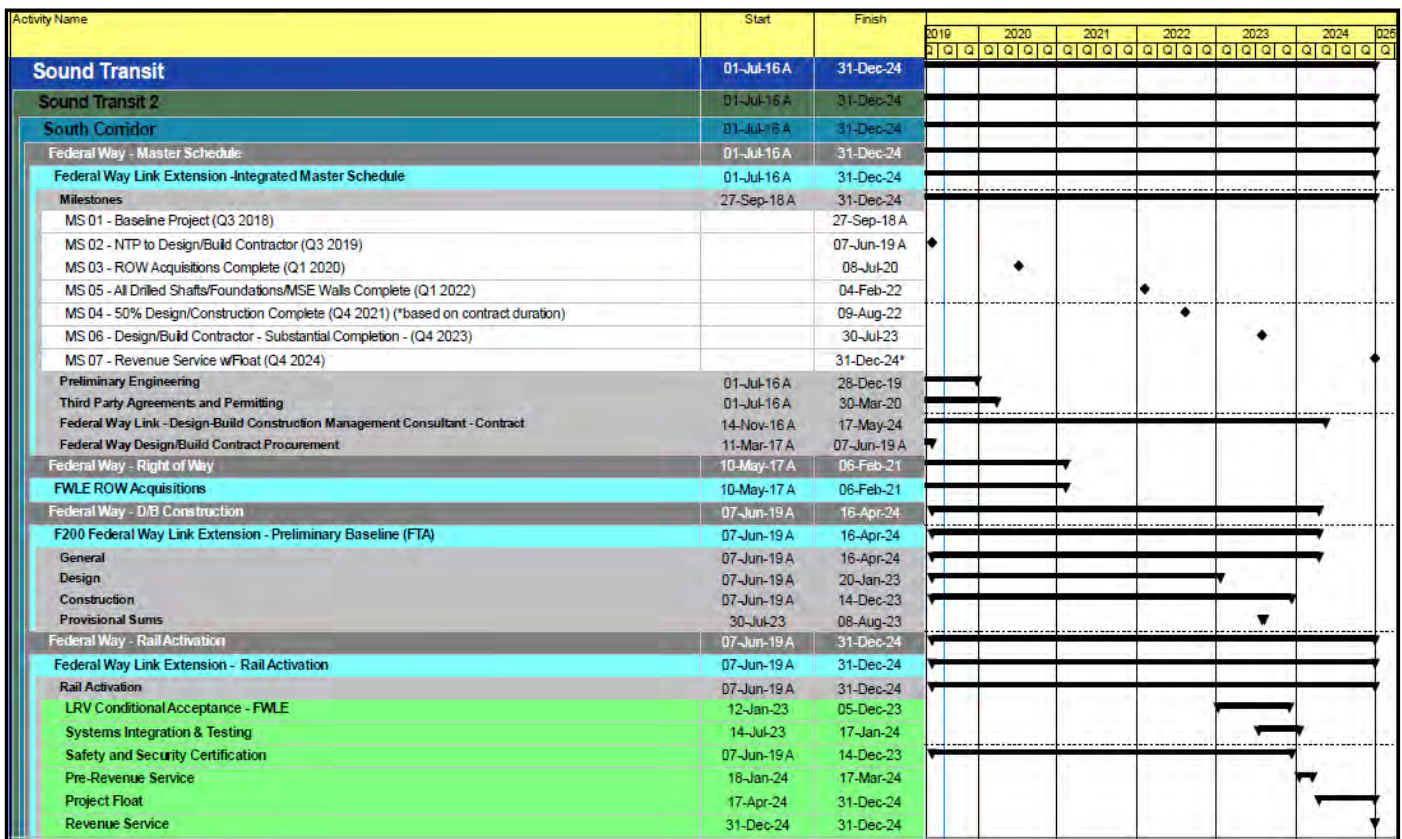
The Risk and Contingency Management Plan (RCMP) establishes a risk management and oversight process for identifying, assessing, and monitoring risks and develops risk reduction/mitigation plans. It provides a tool for the project team to proactively manage risks on the project. It is Sound Transit's responsibility for continuously monitoring project status and associated risks.

Below are the top project risks:

- Obtaining easements for PSE advanced utility relocation could impact DB Contractor schedule.
- Design review/approvals may not be completed in timely manner by jurisdictional partners, thus delaying project progress.
- Midway Landfill crossing agreement may not reach timely execution with WSDOT & SPU prior to DB contract submittal permit package.
- Known third party utility relocations may not occur as scheduled, delaying DB construction activities.
- FFGA review and approvals could cause construction contract schedule delays.

## Project Schedule

The project schedule is presented below. Right-of-Way acquisitions and relocations continue and additional detail has been added to the master schedule to monitor any impacts to the project. FFGA application is under review by FTA and received notice that we have met readiness requirements in September. LNTP was issued June 7th. The baseline schedule submittal was returned "revise and resubmit." A revised baseline is expected in December. Construction NTP is expected Q1 2020. Revenue Service is on schedule for 4th QTR 2024. No updates to the master schedule have been made this month as we await the baseline schedule re-submittal.



## Contingency Management

The Federal Way Link Extension project budget was baselined in September 2018 with a total contingency of \$549.9M. The current contingency balance is \$412.7M .

**Design Allowance (DA)** has been used and no longer reported.

**Allocated Contingency (AC)** is used to address risks, complexity and unforeseen conditions during the execution of work, including procurement. During this period the AC was increased overall by approximately \$0.65M due to budget transfer shift from third party UAC for future third party agreements with Highline, Lakehaven and Midway in development.

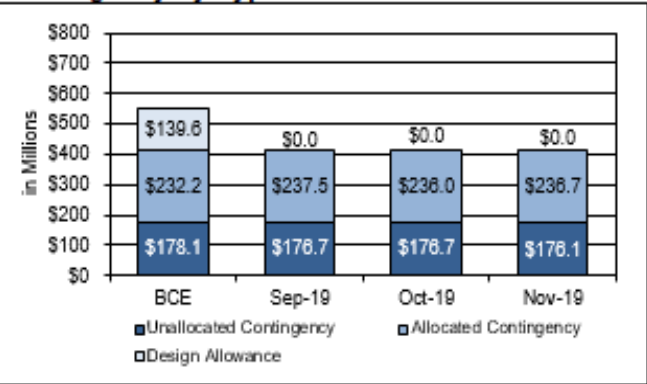
**Unallocated Contingency (UAC)** is used to address general project-wide cost risks and uncertainties. During this period UAC was decreased by \$0.65M and transferred to AC for future third party agreements.

**Contingency Status (Monthly)**

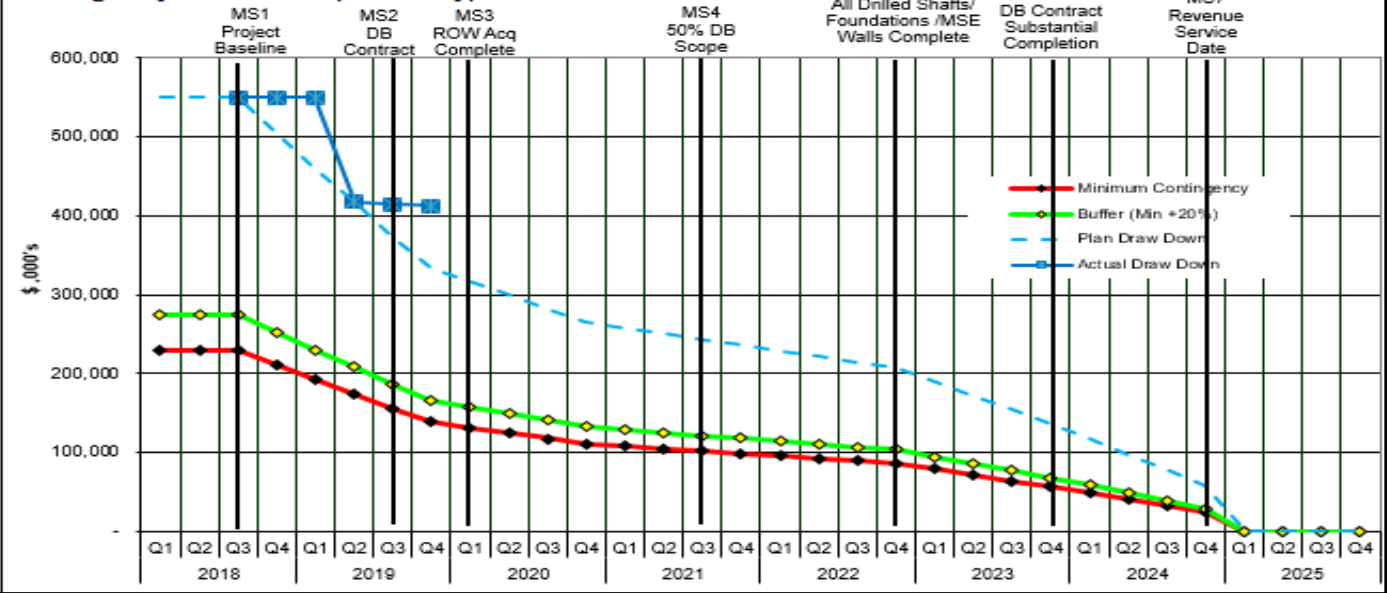
Type	Baseline		Current Status	
	Amount	% of Total Budget	Remaining Amount	% of Work Remaining
Design Allowance	\$139.6	5.7%	\$0.0	0.0%
Allocated Contingency	\$232.2	9.5%	\$236.7	10.7%
Unallocated Contingency	\$178.1	7.3%	\$176.1	8.0%
<b>Total:</b>	<b>\$549.9</b>	<b>22.4%</b>	<b>\$412.7</b>	<b>18.7%</b>

Table figures are shown in millions.

**Contingency by Type**



**Contingency Drawdown (Quarterly)**





## Right-of-Way

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

Federal Way Link Extension Property Acquisition Status					
ACQUISITION				RELOCATION <sup>3</sup>	
Total Acquisitions <sup>1</sup>	Board Approved <sup>2</sup>	Offers Made to date	Closings to date	Relocations Required	Relocations Completed to date
256	353	250	106	430	325
* All numbers are cumulative totals, except where noted. Number of totals may differ from other reports due to the timing of reporting periods.					

1. Total Acquisitions is defined as only parcels (recognizing only land not owners).
2. Board Approved based on parcels and properties (multi-unit acquisitions).
3. Relocation numbers are the number of affected individuals.

## Community Outreach

- Communication with property owners regarding FWLE route, profile, station areas, acquisition and relocation is ongoing.
- Held two Open Houses where the public had an opportunity to weigh in on station names, meet the contractor, see station renderings and learn more about the project :
  - 11/13/19 Highline College
  - 11/20/19 Federal Way Performing Arts Center
- Presented to local Community Base Organizations:
  - 11/5/19 Federal Way Round Table
  - 11/6/19 Centro Rendu Kent
  - 11/14/19 South King County Mobility Coalition
  - 11/22/19 King County Promotores Network



Staff discussing station renderings with attendees at FWLE Open House in Federal Way on 11/20/19

## Sound Transit Board Actions

Board Action	Description	Date
	None to report this period.	

## Phase 3 Preliminary Engineering (PE)

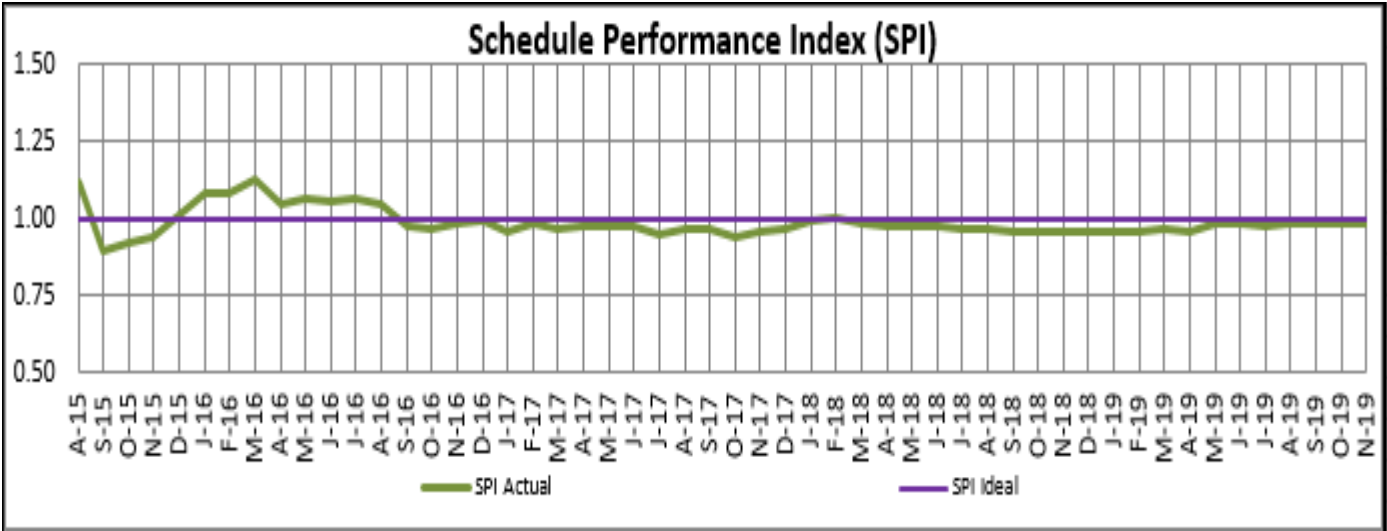
In July 2015, Sound Transit executed an amendment to the professional services agreement with HDR Engineering, Inc. for Phase 3 professional services, including completion of a Final Environmental Impact Statement (FEIS) using the preferred alternative and the other alternatives in the Draft EIS, preliminary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

### Current Progress

- Continued environmental work including revision to critical areas report and responding to comments on the NEPA/SEPA.
- Continued follow up of ESA and HBM work, and supported property acquisition.
- Various coordination works between Sound Transit, the DBPM and the design-builder.

### Schedule Performance Index

The cumulative Schedule Performance Index (SPI) is 0.99 through November 2019, indicating the overall amount of work accomplished is as planned. The consultant (HDR) is fully engaged on coordination efforts with the DBPM consultant, Environmental works including NEPA/SEPA, and in property acquisition support with parcel maps.

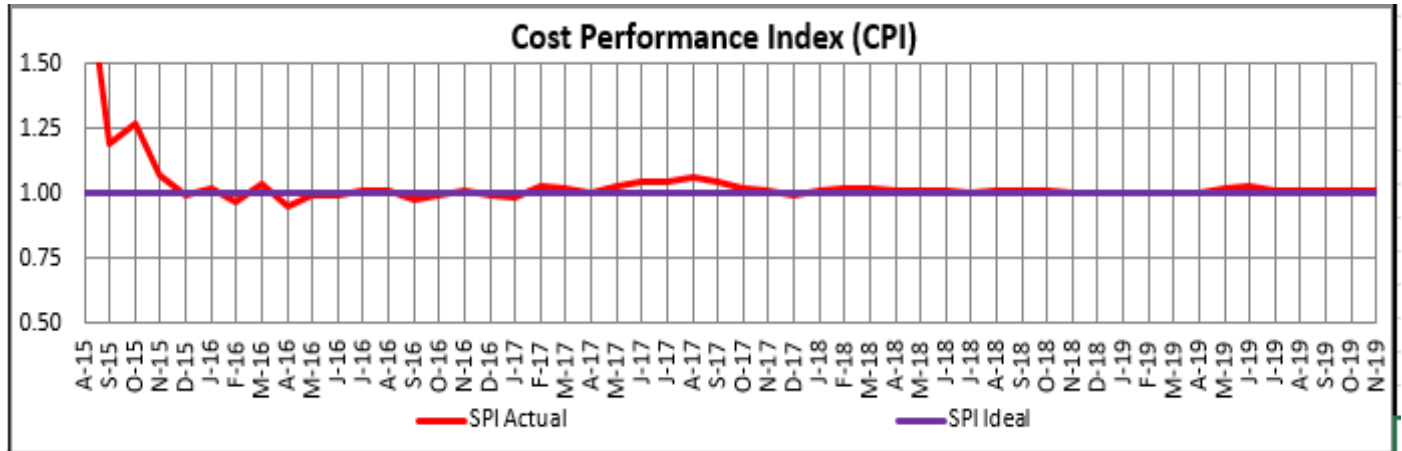


# Link Light Rail Federal Way Link Extension



## Cost Performance Index

Phase 3 expenditures through October 2019 totaled \$36.23M, approximately 97.3% of the amended total contract. The Phase 3 percent complete is reported at 99.0%, with an earned value of \$36.8M. The cumulative Cost Performance Index (CPI) is 1.02 showing costs are on track with work accomplished. The Consultant is engaged in coordinating efforts with the DBPM, environmental works, and ROW acquisition support and parcel maps.



