# Progress Report Link Light Rail Program



Downtown Bellevue Tunnel Crew celebrates hole-through completion





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## Link Light Rail Program Overview



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 atgrade, 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. Preliminary Engineering for the Redmond light rail extension has a budget of \$178M.

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.

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

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

**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.

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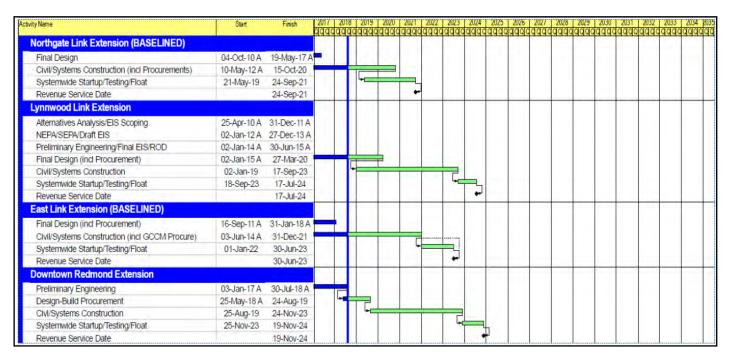
## **Program Budget**

Project figures for active projects are represented in millions below.

Project	Authorized Project Allocation	Commit- ment to Date	Incurred to Date	Forecast to Com- plete	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
University Link Extension	\$1,756.0	\$1,516.1	\$1,507.5	\$37.9	\$1,554.0	\$202.0
Northgate Link Extension	\$1,899.8	\$1,626.8	\$1,220.0	\$220.1	\$1,846.9	\$52.9
Lynnwood Link Extension	\$2,771.6	\$292.9	\$250.3	\$2,478.7	\$2,771.6	0
East Link Extension	\$3,677.2	\$3,023.1	\$1,408.0	\$654.0	\$3,677.2	0
Downtown Redmond Link Ext.	\$178.0	\$30.3	\$19.9	\$147.8	\$178.0	0
West Seattle and Ballard Link Ext.	\$285.9	\$29.4	\$14.2	\$256.5	\$285.9	0
South 200th Link Extension	\$383.2	\$331.3	\$328.1	\$1.4	\$332.6	\$50.6
Federal Way Link Extension	\$412.6	\$101.4	\$76.7	\$311.3	\$412.6	0
Hilltop Tacoma Link Extension	\$217.3	\$73.5	\$25.4	\$143.9	\$217.3	0
Tacoma Dome Link Extension	\$125.7	\$12.4	\$3.9	\$113.3	\$125.7	0
Link O & M Facility: East	\$449.2	\$355.7	\$162.7	\$93.5	\$449.2	0
LRV Fleet Expansion	\$740.7	\$654.2	\$75.1	\$86.5	\$740.7	0
Total Link	\$12,897.3	\$8,047.0	\$5,091.9	\$4,544.8	\$12,591.8	\$305.5

## **Program Schedule**

Schedules for active projects are summarized below.



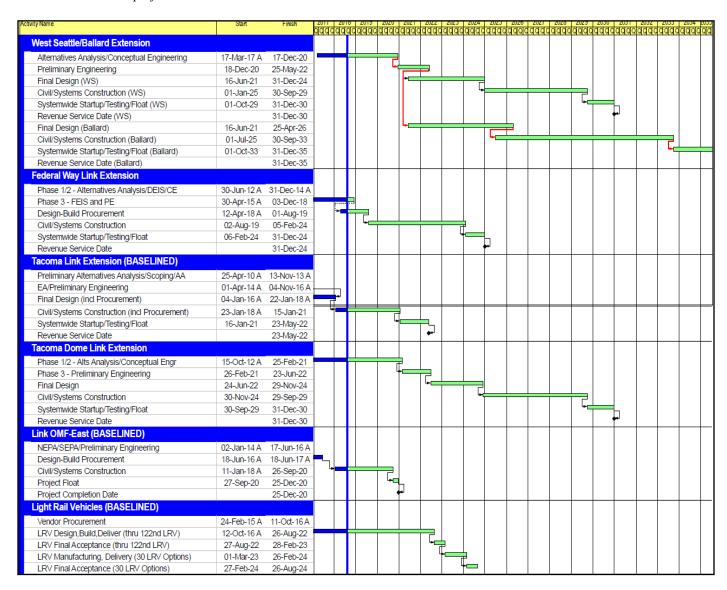
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## Link Light Rail Program Overview



## **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. C of O for stations has now been issued. Awaiting issuance of the system wide C of O for the University Link.
- Commercial issues with all prime civil contractors (with the exception of Capitol Hill Station Contractor) has been negotiated as the project proceeds through the close out process.
- Miscellaneous follow-on commitments and restoration work remains including but not limited to the following: Decommissioning of monitoring wells, restoration of the Systems staging area on Pine Street are anticipated when the weather improves, power reliability and vibration monitoring and other follow up on various minor commitments from the Record of Decisions.
- Before and After Study commenced and to complete by summer 2019.

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# Link Light Rail University Link Extension

### **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, after some cost adjustments the project expenditure net about \$71K increasing the total direct expenditure to about \$1.5B (Finance Cost excluded). Current activities continues to pertain to close out and miscellaneous follow on work. The construction EFC continues to be approximately \$1B. This trend continues to hold as the project is substantially complete with only miscellaneous follow on scope and commercial issues remaining. Systems continues optimization process with miscellaneous operational equipment purchases trailing. The Total Incurred to Date for the Construction Phase is about \$991M 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	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$115.23	\$113.55	\$83.01	\$82.22	\$88.10	\$25.45
Preliminary Engineering	\$24.39	\$24.26	\$24.26	\$24.26	\$24.26	\$0.00
Final Design	\$77.94	\$90.31	\$87.96	\$86.62	\$89.17	\$1.13
Construction Services	\$68.53	\$94.81	\$86.88	\$86.58	\$88.71	\$6.11
3rd Party Agreements	\$18.65	\$18.65	\$11.65	\$11.31	\$13.23	\$5.42
Construction	\$1,180.00	\$1,158.18	\$996.73	\$990.89	\$1,021.84	\$136.34
Vehicles	\$103.91	\$103.91	\$99.20	\$99.19	\$101.91	\$2.00
ROW	\$167.33	\$152.33	\$126.43	\$126.43	\$126.78	\$25.55
Capital Total	\$1,755.97	\$1,756.01	\$1,516.13	\$1,507.52	\$1,554.00	\$202.01
Finance Cost	\$191.71	\$191.71	\$191.71	\$174.87	\$191.71	\$0.00
Project Total	\$1,947.68	\$1,947.72	\$1,707.84	\$1,682.39	\$1,745.71	\$202.01

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

Construction EFC under the SCC format remains relatively unchanged at about \$998M. Construction SCC expenditures to date is about \$980M this period mostly attributed to Systems' continuing optimization and resolutions to change order work and miscellaneous follow on work. Total capital cost incurred to date including non-construction cost (SCC 60 thru 90) now at \$1.5B or about 86% of total project budget scoped (Finance Cost excluded). Total project cost incurred to date at the end of this period including Finance Cost is at \$1.68B. The financing cost incurred to date is about \$175M. University Link EFC continues to be projected to close out with at least \$200M under budget excluding financing cost.

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# Link Light Rail University Link Extension



## **Cost Summary by SCC**

SCC Element	Baseline Budget	Authorized Project Allocation	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
10 Guideway & Track	\$626.83	\$450.46	\$456.10	\$456.03	\$461.23	(\$10.77)
20 Stations	\$366.33	\$350.75	\$344.76	\$342.95	\$353.10	(\$2.34)
30 Support Facilities: Yards, Shops	\$7.01	\$24.83	\$23.54	\$23.44	\$24.80	\$0.03
40 Sitework & Special Conditions	\$59.03	\$67.39	\$57.14	\$54.92	\$56.89	\$10.50
50 Systems	\$69.63	\$116.42	\$102.14	\$101.78	\$102.40	\$14.02
Construction Subtotal (10 - 50)	\$1,128.82	\$1,009.85	\$983.67	\$979.12	\$998.41	\$11.44
60 Row, Land, Existing Improvements	\$167.33	\$126.60	\$126.43	\$126.43	\$125.76	\$0.84
70 Vehicles	\$99.76	\$100.16	\$99.87	\$99.87	\$100.16	\$0.00
80 Professional Services	\$306.41	\$346.58	\$306.16	\$302.10	\$318.18	\$28.40
90 Unallocated Contingency	\$53.65	\$172.81	\$0.00	\$0.00	\$11.48	\$161.33
Capital Total (10 - 90)	\$1,755.97	\$1,756.01	\$1,516.13	\$1,507.52	\$1,554.00	\$202.01
100 Finance Cost	\$191.71	\$191.71	\$191.71	\$174.87	\$191.71	\$0.00
Project Total	\$1,947.68	\$1,947.72	\$1,707.84	\$1,682.39	\$1,745.71	\$202.01

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## **Project Summary**

Scope

**Limits** The Northgate Link Extension consists of 4.3

miles of light rail extending from the Univer-

sity of Washington to Northgate.

Alignment The extension begins at UW Station, contin-

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

**Stations** The U District Station (UDS) is an under-

ground station located on the west side of the UW campus near Brooklyn Ave. and NE 45th St. The Roosevelt Station (RVS) is an underground station located near NE 65th St. and 12th Ave NE. The Northgate Station is an elevated station located at the southwest

edge of the Northgate Mall property.

Include Signals, track electrification, and SCADA communications.

Phase Construction

Systems

**Budget** \$1.899 Billion

**Schedule** Revenue Service: September 2021



Map of Project Alignment

## **Key Project Activities**

- Tunnel, Cross Passages, and Maple Leaf Portal (N125): All safety critical documentation uploaded into an internal database; two punchlist items remain to be closed. A letter noting acceptance of the N125 contract was routed for signatures marking the completion of the 42-month long contract.
- **U District Station/UW Campus (N140):** Crews completed Mechanical, Electrical, and Plumbing (MEP) and rebar installation for basement level 1 and placed 800 CY of concrete. Crews placed and installed escalators #2 and #4 and completed demolition of existing sound wall.
- Roosevelt Station (N150): Construction crews commenced trenching for electrical duct bank and placed selfconsolidating cement to the bottom of the slab. Crews completed structural steel framing and slab on metal deck at center basement. Crews continued foundation rebar and form work.
- Northgate Station (N160): Guideway Substructure/Superstructure: Placed Overhead Catenary System pole
  foundations. Station: Placed Elevator #2 and #3 footing; formed Stair #4 walls, and continuing modifications to structural
  steel. Garage: Installed elevator entrance doors and conduits to button panels and fire sprinklers installed at top of elevator
  shafts.
- Trackwork (N180): About 99% of the NB tunnel floating slabs are currently in place with Stacy & Witbeck fitting the final slab. SB tunnel floating slab installation is over 30% complete. Direct fixation track installation continues in NB and SB tunnels north of the U District Station.
- **Environmental:** Executing agreement for additional In-Lieu Fee Mitigation credits to account for increased wetland mitigation requirements accommodating changes to the City of Seattle's future cycle track and pedestrian bridge designs.

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### **Closely Monitored Issues**

- The Seattle Department of Construction and Inspections (SDCI) has challenged the design for the parking garage transformer grounding. The design is being modified and installed to satisfy SDCI expectations.
- The Project team continues its focus on the planned opening of the parking garage later this year.
- N150 Emergency Ventilation System (EVS) Fan testing at the factory has not met ideal performance specifications; manufacturer has proposed modifications to improve performance.

## **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 \$1.85B, which is \$52.9M below the current project budget; an increase of \$0.5M since last period. This period, approximately \$26.2M was incurred, bringing the total project expenditures from \$1.19B to \$1.22B. Project commitments are at \$1.63B with all major construction projects well underway.

#### **Cost Summary by Phase**

Project Phase	Baseline Budget	Authorized Project Allocation	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$144.9	\$144.9	\$61.9	\$61.8	\$135.5	\$9.4
Preliminary Engineering	\$15.1	\$15.1	\$15.1	\$15.1	\$15.1	\$0.0
Final Design	\$132.2	\$132.2	\$117.0	\$111.5	\$134.7	\$(2.6)
Construction Services	\$118.3	\$118.3	\$103.2	\$70.6	\$110.4	\$7.9
3rd Party Agreements	\$11.8	\$11.8	\$10.0	\$6.6	\$12.4	\$(0.6)
Construction	\$1,343.0	\$1,343.0	\$1,219.1	\$854.0	\$1,332.9	\$10.2
ROW	\$112.3	\$112.3	\$100.4	\$100.4	\$106.0	\$6.3
Project Contingency	\$22.2	\$22.2	\$0.0	\$0.0	\$0.0	\$22.2
Total	\$1,899.8	\$1,899.8	\$1,626.8	\$1,220.0	\$1,846.9	\$52.9

#### **Cost Summary by SCC**

Goot Gammary By GGG						
SCC Element	Baseline Budget	Authorized Project Allocation	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Author- ized Allo- cation vs. EFC
10 Guideway & Track	\$595.6	\$549.3	\$512.0	\$463.0	\$532.5	\$16.8
20 Stations	\$376.1	\$424.1	\$417.9	\$226.0	\$446.9	(\$22.8)
30 Support Facilities: Yard, Shop	\$5.3	\$5.3	\$6.4	\$5.9	\$6.4	(\$1.2)
40 Sitework & Special Conditions	\$140.8	\$224.2	\$165.4	\$132.2	\$202.2	\$22.0
50 Systems	\$110.9	\$96.7	\$106.9	\$18.4	\$119.5	(\$22.8)
Construction Subtotal (10 - 50)	\$1,228.7	\$1,299.6	\$1,208.7	\$845.5	\$1,307.5	(\$8.0)
60 Row, Land, Existing Improvements	\$119.9	\$110.9	\$100.4	\$100.4	\$105.5	\$5.4
80 Professional Services	\$420.7	\$431.6	\$317.6	\$274.2	\$428.4	\$3.2
90 Contingency	\$130.4	\$57.7	\$0.0	\$0.0	\$5.4	\$52.3
Total (10 - 90)	\$1,899.8	\$1,899.8	\$1,626.8	\$1,220.0	\$1,846.9	\$52.9

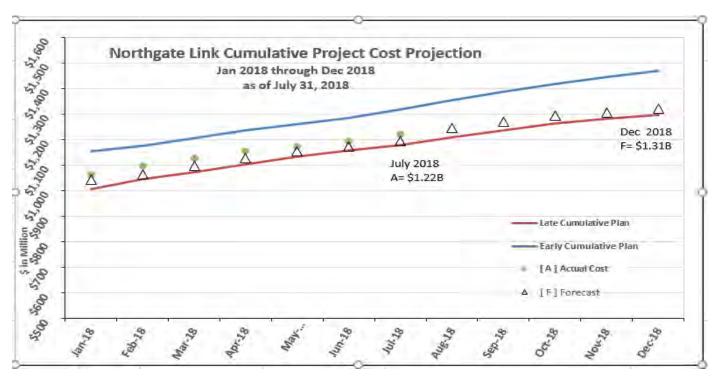
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## **Project Cash Flow Projection**

The Northgate Link cost projection continues to progress within the planned expenditures as construction activities continue. This period's expenditure of \$26.2M included \$23.9M for the ongoing major construction contracts including the N140, N150, and N160 Station Finishes contracts, the N180 Trackwork contract and N830 Systems contract, and other miscellaneous construction; \$0.4M was incurred for civil and systems final design and design support during construction; and \$1.3M was for construction management. The remaining expenditures were for third party coordination, permits, staff, legal, right-of-way and other direct charges.

Total project cost incurred to date reached \$1.22 of which about \$854M (70%) is attributed to the Construction Phase. The project cost is currently predicted to increase to approximately \$1.3B by December 2018, reflecting continued active construction activities through the remainder of the year.



#### **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. ST has completed a Quantitative Risk Assessment as required upon completion of Project Milestone 4 – All Civil Work in Tunnels complete, and the report was received in May. The risk register is updated quarterly.

The following remain the top project wide risks:

- Multiple contract interfaces.
- Potential shortage of skilled labor and O&M support during startup and integration testing.
- Duration uncertainties for system installation, integration, and testing.
- Coordination with third parties (City of Seattle, WSDOT, UW etc.).
- Obsolescence of interfacing systems.

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## **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.

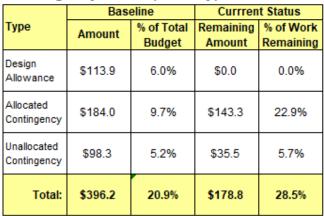
**Allocated Contingency (AC)** is used to address risks, complexity and unforeseen conditions during the execution of work, including procurement.

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

During this reporting period, the contingency total was adjusted to correct errors in the classification of uncommitted funds from future contingency. The balance remains near the baseline drawdown projection, and well above both the minimum contingency and the buffer contingency. This period, AC decreased by \$0.5M due to change orders on the N125 Tunneling contract, the N140, N150 and N160 Station contracts and the N180 Trackwork contract. No drawdown to UAC occurred during this period.

#### Contingency Status (Monthly)

### Contingency by Type



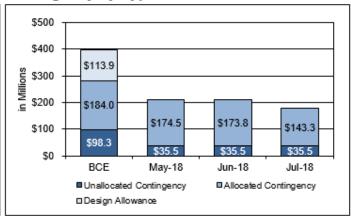
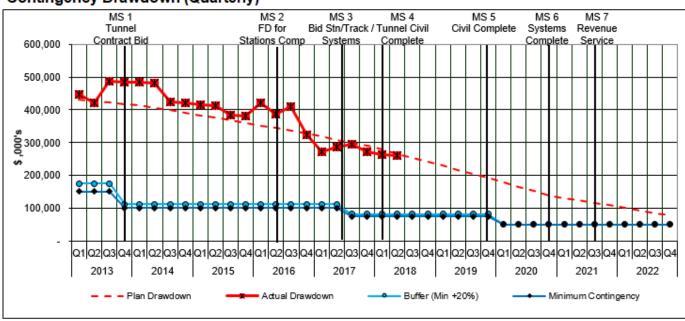


Table figures are shown in millions.

#### Contingency Drawdown (Quarterly)



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## **Project Schedule**

As of July 2018, all Northgate Link civil contracts are under construction and the calculated physical percent complete for all major construction contracts is approximately 66%.

The Northgate Link Extension remains on schedule for the period. Civil construction is still forecast to complete in Q3 2020. Systems construction is forecast to complete in late Q4 2020.

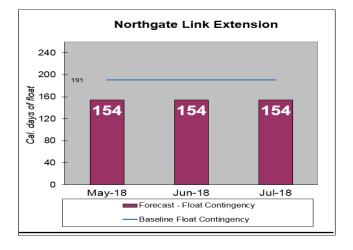
- The N125 Tunneling Contract is nearing close-out with ST working with the City of Seattle to resolve final punchlist items, including restoration of curb ramps at one location.
- The N140 U District Station contractor, Hoffman Construction, continues to work on the basic structure below grade, with
  efforts concentrated on Basement Level 1 structure. The escalators were installed this month.
- At Roosevelt Station (RVS), N150, headhouse construction continues above grade, as does CMU systems room construction below grade. Hoffman is continuing to remove the upper portions of the slurry wall and backfilling for the headhouses.
- The N160 contractor, Absher Construction is nearing completion of major structural work on the elevated guideway between the Maple Leaf Portal and the Northgate Station. Structural steel is being installed at the Station. At the Parking Garage, electrical and mechanical work is ongoing. The change in grounding is being implemented, and permanent power is expected by mid-August.
- The N180 Trackwork contractor, Stacy & Witbeck, continues with installation of the floating slabs and Direct Fixation (DF)
  rail. Rail installation continues in the tunnels between MLP and RVS. Work on the MLP stair tower foundation is underway.
- The N830/E750 Systems Contractor, Mass Electric (MEC), is continuing engineering and procurement work. EMI cable installation is ongoing in the tunnel, in conjunction with floating slab installation. MEC now has crews working in the Northgate Station Parking Garage.
- Revenue Service date for Northgate Link Extension is scheduled in September 2021.

ctivity Name	Start	Finish	2015	2016 Q1 Q Q Q	2017	201		2019	2020	2021
Northgate Link Extension Master Schedule - V12c	24-Dec-10 A	26-Sep-21	الارامام الا			ΙαΙαΙ	us u c	ajuzj u j u	<u> </u>	ا ما مامع ا
Final Design	24-Dec-10 A	04-Nov-16 A								
Construction	01-Aug-12 A	18-Feb-21								-
N105 - Advanced Demolition & Site Prep - DBB	04-Aug-14 A	28-Nov-16 A								
N110 - Construction Advanced Utility Relocation - DBB	06-Mar-13 A	28-May-13 A								
N111 Advance Utility Relocation, Northgate Area - DBB	17-Feb-14 A	22-Jun-16 A								
N112 Advanced Demolition & Site Prep, U District & Roosevelt - DBB	01-Aug-12 A	31-Aug-13 A								
N113 115kV Relocation at Northgate - DBB	31-May-16 A	21-Feb-17 A		_	•					
N125 TBM Tunnels (UW Station to Maple Leaf Portal) - DBB	30-Sep-13 A	13-Mar-18 A								
N140 U District Station Finishes - GC/CM	07-Apr-17 A	24-Feb-20			-				7	
N150 Roosevelt Station Finishes - GC/CM	02-Dec-16 A	12-Sep-19		•						
N160 Northgate Station and Elevated Guideway - DBB	02-Sep-16 A	05-Mar-20		-					•	
N180 Trackwork - DBB	25-Aug-16 A	31-Oct-19		_						
N830 Traction Electrification, Signal & Communications - GC/CM	12-Jun-17 A	08-Jan-21			-					•
Vibration & EMI Testing	04-Aug-17 A	18-Feb-21			-					•
Testing & Startup	01-Aug-18	01-Jan-21								
Level 1 - Local Testing (Civil)	01-Aug-18	24-Feb-20							7	
Testing & Commissioning	26-Jun-20	01-Jan-21							-	
Project Float	26-Apr-21	26-Sep-21								
Project Float & Revenue Service	26-Apr-21	26-Sep-21								-
Program Wide Float (CD)	26-Apr-21	26-Sep-21								
Northgate Link Complete - Revenue Service Begins		26-Sep-21								•

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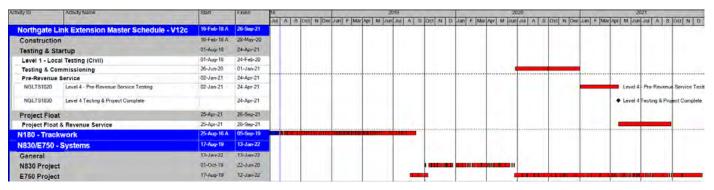
#### **Project Float**

The Northgate Link Project currently retains 154 days of unallocated project float. The station, trackwork, and systems contracts do not have ST Controlled Float. Interface float exists for interim milestones only and is ST managed, not contractual.