## Cost Summary

Contract (Phase 3 portion)	Cumulative To-date
Amount Invoiced	\$36.23M
% Spent	97.31%
Earned Value	\$36.8M
% Complete	99%
<b>SPI</b>	<b>0.99</b>
<b>CPI</b>	<b>1.02</b>

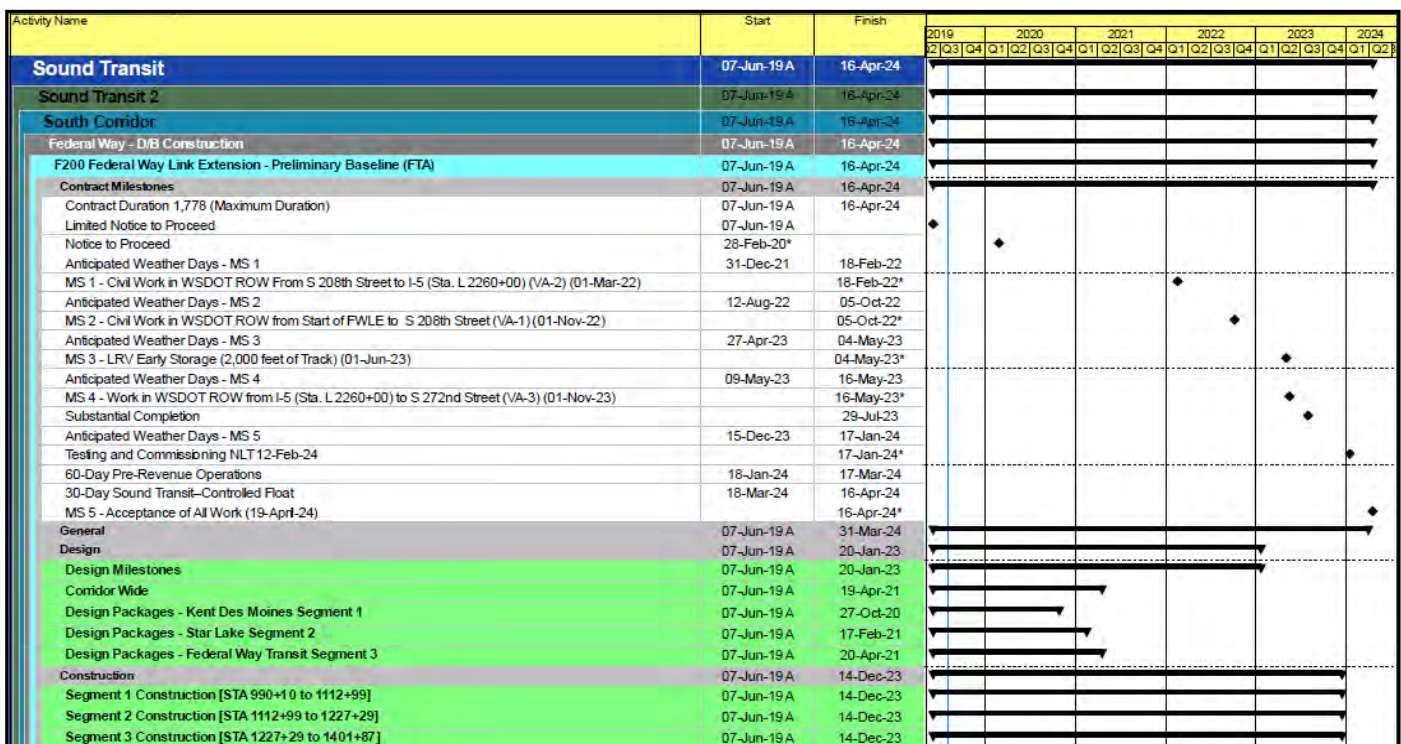
## F200 Design Build Contract

### Current Progress

- Continue Task Force meetings, and Design work 90/100% early utilities. Design at 60% for Segment 1 (structures A, S216th undercrossing, MOT), Segment 2 structures C, Segment 3 MOT, and FWTC foundations & sitework.
- Identify requirements and seek needed property rights for PSE relocation, and finalize PSE Task Order utility relocation.
- Century Link first relocation Task Order development is underway.
- Geotechnical site investigation work continues.

### Schedule Summary

LNTP was issued June 7, 2019. A preliminary baseline schedule was submitted by the Design-Build Contractor. The initial baseline schedule submittal was rejected and a revised baseline is expected in December; Construction NTP is expected 1st QTR 2020. Below is a summary schedule from the contractor's preliminary baseline schedule.



# Link Light Rail Federal Way Link Extension



## Next Period's Activities

- Continue task force meetings & advance design: 60% Seg1 & SR99 Bridge; 90% Seg 2
- Continue other early critical submittal activities
- Continue geotechnical borings along alignment
- Begin early building demolition
- Needed property rights for PSE relocation
- Begin 30-inch Highline WD water line relocation

## Closely Monitored Issues

- None

## Cost Summary

Present Financial Status	Amount
<b>F200 Contractor - Kiewit Infrastructure West Co</b>	
Original Contract Value	\$1,285,200,000
Change Order Value	\$500,000
Current Contract Value	\$1,285,700,000
Total Actual Cost (Incurred to Date)	\$125,439,008
Percent Complete	10%
Authorized Contingency	\$128,520,000
Contingency Drawdown	(\$500,000)
Contingency Index	25



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# Link Light Rail Hilltop Tacoma Link Extension

## Project Summary

### Scope

**Limits** City of Tacoma

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

**Stations** Old City Hall, S. 4th, Stadium District, Tacoma General, 6th Avenue, Hilltop District, and St. Joseph.

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

**Phase** Construction

**Budget** \$217.3 Million (Baselined September 2017)

**Schedule** Revenue Service: May 2022



Map of Hilltop Tacoma Link Extension.

## Key Project Activities

**Final Design:** Design consultant continued design services during construction scope including review of construction contractor submittals and responded to requests for information.

### Construction

- Heading 1: Continued inbound track slab installation and OCS foundation installations and performed re-work on non-conforming OCS foundations in select locations on Stadium Way. Completed roadway restoration at S. 4th St. Began outbound track slab installation activities including installation of systems ductbank.
- Heading 2: Continued storm relocations at along Division between J and K St. Installed OCS pole foundations and began rail welding operations in Stadium District. Holiday Moratorium began 11/28 and extends through 1/1/20.
- Heading 3: Continued storm drainage at MLK/14th and waterline work between 6th and 11th. and installation of OCS pole foundations along MLK at various locations. Completed excavation of receiving pit at Jackson Hall in the vicinity of Tacoma General and began excavation of boring pit. Continued traffic signal underground work at MLK and 18th. Began rail welding at MLK/18th. Holiday Moratorium began 11/28 and extends through 1/1/20.
- OMF: Completed high performance coating application to structural steel. Completed interior framing at second floor and began plumbing and electrical rough-in. Installed steel stairs to service pit. Began exterior framing and installation of pre-cast panels. Began underground electrical work in yard.

**Right-of-Way:** Acquisition of all required parcels and temporary construction easements is complete.

### Project Cost Summary

In September 2017, Sound Transit Board adopted the Hilltop Tacoma Link Extension (HTLE) baseline schedule and budget by increasing the authorized project allocation from \$34.6M to \$217.3M. The 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. To date, most of the expenditures have been from Administration, Design, 3rd Party, and ROW.

The T100 construction contract was executed in August 2018. The team is planning to go to the ST Board in December 2019 to add contingency to this contract.

In the November 2019 period approximately \$5.1M was incurred. Most expenditures are occurring in the Construction Phase related to the T100 construction contract. ST continues to anticipate majority of expenditures in the construction phase.

### Cost Summary by Phase

Project Phase	Baseline Budget	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$16.9	\$16.9	\$10.5	\$10.5	\$16.9	(\$0.0)
Preliminary Engineering	\$5.6	\$5.6	\$5.6	\$5.6	\$5.6	\$0.0
Final Design	\$10.8	\$12.8	\$12.5	\$10.9	\$12.8	\$0.0
Construction Services	\$9.9	\$10.3	\$8.9	\$4.1	\$10.3	\$0.0
3rd Party Agreements	\$1.5	\$1.5	\$1.3	\$1.0	\$1.5	\$0.0
Construction	\$127.2	\$130.1	\$120.5	\$61.8	\$130.1	(\$0.0)
Vehicles	\$35.4	\$32.8	\$30.3	\$2.2	\$32.8	\$0.0
ROW	\$3.6	\$2.3	\$2.2	\$1.9	\$2.3	\$0.0
Contingency	\$6.6	\$5.1	\$0.0	\$0.0	\$5.1	\$0.0
<b>Total</b>	<b>\$217.3</b>	<b>\$217.3</b>	<b>\$191.7</b>	<b>\$98.0</b>	<b>\$217.3</b>	<b>(\$0.0)</b>

### Cost Summary by SCC

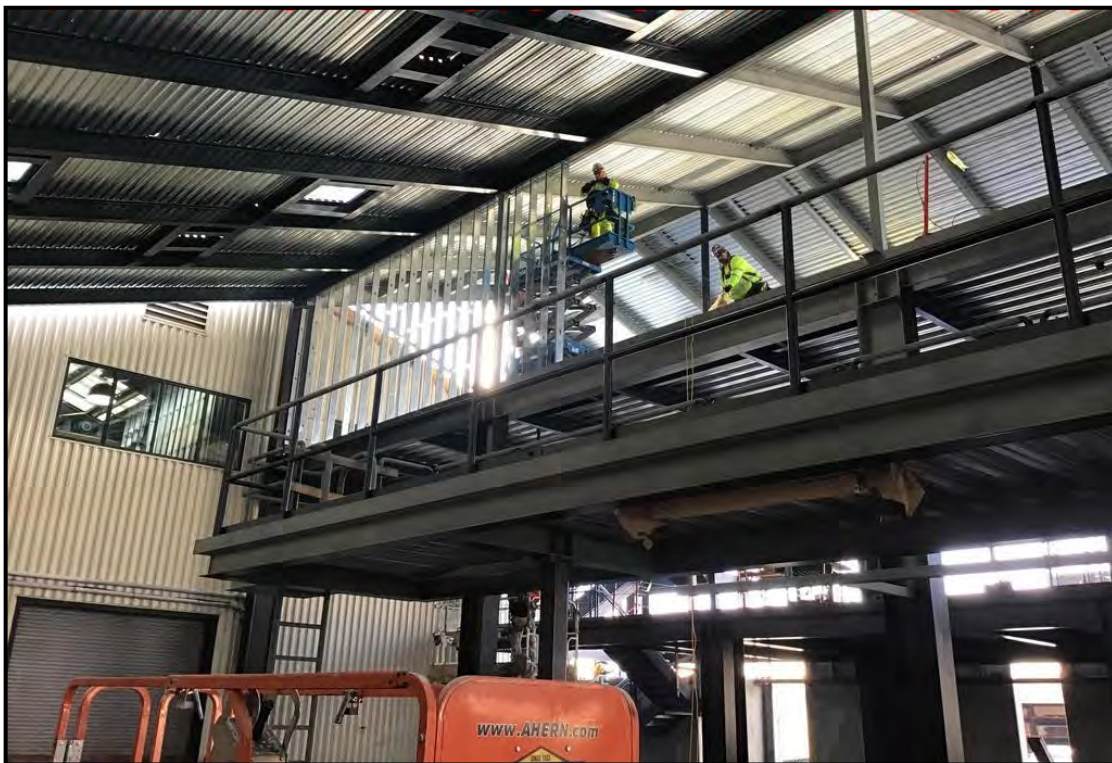
SCC Element	Baseline Budget	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
10 Guideway & Track	\$21.9	\$24.9	\$23.1	\$11.8	\$24.9	(\$0.0)
20 Stations	\$1.8	\$2.8	\$2.6	\$1.3	\$2.8	\$0.0
30 Support Facilities	\$26.6	\$33.1	\$30.6	\$15.7	\$33.1	\$0.0
40 Sitework & Special Conditions	\$40.0	\$41.6	\$38.5	\$19.8	\$41.6	\$0.0
50 Systems	\$25.0	\$27.8	\$25.7	\$13.2	\$27.8	\$0.0
<b>Construction Subtotal (10 - 50)</b>	<b>\$115.4</b>	<b>\$130.12</b>	<b>\$120.5</b>	<b>\$61.8</b>	<b>\$130.1</b>	<b>(\$0.0)</b>
60 Row, Land	\$3.4	\$2.3	\$2.2	\$1.9	\$2.3	(\$0.0)
70 Vehicles (non-revenue)	\$34.1	\$32.8	\$30.3	\$2.2	\$32.8	(\$0.0)
80 Professional Services	\$48.4	\$47.1	\$38.8	\$32.0	\$47.1	\$0.0
90 Unallocated Contingency	\$16.1	\$5.1	\$0.0	\$0.0	\$5.1	\$0.0
<b>Total (10 - 90)</b>	<b>\$217.3</b>	<b>\$217.3</b>	<b>\$191.7</b>	<b>\$98.0</b>	<b>\$217.3</b>	<b>(\$0.0)</b>

## Risk Management

The Hilltop Tacoma 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 will provide a tool for the project team to proactively manage risks on the project. It is Sound Transit's responsibility for continuously monitoring project status and associated risks, taking mitigation actions for known risks identified on the risk register, and effectively responding in a timely manner to those risks that pose a significant impact to the project cost or schedule forecast.

The Baseline Risk Assessment was conducted in May 2017 and we conducted a Quantitative Risk Assessment in May 2019. A Recovery Action Workshop was conducted on October 24-25. An update to the risk model following review of secondary risk mitigations was done and a updated estimate at completion is in process. The team is implementing the mitigations for the top risks and we are tracking the process on a bi-weekly status updates. Per the November 2019 Register Update the current top project risks include:

- Lack of approved schedule is creating a series of cascading impacts to the project.
- Roadway improvements and modifications along MLK are greater than anticipated.
- Unidentified utilities under the proposed alignment lead to increased cost and schedule delays for mitigation during construction.
- Redesign of Division St./J/K intersection work leads to schedule delay and higher costs.
- Gasoline work at Division and 3rd is delayed by PSE.
- Contractor assumed CoT discretion to relax code requirements regarding material staging in public ROW.
- Work zone constraints due to traffic control considerations and impacts to stakeholder require additional contractor resources due to resequencing activities and materials and equipment handling.



*OMF– Ongoing interior framing*



## Contingency Management

Hilltop Tacoma Link Extension was baselined on September 2017 with a total contingency of \$33.8M. Since baselining, there were draw downs on AC and UAC to address the Procurement of the Tacoma LRV and T100 Construction contracts, Design Services During Construction contract, and various Change Orders.

**Design Allowance (DA)** was established to account for unquantified scope at the time of the cost estimate. DA is at \$0M, as a result of completion of Final Design.

**Allocated Contingency (AC)** is used to address risks, complexity and unforeseen conditions during the execution of work, including procurement. This period the Total AC was reduced as a result of executing T100 Change Orders and more are in process. The balance is \$4.5M. The T100 contract is anticipating additional contract contingency requests.