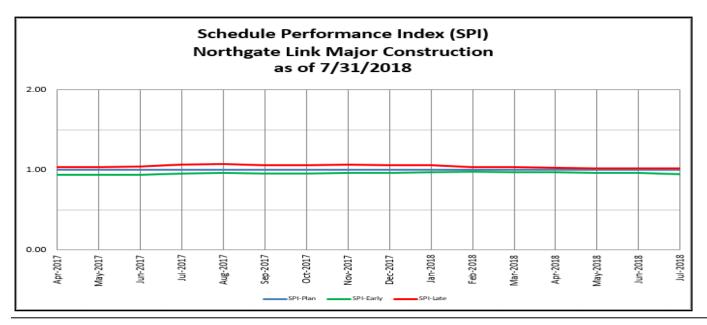
#### **Critical Path Analysis**

The critical path for the Northgate Link Extension is unchanged this period, running through the N180 and N830 contracts. The N140 Contract remains near critical.



#### **Schedule Performance Index**

The early Schedule Performance Index (SPI) for the project is at 0.95 for this period. The late SPI is at 1.02 showing that in general, performance is satisfactory. The early and late numbers have been trending within a range of 0.02 above or below the current period numbers for several months.

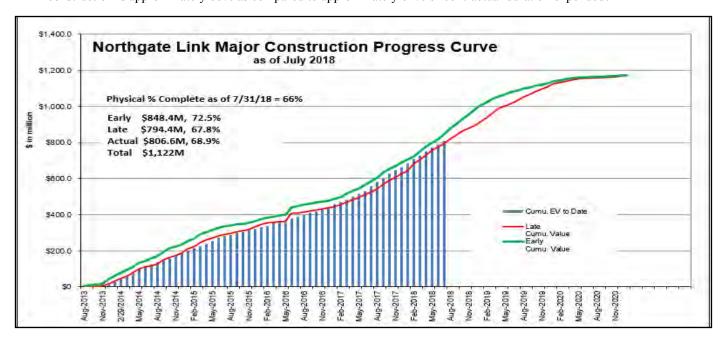


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## **Cost Progress Analysis**

All civil work in the tunnels is complete and all three station finishes contracts and trackwork are well underway. Systems procurement continues and installation for the garage and EMI cable in the tunnels is ongoing. 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 appropriately between the early/late projections as drawn from the master schedule. The overall physical percent complete for Northgate Link construction is approximately 66% as compared to approximately 62% of contractual duration expended.





Providing community outreach at the Maple Leaf Community Council Ice Cream Social on July 18, 2018.

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## **Community Outreach**

#### **University District Station (N140)**

- Distributed notifications for residents and businesses of U District regarding removal of the Bridge Girders and the temporary street at NE 43rd.
- Coordinated with UDPA to clean the alleyway between NE 45th & NE 43rd street.
- Assisted U District businesses in getting temporary monthly parking passes to mitigate the alleyway closure.

#### Roosevelt Station (N150)

- Worked with property owner of nearby restaurant to obtain a ROE for construction webcam installation.
- Distributed construction alert steel erection on the site.

#### **Northgate Station (N160)**

- Participated in the Annual Maple Leaf Community Council Ice Cream Social.
- Distributed Northgate Station road closure alerts and provided corresponding construction alert wayfinding signage for drivers.

#### **Sound Transit Board Actions**

Board Action	Description	Date
	None to report.	

## **Construction Safety**

Data/ Measure	July 2018	Year to Date	Project to Date
Recordable Injury/Illness Cases	0	14	93
Days Away From Work Cases	0	0	6
Total Days Away From Work	0	0	397
First Aid Cases	3	37	134
Reported Near Mishaps	1	29	113
Average Number of Employees on Worksite	483	-	-
Total # of Hours (GC & Subs)	84,890	632,818	3,540,951
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	2.81	3.49	3.58
Lost Time Injury (LTI) Rate	2.81	0.78	0.58
Recordable National Average	3.20	3.20	3.20
LTI National Average	1.30	1.30	1.30
Recordable WA State Average	6.40	6.40	6.40
LTI WA State Average	2.10	2.10	2.10

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.

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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.

**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.

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

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

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



N180—Crews assembling rebar for pre-cast floating slab sections.

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#### Contract N125 - TBM Tunnels

## **Close-out Progress**

The N125 Contractor, JCM, was issued Substantial Completion on March 13, 2018. JCM is working to complete the final punchlist in the tunnels:

- One item of curb and ramp restoration, requiring SDOT agreement. This work may be completed by the City and a credit pursued from the contractor.
- Completion of WSDOT punchlist items, pending WSDOT acceptance.
- JCM is working to complete project documentation.

#### **Next Period's Activities**

- Complete remaining NCRs and punch list items.
- Continue safety critical certification.
- Complete UPS training.
- Complete submission of O&M manuals.
- Continue finalizing remaining change orders.

## **Closely Monitored Issues**

 There are numerous open claims on the contract that are being reviewed and/or negotiated at various levels of partnering. Close-out of these remaining items will be necessary to achieve Final Acceptance.

## **Cost Summary**

Present Financial Status	Am	Amount					
N125 Contractor - JCM Northlink							
Original Contract Value	\$	440,321,000					
Change Order Value	\$	60,509,893					
Current Contract Value	\$	500,830,893					
Total Actual Cost (Incurred to Date)	\$	497,084,255					
% Authorized Billed-to-Date		99.3%					
Physical Percent Complete		100.0%					
Authorized Contingency	\$	66,048,150					
Contingency Drawdown	\$	(60,509,893)					
Contingency Index		1.1					

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#### Contract N140—U District Station Finishes

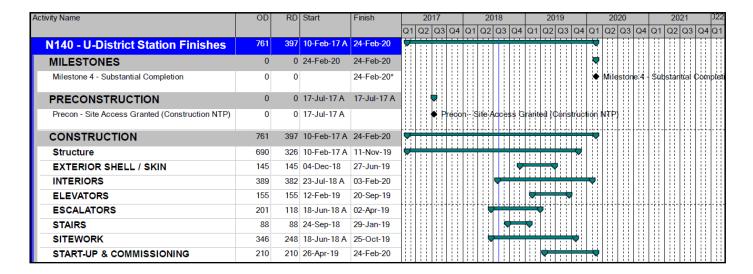
### **Current Progress**

The N140 Contractor, Hoffman Construction (HCC), continues to prosecute the structural work in Basement Level (BL) 1 in the North and South Areas. Lid forming is underway in the Center Area.

- Poured the North Basement Level 1 Deck and Elevator shear walls.
- Continued north wall formwork.
- Installing falsework for Center Area Lid and Mezzanine structural steel.
- Installing formwork for South Area Lid.
- Form and Pour track slab at north end of station.
- Placed and installed escalators #2 and #4 and completed demolition of existing sound wall.

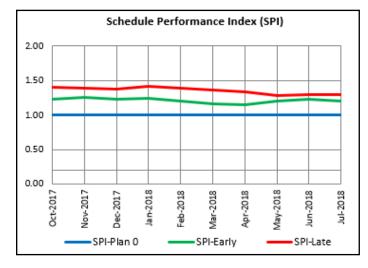
## Schedule Summary

The schedule update for July 2018 indicates the project remains ahead of schedule with no variances in the project milestones. The critical path for the project remains in the North Headhouse structure, North Entry, and then into commissioning.



#### **Schedule Performance Index**

This period, the SPI early is at 1.21 and the SPI late is 1.30. The early index indicates that the Contractor continues to perform slightly ahead of plan when compared to the baseline schedule and cash flow.



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### **Next Period's Activities**

- Continue procurement of long lead materials and equipment.
- Continue installation and welding of Escalator #1 and #2 cross bracing.
- Commence asphalt removal and sound wall demolition for North pile caps.
- Pouring slab on metal deck on Basement Level 2.
- Pouring East Shoulder slab on Center Platform.
- Pour partitions curb walls on Center Platform.
- Rough in mechanical and electrical.
- Setup falsework for Center-Lid Level.
- Pour exterior Wall West (WN4).
- Pour Headwall North (NH4).
- Complete demolition of pile caps for Stairs #1 & #2.

## **Closely Monitored Issues**

No new issues.

## **Cost Summary**

Present Financial Status	Amount					
N140 Contractor—Hoffman Construction						
Original Contract Value	\$159,836,688					
Change Order Value	\$ 561,672					
Current Contract Value	\$160,398,360					
Total Actual Cost (Incurred to Date)	\$ 57,048,932					
Financial Percent Complete	35.6%					
Physical Percent Complete	32.1%					
Authorized Contingency	\$ 7,991,834					
Contingency Drawdown	\$ 561,672					
Contingency Index	4.6					



UDS – Escalator #1 installed.

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#### Contract N150—Roosevelt Station Finishes

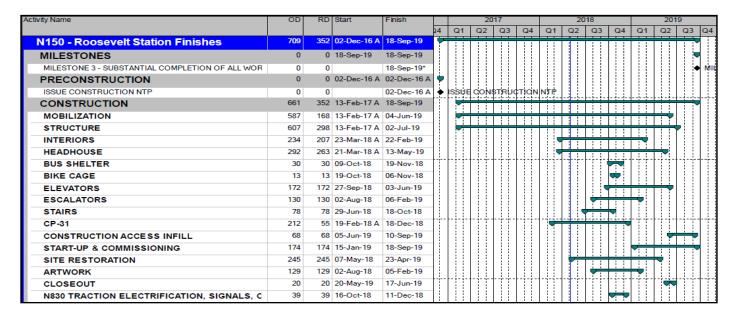
## **Current Progress**

Hoffman Construction (HCC) is continuing structural work at the North and South Headhouses. CMU block installation has moved up to Basement Level (BL) 2. MEP rough-in continues on BL3. Major accomplishments this period include:

- Placement of the last stem wall for the North Headhouse.
- Begin installation of Stair 8 for the Center Platform.
- Began installation of OCS embeds at BL3.
- Commence setting of FC-4 Detention Vault.

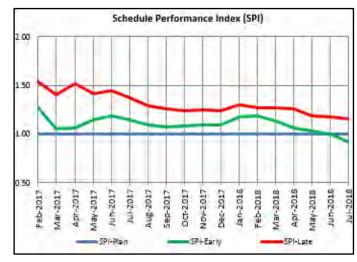
## Schedule Summary

The N150 July schedule update is currently in review. The contractor is indicating an on time completion but also forecast a late achievement of interim Milestone 1A—Basic Structure Completion Above Grade. Hoffman attributes this delay to the change in CMU block size. ST is currently reviewing the time impact associated with the change.



#### Schedule Performance Index

This period, the SPI early is at 0.90 and the SPI late is at 1.10. The early index suggests that the contractor is performing slightly behind plan when compared to the baseline schedule due to changes to the CMU block size, additional Demo Guidewall & Slurry Wall required alongside Dwell Condominiums. Hoffman is working to evaluate impacts and mitigation options.



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#### **Next Period's Activities**

- Continue MEP underground rough-in at north headhouse.
- Commence installation of Stair 8 in center platform.
- Commence placing concrete for walls for north headhouse outside of station box.
- Continue backfill to bottom of slab at north headhouse.
- Complete grouting, waterproofing and pour back of wall at tie-backs center station.
- Continue installation of CMU walls at north basement level 2 and complete CMU installation at south basement level 3.
- Commence MEP rough-in at slab on metal deck at center basement level 3.
- Continue backfill to bottom of slab at south headhouse.
- Commence forming for south slab on grade pours 1 & 4.
- Complete installation of 12" water main.
- Continue demo of slurry and guide wall around perimeter of station box.
- Commence stetting FC-4 Detention Vault.

## **Closely Monitored Issues**

- Design continues to focus on responding to overdue RFIs and urgent submittals.
- N830 indicated that they will be delivering the MVSS gear in November 2018, which is later than originally planned. N830 and N150 reviewed access path for later load-in of the MVSS gear during this week's CIP meeting. Hoffman's CMU subcontractor is on site to complete the walls after load-in of the equipment.
- Preliminary factory test results for the 450hp tunnel ventilation fans were sent to Design and ST for review which indicated non-compliance of airflow test. Contractor is working to formally submit factory test data for 450hp fans while also working with their manufacturer to correct issues with fans to be able to reschedule airflow test. Contractor has tentatively scheduled re-testing of the 450hp fans for August 13 through 17. The Contractor is working with Clarage to submit calculations and performance data for proposed corrections for formal review/approval by EOR and Sound Transit prior to finalizing schedule for re-testing the fans.

## **Cost Summary**

Present Financial Status	Amount			
N150 Contractor - Hoffman Construction				
Original Contract Value	\$ 152,291,184			
Change Order Value	\$ 1,825,303			
Current Contract Value	\$ 154,116,487			
Total Actual Cost (Incurred to Date)	\$ 78,879,500			
Financial Percent Complete	51.2%			
Physical Percent Complete	44.8%			
Authorized Contingency	\$ 7,614,559			
Contingency Drawdown	\$ 1,825,303			
Contingency Index	1.9			



RVS looking west.

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

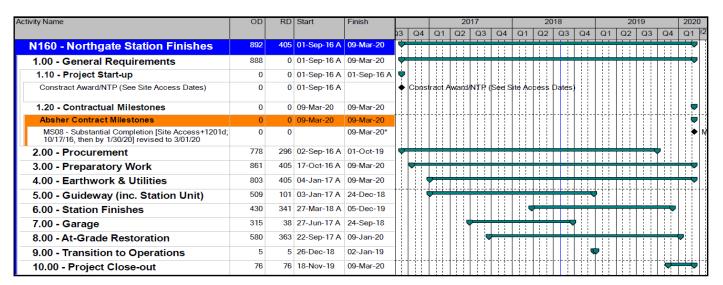
## **Current Progress**

The N160 Contractor, Absher Construction, continues to make progress on the Parking Garage, Guideway, and Station. ST is working closely with both Absher and Mass Electric (N830) on completion of the Parking Garage. Accomplishments to date:

- Completion of Track Slab closure pours and continuation of hand railing, removal of falsework, and plinth surveying.
- At the Parking Garage, grounding modifications are complete, FRP of the entrance is underway, Painting and signage are
  ongoing, as are Mechanical and Electrical installations. Elevators are being readied for L&I Inspection.
- Vault FC-6 has been installed and backfilled. FRP of the South Watercourse wall is ongoing.
- Placed Overhead Catenary System pole foundations.

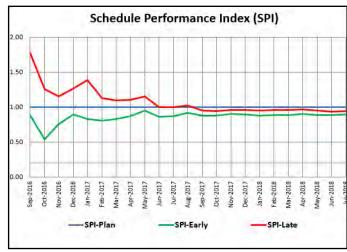
## **Schedule Summary**

The project schedule for July showed a one week improvement for the Substantial Completion Milestone 3a - Parking Garage Complete, still in mid-September. The primary driver in the Garage remains the Electrical installations. The critical path for the project is unchanged and remains the station structure & station finishes, in particular the installation of vertical transportation (escalators and stairs). Due to inaccuracies, the July schedule was returned to the contractor Code 3—Revise and Resubmit.



#### **Schedule Performance Index**

This period, the SPI early is at 0.89 and the SPI late is at 0.94 (unchanged from last month). The early index indicates that the contractor continues performing slightly behind plan when compared to the baseline schedule. The SPI is the same as reported last period, and work progress overall has remained within 0.03 of its current trend over the last eleven months.



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#### **Next Period's Activities**

- General Project Progress: Continue processing and reviewing of submittals and RFIs. Continue CIP meetings with N830.
- Guideway Substructure/Superstructure: Continue formwork, rebar and concrete placement for OCS foundations and remaining curbs. Continue falsework removal. Continue guardrail installation and station bolts. Install emergency fire suppression brackets and pipe.
- Station: Continue steel erection for Stair 2 and elevator platform. Erect escalator falsework and install column braces and sills. Excavate for MSE wall.
- Parking Garage: Place secant pile wall face and cap and accessible ramp. Continue mechanical, electrical and fire suppression piping installation on all levels. Continue elevator equipment installation and hold preliminary L&I inspection check of elevators. Complete remaining CMU walls and south security screen installation and install metal panels onwest wall Complete grounding installation for structure. Paint pipes, walls, striping, space numbers and directional arrows.
- Utility & Drainage Work: Excavate and install fish passage culvert at south watercourse. Complete water and sewer service line installation for the Garage. Relocate fire hydrant. Complete installation of electrical ducts at KCM bus facility.

## **Closely Monitored Issues**

- Schedule slippage on elevated structure and garage, largely due to labor shortages. Contractor revised schedule logic to have concurrent work to mitigate this issue.
- Elevator installation for parking garage is critical to opening on schedule. Early inspection by L&I has slipped and is now scheduled for mid August.
- A work directive has been issued to add a standby generator tap at the garage. It is no longer expected to be completed prior to the opening of the garage.

## **Cost Summary**

Present Financial Status	Status Amount				
N160 Contractor - Absher Construction					
Original Contract Value	\$ 174,000,000				
Change Order Value	\$ 5,124,730				
Current Contract Value	\$ 179,124,730				
Total Actual Cost (Incurred to Date)	\$ 114,784,895				
Financial Percent Complete	64.1%				
Physical Percent Complete	61.1%				
Authorized Contingency	\$ 17,400,000				
Contingency Drawdown	\$ 5,124,730				
Contingency Index	2.1				



Setting trellis at Garage Level 1 G-J looking east.

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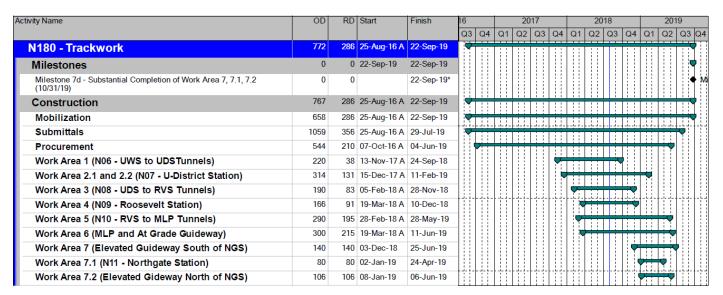
## Contract N180 - Trackwork UWS to Northgate Station

## **Current Progress**

The N180 Contractor, Stacy and Witbeck, Inc. (SWI) has completed installation of the Floating Slab in the Northbound tunnel (NBT), and is now installing slabs in the Southbound tunnel (SBT). Direct Fixation (DF) track installation is ongoing in the north and south bound tunnels between UDS and RVS. Survey is complete between RVS and MLP. The foundation for the MLP stair tower is complete, and the subcontractor is prefabricating the wall forms.

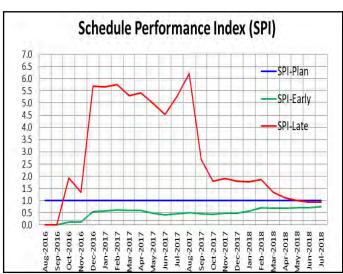
## Schedule Summary

The N180 schedule for July was returned to SWI with a Code 3—Revise & Resubmit evaluation. While the final substantial completion milestone is on time, SWI pushed out the completion of work between RVS and MLP. ST is not agreement with the changes and has requested SWI provide backup data to substantiate the duration changes made.



#### Schedule Performance Index

The Contractors performance has fallen below the late schedule SPI 0.94 and behind the early schedule SPI 0.76. Performance in between the curves is normally what is expected. Due to late access to the tunnel, the Contractor is behind the baselined schedule, but continues to meet their goals for early work such as material procurement and fabrications. Work performed in the field has to date met or exceeded forecasts.



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#### **Next Period's Activities**

- Production reports for Floating Slab Fabrication 5 Hz and 16Hz.
- Qualification Tests for 16Hz Main Support Pads.
- Shop Drawings for MOW Special Trackwork.
- Production Test Reports for Standard and Hi-Resilience DF Fasteners.
- Acoustical Barrier Foundation form and pour construction work plan.
- Frequency Response Testing (FRT) Production Test Results.
- Delivery and Install Floating Slabs SB.
- FRT testing SB.
- Access and Staging Only Receive Floating Slabs.
- Direct Fixation Track Construction in NB an SB.
- Discharge Monitoring and Water Treatment.
- MLP Stair Tower Level 1 Walls.
- Continued drainage, civil work, and begin track slab construction.

## **Closely Monitored Issues**

Previously, the most notable closely monitored issue was the floating slab installation and follow-on FRT testing. This has taken a turn for the positive in July with the NB FRT testing being accepted and SBT off to a fast start. So the most notable monitored issue going forward appears to the DF Track Construction in work areas 1, 3, and 5. There is a lot of work to be completed and due to the logistics of tunnel construction, it is solely dependent on the production rate of the crew as they make their way north toward MLP. This will be tracked and adjustments made in the coming months in order to ensure continued schedule successes.

## **Cost Summary**

Present Financial Status	Amount		
N180 Contractor—Stacy & Witbeck			
Original Contract Value	\$	71,455,950	
Change Order Value	\$\$	2,714,218	
Current Contract Value	\$	74,170,168	
Total Actual Cost (Incurred to Date)	\$	41,856,019	
Financial Percent Complete		56.4%	
Physical Percent Complete		63.8%	
Authorized Contingency	\$	10,718,393	
Contingency Drawdown	\$	2,714,218	
Contingency Index		2.23	



Floating Slabs in storage at Columbia Precast Products in Woodland, WA.

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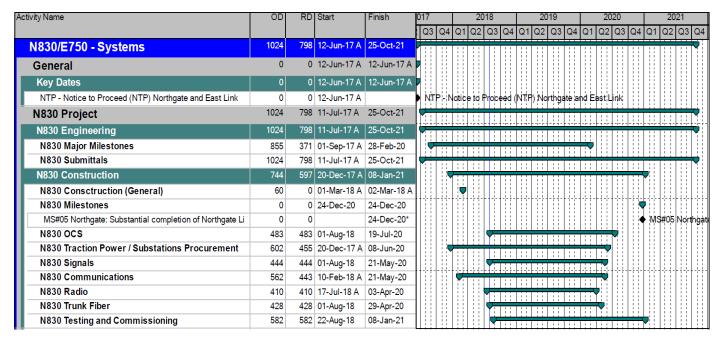
## Contract N830 - Northgate Link Systems, Heavy Civil GC/CM

### **Current Progress**

The N830 Contractor, Mass Electric Construction Co. (MEC), continues to focus on engineering efforts, including the design of communications, radio and signaling systems. EMI cable installation in the tunnel is ongoing in conjunction with the installation of the floating slabs. At the Northgate Station Parking Garage, systems equipment (communications & security) continues. MEC and ST are working to finalize the TPSS equipment.

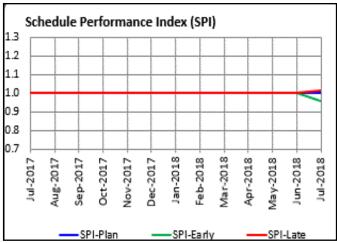
## **Schedule Summary**

The N830 schedule for July continues to forecast an early completion of the work, in December 2020. The July schedule was returned to MEC with a Code 3—Revise & Resubmit, due to changes made in sequence of work that ST does agree with and which were not adequately explained in the schedule narrative.



#### **Schedule Performance Index**

The Contractor have taken the actual curve up to June 2018 and made it the planned curve, resulting in SPI indices of 1.0. From July moving forward the Contractor have rescheduled the future works to take into account better information of the engineering works now that the subcontracts for these works have been awarded and the successful bidders schedules are available. The updates to the schedule will allow for an accurate earned value measurements. For the July 2018 period the Contractor performed slightly ahead the late schedule (SPI 1.01) and slightly behind the early schedule (SPI 0.96).



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#### **Next Period's Activities**

- Continued Procurement for Signal and Communication materials fabrication and installation.
- Continued development and reviews of engineering submittals covering all disciplines: TPSS, OCS, TCS/ Signals and Communications.
- Continued meetings held between Systems and Civil Contractors to discuss and coordinate interface/access points for respective contracts.
- Continued installation of cable and devices in Northgate Parking Garage.
- Continued EMI Cable installation between University of Washington and University District Stations.

## **Closely Monitored Issues**

 CMC and ST continues to closely monitor the procurement packages to ensure the process are progressed and does not impact upcoming work activities.

## **Cost Summary**

Present Financial Status	Amount				
N830 Contractor - Mass Electric Construction Co.					
Original Contract Value	\$	104,660,444			
Change Order Value	\$	156,686			
Current Contract Value	\$	104,817,130			
Total Actual Cost (Incurred to Date)	\$	16,986,089			
Financial Percent Complete		16.2%			
Physical Percent Complete		16.8%			
Authorized Contingency	\$	5,233,022			
Contingency Drawdown	\$	156,686			
Contingency Index		5.6			

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



EMI Cable installation in the NB area.

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## Link Light Rail Lynnwood Link Extension



## **Project Summary**

Scope

**Limits** North Seattle to Shoreline, Mountlake Ter-

race, 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 communica-

tions (SCADA).

Phase Final Design

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



Map of Lynnwood Link Extension Alignment.

**Schedule** Revenue Service: July 2024

## **Key Project Activities**

- Received cost estimates on the In-Progress 90% design submittals from the two civil GC/CM contractors and the Independent Cost Estimator (ICE) on July 9.
- Presented a design update briefing to Shoreline City Council on June 16th and an open house preview to Lynnwood City Council on July 18.
- L115 contractor (Dickson) began demolition of the former furniture warehouse building on July 23.
- L200 GC/CM contractor (SKH) held a pre-bid conference for early work subcontracting on July 25.
- Held an open house at Lynnwood Convention Center on July 25. Over 140 residents attended the meeting including the Mayor and several City Councilmembers.

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## **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 July 2018, approximately \$11.5M was incurred, of which \$3.4M was for advancing civil & systems final design, and \$5.5M was for property acquisition and relocation. The remaining expenditures were for third party coordination, permits, staff, legal, and other direct charges.

Commitments and incurred costs under the construction phase are related to permits, utility relocation, and early demolition activity.

#### **Cost Summary by Phase**

Project Phase	Baseline Budget	Authorized Project Allocation	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$98.2	\$98.2	\$24.6	\$24.3	\$98.2	\$0.0
Preliminary Engineering	\$39.1	\$39.1	\$39.1	\$39.1	\$39.1	\$0.0
Final Design	\$164.2	\$164.2	\$82.8	\$73.0	\$164.2	\$0.0
Construction Services	\$128.4	\$128.4	\$19.6	\$12.8	\$128.4	\$0.0
3rd Party Agreements	\$14.6	\$14.6	\$8.5	\$4.7	\$14.6	\$0.0
Construction	\$1,921.4	\$1,921.4	\$12.0	\$2.1	\$1,921.4	\$0.0
Light Rail Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$235.7	\$235.7	\$106.4	\$94.3	\$235.7	\$0.0
Project Contingency	\$170.2	\$170.2	\$0.0	\$0.0	\$170.2	\$0.0
Total	\$2,771.6	\$2,771.6	\$292.9	\$250.3	\$2,771.6	\$0.0

#### **Cost Summary by SCC**

SCC Element	Baseline Budget	Authorized Project Allocation	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
10 Guideway & Track	\$791.8	\$791.8	\$0.0	\$0.0	\$791.8	\$0.0
20 Stations	\$357.9	\$357.9	\$0.0	\$0.0	\$357.9	\$0.0
30 Support Facilities	\$2.0	\$2.0	\$0.0	\$0.0	\$2.0	\$0.0
40 Sitework & Special Conditions	\$397.0	\$397.0	\$11.6	\$1.9	\$397.0	\$0.0
50 Systems	\$244.4	\$244.4	\$0.0	\$0.0	\$244.4	\$0.0
Construction Subtotal (10 - 50)	\$1,793.0	\$1,793.0	\$11.6	\$1.9	\$1,793.0	\$0.0
60 Row, Land	\$235.7	\$235.7	\$106.4	\$94.3	\$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	\$449.3	\$174.9	\$154.0	\$449.3	\$0.0
90 Unallocated Contingency	\$292.2	\$292.2	\$0.0	\$0.0	\$292.2	\$0.0
Total (10 - 90)	\$2,771.6	\$2,771.6	\$292.9	\$250.3	\$2,771.6	\$0.0

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## Link Light Rail Lynnwood 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.

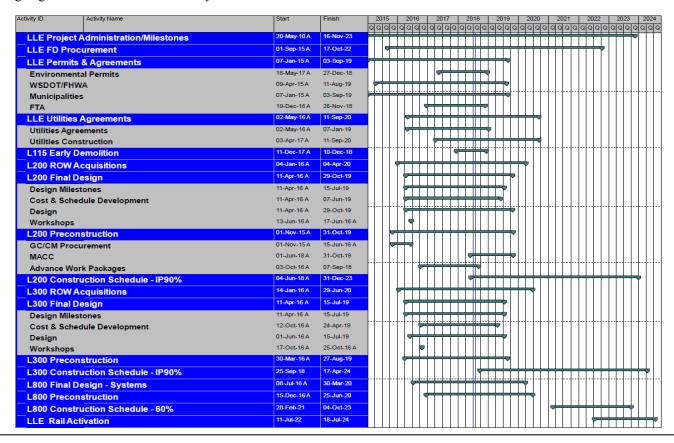
The next quarterly (3rd QTR) risk update for the project is scheduled for September 2018. ST includes participation of construction management consultants and construction contractors in its risk management program.

The following are the top project risks:

- FFGA approval and execution schedule.
- Obtaining permits—Cities, WSDOT and resource agencies.
- Timely completion of right-of-way acquisition.
- Construction market conditions.
- Differing site conditions encountered during construction.

## **Project Schedule**

The project team continues to progress through the 90% final design efforts for both L200 and L300. The L115 Demolition work is underway, with early work for L200 and L300 scheduled to start in 1st Quarter 2019. Construction is planned through the end of 2023, including the systems installations. Both civil GC/CM contractor teams submitted construction schedules based on the in-progress 90% design in July, which were reviewed and incorporated in the master schedule. With the new construction schedules and updated right-of-way schedules, the critical path for the project now runs through L300, driven by Right-of-Way acquisitions. Permitting activities are near-critical. ST continues to refine the schedule and reassess the critical path on an ongoing basis. Revenue Service for Lynnwood Link remains 2024.



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## **Contingency Management**

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

**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.

In the current period, there are no changes to contingency.

## Contingency Status (Monthly)

#### Currrent Status Baseline Type % of Total Remaining % of Work Amount Budget Amount Remaining Design \$247.9 8.9% \$247.9 9.8% Allowance Allocated \$197.6 7.1% \$197.6 7.8% Contingency Unallocated \$292.2 10.5% \$292.2 11.6% Contingency Total: \$737.7 26.6% \$737.7 29.3%

## Contingency by Type

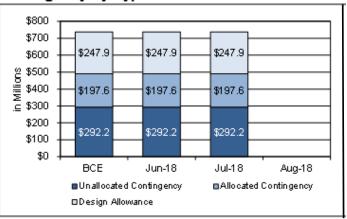
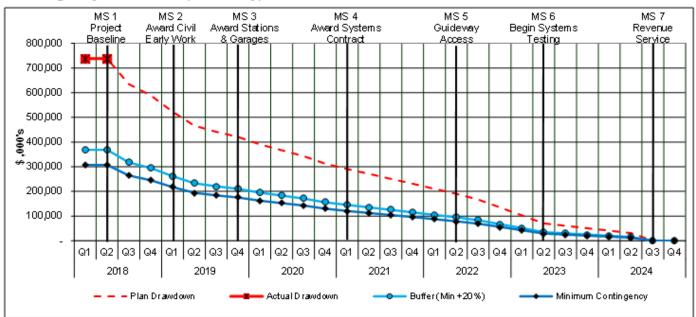


Table figures are shown in millions.

## Contingency Drawdown (Quarterly)



Graph for Quarter ending June 2018

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## Link Light Rail Lynnwood Link Extension



## 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									
L		ACQUISIT	RELOCATION							
	Total Acquisitions	Board Approved	Offers Made to date	Closings to date	Relocations Required	Relocations Completed to date				
Ī	364	343	106	80	234	113				
	All numbers are cumulative totals, except where noted. Number of totals may differ from other reports due to the timing of reporting periods.									

• Seven parcels were approved at the July board meeting (R2018-26).

## **Community Outreach**

- Station Design Open House Meetings The last of three public open house meetings was held in Lynnwood on July 25.
- Community Festival Mountlake Terrace Staff interacted with 250 citizens at this annual festival on July 28 and 29.
- Early Demo After completing demo work in Lynnwood, activity moves to Shoreline near the future Shoreline North/185<sup>th</sup>
   Station site. Residents near the demolition activity received advance notice of the work.

#### **Sound Transit Board Actions**

Board Action	Description	Date
M2018-83	Authorizing the chief executive officer to execute a task order with the Washington State Department of Transportation to provide construction administration and construction oversight services to the Lynnwood Link Extension.	7/12/2018
M2018-84	Authorizing the chief executive officer to execute a contract amendment with Mass Electric Construction Company to provide preconstruction services for Lynnwood Link Extension systems construction.	7/12/2018
R2018-26	Authorizing the chief executive officer to acquire certain real property interests.	7/28/2018

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## **Civil Final Design Overview**

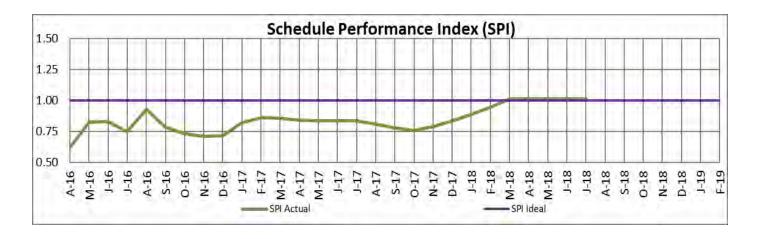
Sound Transit executed a professional services contract with HNTB Jacobs in April 2016 to perform civil final design along the entire Lynnwood Link alignment. Design services include preparation of comprehensive civil contract documents for construction, design coordination and cooperation with the GC/CM 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**

- Advancement of civil final design work, targeting 3rd QTR 2019 completion.
- Development of L200 and L300 pricing sets, to facilitate GC/CM subcontract bidding, including:
  - Submittal of L300 early work 100% package on July 2.
  - Submittal of L200 early work pricing set revision #2 on July 23.
- Continuing development of plans sets for land use permits for all four cities.

#### Schedule Performance Index

The cumulative Schedule Performance Index (SPI) trends at 1.01 through July 2018, which means that the cumulative amount of work accomplished is consistent with the amount of work originally planned. The civil final design cost savings ideas development was completed in October 2017. Schedule performance is expected to stay consistent over the next couple of reporting periods, as civil design activities have restarted and cost savings ideas will be incorporated into the project design.

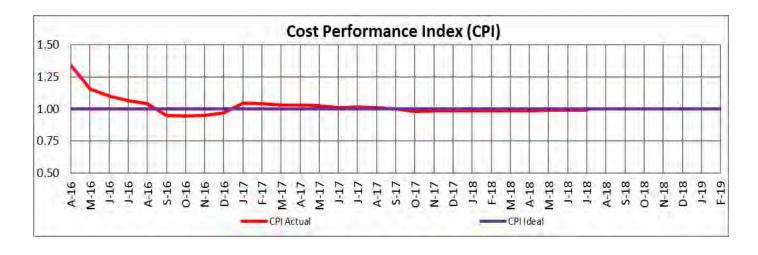


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## **Cost Performance Index**

\$67.0 M of the total contract amount, 93%, has been spent through July 2018. The civil final design percent complete is 92%, with an earned value of \$66.2 M. The cumulative Cost Performance Index (CPI) through July is 0.99 indicating that expenditures are consistent with the earned value of work performed.



## **Cost Summary**

Contract	Cumulative To-date
Amount Invoiced	\$67.0M
% Spent	93%
Earned Value	\$66.2M
% Complete	92%
SPI	1.01
СРІ	0.99



Residents get questions answered at the Lynnwood Open House

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## Systems Final Design Overview

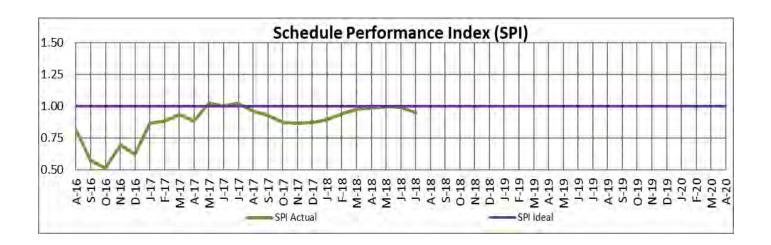
Sound Transit executed a professional services contract with LTK Engineering in July 2016 to perform systems final design along the entire Lynnwood Link alignment. Design services include preparation of comprehensive systems contract documents for construction, design coordination and cooperation with 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**

- Continuing work in support of the Systems In-Progress 90% submittal in August 2018.
- Initiated planning for constructability review in 4th QTR 2018.

## **Schedule Performance Index**

The cumulative Schedule Performance Index (SPI) trends at 0.95 through July 2018, which means that cumulative amount of work accomplished is slightly less than the amount of work originally planned.

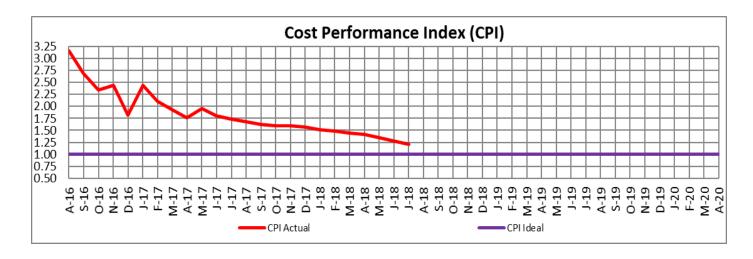


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## **Cost Performance Index**

\$5.0 M of the total contract amount, 53%, has been spent through July 2018. The systems final design percent complete is 65%, with an earned value of \$6.1 M. The cumulative Cost Performance Index (CPI) through July is 1.21 indicating that expenditures are significantly lower than the earned value of work performed.



## **Cost Summary**

Contract	Cumulative To-date
Amount Invoiced	\$5.0M
% Spent	53%
Earned Value	\$6.1M
% Complete	65%
SPI	0.95
СРІ	1.21

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## **Civil Construction Management Overview**

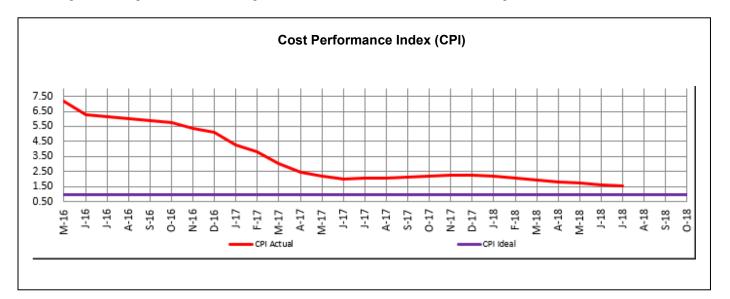
Sound Transit executed a professional services contract with PGH Wong in May 2016 to perform civil Construction Management (CMC) Services, including procurement support, permit support, contract document review, construction estimate reviews, participation in value engineering, risk assessments and constructability reviews, construction management support and oversight of early works by adjacent private and public developments, and public and private utility relocations.

## **Current Progress**

- Coordinating meetings with design, GC/CM, and Sound Transit teams.
- Coordination on various preconstruction activities including cost estimates, schedule, and constructability.
- Coordinating with GC/CMs and Final Designer in review of the Civil In-Progress 90% design package.

#### **Cost Performance Index**

\$4.6 M of the total contract amount, 62%, is spent through July 2018, with an earned value of \$7.5 M. The cumulative Cost Performance Index (CPI) is 1.62, indicating that expenditures are significantly lower than the earned value of work performed. Phase 1 of the contract was planned to end in January 2018. It has extended as design has extended. There is no additional cost to earn against their spent so CPI is trending downward. Phase 2 of the contract will be implemented in late 2018.



## **Cost Summary**

Contract	Cumulative To-date
Amount Invoiced	\$4.6M
% Spent	62%
Earned Value	\$7.5M
СРІ	1.62

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

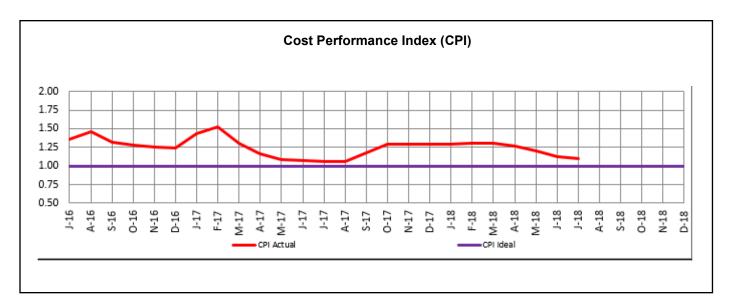
Sound Transit executed a professional services contract with Stacy & Witbeck Kiewit Hoffman in June 2016 to perform GC/CM pre-construction services for the L200 segment, including assistance in preparation of final construction plans including traffic control, preparation of schedules, reviewing right-of-way needs, identifying potential early work, assisting in risk assessments, value engineering and constructability workshops, preparing cost estimates, and completing reviews of contract documents.

## **Current Progress**

- Coordinating meetings with design, Construction Management Consultant, and Sound Transit teams.
- Progress on various preconstruction activities including cost estimates, schedule, and constructability.
- Coordinating with CMC and Final Designer in review of the Civil In-Progress 90% design package.

#### **Cost Performance Index**

\$4.0 M of the total contract amount, 80%, is spent through July 2018, with an earned value of \$4.4M. The cumulative Cost Performance Index (CPI) is 1.10, indicating that expenditures are lower than the earned value of work performed. The preconstruction schedule has been extended; CPI is anticipated to trend closer to 1.0 in the future.



## **Cost Summary**

Contract	Cumulative To-date
Amount Invoiced	\$4.0M
% Spent	80%
Earned Value	\$4.4M
СРІ	1.10

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

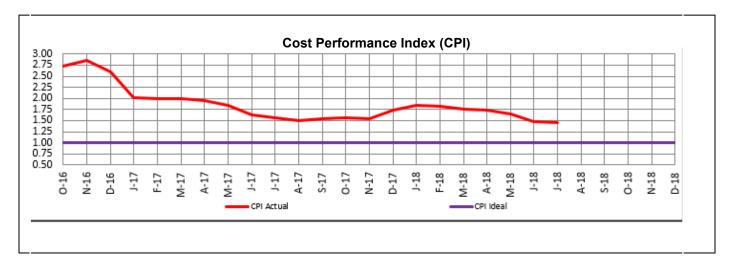
Sound Transit executed a professional services contract with Skanska in October 2016 to perform pre-construction services for the L300 segment, including assistance in preparation of final construction plans including traffic control, preparation of schedules, reviewing right-of-way needs, identifying potential early work, assisting in risk assessments, value engineering and constructability workshops, preparing cost estimates, and completing reviews of contract documents.

## **Current Progress**

- Coordinating meetings with design, Construction Management Consultant, and Sound Transit teams.
- Progress on various preconstruction activities including cost estimates, schedule, and constructability.
- Coordinating with CMC and Final Designer in review of the Civil In-Progress 90% design package.

#### Cost Performance Index

\$3.4 M of the total contract amount, 64%, has been spent through July 2018, with an earned value of \$5.0 M. The cumulative Cost Performance Index (CPI) is 1.45, indicating that expenditures are significantly lower than the earned value of work performed. The pre-construction schedule has been extended; CPI is anticipated to trend closer to 1.0 in the future.