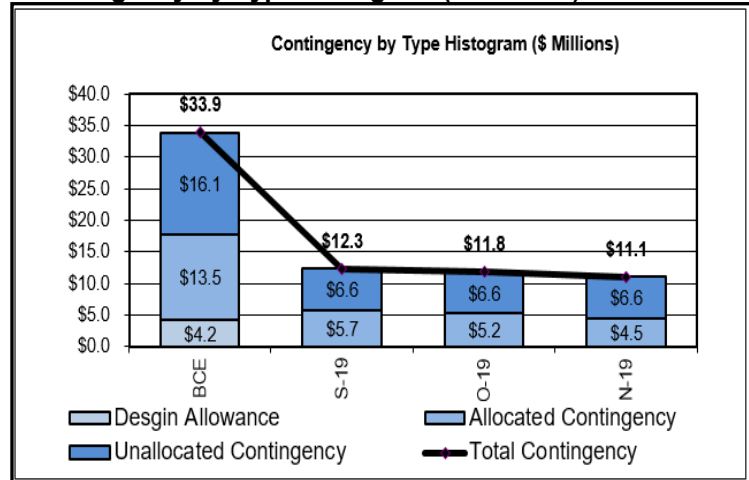
**Unallocated Contingency (UAC)** is used to address general project-wide cost risks and uncertainties. The UAC balance did not change this period. The a net balance amount is \$6.6M.

### Contingency Status (Monthly)

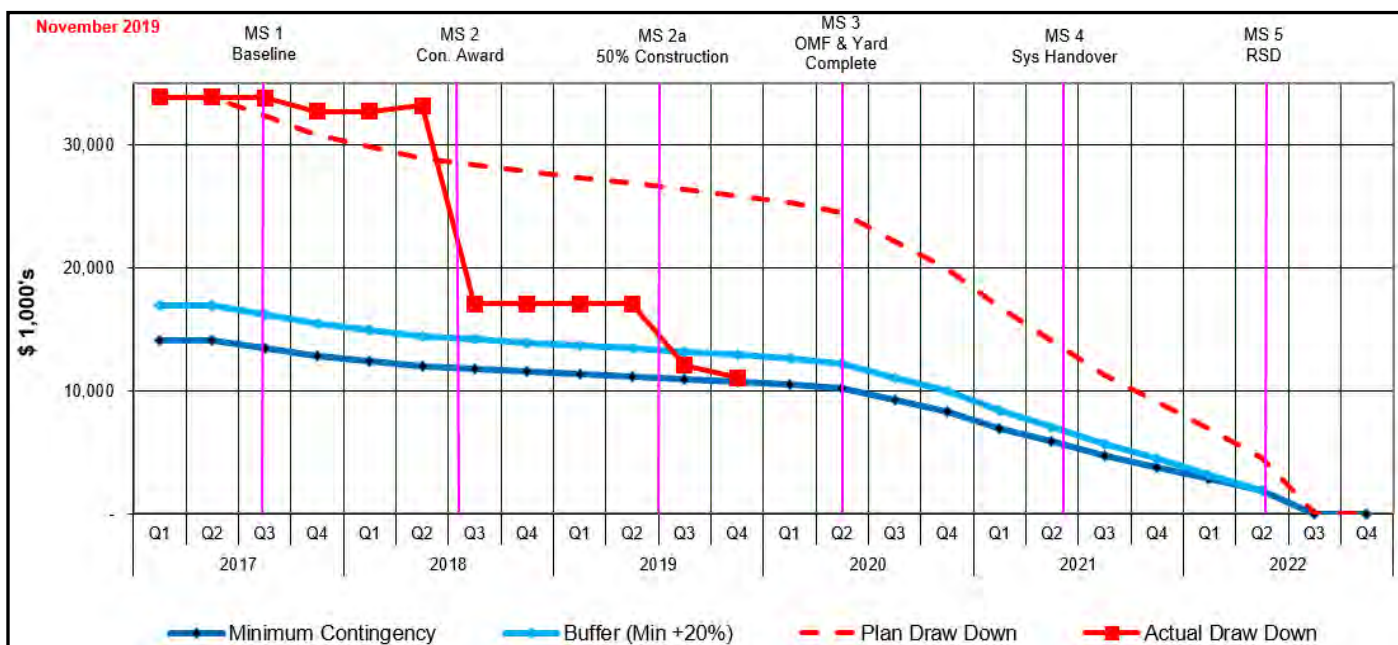
Type	Baseline		Current	
	Amount	% of Total	Amount	% of Work
Design Allowance	\$4.2	2.2%	\$0.0	0.0%
Allocated Contingency	\$13.5	6.8%	\$4.5	3.8%
Unallocated Contingency	\$16.1	8.2%	\$6.6	5.5%
<b>Total</b>	<b>\$33.9</b>	<b>17.2%</b>	<b>\$11.1</b>	<b>9.3%</b>

Table figures are shown in millions.

### Contingency by Type Histogram (\$ Millions)



### Contingency Drawdown (Quarterly)





# Link Light Rail Hilltop Tacoma Link Extension



## Project Schedule

The Master Schedule has been updated through the end of November 2019.

**LRV:** The LRV procurement contractor has completed milestone: Preliminary Design Review #2, Final Design Review (FDR) completion is forecasted to be held in 2nd QTR 2020. Forecast delivery of the first car arriving in 4th QTR 2020 and last car in 2nd QTR 2021. The contractor schedule is projecting all cars will be delivered in time to support pre-revenue service startup in 3rd QTR 2021.

**T100:** Construction Schedule MS#2 Substantial Completion of all work has slipped from May 2021 to September 2021. Per the last approved schedule (June 2019), the slip is due to design issues and differing site conditions causing delays in the installation of track.

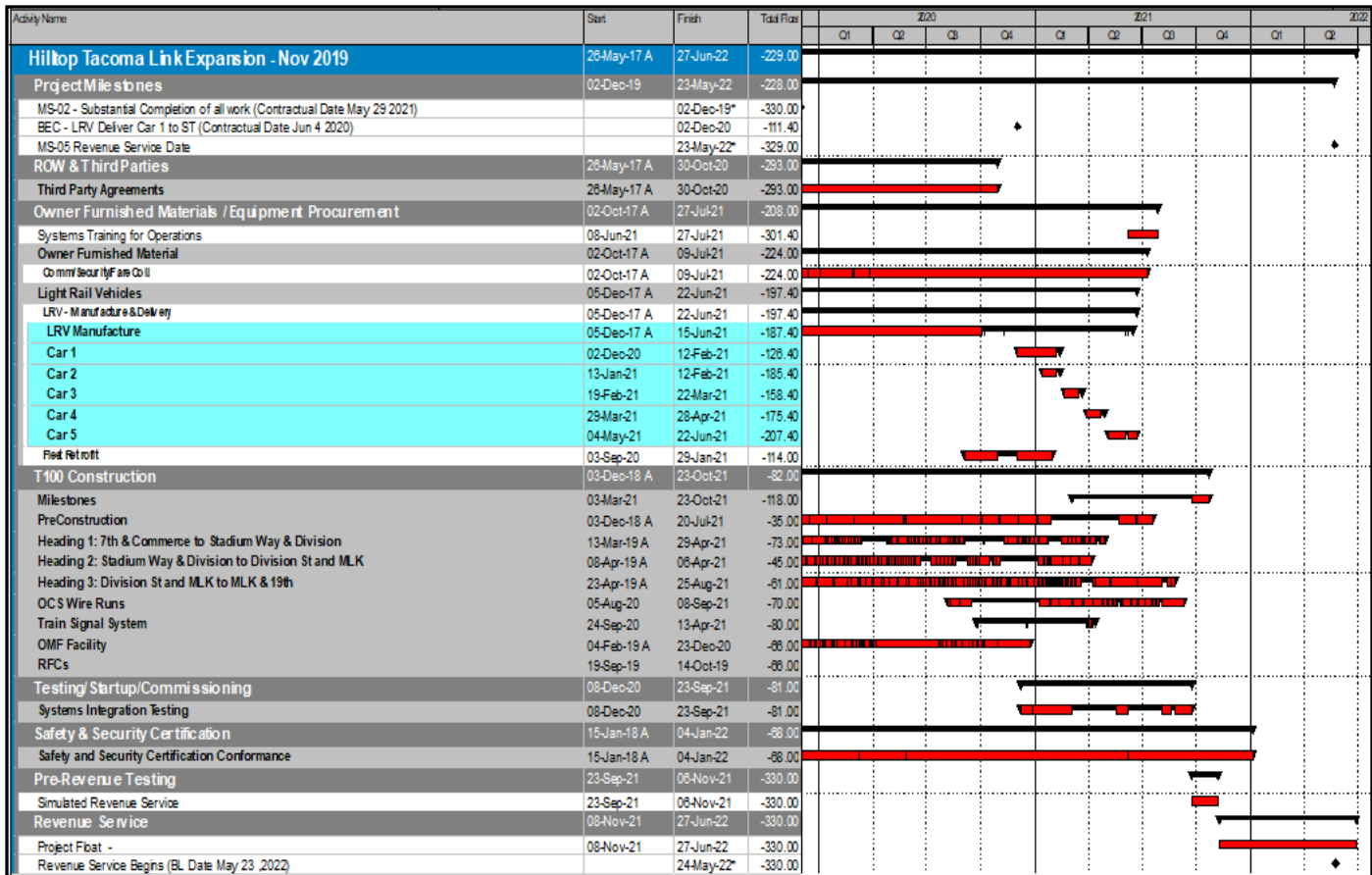
Over all Physical % Complete is 48%

Activity Name	Start	Finish	2020			
			Q1	Q2	Q3	Q4
<b>Hilltop Tacoma Link Expansion - Nov 2019</b>	02-Feb-15 A	23-May-22				
<b>Project Milestones</b>	28-Sep-17 A	23-May-22				
MS-01 - Project Baseline		28-Sep-17 A				
MS-02 - Construction Contract Award		27-Aug-18 A				
MS-03 - Submit Design & Delivery Schedule for the Automatic Vehicle Locator		21-Nov-18 A				
BEC - LRV Deliver Car 1 to ST (Contractual Date Jun 4 2020)		02-Dec-20				
BEC - LRV Deliver Car 2 to ST (Contractual Date Aug 4 2020)		13-Jan-21				
BEC - LRV Deliver Car 3 to ST (Contractual Date Sep 4 2020)		19-Feb-21				
MS-01 - OMF & Yard Complete (Contractual Date Nov 21 2020)		03-Mar-21				
BEC - LRV Deliver Car 4 to ST (Contractual Date Oct 4 2020)		29-Mar-21				
MS-04 - Systems Handover		14-Apr-21				
BEC - LRV Deliver Car 5 to ST (Contractual Date Nov 4 2020)		04-May-21				
MS-02 - Substantial Completion of all work (Contractual Date May 29 2021)		23-Sep-21*				
MS-05 Revenue Service Date		23-May-22*				
Preliminary Engineering	02-Feb-15 A	04-Nov-18 A				
Final Design	04-Jan-18 A	31-May-18 A				
ROW & Third Parties	01-Oct-15 A	30-Oct-20				
Owner Furnished Materials / Equipment Procurement	16-Mar-16 A	27-Jul-21				
Construction Contract Procurement	23-Jan-18 A	27-Jul-18 A				
<b>T100 Construction</b>	29-Jun-18 A	23-Oct-21				
<b>Milestones</b>	29-Jun-18 A	23-Oct-21				
PreConstruction	09-Aug-18 A	18-Oct-21				
Heading 1: 7th & Commerce to Stadium Way & Division	15-Oct-18 A	20-Jul-21				
Heading 2: Stadium Way & Division to Division St and MLK	23-Oct-18 A	24-Jun-21				
Heading 3: Division St and MLK to MLK & 19th	15-Oct-18 A	25-Aug-21				
OCS Wire Runs	05-Aug-20	08-Sep-21				
Train Signal System	24-Sep-20	13-Apr-21				
OMF Facility	29-Aug-18 A	09-Apr-21				
RFCs	19-Sep-19	14-Oct-19				
Provisional Sums	03-Dec-18 A	20-Oct-21				
Weather Days	04-Feb-19 A	01-Mar-19 A				
Testing/Startup/Commissioning	03-Nov-20	23-Sep-21				
Safety & Security Certification	02-Feb-15 A	04-Jan-22				
<b>Pre-Revenue Testing</b>	23-Sep-21	06-Nov-21				
Simulated Revenue Service	23-Sep-21	06-Nov-21				
Revenue Service	31-Oct-19	23-May-22				
Revenue Service Begins (BL Date May 23 ,2022)		31-Oct-19*				
Project Float	08-Nov-21*	23-May-22				

## Critical Path Analysis

The analysis for November 2019 shows dual critical paths. The first critical path runs through the T100 contract with the completion of wet utilities in Heading 1, 2B and 3. Followed by installation of inbound/outbound track for each of the headings. The second critical path is the delivery of the LRVs to the OMF, followed by completing the burn in testing required for pre-revenue service.

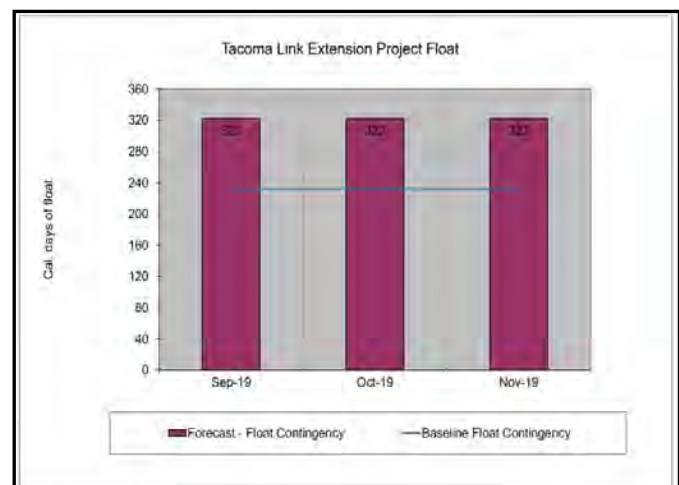
The contractor is still working on a project completion schedule to show the resequencing of the remaining work in order to achieve the MS #2 Substantial Completion in 2nd QTR 2021.



## Project Float

Hilltop Tacoma Link Extension was baselined with 232 days of project float. Current forecast for HTLE are now reporting 322 days of project float before Revenue Service on May 23, 2022.

RFC #148 Request for a time extension due to differing site conditions and design issues are still being negotiated with contractor and have not been reflected in the current project float drawdown.



# Link Light Rail

## Hilltop Tacoma Link Extension



### Right-of-Way

The Hilltop Tacoma Link Operations and Maintenance Facility will expand to the east and five new vehicles will be purchased. The Right-of-Way effort for this project involved the acquisition of a range of property interests which includes compensable (e.g. fee acquisitions, guideway easements, permanent and temporary construction easements) and non-compensable rights (e.g. rights of entry). These acquisitions resulted in owner and tenant residential and commercial relocations. The following table summarizes the Right-of-Way program status for this period. All project property acquisitions are complete.

Tacoma Link Extension Property Acquisition Status					
ACQUISITION				RELOCATION	
Total Acquisitions	Board Approved	Offers Made to date	Closings to date	Relocations Required	Relocations Completed to date
20	20	20	20	1	1

\* All numbers are cumulative totals, except where noted. Number of totals may differ from other reports due to the timing of reporting periods.

### Community Outreach

- Met with the Old City Hall Renovation project team to start coordinating our two projects, including sharing information about schedules, construction on the adjacent streets, access and deliveries.
- Met with CHI Franciscan to discuss rail welding on MLK Jr. Way near St. Joseph Hospital. They appreciated the information and did not express concerns with the work.
- Coordinated with MultiCare on construction on MLK Jr. Way between Division Ave and 3rd St., including informing them of a Puget Sound Energy gas line that would be moved in this area and potential impacts. Continued coordinating with MultiCare on the jack-and-bore operations. Provided 13 custom signs to direct pedestrians and drivers.
- Obtained input from businesses on N. 2nd St. and I St. about the possibility of the contractor doing utility work in this area during the holiday moratorium. While the businesses agreed, the contractor decided to wait until after the holidays.
- Notified the residents and Stadium High School about the concrete pour on Stadium Way that would block their lower driveway.
- Informed businesses in the Stadium District about OCS foundations work.
- Produced and distributed notification about the Division Ave and I St. intersection closure, rail welding on Martin Luther King Jr. Way, and Division Ave and K St. intersection closure.
- Produced and distributed weekly alerts about traffic impacts.
- Coordinated with the Hilltop Action Coalition and Tacoma Public Utilities on articles about the HTLE project in their publications.
- Attended Downtown on the Go's annual luncheon.
- The contractor accommodated residents' request to open up parking on MLK Jr. Way between S. 17th St. and S. 18th St. during the Thanksgiving weekend. Coordinated with the contractor to avoid working near a funeral home on MLK Jr. Way during their services and to accommodate move-in/outs at a condo along Stadium Way.
- Attended the HTLE stakeholder outreach meeting with the City and community organizations. We discuss ways to share information about the HTLE project and encourage customers to keep patronizing businesses along the route.
- Continued working with Communications to feature Hilltop and Stadium businesses in the Loyal to the Local campaign.
- The contractor agreed to sponsor the Dickens Festival in the Stadium Business District. The event is on Dec. 14 from noon to 5 p.m.
- Provided feedback on the murals that SpaceWorks will produce and install along the HTLE route.