#### **Cost Summary**

Contract	Cumulative To-date		
Amount Invoiced	\$3.4M		
% Spent	64%		
Earned Value	\$5.0M		
СРІ	1.45		

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## Link Light Rail

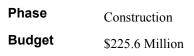
## I-90 Two-Way Transit & HOV Operations (Stage 3)



## **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.



Schedule Construction Complete: 2nd QTR 2018



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

## **Major Contracts**

	Scope	Agreement/Contract Amount		
WSDOT	Final Design	\$ 20,942,000		
WSDOT	CM Services	\$ 16,358,000		
IMCO	Construction	\$122,021,000		
City of Mercer Is	Transportation Mitigation	\$10,050,000		

## **Key Project Activities**

- Work outside the tunnels: Update and track equipment warranty items, Operations and Maintenance manual revisions, troubleshooting IR and CCTV systems at Dayton Traffic Management Center (TMC) and irrigation system controller issues
- Mercer Island Tunnel: Update and track equipment warranty items, punch list items, trouble shoot remaining Fire/ Life/Safety systems issues
- Mount Baker Ridge Tunnel: Update and track equipment warranty items, punch list items, trouble shoot remaining Fire/Life/Safety systems issues
- SCADA: Update and track equipment warranty items, submit final documentation
- Simplex: Update and track equipment warranty items, submit final documentation, trouble shoot remaining Fire/Life/Safety systems issues

## **Closely Monitored Issues**

While the center roadway turnover to Sound Transit was completed on schedule, Substantial Completion continues to slip; achievement of Substantial Completion is anticipated for 4th QTR 2018, due to the following:

Challenges continue with final commissioning of the Fire/Life/Safety Systems.

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

## **Project Cost Summary**

The following tables summarize the cost information for the I-90 Two- way Transit and HOV Operations (Stage 3) project. WSDOT has caught up on their invoice submittals, allowing resolution to past over-accruals and a more realistic expenditure forecast. With the Project nearing Substantial Completion, future expenditures continue tapering off as anticipated; July's monthly expenditure was \$231.7K. Tables below are in millions.

#### **Cost Summary by Phase**

Project Phase	Baseline Budget	Authorized Project Allocation	Commit- ment 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	\$18.0	\$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	\$182.5	\$165.2	\$198.3	\$0.0
Total	\$225.6	\$225.6	\$205.1	\$187.1	\$225.6	\$0.0

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

#### **Cost Summary by SCC**

SCC Element	Baseline Budget	Authorized Project Allocation	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
40 Sitework & Special Conditions	\$180.6	\$190.7	\$182.5	\$165.2	\$190.7	\$0.0
80 Professional Services	\$26.3	\$26.3	\$22.6	\$21.8	\$26.3	\$0.0
90 Unallocated Contingency	\$18.7	\$8.7	\$0.0	\$0.0	\$8.7	\$0.0
Total	\$225.6	\$225.6	\$205.1	\$187.1	\$225.6	\$0.0

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

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## **Cost Contingency Management**

In the table below, the Allocated Contingency includes both WSDOT-controlled construction contingency and the total ST-controlled allocated contingencies. Minimal change orders executed by WSDOT since last month's report, coupled with no change to the ST Unallocated Contingency balance, has resulted in a slight increase to the % of current total contingency remaining.

	Base	line	Current			
Contingency Status	Amount	% of Total	Amount	% of Work		
Design Allowance	\$0.0	0.0%	\$0.0	0.0%		
Allocated Contingency	\$17.0	7.5%	\$2.8	7.3%		
Unallocated Contingency	\$18.7	8.3%	\$8.7	22.4%		
Total	\$35.7	15.8%	\$11.5	29.8%		

Note: Table in millions.

## **Project Schedule**

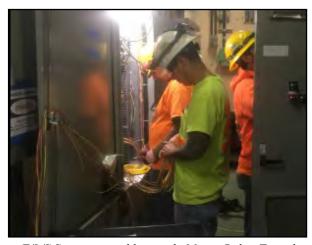
Project Milestones for construction are indicated below; forecast dates were submitted by WSDOT as anticipated dates, but have not at this time been accepted. Ongoing negotiations between WSDOT and the contractor to resolve commercial issues have pushed the forecast Substantial and Physical Completion dates into 4th QTR 2018.

Contract	Final Tunnel Commissioning Complete		Substantial Completion		Center Roadway Turnover		Physical Completion	
I-90 Two-Way Transit	Baseline	Forecast / Actual	Baseline	Forecast / Actual	Baseline	Forecast / Actual	Baseline	Forecast / Actual
& HOV Operations Stage 3	2/16/2017	Q1/2018	2/20/2017	Q4/2018	5/31/2017	6/14/2017 A	5/31/2017	Q4/2018

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



Electrical punchlist work, Mercer Island Tunnel



F/L/S Systems punchlist work, Mount Baker Tunnel

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## Link Light Rail East Link Extension



## **Project Summary**

#### Scope

**Limits** Fourteen-mile extension from Downtown

Seattle to Mercer Island, Bellevue and the

Overlake area of Redmond.

**Alignment** East Link Extension expands light rail to

East King County via I-90 from Downtown Seattle to the Overlake Transit Center area

of Redmond.

**Stations** Judkins Park, Mercer Island, South Belle-

vue, East Main, Bellevue Downtown, Wil-

burton, Spring District/120th, Bel-

Red/130th, Overlake Village and Redmond

Technology

**Systems** Signals, traction electrification, and com-

munications (SCADA).

Phase Construction

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

**Schedule** Revenue Service: June 2023



Map of East Link Extension Alignment.

## **Key Project Activities**

#### Seattle to South Bellevue

- *Floating Bridge Retrofit (E130)*: Final phases of post tensioning work and ongoing electrical retrofit for cathodic protection; ongoing structural retrofit of transition spans; continue OCS base installations.
- *Mercer Island (E130)*: Ongoing retrofit of tunnel electrical and structural modifications; ongoing construction of Mercer Island Station head house structures and TPSS sites 3 and 4; ongoing rail delivery and welding.
- *IDS to Mt. Baker Tunnel (E130)*: Ongoing retrofit of tunnel electrical and structural modifications; ongoing construction of Judkins Park Station conveyance structures and utilities.

#### South Bellevue to Redmond

- *South Bellevue (E320):* Continued parking garage construction. Ongoing installation of underground utilities duct bank. Started soil nail installation. Installed luminaire foundations along Bellevue Way/I-90 west bound on-ramps.
- **Downtown Bellevue Tunnel (E330)**: Completed Tunnel excavation and whole through at North Portal. Started to grind the crown from north end of the tunnel working toward south.
- **Downtown Bellevue to Spring District (E335)**: Continued work at Bellevue City Hall garage, on mechanical and electrical rooms. Commenced below-slab utility work and formed walls for foundation footing and station base slab for trackways. Excavated and formed escalator and elevator pit on north side of 120th Station.
- *Bel-Red (E340)*: Ongoing closure on NE Spring Blvd between 132<sup>nd</sup> Ave to 134<sup>th</sup> Ave. Continue working on Kelsey Creek Wetland Mitigation. Form, pour and strip retaining wall is ongoing. Decommission contract wells at various locations.
- *SR520 to Redmond Technology Station (E360)*: Design Continued Systems, OVS Station, and OVS Pedestrian Bridge design continue IFC validation. Construction Ongoing columns and walls construction along SR-520 and RT Station.
- Systems (E750): Continue with submittals, components and product design. Coordinated Installation Plan discussions between civil and system contractors.

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## **Closely Monitored Issues**

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

## **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) continues to be projected at approximately \$3.68B. This period's expenditure is about \$61M, pushing the total project expenditure to date cost from \$1.35B to \$1.41B. Project commitments has risen to over \$3B with all major construction contracts in place and construction is on-going throughout the alignment.

#### **Cost Summary by Phase**

Project Phase	Baseline Budget	Authorized Project Allocation	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$186.2	\$186.2	\$72.6	\$72.1	\$186.2	\$0.0
Preliminary Engineering	\$55.9	\$55.9	\$54.8	\$54.7	\$55.9	\$0.0
Final Design	\$283.0	\$283.0	\$245.5	\$208.5	\$283.0	\$0.0
Construction Services	\$257.5	\$257.5	\$196.8	\$63.5	\$257.5	\$0.0
3rd Party Agreements	\$52.2	\$52.2	\$38.5	\$18.2	\$52.2	\$0.0
Construction	\$2,544.3	\$2,544.3	\$2,148.1	\$725.4	\$2,544.3	\$0.0
Light Rail Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$298.2	\$298.2	\$266.7	\$265.5	\$298.2	\$0.0
Total	\$3,677.2	\$3,677.2	\$3,023.1	\$1,408.0	\$3,677.2	\$0.0

## **Cost Summary by SCC**

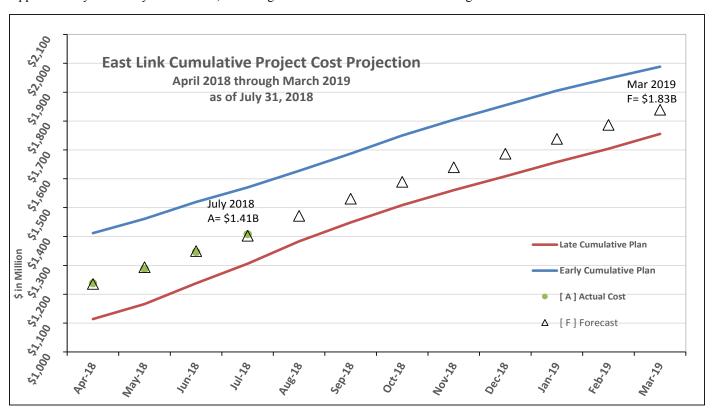
SCC Element	Baseline Budget	Authorized Project Allocation	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
10 Guideway & Track	\$744.6	\$949.7	\$889.6	\$357.4	\$959.8	(\$217.5)
20 Stations	\$397.7	\$474.2	\$434.0	\$105.8	\$471.7	(\$73.0)
30 Support Facilities	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$808.5	\$568.3	\$456.1	\$208.2	\$598.8	\$210.3
50 Systems	\$353.8	\$367.9	\$345.9	\$43.2	\$329.7	\$24.6
Construction Subtotal (10 - 50)	\$2,304.6	\$2,360.1	\$2,125.6	\$714.5	\$2,360.1	(\$55.5)
60 Row, Land	\$288.5	\$288.5	\$266.7	\$265.5	\$288.5	\$0.0
70 Vehicles (non-revenue)	\$2.8	\$2.8	\$0.0	\$0.0	\$2.8	\$0.0
80 Professional Services	\$898.4	\$889.1	\$630.8	\$428.0	\$889.2	\$9.2
90 Unallocated Contingency	\$182.9	\$136.6	\$0.0	\$0.0	\$136.6	\$46.2
Total (10 - 90)	\$3,677.2	\$3,677.2	\$3,023.1	\$1,408.0	\$3,677.2	(\$0.0)

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## **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 expenditure topped out at approximately \$61M where Construction Phase is responsible for over 87% or approximately \$52.8M of July's expenditure. Total project cost incurred to date approached \$1.41B, to which about \$725.4M was recorded in the Construction Phase. The project expenditures continue to pick up and is currently predicted to increase to approximately \$1.83B by March 2019, reflecting continued active construction through summer.



## **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.

This past quarter's (2nd QTR 2018) risks update for each of the major contract packages is currently taking place and in anticipated to complete by mid– August. ST included participation of construction management consultants and construction contractors in its risks management program.

The following are the top project wide risks:

- Coordination and completion of the relocations of public and private utilities.
- Compliance with environmental requirements.
- Competitiveness in the construction market and potential shortage of skilled labor.
- Timely completion of the I-90 floating bridge post tensioning in the Summer of 2018.

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## **Contingency Management**

East Link project budget was baselined on April 2015 with a total contingency of \$795.9M. At the end of July 2018, all major construction contracts have been procured, the total contingency balance stands at \$418.7M (previously \$425.1M). 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 decreased by a net amount of ~\$6.4M from \$284.9M to \$278.4M. The contingency draw in this period is primarily driven by aggregation of construction change orders in the project, specifically in E130.

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

Contingency	Base	eline	Curren	t Status
Туре	Amount % of Total Budget		Amount Remaining	% of Work Remaining
Design Allowance	\$184.1	5.0%	\$3.6	0.2%
Allocated Contingency	\$428.9	\$428.9 11.7%		11.9%
Unallocated Contingency	\$182.9	5.0%	\$136.6	5.9%
Total	\$795.9	21.6%	\$418.7	18.0%

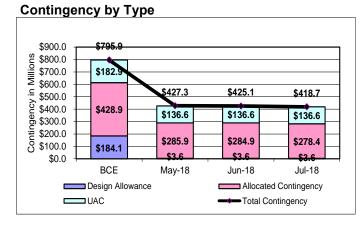
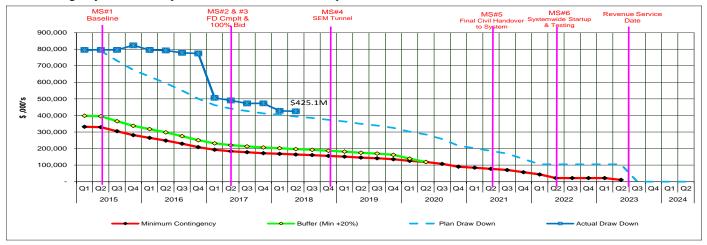


Table figures are shown in millions.

## **Contingency Drawdown**

At the end of the second quarter 2018, East Link Project's total contingency drawdown plan is trending as planned. Total contingencies balance is approximately \$425.1M 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 next contingency drawdown update is schedule for the third quarter of 2018.



Graph for Quarter ending June 2018

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## **Project Schedule**

The Integrated Master Schedule is presented below.

**E130** completed installation and stressing of post-tensioning strands on the floating bridge. Work continued at MI Station and the D2 roadway seismic retrofit.

**E320** continued setting girders for the aerial guideway, started underslab mechanical and electrical installation for the parking garage, and began soil nail installation at the Wye Creek crossing.

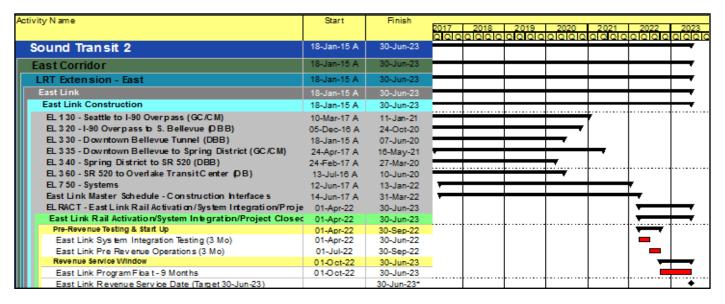
**E330** completed tunnel excavation five months ahead of schedule. Final tunnel lining work will continue for the next year.

E335 continued reinforcing the North Portal cut and cover structure; continued formwork and reinforcing for the long span base slab placement; and continued trench wall construction east of 120<sup>th</sup> Station.

E340 continued sanitary sewer installation and retaining wall placement on Spring Blvd.

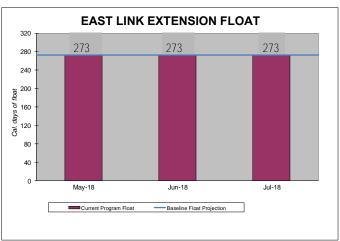
**E360** continued placing columns and caps and resumed setting girders along the aerial guideway. Wall placement began from OVS, working toward RTS.

**E750** Systems contractor continued product and component designs. This phase of work will be on-going for the next year. The physical construction on Northgate Link will occur before commencing on East Link. Systems construction on East Link is anticipated to start on the eastern segment of E130 in Summer of 2019.



#### **Project Float**

East Link was baselined with 273 days of program float. No float has been used to date. Graphical representation has been modified this month to properly reflect the baseline assumption that all unallocated contingency would be available at this point in the project.

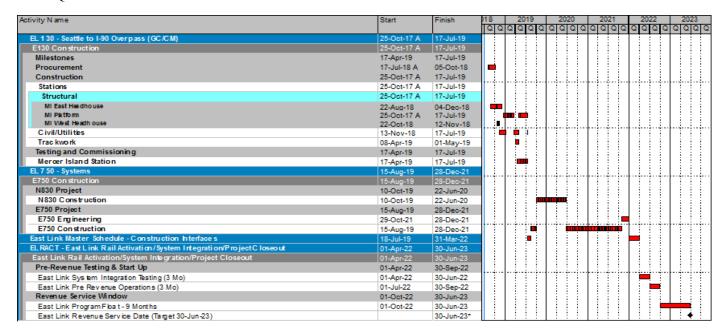


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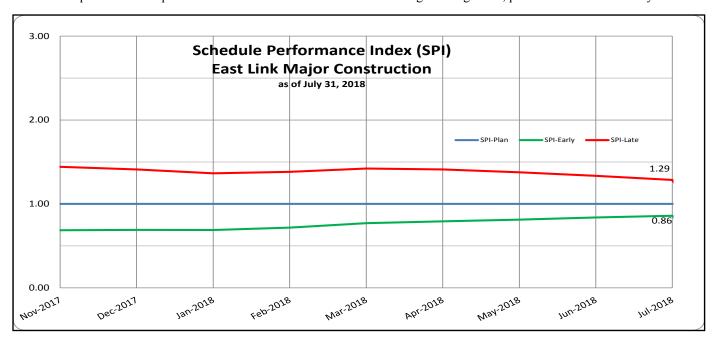
## **Critical Path Analysis**

The East Link critical path currently runs through the first civil-systems handover of the eastern portion of E130, including Mercer Island Station. The E750 critical path runs through work on North Link in 2019 before ramping back up for East Link work in 2nd QTR 2020.



#### **Schedule Performance Index**

The early Schedule Performance Index (SPI) for East Link's Major Construction Packages is at 0.86 for this period, which continues the upward trend of previous months. The late SPI is at 1.29 showing that in general, performance is satisfactory.



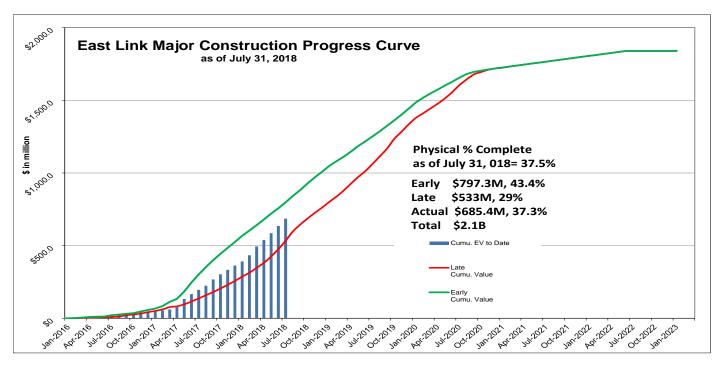
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## **Project Cash Flow Projection**

All seven major construction contractors are now mobilized. All major civil work is well underway. 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 July, performance is trending appropriately between the early/late projection as drawn from the master schedule. The overall physical percent complete for East Link construction is approximately 37.3%.

The current period's analysis excludes the cost of E335 stations work because this scope was recently added to the contract and will be rolled into this analysis in the coming months.





E330 Downtown Bellevue Tunnel: Grinding in tunnel continues

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## 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:

	ACQUISIT	RELOCATION				
Total Acquisitions	Board Approved	Offers Made to date	Closings to date	Relocations Required	Relocations Completed to date	
237	244	234	223	227	220	

## **Community Outreach**

- Participated in the Mercer Island Summer Celebration, Redmond Derby Days Festival, City of Bellevue 6th Street Arts Fair, and the Hole-Through Event for the completion of mining of the Downtown Bellevue tunnel.
- Communications coordination and notifications distributed with WSDOT and Mercer Island of I-90 post-tensioning work
  on the floating bridge on July 21. Work will include westbound, overnight closures on I-90.
- Distributed 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.
- Engaged with 174 individual property owners, members of the public and impacted neighbors on a variety of concerns
  including noise wall construction, signage, nighttime noise, traffic, access, maintenance of traffic, and irrigation line repairs.



E340 Bel-Red: Prepping materials for bridge deck form installation.

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## Link Light Rail East Link Extension



## **Sound Transit Board Actions**

Board Action	Description	Date
	None to report.	

## **Construction Safety**

Data/ Measure	July 2018	Year to Date	Project to Date
Recordable Injury/Illness Cases	2	18	31
Days Away From Work Cases	2	4	5
Total Days Away From Work	33	96	98
First Aid Cases	14	59	89
Reported Near Mishaps	4	60	152
Average Number of Employees on Worksite	979	-	-
Total # of Hours (GC & Subs)	142,514	1,030,767	1,733,220
OSHA Incident Rates	Monthly Average	Year to Date	Project to Date
Recordable Injury Rate	2.81	3.49	3.58
LTI Rate	2.81	0.78	0.58
Recordable National Average	3.20	3.20	3.20
LTI National Average	1.30	1.30	1.30
Recordable WA State Average	6.40	6.40	6.40
LTI WA State Average	2.10	2.10	2.10

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.

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

Status: See following pages under Contract E360.

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

Status: Contractor continues with critical submittal, reviews of plans, component and product designs as well as meetings with civil contractors with regards to the Coordinated Installation Plan (CIP).



E360 SR520 to Redmond Technology Station: Installation of wall reinforcement

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

## **Current Progress**

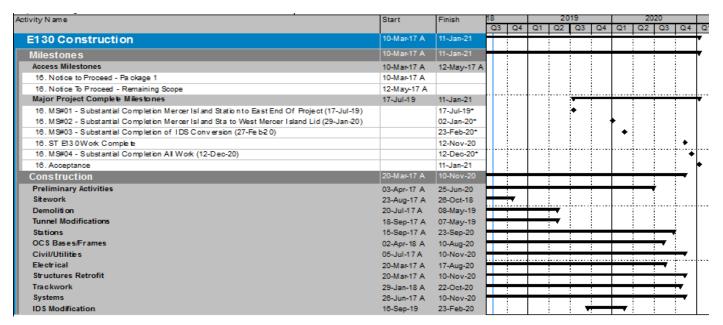
**D2** Structure & Mt. Baker Tunnel (West Segment): Ongoing retrofit of tunnel electrical and structural modifications; ongoing construction of Judkins Park Station conveyance structures and utilities.

**Floating Bridge Retrofit (Center Segment):** Begin final phases of post tensioning work; ongoing electrical retrofit for cathodic protection and approach structural retrofit; installation of OCS bases.

Mercer Island (East Segment): Ongoing retrofit of tunnel electrical and structural modifications; ongoing construction of Mercer Island Station head house structures and Traction Power Sub Station (TPSS) sites 3 and 4; ongoing rail delivery and welding.