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# Link Light Rail Hilltop Tacoma Link Extension



## Sound Transit Board Actions

Board Action	Description	Date
	None to report this period.	

## Construction Safety

Data/ Measure	November 2019	Year to Date	Project to Date
Recordable Injury/Illness Cases	0	2	3
Days Away From Work Cases	0	0	0
Total Days Away From Work	0	0	0
First Aid Cases	1	7	8
Reported Near Mishaps	0	5	12
Average Number of Employees on Worksite	183	-	-
<b>Total # of Hours (GC &amp; Subs)</b>	14,426	116,722	128,535
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	0.00	3.43	4.67
LTI Rate	0.00	0.00	0.00
Recordable National Average	3.10		
LTI National Average	1.20		
Recordable WA State Average	6.00		
LTI WA State Average	1.90		

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



## Contract T100 — Hilltop Tacoma Link Extension

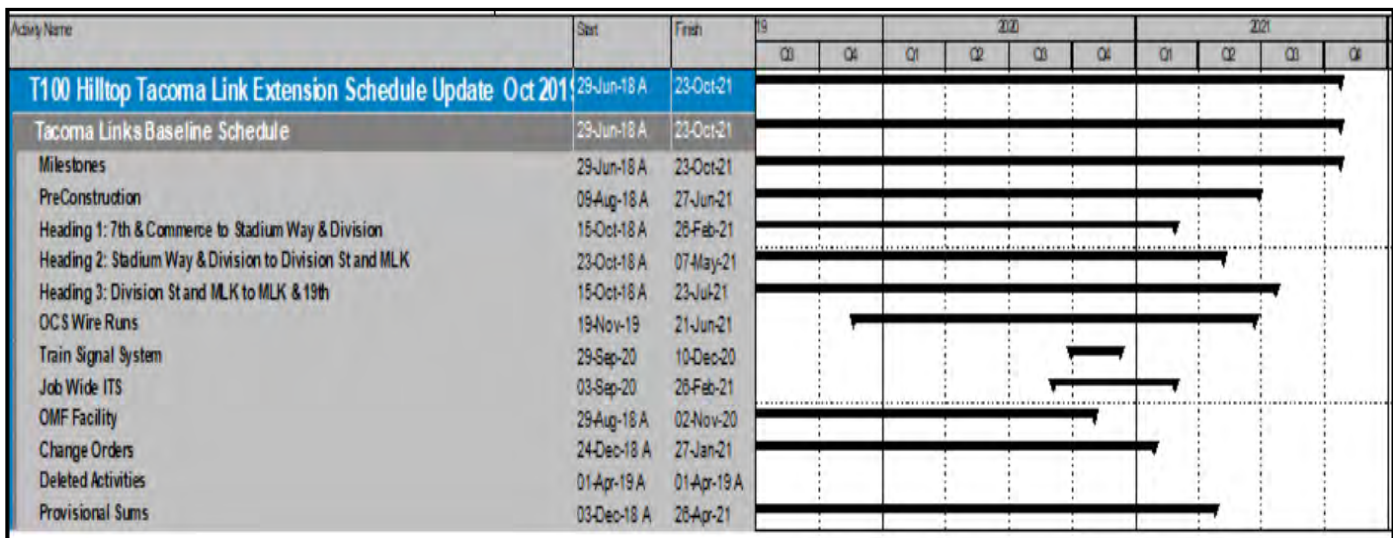
### Current Progress

The T100 Contractor, Walsh Construction Company II, LLC, is continuing OMF and Mainline work at grade.

- Heading 1 - Poured outbound track slab and started installing rail .
- Heading 2B - Installation of systems duct bank at intersection of Division and Yakima is complete.
- Heading 3 - Started Jack and Bore work in Heading 3 for storm and sewer.
- OMF - Installed steel stairs and steel canopies, welding of precast panels. Began interior framing and rough-in at second floor and exterior wall framing.

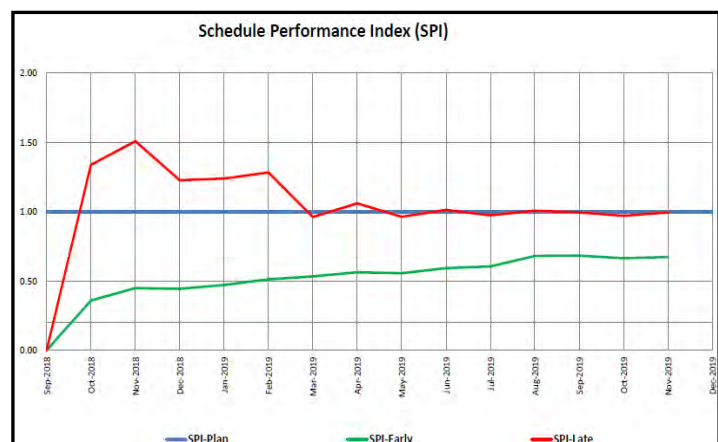
### Schedule Summary

The schedule update for November 2019 is not available. The project forecast completion schedule is still in process, awaiting the contractor schedule which will be submitted in December 2019. The December contractor schedule will incorporate the comments generated from the two T100 schedule workshop review meetings between Sound Transit, City of Tacoma and contractor.



### Schedule Performance Index

This period, the SPI-early stayed the same at .67 and the SPI-late slightly increased to 1.00. The early index indicates that the contractor continues to perform behind the plan when compared to the baseline schedule. Based on the current trends there is a high likelihood of schedule impacts to the current T100 contract milestones.



# Link Light Rail Hilltop Tacoma Link Extension

## Next Period's Activities

- Heading 1— Start OCS cantilever pole installation. Continue Outbound track slab and rail installation. Complete systems duct bank installation and backfill.
- Heading 2B - Limited work due to Holiday moratorium. Continuing with storm drain work and underground electrical work at crossings.
- Heading 3- Limited work due to Holiday moratorium. Continuing with water main work on MLK between 6th and 11th Street. Continue rail welding between 16th and 19th Street.
- OMF: Installation of underground electrical at NE corner of the yard, continue wall framing /sheeting and complete pre-cast panel installation.

## Closely Monitored Issues

- Working with Contractor to develop a realistic schedule to forecast project completion. Review meetings have been held between Contractor, ST and City of Tacoma to establish assumptions and improve schedule efficiencies.
- The third party utility relocations (Tacoma Public Utility, CenturyLink and PSE) appear to have little impact on the T100 contract schedule and the HTLE Contractor has shown flexibility in accommodating the remaining third party work through coordinated sequencing. ST construction management continue to monitor for potential cost and schedule impacts.
- Notifications to the community are critical in providing advance notice of upcoming construction activities. Business mitigation efforts are underway to support businesses impacted by construction activities. Community Outreach staff are managing this effort with the support of Contractor, City of Tacoma and ST field staff.
- Work at 9th and Commerce requires a planning workshop which will be held in January 2020. Participants will include ST (including Operations), City of Tacoma and Contractor.

## Cost Summary

Present Financial Status	Amount
<b>T100 Contractor— Walsh Construction Company</b>	
Original Contract Value	\$ 108,295,000
Change Order Value	\$ 4,460,287
Current Contract Value	\$ 112,775,287
Total Actual Cost (Incurred to Date)	\$ 58,036,356
Percent Complete	48%
Authorized Contingency	\$ 943,583
Contingency Drawdown	\$ 4,460,287
Contingency Index	0.6



Floor Slab Preparation—OMF

## Contract RTA/RP 0014-16 — Tacoma Link Light Rail Vehicle (LRV) Procurement

### Current Progress

The Brookville Monthly Schedule Submittal is updated as of November 30, 2019.

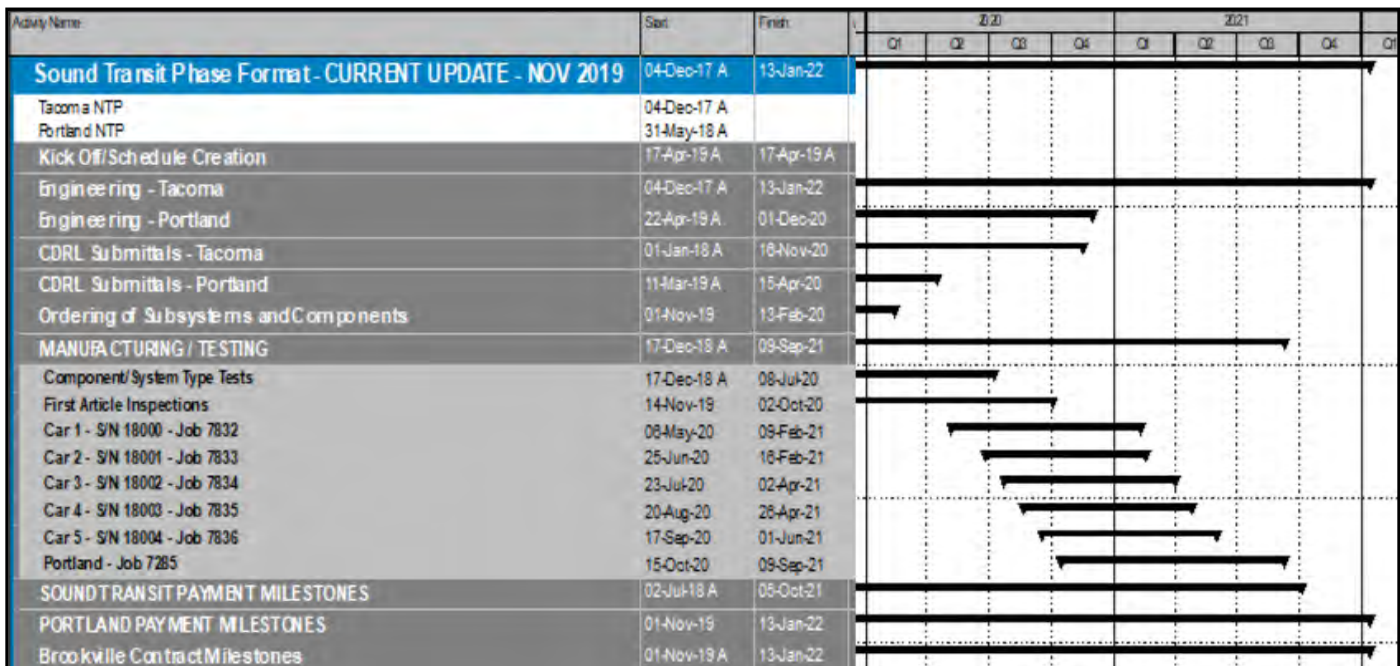
- Preliminary Design Review # 2 was held on Nov 18– 22 , 2019 at the Brookville facility.
- 105 CDRLS were required for PDR#2 and only 47% of CDRLS are conditionally approved or have been approved.
- Fire Tests reports from Valley Metro Project (Tempe) are being reviewed.

### Schedule Summary

The November schedule update indicates Brookville completed the milestone for Preliminary Design Review #2 on November 18 – 22, 2019. The Final Design Review (FDR) is forecasted for completion in 2nd QTR 2020. FDR forecasted completion falls ahead of building the end base of the car in the Fab Shop and Cut Shop. All First Article Inspections to be complete by October 2020.

Current Forecast indicate ship and delivery of the 1st car arriving to OMF in Tacoma will begin in December 2020. Approximately six weeks later the 2nd car will arrive in late January 2021. Car 3 arriving in February 2021, Car 4 arriving in March 2021 and the final Car 5 in May 2021.

Onsite Testing for the 1st car will begin in late January 2021 and complete in June 2021. Contractor schedule is projecting all cars will still be delivered in time to support pre-revenue service startup in 3rd QTR 2021.





# Link Light Rail Tacoma Dome Link Extension

## Project Summary

### Scope

<b>Limits</b>	Federal Way Transit Center to South Federal Way, Fife, East Tacoma, and Tacoma Dome
<b>Alignment</b>	The Tacoma Dome Link Extension expands light rail 9.7 miles from the Federal Way Transit Center to Tacoma. The representative alignment travels adjacent to I-5 with four stations.
<b>Stations</b>	South Federal Way, Fife, and East Tacoma (elevated stations) and Tacoma Dome (at-grade station)
<b>Systems</b>	Signals, traction power, communications (SCADA), Operations and Maintenance Facility South (OMF South)
<b>Phase</b>	Planning: Alternative Development
<b>Budget</b>	\$125.7 Million for Preliminary Engineering Phase 1—Alternative Development
<b>Schedule</b>	Revenue Service: December 2030



Map of Tacoma Dome Link Extension.

## Key Project Activities

- Advanced the alternative designs for the Tacoma Dome Station and attended Tacoma City Council briefing.
- Held Environmental Impact Statement (EIS) Review process workshop with FTA Region 10 staff to prepare for review and processing of TDLE Draft EIS in 2020.
- Continued developing workplans and traffic control plans, which will be used for obtaining permits from the Authorities Having Jurisdiction (AHJs). Work consisted of contacting each AHJ for the purpose of obtaining permit requirements.
- Thirty-five borings have been identified for environmental clearance, for which workplans will be developed for the purpose of securing permits.
- Prepared for and attended meetings with the cities of Fife, Milton, Federal Way, and Tacoma as well as WSDOT.
- Executed Task Order #2 and Task Order #3 with the City of Federal Way.
- Convened meeting with WSDOT and ST staff to discuss Portland Avenue / I-5 Underpass Agreement.

## Project Cost Summary

The Tacoma Dome Link Extension and OMF South 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.

Project cost and monthly expenditures are trending lower than planned monthly budget but the current forecast is on track for completing this phase within the authorized budgeted amount.

### Cost Summary by Phase

Project Phase	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$26.8	\$6	\$5.7	\$26.8	\$0.0
Preliminary Engineering	\$87.1	\$47.3	\$13.1	\$87.1	\$0.0
Final Design	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Construction Services	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
3rd Party Agreements	\$5.8	\$1.1	\$0.3	\$5.8	\$0.0
Construction	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$6.0	\$0.4	\$0.0	\$6.0	\$0.0
<b>Total</b>	<b>\$125.7</b>	<b>\$54.8</b>	<b>\$19.1</b>	<b>\$125.7</b>	<b>\$0.0</b>

### Cost Summary by SCC

SCC Element	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation 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	\$5.0	\$0.4	\$0.0	\$5.0	\$0.0
80 Professional Services	\$110.9	\$54.4	\$19.1	\$110.9	\$0.0
90 Unallocated Contingency	\$9.8	\$0.0	\$0.0	\$9.8	\$0.0
<b>Total (10 - 90)</b>	<b>\$125.7</b>	<b>\$54.8</b>	<b>\$19.1</b>	<b>\$125.7</b>	<b>\$0.0</b>



# Link Light Rail Tacoma Dome Link Extension



## Risk Management

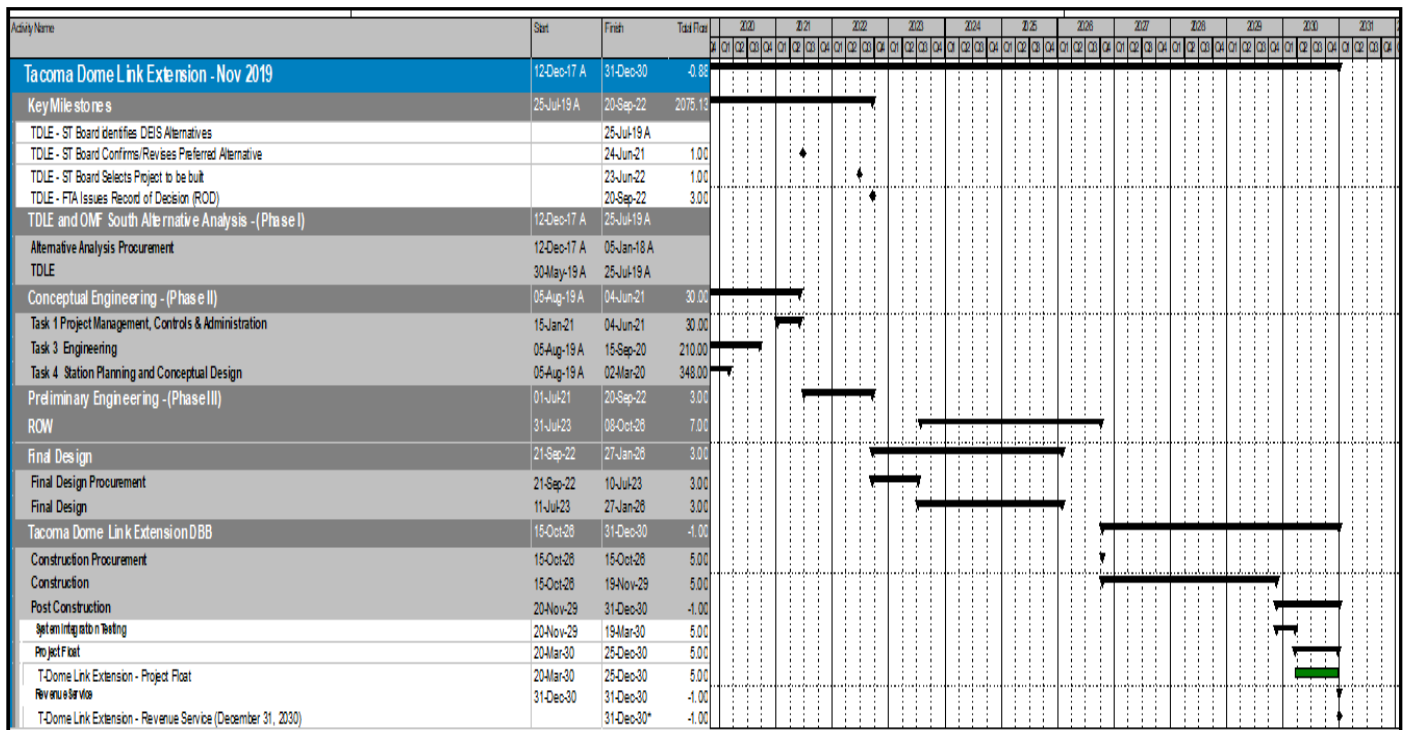
The Tacoma Dome Link Extension and OMF South Risk and Contingency Management Plan (RCMP) will establish a risk management and oversight process for identifying, assessing, and monitoring risks and develops risk reduction/mitigation plans. It will provide a tool for the project team to proactively manage 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 3rd QTR 2019 risk review workshop was held in September. The following are the top project wide risks:

- Preferred alignment cost is greater than the ST3 budgeted project cost may cause the project to delay.
- OMF South cost is greater than the ST3 budgeted project cost may cause the project to delay.
- OMF South can not be built in time for ST3 vehicle schedule.
- Lack of federal funding for public transit projects could delay the project.
- Puyallup Tribe may take longer than planned to provide cultural resources and/or fisheries, stormwater mitigation approvals.

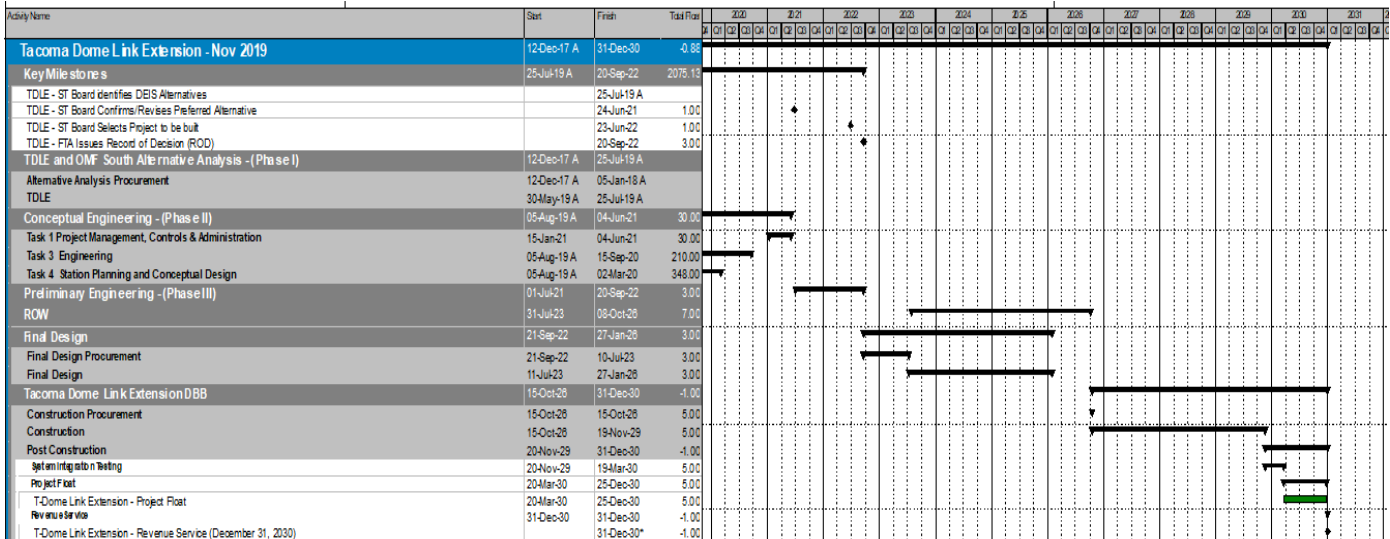
## TDLE Project Schedule

Below is the HDR consultant detailed schedule as of November 30, 2019. The schedule indicates the Draft EIS publication completion in 1st QTR 2021 with ST Board Confirms/Revises Preferred Alternative in 2nd QTR 2021. Final EIS publication shows completion in 2nd QTR 2022. FTA issuance of the Record of Decision expected in 3rd QTR 2022. Revenue Service is targeted for December 31, 2030.



## OMF South Project Schedule

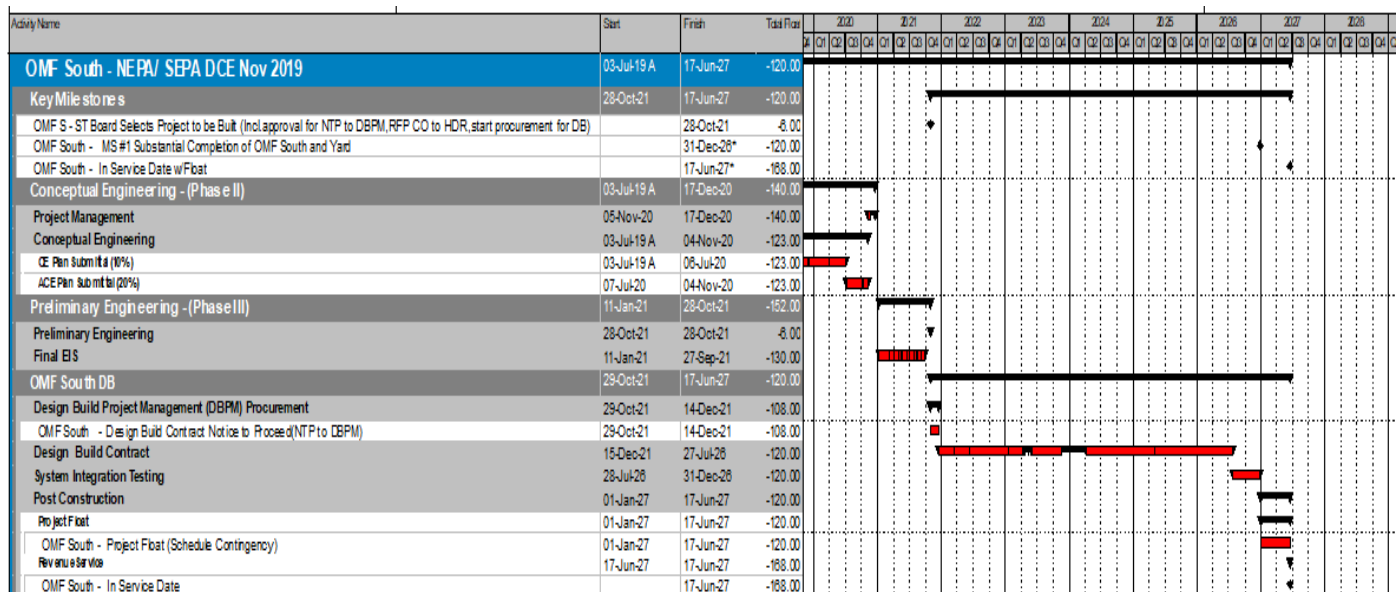
Below is the summary schedule as of November 30, 2019. The schedule indicates OMF South is in the Conceptual Engineering phase now and Final SEPA EIS with NEPA DCE will be published in 3rd QTR 2021. ST Board Selects Project to be Built 4th QTR 2021 after Preliminary Engineering is completed. The milestone, Substantial Completion of the OMF South and Yard, is targeted for December 2026 to receive the ST3 Light Rail Vehicle cars and perform burn-in testing to support TDLE Revenue Service in December 31, 2030.



## Critical Path Analysis

The critical path for the overall TDLE program continues to run through OMF South portion of the project. OMF South must complete conceptual engineering and environmental to produce the Draft EIS. The critical path then continues through the project life cycle of conceptual, preliminary design, final design, permitting, Right-of-Way acquisition, and construction to meet a target substantial completion of December 2026.

Final OMFS Strategy Meeting was held in November 2019. Findings from all the workshops will be used to determine the best project procurement method to be used in order to meet the substantial completion target 2026 .



# Link Light Rail Tacoma Dome Link Extension



## Community Outreach

- TDLE – Conducted stakeholder interviews with the Salishan Association (11/4) and with St. Paul Chong Hasang Church (11/8).
- TDLE – Conducted field visits to Freighthouse Square businesses (11/8 & 11/22).
- TDLE - Provided community updates to the New Tacoma Neighborhood Council (11/13), Eastside Neighborhood Council (11/18) and South Tacoma Neighborhood Council (11/20).
- TDLE – Hosted drop-in session at Starbucks in Milton (11/20), Evergreen State College, Tacoma Campus (11/20), Poodle Dog in Fife (11/21) and Dome District association (11/14).
- TDLE – Participated in Downtown on the Go’s annual lunch event (11/15)
- OMFS – Hosted drop-in session at Highline College in coordination with the FWLE open house (11/13), Fred Meyer in Kent (11/19)
- TDLE/OMFS – Hosted drop-in sessions at the Federal Way Library (11/16), Federal Way Performing Arts and Events Center (11/20) and conducted field visits to businesses in South Federal Way and the Tacoma Dome area (11/25).
- TDLE/OMFS – Conducted stakeholder interview with Hopelink’s South King County Mobility Coalition (11/25).

## Sound Transit Board Actions

Board Action	Description	Date
	None to report	

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# Link Light Rail

## Link Operations & Maintenance Facility: East

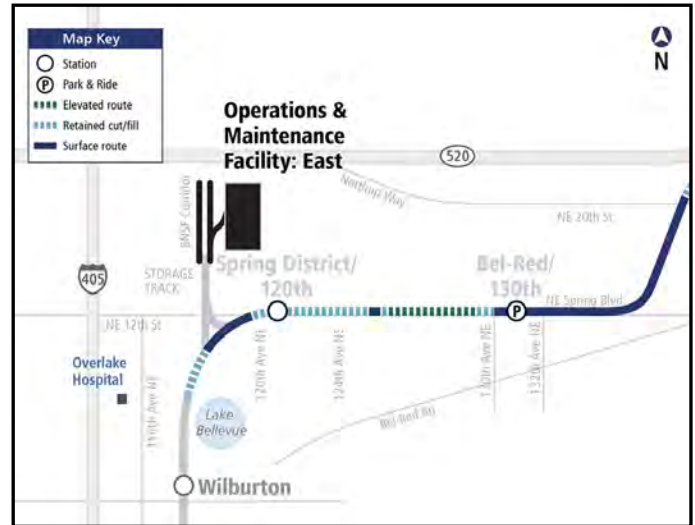
### Project Summary

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

**Phase** Proceed to Construction

**Budget** \$449.2 Million (Baselined July 2016)

**Schedule** Project Completion: December 2020



Map of OMF East Site

### Key Project Activities

- OMF East building continues with overhead rough-in, HVAC, cladding, sprinkler and roofing installation.
- Maintenance of Way (MOW) building continues with exterior metal framing, fire suppression and roofing installation.
- Ballasted track assembly in the north and sound runaround.
- Skeletonizing of stand track, pre-curved, and special track in the south and north storage fan.
- Continued Thermo welding throughout the ballasted tracked.

### Closely Monitored Issues

- Monitoring commissioning and testing in support of project transition to Operations.
- Monitoring LRV delivery rate and storage capacity at the existing OMF Central.



### Project Cost Summary

The Baseline Budget (July 2016) for the OMF East is \$449.2M. The OMF East cost is summarized into two cost tables. The first table is in accordance with Sound Transit's Work Breakdown Structure (WBS) displaying the cost summary by phase. The second table summarizes project cost by SCC, in accordance to the FTA Standard Cost Categories (SCC) format. Both tables show figures in millions.

The Estimated Final Costs (EFC) continues to be projected at approximately \$449.2M. This period's expenditure of about \$9.7M. The total project cost incurred increased from \$266.4M to \$278M. The primary cost drivers during this period on the OMF East project comes from the design build (construction) phase at \$10.9M or roughly 94% of the total monthly expenditures. The next cost driver this period are the Construction Services and Administrative Phase (predominantly staff cost) expenditures at about \$521K and \$194K respectively.