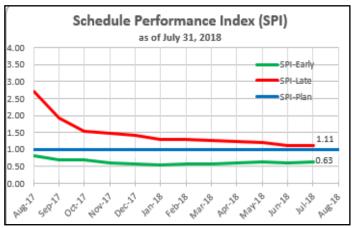
## **Schedule Summary**

The critical path for this project continues to run through access to the D2 roadway and subsequent demolition of the Rainier Avenue Bridge, then through Judkins Park Station. Contractor is currently forecast to achieve all milestones on or ahead of target completion dates.



#### Schedule Performance Index

This period, the SPI early is 0.63, SPI late is 1.11. The early index indicates the Contractor is behind their early finish plans; the late index shows the Contractor is on target with their late finish plan. These figures support the fact the Contractor encountered challenges in the initial phases of the post-tensioning scope, but continues to catch up to their baseline plan; work is now entering the final phase of post tensioning. The anticipated completion of post tensioning work is 3rd QTR 2018, slightly behind the original anticipated midsummer completion.



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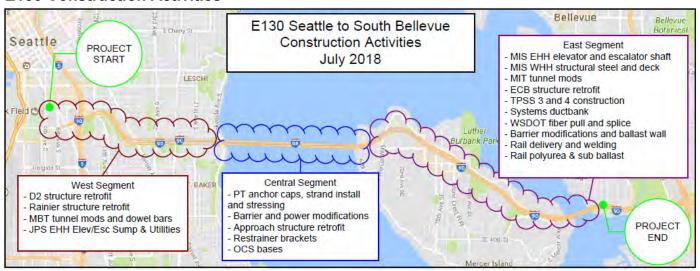
#### **Next Period's Activities**

- West Segment: Continue retrofit of tunnel electrical and structure seismic retrofit; continue structures construction and utility work at Judkins Park Station.
- HMH Floating Bridge (Center Segment): Continue cathodic protection, OCS foundation activities; continue post tensioning work; continue structure retrofit; continue track deliveries and welding.
- East Segment: Continue retrofit of tunnel electrical; continue MI Station & TPSS sites construction, ongoing structure retrofit; ongoing track deliveries and welding.

## **Closely Monitored Issues**

- Timely issuance of the Street Improvement Permit (SIP) by the City of Seattle
- Extent of variations in the actual deck thickness on the East Channel Bridge and potential ramifications
- Visual appearance of out-of-tolerance sound walls at MI Station and satisfactory remediation solutions

#### **E130 Construction Activities**



## **Cost Summary**

Present Financial Status	Amount
E130 Contractor - Kiewit-Hoffman	
Original Contract Value (incl. Phase 2 MACC)	\$665,000,000
Change Order Value	\$9,204,015
Current Contract Value	\$679,449,015
Total Actual Cost (Incurred to Date)	\$219,159,740
Financial Percent Complete	32.3%
Authorized Contingency	\$46,660,541
Contingency Drawdown	\$9,204,015
Contingency Index	1.6



Installing tendons for post tensioning inside floating bridge pontoon.

Contract Value excludes Betterment

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#### Contract E320 - South Bellevue

## **Current Progress**

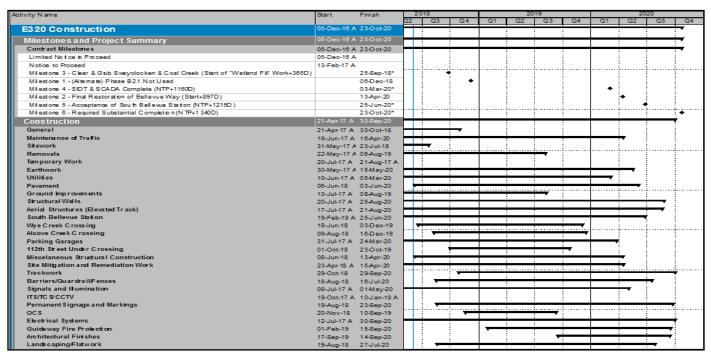
**I-90 Flyover**: Ongoing formation and installation of rebar and placement of concrete for shaft columns, setting pre-cast girders. Installing luminaire foundations on west shoulder of Bellevue Way/I-90 westbound.

S. Bellevue Sta./P&R: Starting under slab electrical and plumbing elements and forming first floor garage columns. Bellevue Way SE: Continued tangent pile work at Winters House and begin soil nail installation and drill shafts at Wye Creek crossing.

**Wye-to-East Main:** Continued installation of underground PSE duct bank and other utility structure. Start footing excavation for sound wall.

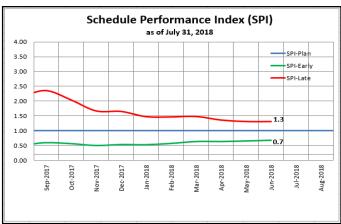
## Schedule Summary

The Contractor's May update is shown below. The June's schedule was rejected due to negative float ahead of Milestones 5 and 6 and the July's update has not adequately addressed the required recovery. ST is working with the Contractor to mitigate impacts. The critical path for this project currently runs through the 112th undercrossing.



#### **Schedule Performance Index**

This period, the SPI early is at 0.7 and the SPI late is at 1.3. The numbers indicate that the Contractor continues to be behind the early finish plans, but maintains ahead of the late curve when compared to the baseline work plan. The SPI early and SPI late are holding steady compared to earlier months in the project.



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## **Next Period's Activities**

**I-90 Flyover**: Continue pier table work and traveler fabrication in preparation for the long span cantilever work.

**S. Bellevue Stn/P&R:** Continue installations of underdrain; grade beams and pile caps work on the parking garage.

**Bellevue Way SE**: Continue drill shaft and soldier pile work near Winters House.

**Wye-to-East Main:** Continue footing work on sound wall at 112th and 3<sup>rd</sup> party utility installations.

## **Closely Monitored Issues**

- Working adjacent to wetland areas, environmental compliance concerns.
- Refinement to the three-lane reversible MOT on Bellevue Way SE.
- Clearing the area and guideway wall construction behind properties on hold for demolition to provide additional areas for mitigation of labor resources.



## **Cost Summary**

Present Financial Status	Amount*							
E320 Contractor - Shimmick/Parsons JV.								
Original Contract Value	\$319,859,000							
Change Order Value	\$1,631,225							
Current Contract Value	\$321,490,225							
Total Actual Cost (Incurred to Date)	\$111,109,622							
Financial Percent Complete	34.6%							
Authorized Contingency	\$38,532,000							
Contingency Drawdown	\$1,631,225							
Contingency Index	8.2							

<sup>\* \$</sup> Amount exclude betterment and STArt.



Parking Garage Pile Cap Work.

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#### Contract E330 - Downtown Bellevue Tunnel

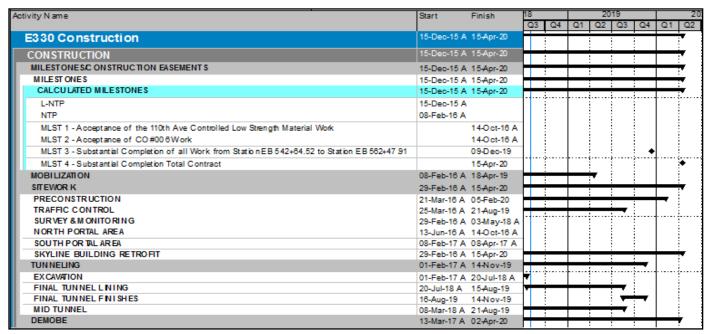
## Current Progress

**SEM Tunneling:** Completed Tunnel excavation and whole through at North Portal. Continued removal of center wall in the invert and remaining shotcrete spine in the crown. Continued to maintain the temporary erosion/sediment control and the traffic control at South Portal.

**Between Portals:** Started to grind the crown from north end of the tunnel working toward south. Completed break into the mid-tunnel adit from the shaft. Completed grinding and chipping of the mid-tunnel adit, placed the smoothing layer and worked on Seepage Management in preparation for waterproofing.

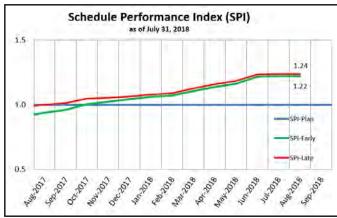
## Schedule Summary

The critical path for this contract follows the final tunnel lining and the completion of the South Portal structure. The Contractor is now forecast to achieve Substantial Completion ahead of their contractual requirements.



#### **Schedule Performance Index**

For the month of July, the SPI early is at 1.22 and the SPI late is at 1.24. Both early and late SPI are well ahead of the baseline work. Tunnel excavation was completed July 20, 2018. The advanced progress trend achieved as a result of good ground conditions encountered during excavation, could be challenged by additional permits imposed from City of Bellevue, and finalized waterproofing specifications.



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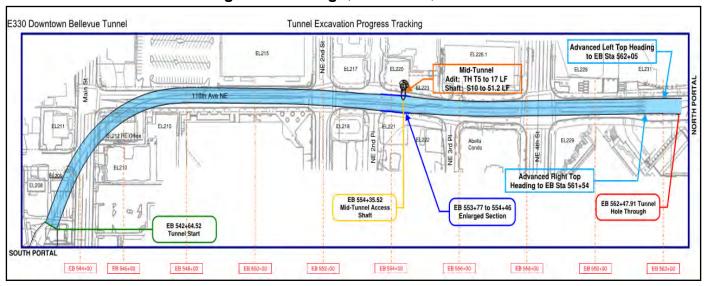
#### **Next Period's Activities**

- Tunnel: Commence applying smoothing layer on crown starting at the North Portal and constructing North Portal bulkhead. Continue the tunnel cleaning and grinding activities. Start the tunnel smoothing layer.
- Between Portals: Continue monitoring instrumentation along north end of alignment. Commence Waterproofing at mid-tunnel shaft and adit.

## **Closely Monitored Issues**

- City of Bellevue issued additional permits for the installation of the electrical and fire alarm conduits in the tunnel. The additional permit requirements may result in changes to the drawings, and may result in additional cost.
- Closely monitor the installation of waterproofing to ensure the bubbles observed during site trials are not in the permanent work.

## E330 Tunnel Excavation Progress Tracking (As of 07/20/2018)



## **Cost Summary**

Preset Financial Status	Amount							
E330 Contractor– Guy F Atkinson Construction, LLC.								
Original Contract Value	\$121,446,551							
Change Order Value	\$1,480,108							
Current Contract Value	\$122,926,659							
Total Actual Cost (Incurred to Date)	\$ 89,614,465							
Financial Percent Complete	73%							
Authorized Contingency	\$12,144,655							
Contingency Drawdown	\$1,480,108							
Contingency Index	6.0							



Tunnel whole through at North Portal.

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

## **Current Progress**

**Area 3:** North Portal/City Garage/BTC Station: Commenced forming and rebar installation of bottom slab and road panels at 110th Ave. Started work on mechanical and electrical rooms including placement of surge tank foundation and walls.

**Area 4:** Aerial Guideway: Completed pouring all columns of the aerial guideway. Set pre-cast girders over 116th and 8th Ave and started to set formwork for the overhang deck. Continued form work for base slab of span over I-405. Commenced construction of Hospital path with tree cutting, clearing, and grubbing.

**Area 6:** 120th-124th Trench/Station: Started mobilizing equipment and reinforcing steel placement for the 120th Station. Continued Spring District trench wall construction this period with concrete and reinforcement placement for the main trench section footing slab east of the Station box.

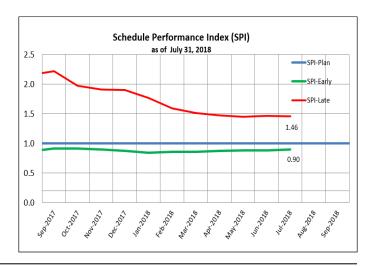
## Schedule Summary

There are two primary critical paths for this contract, corresponding to the two handovers to the E750 Systems Contractor — one runs through the North Portal and BTC station work in Area 3, and the other follows access to the SEM tunnel (E330 contract) in Area 2 and goes through the South Portal and the South Portal Electrical Building. That work will not start until mid-2020. The Contractor is currently 12 days behind their first interface milestone but is resequencing some work surrounding girder placement to recover time.

Activity N ame	Start	Finish	20	18			20	19			20	20			
				Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
E335 Construction	24-Apr-17 A	16-May-21	г				:				:				_
Milestones	04-May-18 A	16-May-21	Н				-				-	-			<del></del>
Contract Milestones	30-Sep-18	16-May-21	1	,	Ť	_	:	:	:	<del>                                     </del>	<del>: -</del>	<del>:</del>	<del>:</del>	_	┿
Milestone #1 - Complete North Potal Headwall Temporary Shoring		30-Sep-18*	1		•										
Milestone #2 -Complete SIDT's for Interface to SCADA		14-Jan-20*	1							+					
Milestone #3 - Complete Trackway and Stations for Primary Systems Access - BTC to EO	F	13-May-20*	ļ				<del>.</del>			·	*	<del></del>			1
Milestone #4 - Complete SEM Tunnel Trackwork for Primary Systems Access		16-Jan-21*	1											*	
Milestone #5 - Complete All Trackway and Stations for Primary Systems Access		16-Mar-21*	1												4
Milestone #8 - Substantial Completion of all Work		16-May-21*	1												
Calculated Milestones	04-May-18 A	14-May-21	Н		:		:	:	:	_	:	:	:		<del>;                                    </del>
E335 Achieves Milestone #1		04-May-18 A	7		· · · · · · · · · · · · · · · · · · ·		:	:		1		:			1
E335 A chieves Milestone #2		13-Jan-20	1							+					
E335 Achieves Milestone #3		25-May-20	1								*				
E335 Achieves Milestone #4		16-Jan-21	1											+	
E335 Achieves Milestone #5		12-Mar-21	ļ.,			<b> </b>				1		<u>.</u>			İ
E335 Achieves Milestone #6		14-May-21	1												•
Construction	24-Apr- 17 A	1 4-Apr-21	г												7
Mobilization	24-Apr-17 A	24-Apr-17 A	ı												
Area 1: E. Main Station to South Portal (531+55 - 538+00)	11-Oct-17 A	14-Apr-21	ь							<del>                                     </del>					•
Area 2: South Portal to SEM Tunnel (538+00 - 562+47.91	31-Jul-18	30-Mar-21	ı	-	:		•	:	:	_	<del>: -</del>	<del>: -</del>	:		÷
Are a 3: North Portal to Aerial Guideway (562+50 - 568+45)	24-Apr-17 A	30-Mar-21	۳								:		;		₹
Area 4: Aerial Guideway (568+45 - 606+59)	24-Apr-17 A	30-Mar-21	Н		:	_	:	:	:	<del>                                     </del>	<del>: -</del>	<del>: -</del>	<del>:</del>	_	÷
Area 5: Pine Forestto 120th (606+59 - 619+00)	07-Jul-17 A	30-Mar-21	Н		-		-	-	-	<del>                                     </del>	:	-	:		Ť
Are a 6: 120th - End of Project (619+00 - 634+99)	01-Aug-17 A	24-Apr-20	Н		:	_	:	:	:	_	<del>, ,</del>				
Testing and Commissioning	07-Jan-20	23-Dec-20				l	:			-	:	:	<del>:                                    </del>	1	

#### **Schedule Performance Index**

This period, the SPI early is at 0.90 and the SPI late is at 1.46. The contractor continues to lag the early plan, but well ahead of the late finish plan when compared to the baseline work. Numbers are supported by the fact that delivery of girders and follow-on deck construction for spans is behind schedule. Trackway excavation and embankment in Area 5 has been partially completed, but the final cut/fill to grade and placement of subballast will take place later than planned. Work at the North Portal and open cut excavation at 120th to 124th are ahead of schedule while construction of track walls are behind.



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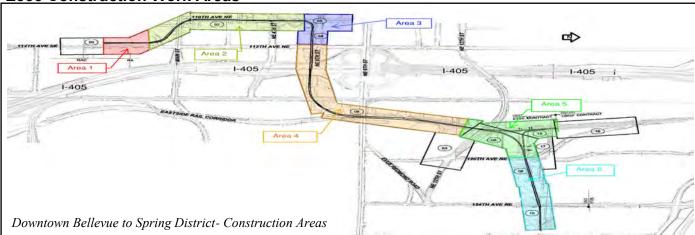
#### **Next Period's Activities**

- Area 3: N Portal/City Garage/BTC Station: Continue wall and slab reinforcing for the North Portal cut and cover. Continue utility work on City Hall garage rebuild.
- Area 4: Aerial Guideway: Continue for mwork and reinforcing for long span base slab placement and start concrete work on the eastern back span.
- **Area 5:** Pine Forest: Continue sub-ballast placement at the Kirkland wye and installation of pre-cast track walls.
- Area 6: 120th-124th Trench/Station: Continue backfill for Spring District trench footing wall sections and continue reinforcing steel placement for 120th Station.

## **Closely Monitored Issues**

- Recent RFIs have identified the need to revise the Wye special track work. The impact to this change has the potential to delay installation of Overhead Catenary System (OCS) pole foundation and System's OCS work.
- The City of Bellevue's Zone 1B Contractor has demobilized from the site. Existing grades have been left higher than depicted in the E335 plans by the Zone 1B Contractor, which has resulted in additional cost and effort for removal of approximately 7,000 CY of surplus material as well as piping and catch basins left behind.

**E335 Construction Work Areas** 



## **Cost Summary**

Present Financial Status	Amount							
E335 Contractor– Stacy & Witbeck/Atkinson Joint Venture (SWA-JV).								
Original Contract Value (includes station scope)	\$393,798,210							
Change Order Value	\$4,004,413							
Current Contract Value	\$397,802,623							
Total Actual Cost (Incurred to Date)	\$ 117,848,870							
Financial Percent Complete	29.6%							
Authorized Contingency	\$19,689,911							
Contingency Drawdown	\$4,004,413							
Contingency Index	1.5							



Spring District Station concrete pour (Area 6)

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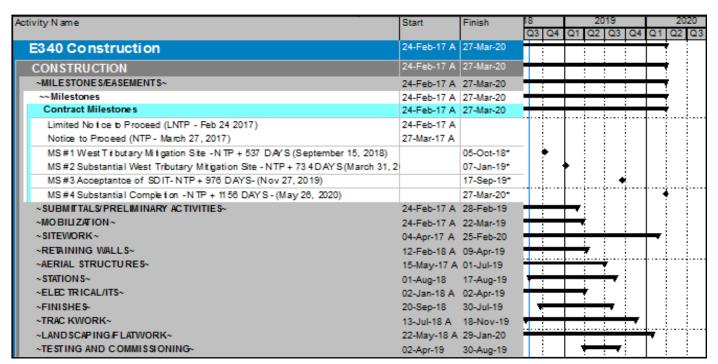
#### Contract E340 - Bel-Red

## **Current Progress**

Ongoing closure at NE Spring Blvd (132nd Ave to 134th Ave) and start milling existing asphalt concrete pavement. Continue installing sanitary sewer on NE Spring Blvd., night shift. Working east along NE Spring Blvd. to include two street crossing for side sewers. Form, pour and strip retaining wall is ongoing at the curve of NE Spring Blvd north side. Continue installing storm drain, sanitary sewer and running stream bypass in the Kelsey Creek area. Installing storm drain on the north side of NE 20th Street.

## Schedule Summary

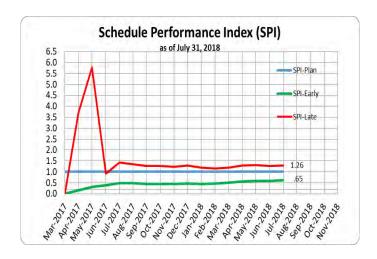
Critical path of this project now runs through the casting and placement of track wall along 136th, followed by trackwork. The Contractor is trending to finish ahead of their contractual milestone.



#### Schedule Performance Index

This period, the SPI early is at 0.65 and the SPI late is at 1.26. The late index indicates that the contractor continues to be ahead of the planned finish work; while the SPI early measures the Contractor's planned early finish is behind.

Some of the factors that contribute the Contractor to be ahead of the SPI late are the completion of some of the overhang soffit, girder stops, intermediate diaphragm, deck soffit spans. The Contractor picked up the pace on aerial guideway construction this month.



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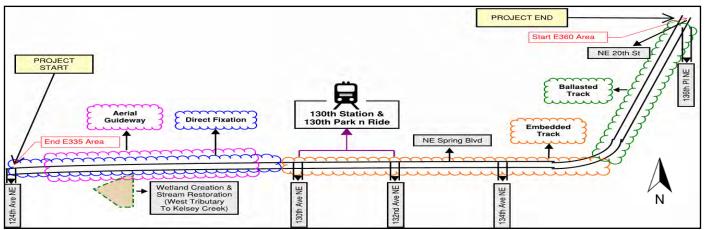
#### **Next Period's Activities**

- Continue decommissioning contract wells at various locations
- Continue forming footing and pour the first section on the south side Wall of NE Spring Blvd between 132nd and 134th.
- Installing signal foundations at various locations along the alignment.
- Continue working on Kelsey Creek Wetland Mitigation excavation.
- Continue installing sanitary sewer on NE Spring Blvd.

## **Closely Monitored Issues**

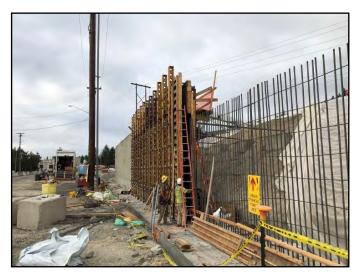
- Delayed start on west end of the project: West Trib, Mid-Lakes Pump Station, Force Main Re-lining and 124th Ave Bridge project cumulatively has potential to impact project.
- Disputed SCL property easements is impacting City of Bellevue's 124th Avenue bridge construction, Supreme Court ruling expected in early this summer.
- Ongoing utility conflicts (including un-marked/ unidentified) encountered within the roadway and private properties.

#### **E340 Construction Work Areas**



## **Cost Summary**

Present Financial Status	Amount
E340 Contractor- Max J Kuney	
Original Contract Value	\$93,170,012
Change Order Value	\$2,025,517
Current Contract Value	\$95,195,529
Total Actual Cost (Incurred to Date)	\$35,621,355
Financial Percent Complete	37%
Authorized Contingency	\$9,317,000
Contingency Drawdown	\$2,025,517
Contingency Index	1.72



Installing front lined-forms for Wall between 130th Ave to Spring Blvd looking West.