### Cost Summary by Phase

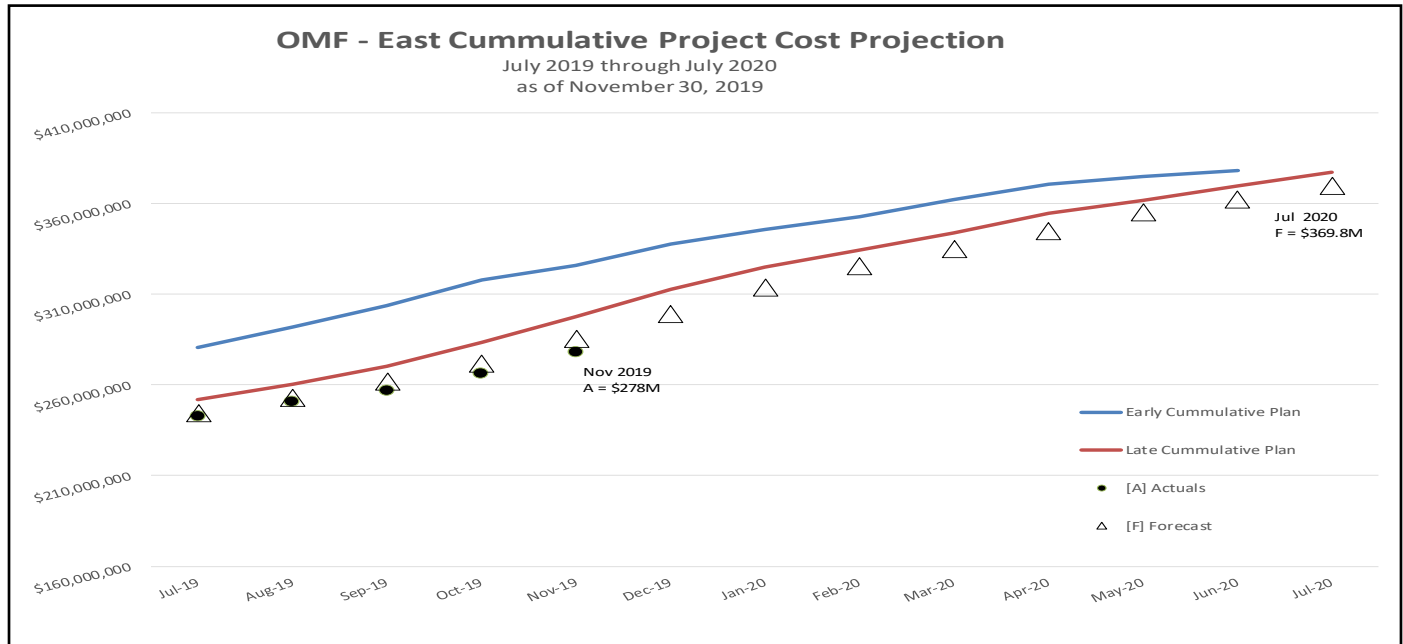
Project Phase	Baseline Budget	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$17.6	\$17.6	\$6.5	\$6.5	\$17.6	\$0.0
Preliminary Engineering	\$9.5	\$9.5	\$9.0	\$8.7	\$9.5	\$0.0
Final Design	\$0.4	\$0.4	\$0.0	\$0.0	\$0.4	\$0.0
Construction Services	\$19.3	\$19.3	\$17.5	\$9.3	\$19.3	\$0.0
3rd Party Agreements	\$3.1	\$3.1	\$0.3	\$0.1	\$3.1	\$0.0
Construction	\$264.8	\$264.8	\$225.5	\$151.0	\$264.8	\$0.0
ROW	\$134.5	\$134.5	\$102.7	\$102.5	\$134.5	\$0.0
<b>Total</b>	<b>\$449.2</b>	<b>\$449.2</b>	<b>\$361.5</b>	<b>\$278.0</b>	<b>\$449.2</b>	<b>\$0.0</b>

### Cost Summary by SCC

SCC Element	Baseline Budget	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
10 Guideway & Track	\$2.6	\$4.4	\$4.1	\$2.5	\$4.1	\$0.3
20 Stations	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
30 Support Facilities: Yard, Shop	\$140.1	\$136.1	\$125.8	\$85.9	\$146.2	-\$10.1
40 Sitework & Special Conditions	\$43.6	\$48.5	\$40.1	\$24.0	\$43.1	\$5.4
50 Systems	\$43.0	\$41.6	\$39.0	\$23.3	\$39.0	\$2.6
<b>Construction Subtotal (10 - 50)</b>	<b>\$229.3</b>	<b>\$230.6</b>	<b>\$209.0</b>	<b>\$135.6</b>	<b>\$232.4</b>	<b>-\$1.8</b>
60 ROW, Land, Improvements	\$134.5	\$134.5	\$102.7	\$102.5	\$134.5	\$0.0
70 Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
80 Professional Services	\$71.6	\$70.3	\$49.8	\$39.9	\$68.5	\$1.8
90 Unallocated Contingency	\$13.8	\$13.8	\$0.0	\$0.0	\$13.8	\$0.0
<b>Total (10 - 90)</b>	<b>\$449.2</b>	<b>\$449.2</b>	<b>\$361.5</b>	<b>\$278.0</b>	<b>\$449.2</b>	<b>\$0.0</b>

### Project Cash Flow Projection

The OMF East cost projection is trending late this period but anticipates to pick up through the following summer. Total project expenditure incurred to date at approximated \$278M with Construction Phase at 54.3% and Right-of-Way (ROW) phase at 38%. Construction activities is now the main cost driver. The forecasted cash flow was revised this period for the next nine months to reflect some current trends. While the Design Builder's (DB) design completion slipped and impacted specifically on Systems where some anticipated procurements did not occur as planned, construction has certainly picked up on yard tracks and structural steel installations. The project expenditure continues to trend a projection of \$369.8M by July 2020 which is at the lower bounds of the late planned expenditures as shown in the graph below.



### Risk Management

The 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.

The project has completed Risk Mitigation Milestone (RMS) 2, the completion of ROW Acquisition and Mass Grading. The Quantitative Risk Assessment (QRA) assessed that with the current risk profile, the project would complete within the baseline schedule and budget. QRA for RMS 3, the completion of building enclosure, is taking place in December 2019. The current top actively managed risk areas remains similar to the previous quarter and are listed below:

- **Design:** As the project approaches the 100% design milestone, changes made to scope or design will have greater cost impact than during the earlier design stages.
- **Scope:** Scope interfaces with East Link (E335/E750) tracks, OCS, Signals, LRV vehicle envelop, Operations' requirement changes creates additional work impacts the project's schedule and budget.
- **Construction:** As the construction progress past the midpoint, normal and routine construction risks will be encountered and post-IFC change to design may also drive cost growth to the project. Safety and environmental compliance is another area to monitor especially as the wet season begins.
- **Start Up:** As the project progress, it is inevitable that the startup phase needs to be address early. This facility will need coordination for testing and acceptance of ST Operations.

### Contingency Management

The Link Operations and Maintenance Facility: East was baselined and approved by Sound Transit Board in July 2016 with a total contingency of \$93.2M. The Project's starting contingency balance as of the Notice to Proceed for Construction was \$71.6M reflecting the inclusion of the Design Allowance in the Design Builder contract amount. In this period, change orders were related to various construction scope. The current contingency balance remains materially unchanged at approximately \$66.9M (previous period at \$67.1M).

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

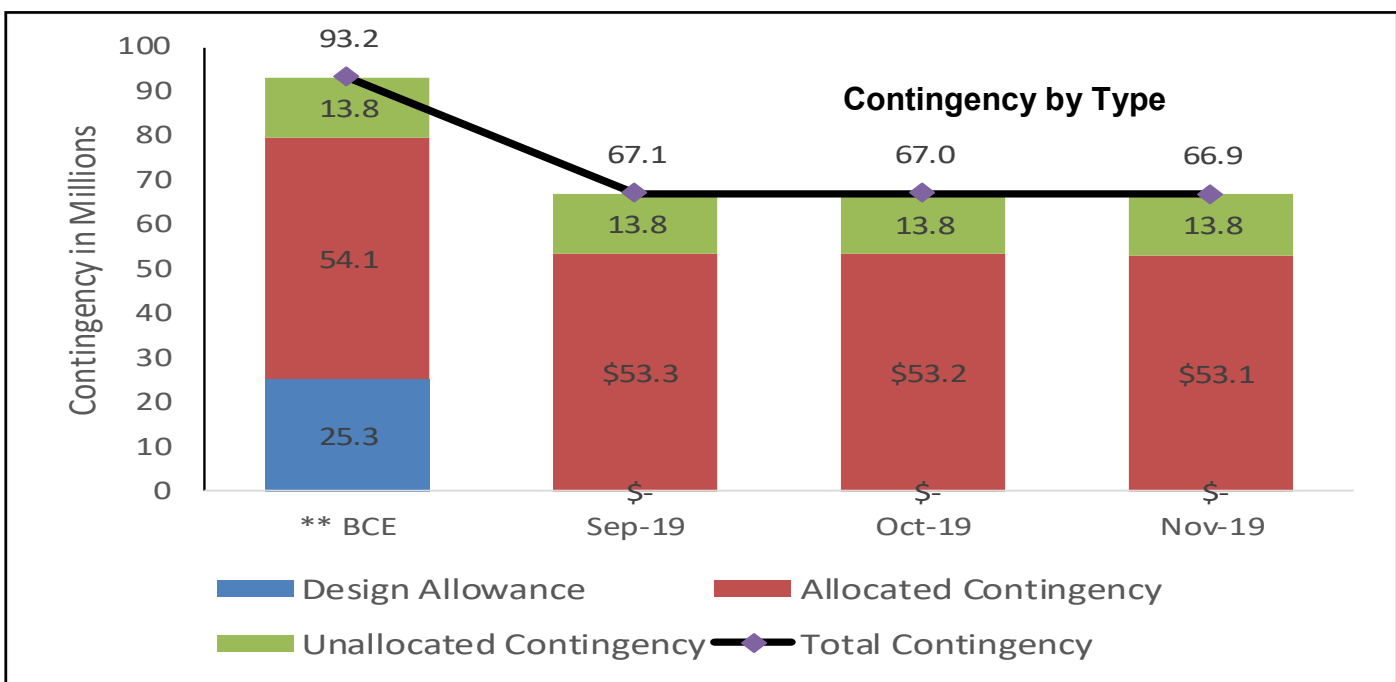
**Allocated Contingency (AC)** is used to address risks, complexity and unforeseen conditions during the execution of work, including procurement. Allocated contingency balance at the end of this period remains at \$53.1M (the previous period at \$53.3M).

**Unallocated Contingency (UAC)** is used to address general project-wide cost risks and uncertainties. The baseline UAC amount of \$13.8M reflects no changes this period.

### Contingency Status

Contingency Type	Baseline		Current	
	Amount	% of Total	Amount	% of Work Remaining
Design Allowance	\$ 25.3	5.6%	\$ -	0.0%
Allocated Contingency	\$ 54.1	12.0%	\$ 53.1	31.0%
Unallocated Contingency	\$ 13.8	3.1%	\$ 13.8	8.1%
<b>Total</b>	<b>\$ 93.2</b>	<b>20.7%</b>	<b>\$ 66.9</b>	<b>39.1%</b>

Table figures are shown in millions.

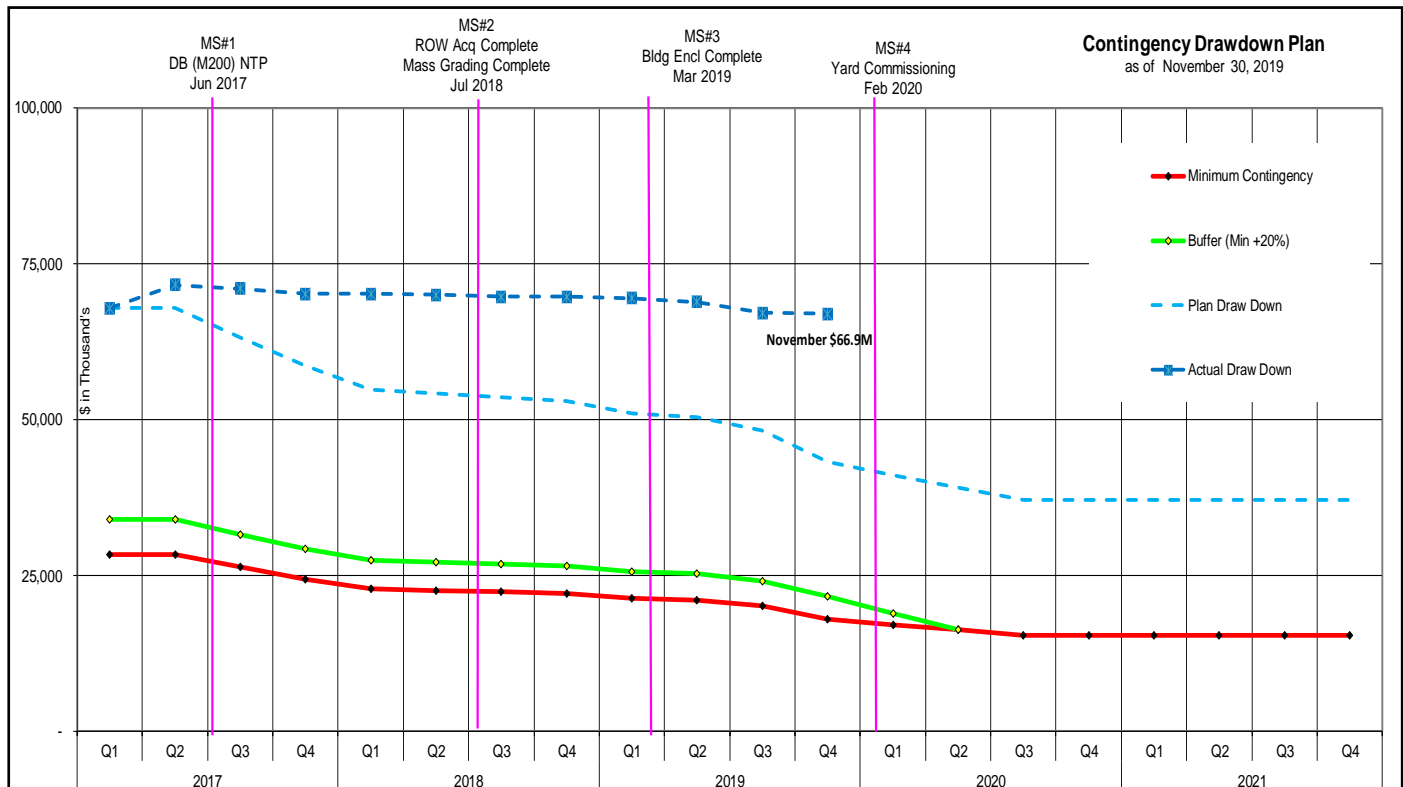


# Link Light Rail

## Link Operations & Maintenance Facility: East

### Contingency Drawdown

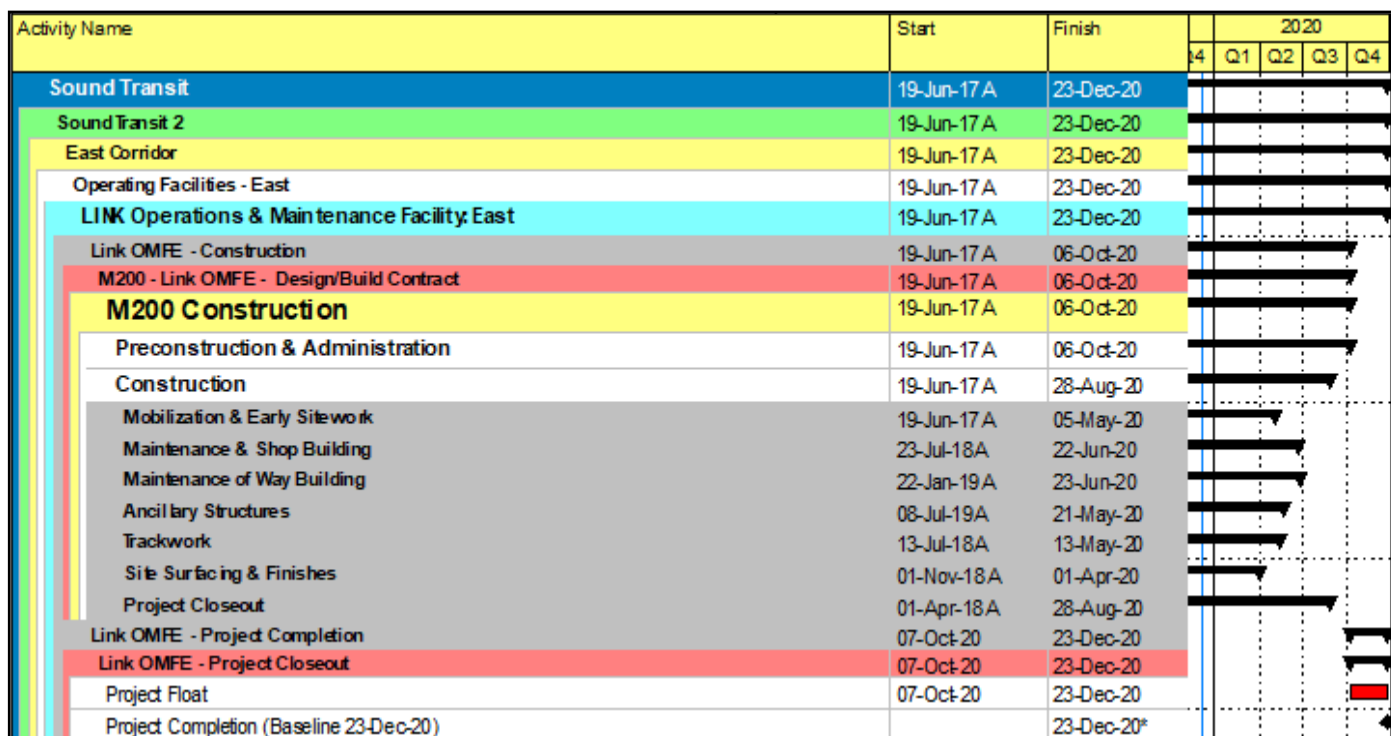
At the end of the 3rd QTR 2019, OMF East Project's total contingency drawdown plan is trending positively. Total contingencies balance is at approximate \$66.9M (previously quarter at \$67.1M) and remains above all the baseline draw down projection and well above both the minimum contingency and the buffered (minimum plus 20%) contingency levels. The next update will be at end of the 4th QTR 2019. Risk Mitigation Milestone #3 has been revised to be met in 4th QTR 2019.



OMF East looking north taking shape with yard scope and steel structure framing on November 30, 2019

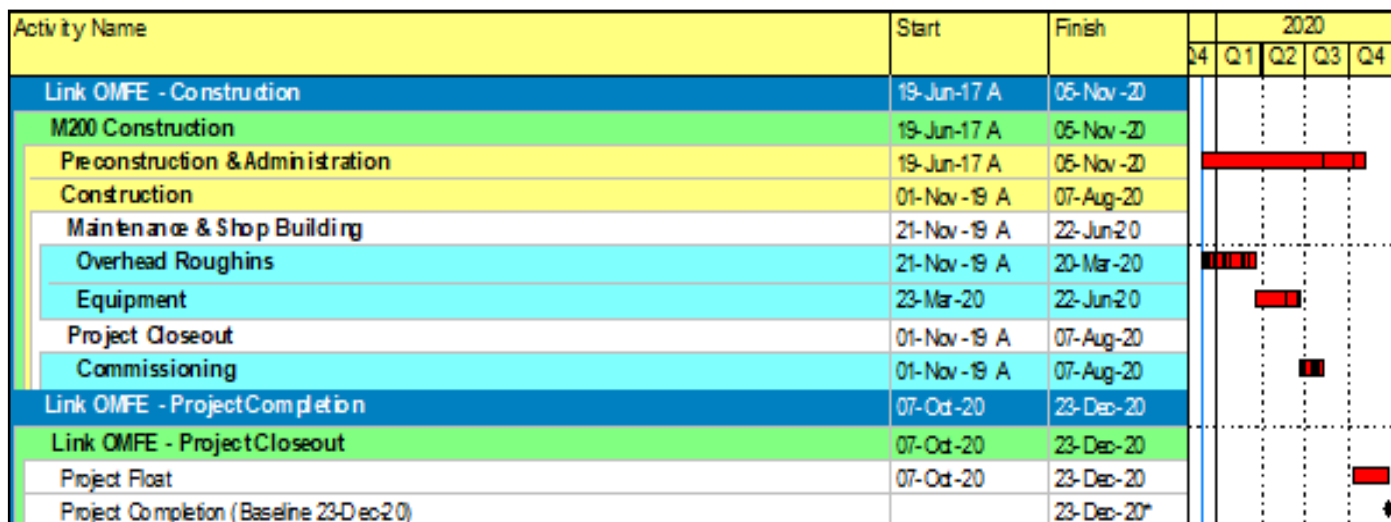
### Project Schedule

The schedule for OMF East is now entirely within the M200 contract, which is presented below. The Contractor continues to progress as planned and is forecast to complete on target. The OMF East is expected to be available to begin receiving LRVs as needed in the Summer 2020.



### Critical Path Analysis

The critical path continues to run through the shop area and equipment in the Maintenance & Shop Building, and then through building commissioning and project closeout.





# Link Light Rail

## Link Operations & Maintenance Facility: East



### Community Outreach

Coordinated the outreach for a two-day closure and detour of the East trail bicycle/pedestrian trail in Bellevue. Activities included coordination with Cascade Bicycle Club, the Seattle Bike Blog and on-site signage.

### Sound Transit Board Actions

Board Action	Description	Date
	None to report this period.	

### Construction Safety

Data/Measure	November 2019	Year to Date	Project to Date
Recordable Injury/Illness Cases	0	3	4
Days Away From Work Cases	0	2	2
Total Days Away From Work	0	31	31
First Aid Cases	0	5	8
Reported Near Mishaps	2	11	14
Average Number of Employees on Worksite	140	-	-
Total # of Hours (GC & Subs)	26,500	209,631	302,635
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	0.00	2.86	2.64
LTI Rate	0.00	1.91	1.32
Recordable National Average	3.00		
LTI National Average	1.20		
Recordable WA State Average	6.00		
LTI WA State Average	1.90		

### Contract M200 - OMF East Design Build

#### Current Progress

**Design:** Hensel Phelps (HP) advanced design package (DP) for DP05 currently being evaluated and expecting submission early next month.

**Construction:** HP skeletonized standard and pre-curved track continued in the storage track and south storage fan area. Ballasted track and switch assembly in the north runaround and maintenance fan. Interior overhead rough-ins continued with sprinkler installation, mechanical duct, interior wall framing and completed roof installation of dense deck at OMF. Continued second lift of CMU installation, fire suppression, and completed setting and insulating roof curbs for AHU units at MOW building.

#### Next Period's Activities

- Continue work at OMF East Building.
- Continue work at MOW Building.
- Continue installation of ballast and pre-track.
- Continue installation of OH rough-in and HVAC system.
- Continue roofing at MOW and OMF building.
- Completion of concrete pours.
- Systems work to begin.

#### Closely Monitored Issues

- PSE Delays at North Trail: PSE easement language has been received and is under review by Sound Transit.

#### Cost Summary

Present Financial Status	Amount
<b>M200 Contractor – Hensel Phelps</b>	
Original Contract Value	\$218,912,000
Change Order Value	\$5,773,892
Current Contract Value	\$224,685,892
Total Actual Cost (Incurred to Date)	\$148,784,882
Percent Complete	65.73%
Authorized Contingency	\$21,891,200
Contingency Drawdown	\$5,773,892
*Contingency Index	3.2

*\*Excludes Betterments*



*OMFE—Painting primer on unprimed steel members*

# Link Light Rail Light Rail Vehicle Fleet Expansion

## Project Summary

<b>Scope</b>	Design, manufacturing, assembly, inspection, testing and delivery of 152 low floor light rail vehicles for service requirements of Northgate, East Link and Lynnwood Link Extensions.
<b>Phase</b>	Manufacturing
<b>Budget</b>	\$740.7 Million (Baseline September 2015, Amended April 2017)
<b>Schedule</b>	Project Completion: 3rd QTR 2024



*Siemens' LRV on test track.*

## Key Project Activities

- Of the 21 design reports, 12 approved, 8 conditionally approved, 1 disapproved.
- Four LRVs received in Seattle during November 2019.
- System Safety Certification field audit by Talson Solutions LLC started on 11/18 through 11/21 .
- 26 cars in final assembly and 14 carshells in process at Siemens' facilities in Sacramento CA.
- Siemens is currently on par with their recovery schedule in terms of number of LRVs, delivered.

## Closely Monitored Issues

- High schedule risk for commissioning and burn-in of Siemens' LRVs until lift jacks issue is resolved.
- OMF Central yard storage capacity in 2020 may limit Siemens LRV delivery schedule; production progress is being monitored closely. Risk lower, shifting to 2021. LRVs delivery and transportation study between OMFC & OMFE based on updated schedule is in progress.
- High number of documents on Certifiable Items List (CIL) pending approval: Design (42%), Qualification (97%).



*Final Inspection on Car 220 in Sacramento, CA*



*Delivery of Car 222 at OMFC, Seattle, WA*

### Project Cost Summary

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

The project expenditure incurred to date is approximately \$163.6M to which a majority of the cost is attributed to the vehicles phase. The current period expenditure is approximately \$15.3M, where the majority cost is associated to LRVs of \$14.8M. The other incurred cost was attributed from engineering and inspection of \$277.4k and staff costs of \$121.1k.

#### Cost Summary by Phase

Project Phase	Baseline Budget	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$6.4	\$6.4	\$2.6	\$2.4	\$6.4	\$0.0
Construction Services	\$18.0	\$18.0	\$15.1	\$5.4	\$18.0	\$0.0
Vehicles	\$716.3	\$716.3	\$650.4	\$155.8	\$716.3	\$0.0
<b>Total</b>	<b>\$740.7</b>	<b>\$740.7</b>	<b>\$668.1</b>	<b>\$163.6</b>	<b>\$740.7</b>	<b>\$0.0</b>

#### Cost Summary by SCC

SCC Element	Baseline Budget	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation 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	\$702.8	\$704.8	\$665.6	\$161.2	\$704.8	\$0.0
80 Professional Services	\$6.1	\$6.1	\$2.6	\$2.4	\$6.1	\$0.0
90 Contingency	\$31.7	\$29.7	\$0.0	\$0.0	\$29.7	\$0.0
<b>Capital Total (SCC 10 - 90)</b>	<b>\$740.7</b>	<b>\$740.7</b>	<b>\$668.1</b>	<b>\$163.6</b>	<b>\$740.7</b>	<b>\$0.0</b>

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

### Risk Management

The 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. The project's qualitative risk register reflects 3rd Quarter of 2019, the meeting was held on November 8, 2019. The current top risk are listed below:

- Automatic Train Protection interface between ST1 vehicle ATP system and new ST2 vehicle ATP causing potential interface or functional problems.
- Special tools and test equipment that needs to be delivered and commissioned prior to LRV conditional acceptance.
- Quality issues in manufacturer documentation/workmanship delays safety certification and impacts recovery schedule.

# Link Light Rail Light Rail Vehicle Fleet Expansion



## Contingency Management

The project's budget was Baseline in September 2015 and was amended in April 2016 to exercise the option LRV contained a total of \$78.0M of Total Contingency. The project's Total Contingency is currently at \$68.9M or about 13.3 % of remaining work in the project.

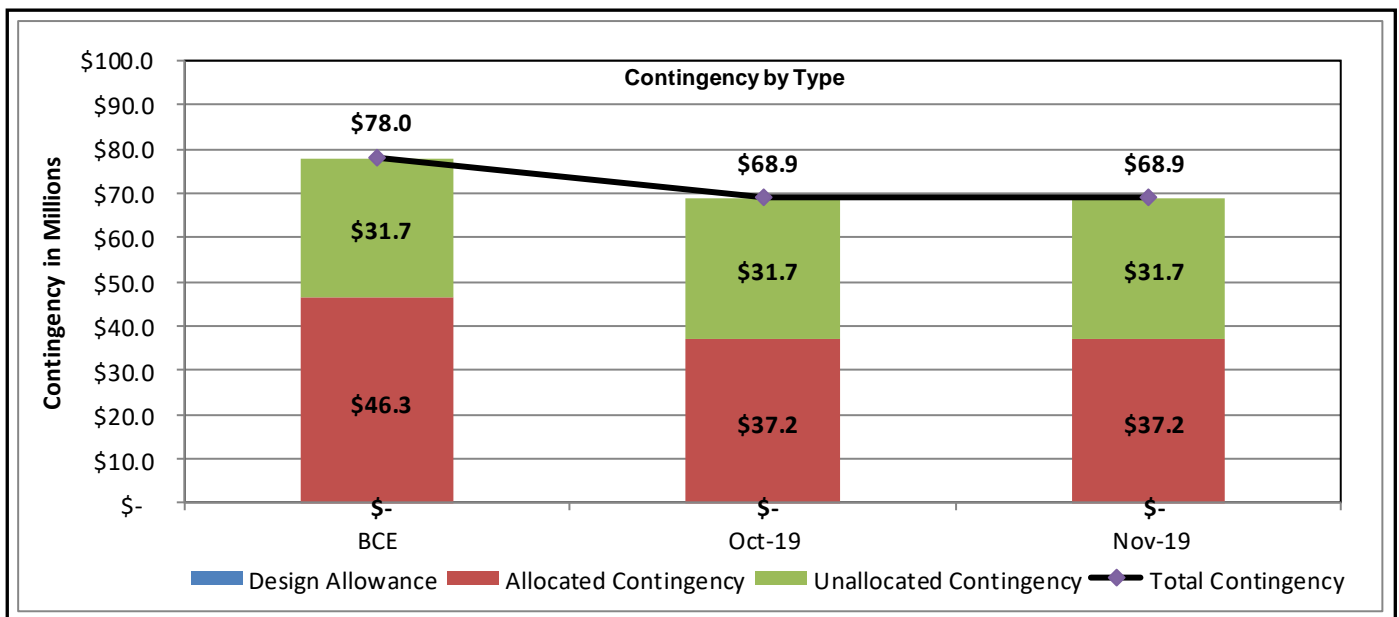
**Design Allowance (DA)** was established to account for unquantified scope at the time of the cost estimate. This project contains \$0 design allowance.

**Allocated Contingency (AC)** is used to address risks, complexity and unforeseen conditions during the execution of work, including procurement. The AC for November remains unchanged from last month at \$37.2M.

**Unallocated Contingency (UAC)** is used to address general project-wide cost risks and uncertainties. The UAC for November remains unchanged at \$31.7M.

Contingency Status	Baseline		Current	
	Amount	% of Total	Amount	% of Work Remaining
Design Allowance	\$ -	0.0%	\$ -	0.0%
Allocated Contingency	\$ 46.3	6.4%	\$ 37.2	7.2%
Unallocated Contingency	\$ 31.7	4.3%	\$ 31.7	6.1%
<b>Total</b>	<b>\$ 78.0</b>	<b>10.7%</b>	<b>\$ 68.9</b>	<b>13.3%</b>

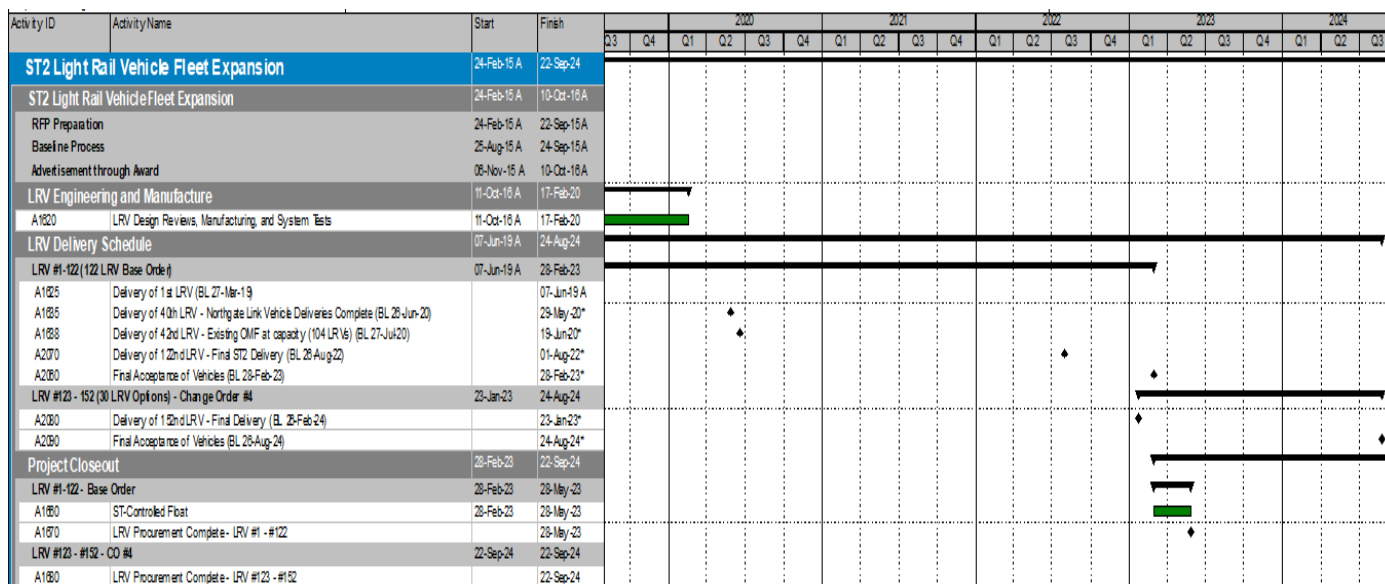
## Contingency by Type





### Project Schedule

The progress schedule was established using last month's production schedule submittal and forecast testing updates provided by LTK. As of November 2019, Siemens has shipped three additional cars. Current forecast indicate they will also ship three cars in December. This is part of the recovery schedule to complete conditional acceptance testing for the Northgate Link Pre-Revenue Service date.