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

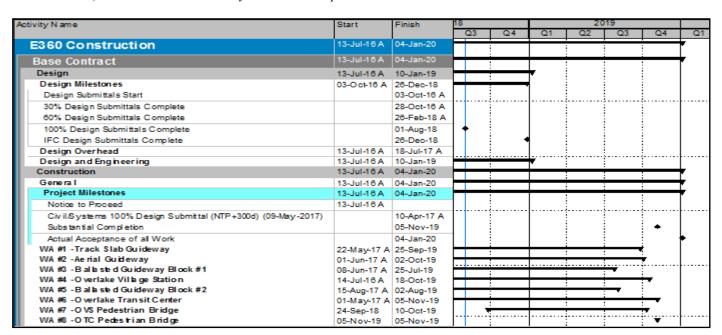
## **Current Progress**

**Design:** Advanced design packages for the following areas: SR520 Permanent Roadway and Landscape Guideway 100% Sound Transit review, Systems Design continue IFC validation (Rev 3), Civil Systems 100% submittal review/resolution, and continued IFC validation for Overlake Village Station (OVS). Continued 100% and IFC development for OVS pedestrian bridge substructure/superstructure design packages (DP). Landscape Guideway 100% submittal preparation is now underway.

**Construction:** Aerial guideway structures continued in Work Area #2 with three columns, and four caps placed. Girder erection resumed this month with three spans placed. Work Area #3/4/5 continues sound/barrier wall grading, footing and wall placement starting at OVS and working towards RTC (walls 16 and B6). Work Area #5 complete backfill/cap of cast-in-place wall 13A and continue mass grading along the at-grade guideway. Continued fascia for soil nail wall S8 and grading activities for RTC station. Continued footing and wall construction for Redmond Technology Station wall B6.

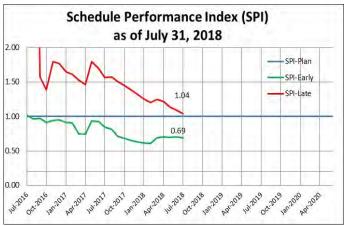
## Schedule Summary

The critical path for this project currently goes through the structural work at Redmond Technology Station (formerly Overlake Transit Center). The contractor is currently forecast to complete this contract on schedule.



#### Schedule Performance Index

This period, the SPI early is 0.69 and SPI late is 1.04. The early SPI value continues to reflect slippage of early finish of baseline plan. ST directed stoppage of RTC Pedestrian Bridge due to Microsoft reevaluation of the bridge contributed to the slippage as well. Drilled shafts work is complete, with 6 columns and 12 caps remaining. With girder work resuming in July, SPI should start to show recovery in the month of August.



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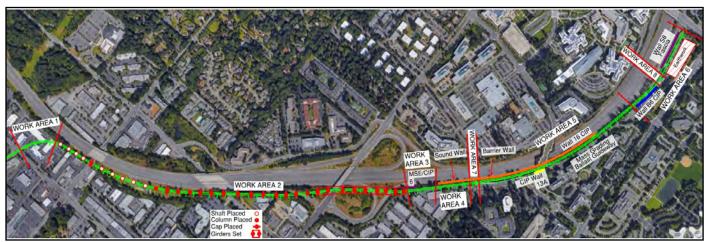
#### **Next Period's Activities**

- Design: Civil SR520 IFC and Landscaping Guideway DP issuance. Continue civil system 100% ST comment resolution. OVS Ped Bridge IFC submit and start review.
- Work Area #2: Ongoing column and cap placement.
   Begin precast deck placement. Start TPSS Vault construction.
- Work Area #3/4: Continue sound wall footing/ wall placement and MSE abutment wall construction. Continue OCS foundation placement.
- Work Area #5: Continue construction of footings/walls for track wall B5 and 16. Continue OCS placement.
- Work Area #6: Start undergrounding utility construction. Continue wall S8 fascia construction and excavation.

#### **Closely Monitored Issues**

- Microsoft continues on 60% designs for an alternative pedestrian bridge. Contract amendment will be required.
- Contractor, ST and City of Redmond continue to work out permitting issues having commercial impacts.
- Commercial Issues on Sales Tax Increase, Waterline Routing at RTS, and As-Built Specification.
- Clearance requirements between the WSDOT Aggregate Disposal Site access road and aerial guideway.
- Timeliness of Construction Work Plan submittals.
- Design QC process for remaining bid packages.
- Worker safety and post incident investigation.

#### **E360 Construction Work Areas**



**Cost Summary** 

Present Financial Status	Amount						
E360 Contractor— Kiewit-Hoffman							
Original Contract Value	\$225,336,088						
Change Order Value	\$1,458,762						
Current Contract Value	\$226,541,938						
Total Actual Cost (Incurred to Date)	\$100,204,791						
Financial Percent Complete	43.84%						
Authorized Contingency	\$23,071,580						
Contingency Drawdown	\$1,205,850						
Contingency Index	6.9						



CIP Wall 16 Construction along SR520.

Contract Value excludes Betterment

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## Link Light Rail Downtown Redmond Link Extension

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# Link Light Rail Downtown Redmond Link Extension



#### **Project Summary**

Scope

**Limits** The Downtown Redmond Link Extension

builds new light rail from the Redmond Technology Station to downtown Red-

mond.

**Alignment** The extension starts at Redmond Technolo-

gy Station travels generally along SR-520 and SR-202 to downtown Redmond.

Stations Two Stations—SE Redmond (at Marymoor

Park) and Downtown Redmond.

**Systems** Signals, traction electrification, and com-

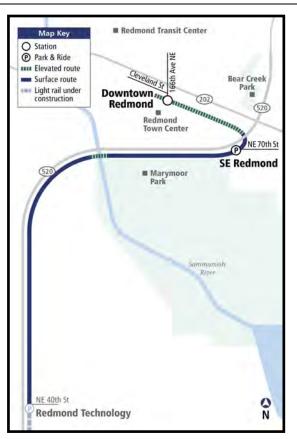
munications (SCADA)

Phase Planning

**Budget** \$178M through completion of Preliminary

Engineering and Right of Way Acquisition.

**Schedule** Revenue Service: 2024



Map of Downtown Redmond Link Extension

#### **Key Project Activities**

- Held Downtown Redmond Link Extension's (DRLE) project level Value Engineering Workshop prior to Baseline.
- Held DRLE's project level Quantitative Risk Assessment prior to Baseline.
- Continued partner agency agreements negotiations. Focusing on impact mitigation, staffing resources, permitting and design preferences.
- Advertised RFQ for the Design Build contract package for DRLE.
- Continued drafting of RFP for the Design Build contract package for DRLE.
- Continued draft of NEPA Re-evaluation/SEPA Addendum for FTA review and approval.

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#### **Project Cost Summary**

Voters approved funding for preliminary engineering for the Redmond Link extension in the 2008 in the Sound Transit 2 ballot measure. In response to the 2007-2009 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.

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 this period, the Redmond Link project incurred approximately \$1.6M of expenses bringing the total expenditure to date from \$18.3M to \$19.9M. Preliminary Engineering and Administrative (staff cost) activities continue to be the primary cost driver with approximately \$1.5M spent during this period. Agency Administration, primarily staffing cost amounting the rest of the monthly expenditure.

#### **Cost Summary by Phase**

Project Phase	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$4.9	\$3.4	\$3.2	\$4.9	\$0.0
Preliminary Engineering	\$21.3	\$17.9	\$14.6	\$21.3	\$0.0
Final Design	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Construction Services	\$2.0	\$1.7	\$0.0	\$2.0	\$0.0
3rd Party Agreements	\$2.8	\$0.3	\$0.3	\$2.8	\$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	\$147.0	\$7.1	\$1.8	\$147.0	\$(0.0)
Total	\$178.0	\$30.3	\$19.9	\$178.0	\$(0.0)

#### **Cost Summary by SCC**

SCC Element	Authorized Project Allocation	Commit- ment 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
Construction Subtotal (10 - 50)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
60 Row, Land	\$140.0	\$7.1	\$1.8	\$140.0	\$0.0
80 Professional Services	\$29.4	\$23.2	\$18.0	\$29.4	\$0.0
90 Unallocated Contingency	\$8.6	\$0.0	\$0.0	\$8.6	\$0.0
Total (10 - 90)	\$178.0	\$30.3	\$19.9	\$178.0	\$0.0

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# 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 continues to develop its qualitative risk profile on an ongoing basis towards the anticipated 4th QTR 2018's baselining of the project. The project completed its quantitative risk assessment workshop during this period and is now refining the data and anticipates to finalize and publish the risk report after the time of this publication.

Currently, the highest risk areas continues to be:

- Property acquisition market conditions; protracted durations of attaining control of properties; evolving design impacts property needs.
- Permitting and 3rd 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; stormwater discharge requirements by King County Parks; protracted negotiation with 3rd parties.
- Construction market conditions inflationary pressure due to potential shortages of labor; higher materials pricing due to demand as well as regulations (tariffs and taxes).
- Agency staffing capacity Developing and mobilizing resources and coordinating start up activities across multiple Link
  extensions within a short time frame.

#### **Project Schedule**

The project schedule is presented below. The project is currently updating environmental analysis ahead of the ST Board adopting the project to be built. Property acquisitions have begun. The project is anticipated to be baselined in 4th QTR 2018 after which the RFP will be issued. Project is currently forecast for completion near the end of 2024.

Activity N ame	Start	Finish							
			18	2019 DIDIDIO	2020	2021 Diploio	2022 Dipipio	2023	2024
Downtown Redmond Link Extension - Milestones & Interfaces	15-Dec-16 A	15-Nov-18							
Downtown Redmond Link Extension - Preliminary Engineering	03-Jan-17 A	31-Dec-19	Н		•				
Downtown Redmond Link Extension - Preliminary Engineering & Bridging Documents	03-Jan-17 A	31-Dec-19	Н		†				
Task 7: Preliminary Engineering	03-Jan-17 A	30-Jul-18	<b>7</b>						
Task 10: Final Design Transition and Procurement Support	30-Jun-17 A	31-Dec-19			<b>†</b>				
Downtown Redmond Link Extension - Right of Way	18-Jul-18	07-Jan-21	<b>-</b>			7			
Downtown Redmond Link Extension - Permits & Third Party Agreements	19-Jul-18	05-Jun-20	Т		_				
Downtown Redmond Link Extension - Construction	05-Oct-17 A	06-Jan-24	Н						<b>†</b>
Downtown Redmond Link Extension - DBPM Procurement	05-Oct-17 A	11-Jun-18	r						
Downtown Redmond Link Extension - Design-Build Procurement	11-Jun-18	17-Sep-19	Н	_					
Downtown Redmond Link Extension - Design-Build Contract	17-Sep-19	06-Jan-24		7					7
Downtown Redmond Link Extension - Project Closeout	06-Jan-24	30-Dec-24						'	$\overline{}$
Downtown Redmond Link Extension - Rail Activation/Close out	06-Jan-24	30-Dec-24						'	<del></del>
System Integration Testing	08-Jan-24	04-Apr-24							
Pre-Revenue Operations	05-Apr-24	03-Jul-24	<b></b>		ļ	.		ļ	<u> </u>
Project Float	04-Jul-24	30-Dec-24	4						
Revenue Service		30-Dec-24							<u> </u>

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# Link Light Rail Downtown Redmond Link Extension

#### 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								
	ACQUISIT	RELOCATION						
Total Acquisitions	Board Approved	Offers Made to date	Closings to date	Relocations Required Relocations Com to date				
87	64	0	0	1514	0			
* All numbers are cumulative totals, except where noted. Number of totals may differ from other reports due to the timing of reporting periods.								

- Anticipate going to the Board in October for the authority to acquire addition of parcels for the project.
- Total Acquisitions was increased by four (4) parcels needed for the project as a result of modifications to the project since the 2011 Record of Decision (ROD).

#### **Community Outreach**

- Continued meetings with potentially impacted property owners to provide updated project information and real estate process information and timing.
- Continued engagement with Microsoft employees during their unveiling of their campus redevelopment plans.

#### **Sound Transit Board Actions**

Board Action	Description	Date
	None to report.	

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## 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 Bal-

lard's Market Street area.

**Alignment** The West Seattle extension route is as-

sumed 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 Seg-

ment. 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**

- Continued technical work required to support the alternatives development process (Level 2 evaluation) as well as advancing efforts to identify and resolve key design, permitting, construction or operational feasibility issues.
- In response to the Elected Leadership Group (ELG) recommendations, completed and presented Level 1 evaluation for new alignment and station concepts in SODO and Chinatown/International District to the Interagency Group, Stakeholder Advisory Group (SAG) and ELG. Received recommendations from SAG and ELG to carry forward certain alternatives to Level 2 evaluation.
- Continued to work with City of Seattle regarding engineering, station planning, permitting and external engagement.
- Continue engagement with WSDOT, Port of Seattle, KC Metro and Tribes regarding alternatives development process.
- Initiated coordination with Union Pacific railroad regarding alignment alternatives in the Duwamish/Spokane Street and SODO areas.
- Conducted four all-day station planning charrettes for the Seattle Center Station, Delridge Station, Alaska Junction and Avalon stations and Chinatown/International District Station.

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# Link Light Rail West Seattle and Ballard Link Extensions

#### **Project Cost Summary**

The West Seattle and Ballard Link Extensions are voter-approved projects under the ST3 Plan. The Current 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, it is anticipated that the project would incur approximately \$25M in 2018 for alternatives development and evaluation; conducting feasibility studies on key project scope assumption in the ST3 Plan, 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	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$63.1	\$3.7	\$3.0	\$63.1	\$0.0
Preliminary Engineering	\$205.4	\$24.4	\$11.0	\$205.4	\$0.0
Final Design	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Construction Services	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
3rd Party Agreements	\$11.4	\$1.1	\$0.0	\$11.4	\$0.0
Construction	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Light Rail Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$6.0	\$0.1	\$0.1	\$6.0	\$0.0
Total	\$285.9	\$29.4	\$14.2	\$285.9	\$0.0

#### **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
Construction Subtotal (10 - 50)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
60 Row, Land	\$5.0	\$0.1	\$0.1	\$5.0	\$0.0
80 Professional Services	\$263.4	\$29.3	\$14.1	\$263.4	\$0.0
90 Unallocated Contingency	\$17.5	\$0.0	\$0.0	\$17.5	\$0.0
Total (10 - 90)	\$285.9	\$29.4	\$14.2	\$285.9	\$0.0

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# 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:

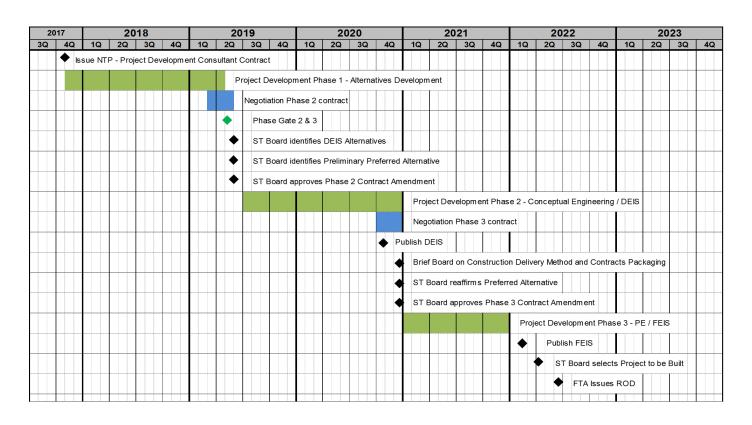
- Reaching stakeholder consensus on a preferred alternative;
- Complexity of alignments in constrained environment with challenging topography and waterway crossings;
- Complexity associated with tunneling through a mature urban environment;
- Potential construction effects in a constrained environment;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

#### **Project Schedule**

The preliminary project schedule through the ST Board selection of the project to be built and FTA issuance of ROD is presented below. Sound Transit is developing the master project schedule in Primavera P6, which is supported by a detailed schedule of Phase 1, Alternatives Development, created by the project development consultant.

Final Design is 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.



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# Link Light Rail West Seattle and Ballard Link Extensions

#### **Community Outreach**

- Continued summer outreach at fairs and festivals around Seattle area, including events in West Seattle, Ballard and Chinatown/International District.
- Prepared and conducted station planning charrettes, which take place in June through September.
- Prepared for upcoming neighborhood forums, SAG and ELG meetings for Level 2 evaluation and screening activities.

#### **Sound Transit Board Actions**

Board Action	Description	Date
	None to report.	

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# Link Light Rail S. 200th Link Extension



#### **Project Summary**

Scope

**Limits** South 200th Link Extension consists of 1.6-

mile extension of light rail from the SeaTac/

Airport Station to South 200th Street

**Alignment** The extension continues in an aerial configu-

ration heading south of the existing SeaTac/Airport Station, east of Air Cargo Road across South 188th Street, and continuing south along the east side of 28th Avenue South to the elevated Angle Lake Station

South to the elevated Angle Lake Station located at South 200th Street. A passenger pickup/drop-off area, bus transfer, plaza, and a minimum 1,050-space structured park and ride facility is located at Angle Lake Station.

Up to 70 additional spaces were developed for interim parking while Angle Lake Station is the interim southern terminus of the Link

system. Guideway/Station and Parking Garage/Plaza was delivered under a Design Build contract.

**Stations** Angle Lake Station is located at South 200th

Street

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

communications

Budget \$383.2 Million

**Schedule** Revenue Service began on September 24,

2016

# SeaTac/Airport Station SeaTac | SeaTac

Map of S. 200th Link Extension

#### **Key Project Activities**

- Design Build (DB) Guideway and Station (S440):
   Contract closeout and issue Final Acceptance are pending. All contract CO's are complete.
- DB Parking Garage (S445): Contractor to complete façade repairs and working toward achieving Final Acceptance on the contract.
- Military Road/South 200th Intersection (S446): WSDOT 1yr plant establishment and contract closeout by Oct 2018.
- Project Wide: Conclude project activities by end of 4th QTR 2018; ADA Ramp Agreement is pending execution with City of SeaTac.
- CM is working to execute a JOC contract for rail grinding activity.

#### **Closely Monitored Issues**

• S445: Garage façade panels require repairs.

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#### **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.

#### **Cost Summary by Phase**

Project Phase	Baseline Budget	Authorized Project Allocation	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$16.1	\$17.1	\$16.3	\$16.2	\$16.5	\$0.6
Preliminary Engineering	\$5.9	\$5.7	\$5.7	\$5.7	\$5.7	\$0.0
Final Design	\$20.0	\$9.5	\$8.7	\$8.7	\$8.7	\$0.8
Construction Services	\$15.1	\$17.3	\$17.1	\$17.1	\$17.1	\$0.2
3rd Party Agreements	\$6.9	\$7.1	\$5.7	\$3.8	\$3.3	\$3.7
Construction	\$275.7	\$282.9	\$239.7	\$238.5	\$243.1	\$39.8
Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
ROW	\$43.5	\$43.5	\$38.1	\$38.0	\$38.1	\$5.5
Capital Total	\$383.2	\$383.2	\$331.3	\$328.1	\$332.6	\$50.6
Finance Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Project Total	\$383.2	\$383.2	\$331.3	\$328.1	\$332.6	\$50.6

The overall project Estimated Final Cost (EFC) for this period reflects \$332.6M, a savings projection of \$50.6M. This period incurred cost was increased by approximately \$0.03M and consist mostly of staff time in Administration phase and minor construction task order agreement.

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

#### **Cost Summary by SCC**

SCC Element	Baseline Budget	Authorized Project Allocation	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
10 Guideway & Track	\$144.8	\$133.0	\$100.3	\$100.4	\$109.4	\$23.5
20 Stations	\$46.4	\$51.7	\$42.1	\$42.0	\$42.4	\$9.5
30 Support Facilities: Yards, Shops	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$34.6	\$55.3	\$55.6	\$54.5	\$55.0	\$0.3
50 Systems	\$30.8	\$19.9	\$20.4	\$20.4	\$20.4	-\$0.4
Construction Subtotal (10 - 50)	\$256.6	\$259.9	\$218.5	\$217.3	\$227.1	\$32.8
60 Row, Land, Existing Improvements	\$43.5	\$43.5	\$38.1	\$38.0	\$38.1	\$5.5
70 Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
80 Professional Services	\$64.1	\$72.5	\$74.8	\$72.8	\$65.7	\$6.8
90 Unallocated Contingency	\$19.0	\$7.3	\$0.0	\$0.0	\$1.8	\$5.5
Capital Total (10 - 90)	\$383.2	\$383.2	\$331.3	\$328.1	\$332.6	\$50.6
100 Finance Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Project Total	\$383.2	\$383.2	\$331.3	\$328.1	\$332.6	\$50.6

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#### **Cost Contingency Management**

S. 200th Link Extension was baselined with a total contingency amount of \$75.6M, the Total Contingency has decreased by \$23.3M to \$52.1M. During this reporting period, there was no change to project contingency. Detailed information is provided in the table below.

Design Allowance (DA): N/A

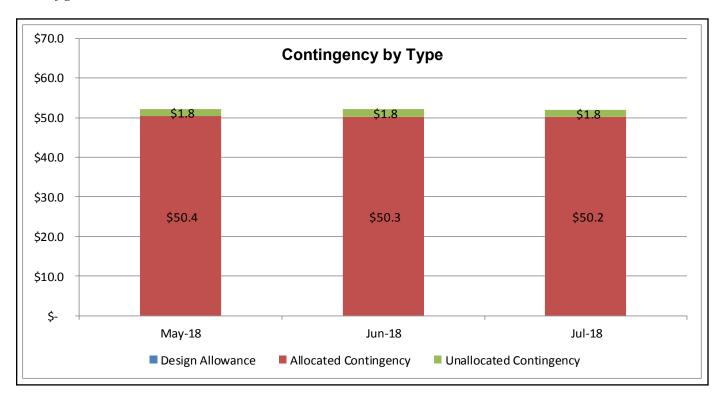
**Allocated Contingency (AC):** The AC balance is \$50.2M, overall reflecting a change of \$0.1M due to resolving a construction claim settlement for the S440 contract.

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

#### **Contingency Status**

	Base	eline	Current		
Contingency Type	Amount	Amount % of Total Amount		% of Work Remaining	
Design Allowance	\$26.7	7.0%	\$ -	0.0%	
Allocated Contingency	\$29.8	8.0%	\$50.2	1114.2%	
Unallocated Contingency	\$19.0	5.0%	\$ 1.8	40.0%	
Total	\$75.6	20.0%	\$52.0	1154.2%	

Table figures are shown in millions.



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# Link Light Rail S. 200th Link Extension

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

#### **Close-out Current Progress**

• Contractor finalize closeout items.

# Contract S445—Design -Build Parking Garage

#### **Close-out Current Progress**

Substantial Completion issued on December 21, 2016.

Contractor finalizing closeout item; garage facade repairs.

#### **Next Period's Activities**

- Complete closeout activities.
- Issue Final Acceptance to Contractor.

#### **Next Period's Activities**

- Complete façade repairs.
- Issue Final Acceptance to Contractor.

#### **Closely Monitored Issues**

None to report.

#### **Closely Monitored Issues**

• The Contractor needs to repair garage façade panels.

#### **Cost Summary**

Present Financial Status	Amount					
S440 Contractor—PCL Civil Contractors, Inc						
Original Contract Value	\$169,000,000					
Change Order Value	7,112,438					
Current Contract Value	\$176,112,438					
Total Actual Cost (Incurred to Date)	\$176,112,438					
Financial Percent Complete	100%					
Physical Percent Complete	100%					
Authorized Contingency	\$13,520,000					
Contingency Drawdown	\$6,407,562					
Contingency Index	1.9					

### **Cost Summary**

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

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## Link Light Rail Federal Way Link Extension



#### **Project Summary**

Scope

**Limits** The Federal Way Link Extension adds ap-

proximately 7.8 miles of light rail from the Angle Lake Station in the City of SeaTac to

the Federal Way City Center.

**Alignment** The extension generally parallels SR 99

and I-5 freeway.

**Stations** Stations at Kent/Des Moines, South 272nd

Star Lake Park -and-Ride and the Federal

Way Transit Center

**Systems** Signals, traction power, and communica-

tions (SCADA)

Phase Preliminary Engineering/Final Design

**Budget** \$412.6 Million through Final Design

**Schedule** Revenue Service: December 2024



Map of Federal Way Link Extension.

#### **Key Project Activities**

- Present baselining materials at joint Phase Gate 4 / Capital Program Control Board (CCB) meeting scheduled for August 7 2018. ST Board is also scheduled in August 2018.
- Submission for Entry to Engineering (EIE) scheduled for August 2018; developing FFGA roadmap.
- Stipend Agreement approved by ST Board at July 26 2018 Board meeting.
- Selection of short listed firms were selected this period. Draft RFP will be shared with short listed firms in August 2018, followed by Final RFP scheduled for September 2018.
- Coordination continues for Advance Demolition contract for nuisance properties in City of Kent.
- Continued negotiations on WSDOT Construction Funding Agreement, finalizing risk and cost reimbursement issues. ST Legal reviewing, and agreement scheduled for Board August 2018.
- ST staff continue Air Space Lease (ASL)/Temporary Construction Air Space Lease Letter of Concurrence (TCAL LOC) coordination with WSDOT; agreement scheduled for August 2018 Board.
- Land exchange agreement with WSDOT moving forward and finalizing exhibits; ST Board scheduled for August 2018.
- Continued working with cities to finalize Development and Transit way agreements with all four cities.
- Continue discussions with Authority Having Jurisdiction (AHJ) for permitting requirement and required DB activity.
- Continued ROW acquisition and relocation activities; relocation volume is concerning due to limited housing availability.

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#### **Project Cost Summary**

In March 2017, the Sound Transit Board authorized the Federal Way Link Extension Project to advance through Final Design, increasing the authorized project allocation from \$48.8M to \$412.6M. Board approval for Baselining the project to release the entire project budget will be sought in 3rd QTR 2018.

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 \$4.4M was incurred, of this most expenditures were due to: \$3.4M was for Right-of-Way property acquisitions, administration, and relocations; \$0.1M was Construction Services, \$0.5M for ST staff (Admin), \$0.2M for PE services, and \$0.3M for third party and other FD services.

#### **Cost Summary by Phase**

Project Phase	Authorized Project Allocation	Commitment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$14.9	\$12.4	\$12.3	\$14.9	\$0.0
Preliminary Engineering	\$43.4	\$43.1	\$42.6	\$43.4	\$0.0
Final Design	\$2.4	\$0.9	\$0.9	\$2.4	\$0.0
Construction Services	\$45.7	\$4.6	\$1.1	\$45.7	\$0.0
3rd Party Agreements	\$18.6	\$3.7	\$2.4	\$18.6	\$0.0
Construction	\$13.5	\$0.0	\$0.0	\$13.5	\$0.0
ROW	\$274.1	\$36.7	\$17.5	\$274.1	\$0.0
Total	\$412.6	\$101.4	\$76.7	\$412.6	\$0.0

#### **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
20 Stations	\$0.0	\$0	\$0	\$0.0	\$0.0
30 Support Facilities	\$0.0	\$0	\$0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$8.1	\$0.0	\$0.0	\$8.1	\$0.0
50 Systems	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Construction Subtotal (10 - 50)	\$8.1	\$0.0	\$0.0	\$8.1	\$0.0
60 Row, Land	\$274.1	\$36.7	\$17.5	\$274.1	\$0.0
80 Professional Services	\$123.2	\$64.7	\$59.2	\$123.2	\$0.0
90 Unallocated Contingency	\$7.3	\$0.0	\$0.0	\$7.3	\$0.0
Total (10 - 90)	\$412.6	\$101.4	\$76.7	\$412.6	\$0.0

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## 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.

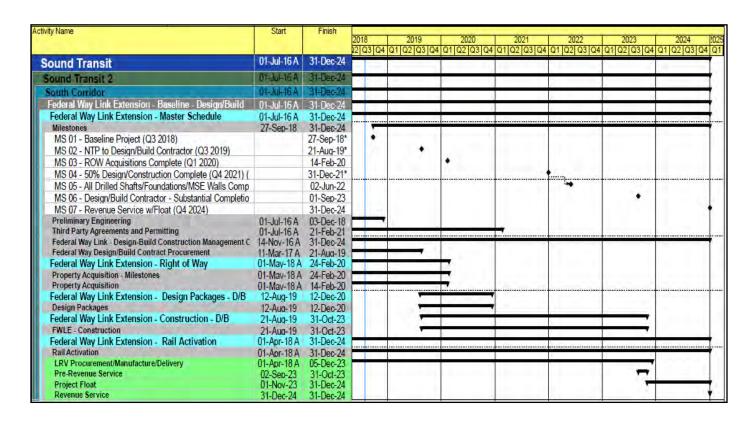
The most recent Quarterly Risk Register review update was held in a May 2018 workshop plus another Risk Assessment workshop for baselining in June 2018 involving FTA/PMOC. Below are the top project risks.

- Property acquisition and relocations completed in time for construction...
- Volume of residential relocations continues to be a concern due to limited housing availability.
- Volatility in construction market and unanticipated jurisdictional stakeholder requirements may drive project cost higher than PE cost estimate.
- Availability of federal funding remains uncertain and may impact schedule and funding resources.

#### **Project Schedule**

The project schedule is presented below. Potential Design-Build contractors were shortlisted this period. Real Estate acquisitions continue and additional detail has been added to the master schedule to monitor any impacts to the project. Project Baseline and Final Entry to Engineering submittal and the Request for Proposal (RFP) issuance to the proposers is expected in 3rd QTR 2018.

Revenue Service expected in 4th QTR 2024.



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#### 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						
Total Acquisitions	Board Approved	Offers Made to date	Closings to date	Relocations Required	Relocations Completed to date	
257	259	53	20	388	42	

\* 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**

- Communication with property owners regarding FWLE route, profile, station areas, acquisition and relocation is ongoing.
- Provided project updates at various outreach events located at the following: Federal Way 4th of July Festival- met with over 300 people; Kent Station on 7/11 was well attended-met with 25 people; Federal Way Summer Sounds on 7/18; met with 41 people; Des Moines on 7/18 with S 224th St residents- 12 attendees; Des Moines Area Food Bank on 7/25 met with 68 people; Kent Farmers Market on 7/28- met with 180 people.



Outreach event at the Kent Station.

#### Sound Transit Board Actions

Board Action	Description	Date
M2018-81	Execute up to three stipend agreements with contractors selected to submit proposals for a design-build contract for the Federal Way Link Extension for a total authorized amount not to exceed \$4,500,000.	7/26/18

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#### Phase 3 Preliminary Engineering (PE)

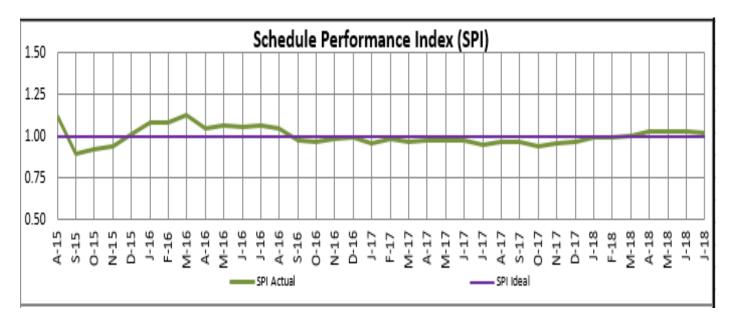
In July 2015, Sound Transit executed an amendment to the professional services agreement with HDR Engineering, Inc. for Phase 3 professional services, including completion of a Final Environmental Impact Statement (FEIS) using the preferred alternative and the other alternatives in the Draft EIS, preliminary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

- Review comments and revisions to the Final RFP documents addressed.
- Efforts continued on the development on agreement with the AHJ's (Authorities Having Jurisdiction), WSDOT coordination, and public involvement.
- EIS (Environmental Impact Statement) related traffic study updates presented to WSDOT.
- Additional simulation traffic analysis under the NEPA/SEPA re-Evaluation task, environmental permitting continued.
- Continued to support the work for WSDOT's ASL, TCAL and fee take ROW drawings.
- ROW support for property acquisition continued.

#### **Schedule Performance Index**

The cumulative Schedule Performance Index (SPI) is 1.02 through July 2018, indicating the overall amount of work accomplished is as planned. The consultant is fully engaged on the new scope incorporated, to assist in RFP process of DB contract and in ROW acquisition support.

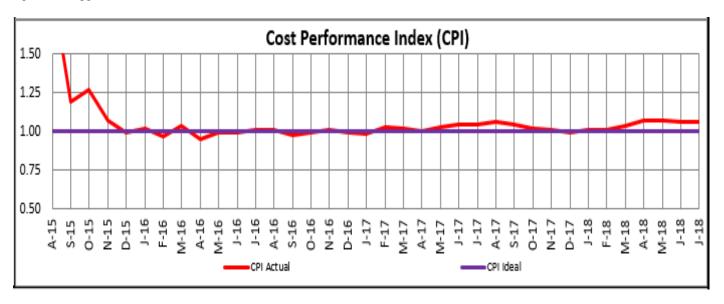


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#### **Cost Performance Index**

Phase 3 expenditures through July 2018 totaled \$33.7 M, approximately 91% of the amended total contract. The Phase 3 percent complete is reported at 96%, with an earned value of \$35.8. The cumulative Cost Performance Index (CPI) is 1.06 showing costs are on track with work accomplished. The Consultant is engaged in assistance in RFP process of DB contract and in ROW acquisition support.



#### **Cost Summary**

Contract	Cumulative To-date
Amount Invoiced	\$33.7M
% Spent	91%
Earned Value	\$35.8M
% Complete	96%
SPI	1.02
СРІ	1.06

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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 Dis-

trict, and St. Joseph.

**Systems** Expansion of the Operations and Mainte-

nance Facility; The at-grade alignment will include additional signals, OCS, traction power, and communications infrastructure.

Phase Final Design and Construction

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

**Schedule** Revenue Service: May 2022



Map of Hilltop Tacoma Link Extension.

#### **Key Project Activities**

#### Final Design

Project staff continued design conformance verification activities.

#### **Pre-Construction:**

Staff presented construction contract award and corresponding phase level budget transfers to ST Board for approval.

#### Right-of-Way

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

#### **Vehicles**

Held monthly progress meeting with representatives from Brookville Equipment Corporation on Hilltop Tacoma Link Extension LRVs. ST staff and vehicle consultant reviewed design submittals and June 2018 progress report and schedule update.

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#### **Project Cost Summary**

In September 2017, Sound Transit Board adopted the Hilltop Tacoma Link Extension 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.

Bids were received for the construction contract (T100) on May 23, 2018. The lowest apparent bid was 15% over the engineer's estimate. Award of the construction contract required phase level budget transfers and were approved at July's ST Board meeting.

#### **Cost Summary by Phase**

Project Phase	Baseline Budget	Authorized Project Allocation	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$16.9	\$16.9	\$6.9	\$6.8	\$16.9	\$0.0
Preliminary Engineering	\$5.6	\$5.6	\$5.6	\$5.6	\$5.6	\$0.0
Final Design	\$10.8	\$10.8	\$10.4	\$9.1	\$10.8	\$0.0
Construction Services	\$9.9	\$9.9	\$8.9	\$0.4	\$9.9	\$0.0
3rd Party Agreements	\$1.5	\$1.5	\$1.3	\$1.0	\$1.5	\$0.0
Construction	\$127.2	\$127.2	\$7.2	\$0.0	\$127.2	\$0.0
Vehicles	\$35.4	\$35.4	\$31.2	\$0.7	\$35.4	\$0.0
ROW	\$3.6	\$3.6	\$2.0	\$1.8	\$3.6	\$0.0
Contingency	\$6.6	\$6.6	\$0.0	\$0.0	\$6.6	\$0.0
Total	\$217.3	\$217.3	\$73.5	\$25.4	\$217.3	\$0.0

#### **Cost Summary by SCC**

SCC Element	Baseline Budget	Authorized Project Allocation	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
10 Guideway & Track	\$21.9	\$21.9	\$0.0	\$0.0	\$21.9	\$0.0
20 Stations	\$1.8	\$1.8	\$0.0	\$0.0	\$1.8	\$0.0
30 Support Facilities	\$26.6	\$26.6	\$0.0	\$0.0	\$26.6	\$0.0
40 Sitework & Special Conditions	\$40.0	\$40.0	\$7.2	\$0.0	\$40.0	\$0.0
50 Systems	\$25.0	\$25.0	\$0.0	\$0.0	\$25.0	\$0.0
Construction Subtotal (10 - 50)	\$115.4	\$115.4	\$7.2	\$0.0	\$115.4	\$0.0
60 Row, Land	\$3.6	\$3.6	\$2.0	\$1.8	\$3.6	\$0.0
70 Vehicles (non-revenue)	\$35.4	\$35.4	\$31.2	\$0.7	\$35.4	\$0.0
80 Professional Services	\$56.4	\$56.4	\$33.1	\$23.0	\$56.4	\$0.0
90 Unallocated Contingency	\$6.6	\$6.6	\$0.0	\$0.0	\$6.6	\$0.0
Total (10 - 90)	\$217.3	\$217.3	\$73.5	\$25.4	\$217.3	\$0.0

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# Link Light Rail Hilltop Tacoma Link Extension



#### **Risk Management**

The Hilltop Tacoma Link Risk and Contingency Management Plan (RCMP) was completed in 2nd QTR 2017. This establishes a risk management and oversight process for identifying, assessing, and monitoring risks and develops risk reduction/mitigation plans. It will provide a tool for the project team to proactively manage risks on the project. It is Sound Transit's responsibility for continuously monitoring project status and associated risks, taking mitigation actions for known risks identified on the risk register, and effectively responding in a timely manner to those risks that pose a significant impact to the project cost or schedule forecast. The next quarterly risk review is for Q3 2018 and is scheduled for September.

The Baseline Risk Assessment was conducted in May 2017. The following are current the top project wide risks:

- Unidentified utility conditions under the proposed alignment or delay in completion of relocations.
- Roadway improvements and modifications along MLK are greater than anticipated requiring additional scope.
- Utility relocation associated with the tunnels on MLK.
- Unknown subsurface conditions under the proposed alignment (old Tracks) or OCS pole locations.

#### **Contingency Management**

Hilltop Tacoma Link Extension was baselined on September 2017 with a total contingency of \$33.9M. Since baselining, there were draw downs on AC and UAC to address Final Design Change Orders and the Procurement of the Tacoma LRV contract. With the Final design completed, DA was reallocated to AC.

**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, AC was unchanged at \$17.4M.

**Unallocated Contingency (UAC)** is used to address general project-wide cost risks and uncertainties. The UAC balance was reduced in July to a net amount of \$8.1M. UAC Construction Phase and Vehicle Phase contingency was impacted to execute the T100 Construction Contract.

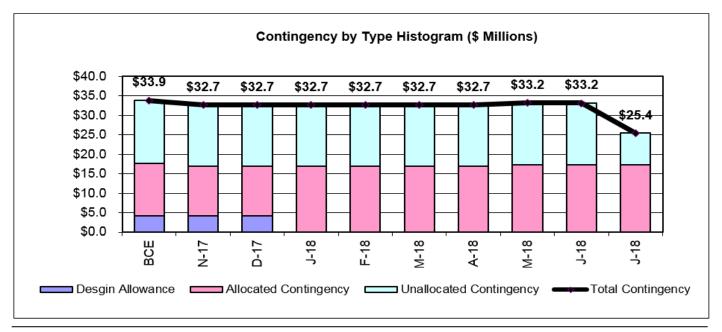
#### **Contingency Status**

	Base	Baseline Current		
Contingency Type	Amount	% of Total	Amount	% of Work Remaining
Design Allowance	\$4.2	2.2%	\$0.0	0.0%
Allocated Contingency	\$13.5	6.8%	\$17.4	9.0%
Unallocated Contingency	\$16.1	8.2%	\$8.1	4.2%
Total	\$33.9	17.2%	\$25.5	13.3%

Table figures are shown in millions.

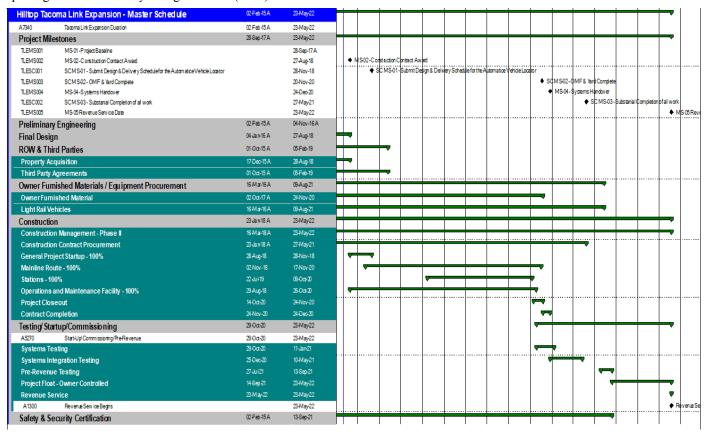
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#### **Project Schedule**

The Master Schedule has been updated through the end of July. Received Board Approval for Notice of Intent to Award (NOITA) to award Notice to Proceed (NTP) for the construction contract in late Aug 2018. Work in progress is preparing for the construction kick off meeting, site office mobilization. The LRV procurement contractor continues submitting CDRLS packages for Preliminary Design Review (PDR).



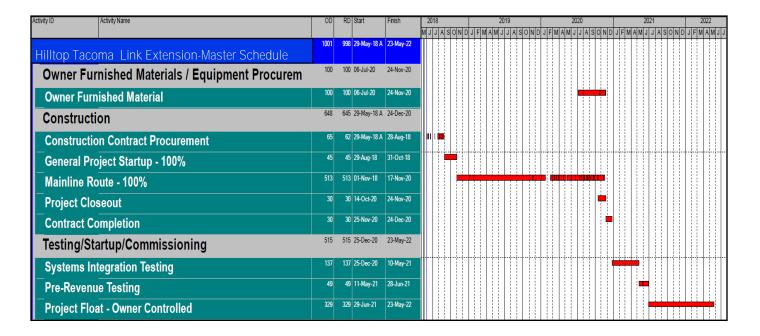
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# Link Light Rail Hilltop Tacoma Link Extension



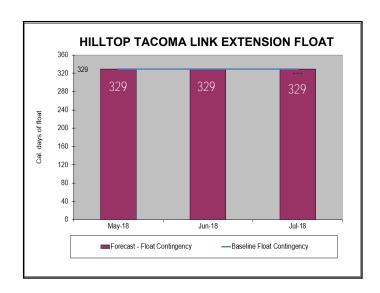
#### **Critical Path Analysis**

The critical path for Hilltop Tacoma Link remains the same as last period, driven by contract award and execution of the T100 construction contract. Once awarded, the critical path runs through the completion of the water service work being performed by TPU in Segment 4a Roadway MLK Way – Division to S. 6th Street on the Mainline Route. Vehicle Delivery is still not on the critical path as the LRV contractor is still forecasting shipment earlier than original target date of June 2020. The project retains adequate float at 329 calendar days.



#### **Project Float**

The Hilltop Tacoma Link Extension project currently forecasts 329 days of unallocated project float.



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# Link Light Rail Hilltop Tacoma Link Extension

#### Right-of-Way

The Hilltop Tacoma Link Operations and Maintenance Facility will be expanded to the east and five new vehicles will be purchased. 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. Design efforts have reduced the total acquisitions required from 140 to 22 parcels.

Tacoma Link Extension Property Acquisition Status							
ACQUISITION RELOCATION							
Total Acquisitions	Board Approved	Offers Made to date	Closings to date	s to date Relocations Required Relocations Complete date			
20	22	20	12	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.							

Project design identified the elimination of two additional TCEs.

#### **Community Outreach**

- Staffed information booths at Tacoma Pride Festival and Ethnic Fest.
- Provided project updates at the monthly Dome District and Hilltop Business District Association meetings.
- Began going door-to-door to provide information to businesses along the HTLE route.
- Staffed the City of Tacoma Links to Opportunity project office weekly.