### LRV Delivery and Testing Progress as of November 3, 2019

LRV status	Received in Seattle	Testing in progress (Seattle)	Conditionally Accepted	Entered Revenue Service
Planned	16	15	-	-
Actual	16	12	-	-

# Link Light Rail Light Rail Vehicle Fleet Expansion

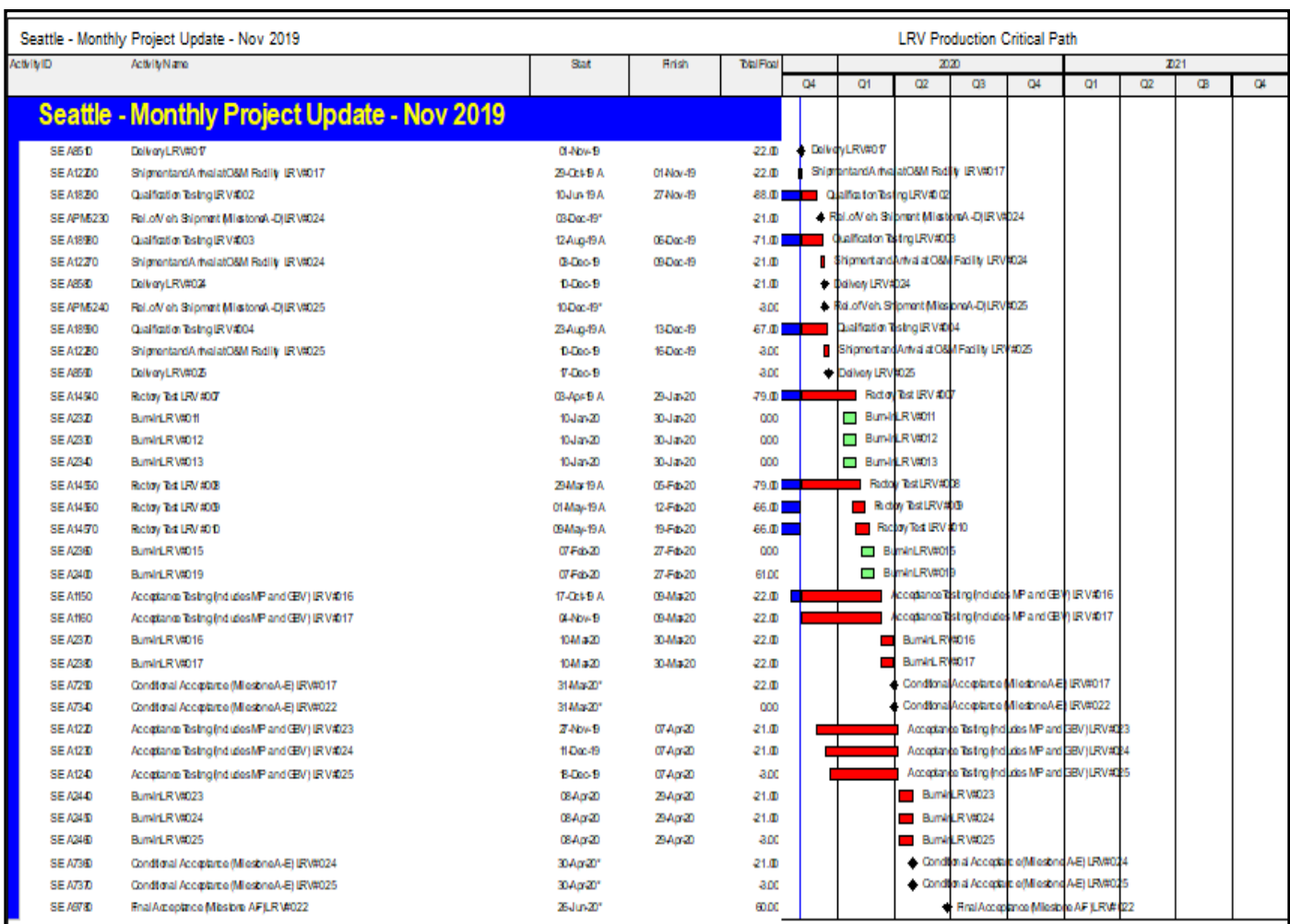


## Critical Path Analysis

The critical path is completing the burn-in testing of the ten cars on the ST yard storage track , and delivery and testing of the remaining vehicles.

Delivery and Conditional Acceptance Testing of all 40 light rail vehicles is required for Northgate Link is closely monitored to support the Pre-Revenue simulation period. The planned deliveries, commissioning and testing of light rail vehicles are anticipated to arrive by September 2024. As well as on time for the start of Pre-Revenue Service for each of the new extension lines: East Link, Lynnwood Link, Downtown Redmond Link and Federal Way Link and Federal Way Link.

## LRV Manufacturing and Qualification Testing Critical Path Schedule



## Link Capital Program Staffing April – September 2019 (updated quarterly)

### Recruiting Status

The following positions were filled in 2nd QTR 2019 to support the Link Capital Program:

Position	Position
DECM Executive Director	Sr. Scheduling Engr
Deputy Project Director, Lynnwood Link	Risk Engineer
Permit Administrator (2)	Principal Construction Manager (2)
Sr. Land Use Permitting	Deputy Construction Manager
Manager, Civil Engineering	Sr. Project Manager
Mechanical Engr, Fire Protection	Deputy Project Director, Vehicles
Sr. Systems Engr, Traction Electrification	Capital Signage Specialist
Sr. Systems Engr, Rail/Vehicle	Project Director, Environmental Affairs
Project Control Coordinator (2)	Sr. Environmental Planner
Sr. Project Control Specialist	Environmental Planner

As of the end of 2nd QTR 2019, below is the current DECM and PEPD staffing levels:

Division	Total Positions	Open Positions	Filled Last Quarter
Executive, includes Project Directors	22	3	2
Project Management	34	2	3
Civil/Structural Engineering	60	13	1
System Engineering	40	2	2
Architecture & Art	18	0	1
Permitting	13	1	3
Construction Management	31	3	3
Project Control	62	3	5
Real Property	19	2	0
Capital Project Development	34	2	0
Environmental Affairs & Sustainability	27	2	3
<b>TOTAL</b>	<b>360</b>	<b>33</b>	<b>23</b>

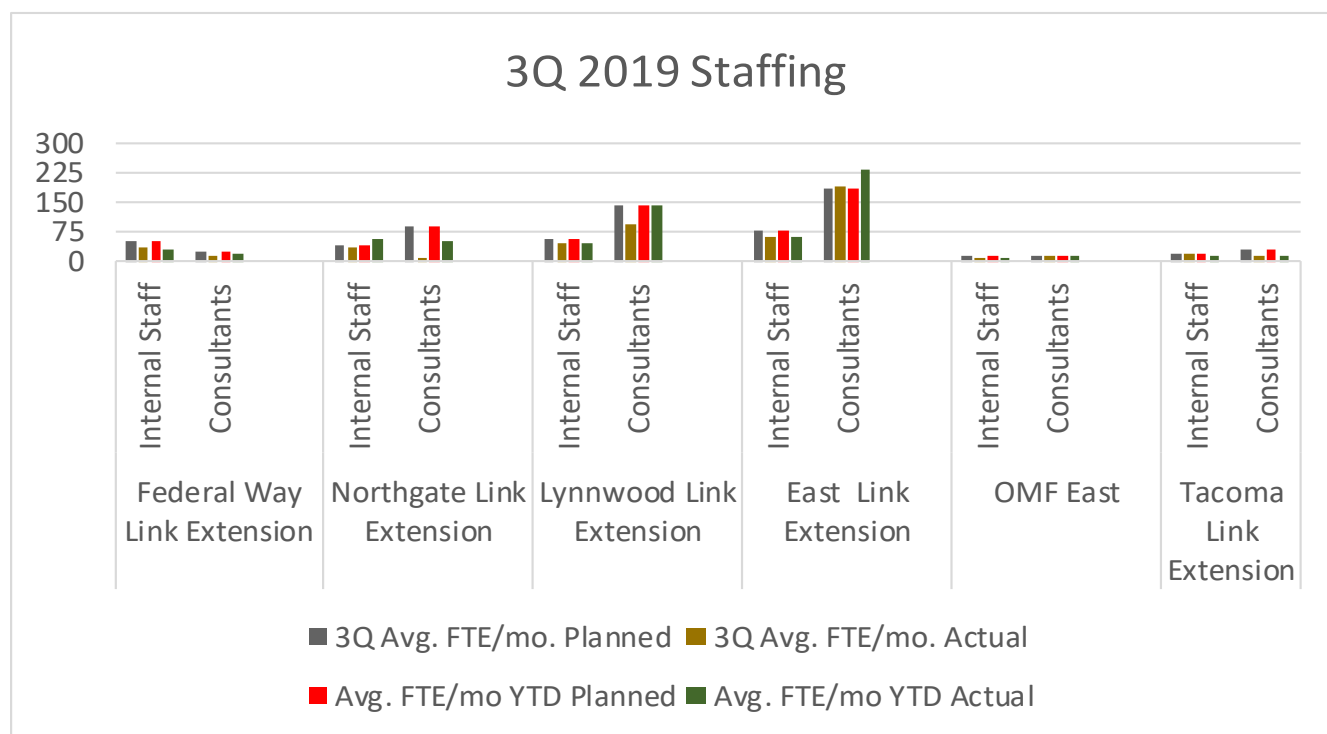
# Link Light Rail Staffing Report



## Staffing Variance relative to Plan

There were 208 internal and 342 consultant full time equivalents (FTE) supporting design and construction of Link light rail extensions (table below).

Project	Sound Transit Staff				Consultants				Total (AVG. YTD)			
	FTE		Variance		FTE		Variance		FTE		Variance	
	Planned	Actual	FTE	% of Plan	Planned	Actual	FTE	% of Plan	Planned	Actual	FTE	% of Plan
Federal Way Link Extension	52	37	-15	-29%	24	15	-9	-38%	76	52	-24	-32%
Northgate Link Extension	43	38	-5	-12%	90	9	-81	-90%	133	47	-86	-65%
Lynnwood Link Extension	59	45	-15	-25%	145	94	-51	-35%	204	139	-66	-32%
East Link Extension	76	63	-13	-17%	187	190	3	2%	263	253	-10	-4%
OMF East	14	8	-6	-44%	16	17	1	5%	30	25	-5	-18%
Tacoma Link Extension	22	18	-4	-19%	30	17	-13	-43%	52	35	-17	-33%
<b>Total</b>	<b>267</b>	<b>208</b>	<b>-58</b>	<b>-22%</b>	<b>492</b>	<b>342</b>	<b>-150</b>	<b>-30%</b>	<b>759</b>	<b>550</b>	<b>-208</b>	<b>-27%</b>



<b>AA</b>	Alternative Analysis	<b>GC/CM</b>	General Contractor /Construction Management
<b>APE</b>	Area of Potential Impact	<b>HVAC</b>	Heating, Ventilation and Air Conditioning
<b>BCE</b>	Baseline Cost Estimate	<b>ICD</b>	Integration Control Document
<b>BCWS</b>	Budgeted Cost of Work	<b>IFB</b>	Issue for Bids
<b>BIM</b>	Building Information Modeling	<b>IFC</b>	Industry Foundation Classes
<b>BNSF</b>	Burlington Northern Santa Fe Railway	<b>IRT</b>	Independent Review Team
<b>CCB</b>	Change Control Board	<b>IWP</b>	Industrial Waste Permit
<b>CDF</b>	Controlled Density Fill	<b>JA</b>	Jacobs Associates
<b>CHS</b>	Capitol Hill Station	<b>JARPA</b>	Joint Aquatic Resource Permit Application
<b>CM</b>	Construction Management	<b>KCM</b>	King County Metro
<b>CMU</b>	Concrete Masonry Unit	<b>LNTP</b>	Limited Notice to Proceed
<b>CO</b>	Change Order	<b>LRRP</b>	Light Rail Review Panel
<b>CPI</b>	Cost Performance Index	<b>LRT</b>	Light Rail Transit
<b>CPM</b>	Critical Path Method	<b>LRV</b>	Light Rail Vehicle
<b>DAHP</b>	Department of Archaeology & History Preser-	<b>LTK</b>	LTK Engineering Services
<b>DART</b>	Days Away, Restricted or Modified	<b>MACC</b>	Maximum Allowable Construction Cost
<b>DB</b>	Design -Build	<b>MDA</b>	Major Discharge Authorization
<b>DBPM</b>	Design-Build Project Management	<b>MLK</b>	Martin Luther King, Jr. Way
<b>DECM</b>	Design, Engineering and Construction Man-	<b>MOA</b>	Memorandum of Agreement
<b>DEIS</b>	Draft Environmental Impact Statement	<b>MOS</b>	Minimum Operable Segment
<b>DP</b>	Design Package	<b>MOU</b>	Memorandum of Understanding
<b>DPD</b>	Seattle Department of Planning and Develop-	<b>MPPCV</b>	Major Public Project Construction Variance
<b>DSC</b>	Differing Site Conditions	<b>MRB</b>	Material Review Board
<b>DSDC</b>	Design Support During Construction	<b>MTP</b>	Montlake Triangle Project
<b>DSTT</b>	Downtown Seattle Transit Tunnel	<b>MUP</b>	Master Use Permit
<b>EFC</b>	Estimated Final Cost	<b>NB</b>	Northbound
<b>EMI</b>	Electro Magnetic Interference	<b>NCR</b>	Notification of Change Report
<b>ERC</b>	East Rail Corridor	<b>NCTP</b>	North Corridor Transit Partners
<b>FD</b>	Final Design	<b>NEPA</b>	National Environmental Policy Act
<b>FHWA</b>	Federal Highway Administration	<b>NOAA</b>	National Oceanic and Atmospheric Admin- istration
<b>FSEIS</b>	Final Supplemental Environmental Impact	<b>NTP</b>	Notice to Proceed
<b>FFGA</b>	Full Funding Grant Agreement	<b>OCS</b>	Overhead Catenary System
<b>FTA</b>	Federal Transit Administration	<b>OMF</b>	Operations and Maintenance Facility
<b>FTE</b>	Full Time Employee	<b>OMSF</b>	Operations and Maintenance Satellite Facility



<b>PE</b>	Preliminary Engineering	<b>UAC</b>	Unallocated Contingency
<b>PEP</b>	Project Execution Plan	<b>U-Link</b>	University Link project
<b>PEPD</b>	Planning, Environment and Project Development	<b>UDS</b>	University District Station
<b>PMOC</b>	Project Management Oversight Consultant	<b>USFWS</b>	U.S. Fish and Wildlife Service
<b>PSST</b>	Pine Street Stub Tunnel	<b>UW</b>	University Of Washington
<b>QA</b>	Quality Assurance	<b>UST</b>	Underground Storage Tank
<b>QC</b>	Quality Control	<b>UWS</b>	University of Washington Station
<b>QTR</b>	Quarter	<b>VE</b>	Value Engineering
<b>RE</b>	Resident Engineer	<b>VECP</b>	Value Engineering Cost Proposal
<b>RFC</b>	Request for Change	<b>WBS</b>	Work Breakdown Structure
<b>RFD</b>	Request for Deviation	<b>WDFW</b>	Washington Department of Fish and Wildlife
<b>RFI</b>	Request for Information	<b>WSDOT</b>	Washington Department of Transportation
<b>RFP</b>	Request for Proposal		
<b>RFQ</b>	Request for Qualifications		
<b>RIR</b>	Recordable Injury Rates		
<b>RMP</b>	Risk Management Plan		
<b>ROD</b>	Record of Decision		
<b>ROW</b>	Right of Way		
<b>SB</b>	Southbound		
<b>SCADA</b>	Supervisory Central and Data Acquisition		
<b>SCC</b>	Standard Cost Categories		
<b>SCL</b>	Seattle City Light		
<b>SDEIS</b>	Supplemental Draft Environmental Impact Statement		
<b>SEPA</b>	State Environmental Policy Act		
<b>SIP</b>	Street Improvement Permitting		
<b>SPI</b>	Schedule Performance Index		
<b>SR</b>	State Route		
<b>ST</b>	Sound Transit		
<b>START</b>	Seattle Tunnel and Rail Team		
<b>SWI</b>	Stacy and Witbeck, Inc.		
<b>TBM</b>	Tunnel Boring Machine		
<b>TCE</b>	Temporary Construction Easement		
<b>TE</b>	Traction Electrification		
<b>TFK</b>	Traylor Frontier Kemper Joint Venture		
<b>TOD</b>	Transit Oriented Development		
<b>TVM</b>	Ticket Vending Machine		