#### **Sound Transit Board Actions**

Board Action	Description	Date
R2018-25	(1) Authorizing budget phase transfers within the Tacoma Link Extension project from the Vehicle and Right-of-Way Phases to the Construction Phase to fund the construction, contract and (2) adopting Hilltop Tacoma Link Extension as the new project name.	7/26/2018
M2018-87	Authorizing the chief executive officer to execute a contract with Walsh Construction Company II, LLC to construct the Tacoma Link Extension	7/26/2018

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# Link Light Rail Tacoma Dome Link Extension



#### **Project Summary**

Scope

**Limits** Federal Way Transit Center to South Fed-

eral Way, Fife, East Tacoma, and Tacoma

Dome

**Alignment** The Tacoma Dome Link Extension ex-

pands light rail 9.7 miles from the Federal Way Transit Center to Tacoma. The representative alignment travels adjacent to I-5

with four stations.

**Stations** South Federal Way, Fife, and East Tacoma

(elevated stations) and Tacoma Dome (at-

grade station)

**Systems** Signals, traction power, communications

(SCADA), Operations and Maintenance

Facility South (OMF South)

Phase Planning: Alternative Development

**Budget** \$125.7 Million for Preliminary Engineering

Phase 1—Alternative Development

**Schedule** Revenue Service: December 2030



Map of Tacoma Dome Link Extension.

#### **Key Project Activities**

- Held community engagement for ELG, IAG and Stakeholders. Alternatives for alignment, station and OMF South were presented.
- Continued Level 1 evaluation criteria and preliminary alternatives for corridor alignment and station locations.
- Completed pre-screen evaluation of OMF South locations.
- Continued negotiations of Task Order with the cities of Federal Way, Fife, Milton and Tacoma.
- Continued monthly coordination meetings with cities of Federal Way, Fife, Milton and Tacoma.

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#### **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 on track with the planned monthly budget and are expected to complete 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	\$2.1	\$1.6	\$26.8	\$0.0
Preliminary Engineering	\$87.1	\$10.3	\$2.3	\$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	\$0.0	\$0.0	\$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	\$0.0	\$0.0	\$6.0	\$0.0
Total	\$125.7	\$12.4	\$3.9	\$125.7	\$0.0

#### **Cost Summary by SCC**

SCC Element	Authorized Project Allocation	Commit- ment 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
Construction Subtotal (10 - 50)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
60 Row, Land	\$5.0	\$0.0	\$0.0	\$5.0	\$0.0
80 Professional Services	\$110.9	\$12.4	\$3.9	\$110.9	\$0.0
90 Unallocated Contingency	\$9.8	\$0.0	\$0.0	\$9.8	\$0.0
Total (10 - 90)	\$125.7	\$12.4	\$3.9	\$125.7	\$0.0

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#### **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 first risk review workshop is scheduled in the 3rd QTR 2018. The following are the top project wide risks:

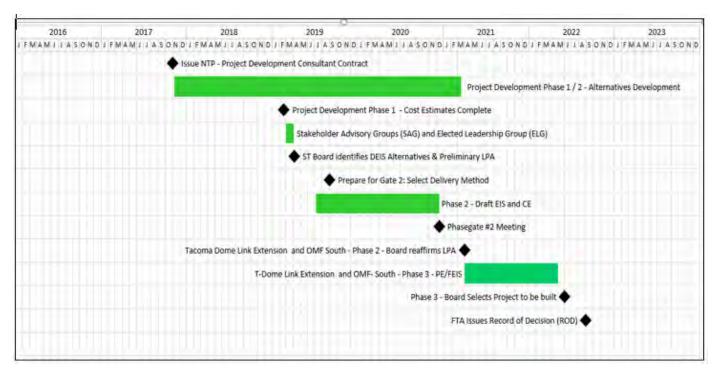
- Clearance of the Bonneville Power Administration high voltage transmission lines.
- Geotechnical challenges and potential environmental considerations at/near the Puyallup River and Tacoma Dome area.
- Timely approvals of necessary permitting requirements.
- Coordination with WSDOT's SR 167/Gateway project.
- Potential third party scope requests.

#### **Project Schedule**

Phase I Alternative Analysis —The HDR detailed schedule as of July 31, 2018 is remaining on target for completing level 1 and level 2 scoping and Final DEIS Alternatives Development and Preferred Alternative Identification in 2nd QTR 2019.

The critical path of this project continues to run through Phase 1 Alternatives Development level 1 and level 2 screening to preparing Capital Cost Estimating required for briefing the Sound Transit Board to help identify the Preferred Alternative.

The contractors Monthly Schedule Update - July 2018 is represented in the program schedule shown below that the contractor is maintaining target dates.



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#### **Community Outreach**

- Hosted TDLE Interagency Group Meeting.
- Hosted TDLE Stakeholder Group.
- Participated in Dome District Meeting.
- Participated in Tacoma Pride event.
- Conducted briefing for the Rainbow Center.
- Conducted interview with social service providers: Aging & Disability Resource Center and Habitat for Humanity.
- Conducted door to door notification of project information to businesses and multifamily properties in South Federal Way.
- Participated in Ethnic Fest event.
- Held coordination meeting with Salishan Association.

#### **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 Fa-

cility: 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 stor-

age 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**

- Continued 60%, 100% and IFC review of various design packages.
- Completed removal of the existing 54" King County pipe.
- Vault work is ongoing; backfilling, manhole hatch install, and ladders install.
- Continued working with the City of Bellevue on Property Exchange Agreement with plans to brief the City Council in Summer 2018.
- Grading and pre-loading of yard area continues.
- Started excavation for the OMF LRV service pit foundation.

#### **Closely Monitored Issues**

- Elements of DB Contractor's proposal (shear wall elimination for future development) may require MOU amendment with City of Bellevue.
- Spur property exchange proposal with City of Bellevue may complicate the timing of the RFP for Transit Oriented Development.
- Commercial issues with the Design Build contractor regarding differing site conditions.

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#### **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 \$4.8M The total project cost incurred from \$157.9M to \$162.7M. The primary cost drivers during this period on the OMF East project comes from the design build (construction) phase at \$4.3M or roughly 90% of the total monthly expenditures. The next cost driver this period are the Administrative Phase and Construction Service expenditures at about \$0.13M and \$0.29M respectively.

#### **Cost Summary by Phase**

Project Phase	Baseline Budget	Authorized Project Allocation	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$17.6	\$17.6	\$4.6	\$4.5	\$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	\$17.6	\$3.4	\$19.3	\$0.0
3rd Party Agreements	\$3.1	\$3.1	\$0.3	\$0.1	\$3.1	\$0.0
Construction	\$264.8	\$264.8	\$222.7	\$44.9	\$264.8	\$0.0
ROW	\$134.5	\$134.5	\$101.5	\$101.1	\$134.5	\$0.0
Total	\$449.2	\$449.2	\$355.7	\$162.7	\$449.2	\$0.0

#### **Cost Summary by SCC**

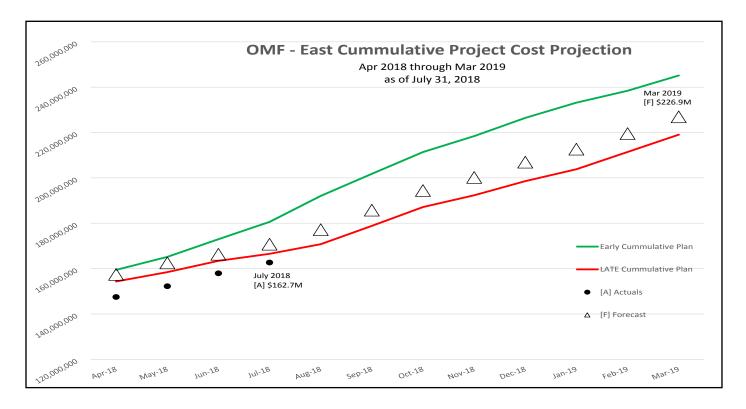
SCC Element	Baseline Budget	Authorized Project Allocation	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
10 Guideway & Track	\$2.6	\$2.6	\$4.1	\$0.5	\$4.1	-\$1.5
20 Stations	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
30 Support Facilities: Yard, Shop	\$140.1	\$140.1	\$124.0	\$15.8	\$145.4	-\$5.4
40 Sitework & Special Conditions	\$43.6	\$43.6	\$39.6	\$6.4	\$41.5	\$2.1
50 Systems	\$43.0	\$43.0	\$38.5	\$4.9	\$38.5	\$4.5
Construction Subtotal (10 - 50)	\$229.3	\$229.3	\$206.2	\$27.7	\$229.5	-\$0.2
60 ROW, Land, Improvements	\$134.5	\$134.5	\$101.5	\$101.1	\$134.5	\$0.0
70 Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
80 Professional Services	\$71.6	\$71.6	\$48.0	\$33.9	\$71.4	\$0.2
90 Unallocated Contingency	\$13.8	\$13.8	\$0.0	\$0.0	\$13.8	\$0.0
Total (10 - 90)	\$449.2	\$449.2	\$355.7	\$162.7	\$449.2	\$0.0

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#### **Project Cash Flow Projection**

The OMF East cost projection is trending late this period but anticipates to pick up through this summer. Total project expenditure incurred to date reached \$162.7M with Right-of-Way (ROW) phase cost being the largest driver at 62% and Construction Phase at about 28%. The projected cash flow was revised this period for the next nine months to reflect some current trends. The Design Builder's (DB) design completion continues slip specifically on Systems where some procurements were anticipated that did not occur. In addition, ROW acquisitions and relocation phase is reflecting some positive trends where anticipated cost may not materialized as previously anticipated. The project expenditure trending is now revised down from approximate \$235.7M to \$226.9M by March of 2019 which is still within the lower bounds of the planned expenditures.



#### **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 2, the completion of ROW Acquisition and Mass Grading. The 2nd quarter 2018 OMF East quarterly risk register has been updated and reviewed. A quantitative Risk Assessment is anticipated to be perform at the end of 3rd Quarter. The current top actively managed risk areas continues are listed below:

- **Design**: As the project approaches the 60% design milestone, changes made to scope or design will have greater cost impact than during the earlier design stages.
- *Scope*: Scope increase as a result of Third Parties or ST stakeholders requesting additional work or deviation from plans will impact the project schedule and budget.
- *Construction*: As the construction commenced with early work; normal and routine construction risks will be encountered and may complicate and influence design completion. Soil conditions and coordination with third parties has been some early evidence of such challenges.

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#### **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. For this period, there was some minor change order in the design build contract that required a contingency drawdown. The current contingency balance remains practically unchanged at \$70M (previous quarter at \$70.1M).

#### Design Allowance (DA): N/A.

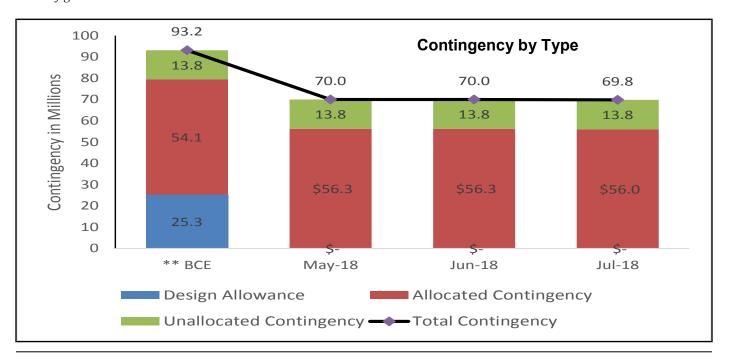
Allocated Contingency (AC) is used to address risks, complexity and unforeseen conditions during the execution of work, including procurement. Allocated contingency balance at the end of this period was reduced by approximately \$0.3M on routine change orders from \$56.3M to \$56.0M.

*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**

	Base	eline	Current			
Contingency Type	Amount	% of Total	Amount	% of Work Remaining		
Design Allowance	\$ 25.3	5.6%	\$ -	0.0%		
Allocated Contingency	\$ 54.1	12.0%	\$ 56.0	19.2%		
Unallocated Contingency	\$ 13.8	3.1%	\$ 13.8	4.7%		
Total	\$ 93.2	20.7%	\$ 69.8	24.0%		

Table figures are shown in millions.

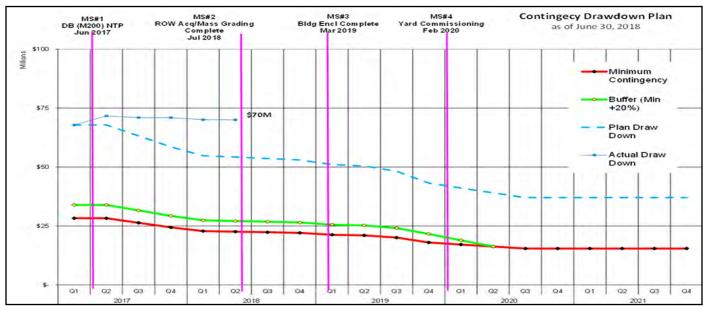


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#### **Contingency Drawdown**

At the end of the 2nd QTR 2018, OMF East Project's total contingency drawdown plan is trending positively. Total contingencies balance is at approximate \$70M 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 3rd QTR 2018.



Graph for Quarter ending June 30, 2018

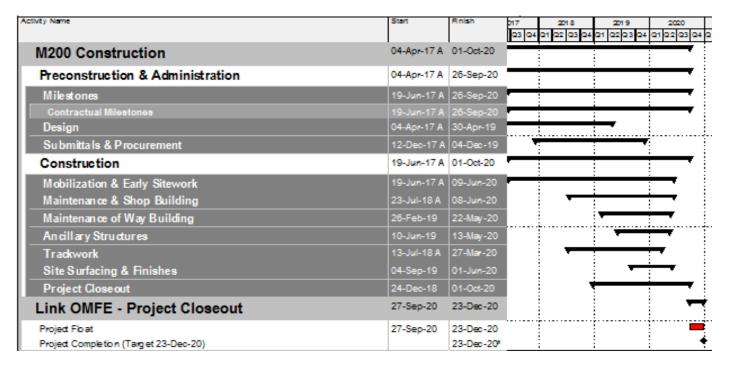


Drone photo of OMF East site looking south

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#### **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 Summer 2020.



#### **Critical Path Analysis**

The critical path currently runs concurrently through the main OMF building and trackwork in the yard.

cclivity Name	Start	Finish	017 Q3 Q4	201 8 Q1 Q2 Q3 Q4	201 9 Q1 Q2 Q3 Q4	2020	210
M200 Construction	26-Jul-18 A	26-Oct-20					_
Preconstruction & Administration	26-Jul-18 A	26-Oct-20					
Milestones	07-Aug-18	26-Oct-20				-	
Design	26-Jul-18 A	07-Oct-18		•			
Construction	08-Aug-18	28-Jul-20					
Maintenance & Shop Building	08-Aug-18	08-May-20			:		
Structure	08-Aug-18	23-Aug-19			<u> </u>		
Overhead Roughins	26-Aug-19						
Partitions	02-Dec-19	06-Jan-20			•	•	
Interior Finishes	07-Jan-20	03-Apr-20	L	<u>:</u>	i	1	
Building Systems & Startups	09-Mar-20	08-May-20				•	
An cillary Structures	25-Mar-20	13-May-20					
Signal Houses	25-Mar-20	13-May-20					
Trackwork	08-Oct-18	24-Mar-20		•		•	
Project Closeout	11-May-20	28-Jul-20				•	
Link OMFE - Project Closeout	27-Sep-20	23-Dec-20					
Project Float	27-Sep-20	23-Dec-20				_	
Project Completion (Target 23-Dec-20)		23-Dec-20*				<u> </u>	

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## Link Light Rail Link Operations & Maintenance Facility: East



#### Right-of-Way

All OMF East properties have now been vacated and are in the project's control. Only administrative functions remain in this phase of the project. *No more updates*.

#### **Community Outreach**

- Continue construction alerts for ongoing construction activities.
- Continue coordination with Bellevue School District and King County Metro on beaver dam mitigation.

#### **Sound Transit Board Actions**

Board Action	Description	Date
	None to report.	



Design Builder's 3-D model of the OMF—East looking Southeast.

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## Contract M200 - OMF East Design Build

#### **Current Progress**

**Design**: Hensel Phelps (HP) advanced design packages for the following areas: IFC for DP 002 (Civil & Utility Design) was submitted on July 6, HP is incorporating ST's comments and expects to submit final IFC in August. DP 003 (Trackwork and Train Control System) was submitted on July 30th. DP 004 IFC (OMF and MOW Design) was submitted. DP 003A and DP 004A IFCs will be submitted in August.

**Construction**: HP installed Vault B manhole hatches and ladders; started back filling around Vault A; and completed install of accessories for Vault A. Completed removal of the existing 54" King County pipe; dewatering system for KC 54" has been decommissioned; and demobilization has started. Preparation began for excavation and installation of sanitary sewer lines.

#### **Next Period's Activities**

- Continue DP #004 IFC Submittal & Review
- Complete DP #002 IFC Submittal & Review
- Complete DP #003 100% Submittal & Review
- Complete DP #003A 100% Submittal & Review
- Continue Storm Detention Vault construction and commenced backfilling certain area of the vault
- Continue contaminated soils removal

#### **Closely Monitored Issues**

- Site infiltration issue: Contractor has submitted an RFC stating differing site conditions on the soil infiltration rate. ST has rejected this change order and currently working on partnering activities to resolve the issue and find a path forward.
- Beaver dam in the West Tributary continuation of discussion with stakeholders to provide options and plans for mitigation to allow OMF-East's site stormwater to be convey properly.

#### **Cost Summary**

Present Financial Status	Amount					
M200 Contractor – Hensel Phelps						
Original Contract Value	\$218,912,000					
Change Order Value	\$2,919,407*					
Current Contract Value	\$221,831,407*					
Total Actual Cost (Incurred to Date)	\$42,835,836					
Financial Percent Complete	19.3%					
Authorized Contingency	\$21,891,200					
Contingency Drawdown	\$1,725,653					
Contingency Index	2.5					



Granite setting Risers for Detention Vault B.

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# Link Light Rail Light Rail Vehicle Fleet Expansion



#### **Project Summary**

Scope Design, manufacturing, assembly, inspec-

tion, testing and delivery of 152 low floor light rail vehicles for service requirements of Northgate, East Link and Lynnwood

Link Extensions.

Phase Manufacturing

**Budget** \$740.7 Million (Baseline September 2015,

Amended April 2017)

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



Graphic simulation of the new light rail vehicles

#### **Key Project Activities**

- Completed all Final Design Reviews with the exception of lighting and communications.
- Completed First Article Inspections on Brakes, APS and Truck.
- 1st LRV is in Final Assembly.
- 2nd LRV has completed cladding and paint is finished.

#### **Closely Monitored Issues**

- Commercial dispute remains open with Siemens regarding lift design and jacking points on the LRV.
- Qualification Tests of the propulsion and auxiliary power system are incomplete, yet manufacturing continues, possible schedule impact.
- Flame, smoke, and toxicity standard (NFPA-130) test waiver regarding a Siemens' adhesive product.
- Shipment of the 1st LRV in 4th QTR 2018 could be impacted due to the final design not being complete.



The first car undergoing water test.



The second car undergoing paint inspection

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#### **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.

In July 2018, the project incurred to date costs increased nominally by about \$155K. The total incurred cost increased from \$75.0 to \$75.1M. The majority of this period's costs were attributed to design and inspection in the support of document reviews for the final design review (FDR) and monitoring of the production of car shells and truck frames.

#### **Cost Summary by Phase**

Project Phase	Baseline Budget	Authorized Project Allocation	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Administration	\$6.4	\$6.4	\$0.9	\$0.9	\$6.4	\$0.0
Construction Services	\$18.0	\$18.0	\$4.9	\$3.2	\$18.0	\$0.0
Vehicles	\$716.3	\$716.3	\$648.2	\$70.9	\$716.3	\$0.0
Total*	\$740.7	\$740.7	\$654.0	\$75.0	\$740.7	\$0.0

#### **Cost Summary by SCC**

SCC Element	Baseline Budget	Authorized Project Allocation	Commit- ment to Date	Incurred to Date	Estimated Final Cost (EFC)	Authorized Allocation vs. EFC
Construction Subtotal (10 - 50)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
60 ROW, Land, Improvements	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
70 Vehicles	\$702.8	\$702.8	\$653.0	\$74.1	\$702.8	\$0.0
80 Professional Services	\$6.1	\$6.1	\$1.0	\$0.9	\$6.1	\$0.0
90 Contingency	\$31.7	\$31.7	\$0.0	\$0.0	\$31.7	\$0.0
Total *(SCC 10 - 90)	\$740.7	\$740.7	\$654.0	\$75.0	\$740.7	\$0.0

<sup>\*</sup>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. 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's qualitative risk register is currently being updated. The current top risk areas are listed below.

- Design of the propulsion and auxiliary power system taking longer than anticipated (System Requirements and Compatibility).
- Commissioning of LRVs is impacted due to lack of sufficient space, lift access or other resources at OMF (Forest St.).
- Limited yard storage capacity in 2020 may impact preventative maintenance or spares available to support peak service.
- Automatic Train Protection retrofit of existing fleet takes longer than expected.

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#### **Contingency Management**

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

**Design Allowance (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 project baseline's allocated contingency was \$46.3M. The current available allocated contingency is \$38.3M. No contingency was drawn this period.

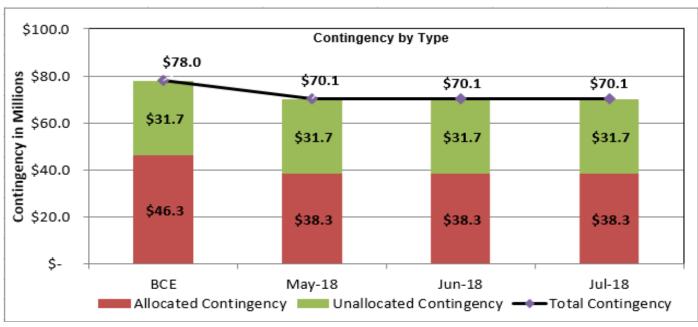
**Unallocated Contingency (UAC)** is used to address general project-wide cost risks and uncertainties. The baseline UAC remained unchanged at \$31.7M.

#### **Contingency Status**

	Base	eline	Current			
Contingency Type	Amount	% of Total	Amount	% of Work Remaining		
Design Allowance	\$ 00.0	0.0%	\$ 00.0	0.0%		
Allocated Contingency	\$ 46.3	6.4%	\$ 38.3	6.6%		
Unallocated Contingency	\$ 31.7	4.3%	\$ 31.7	0.0%		
Total	\$ 78.0	10.7%	\$ 70.1	12.0%		

Table figures are shown in millions.

#### **Contingency by Type**



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## Light Rail Vehicle Fleet Expansion

#### **Project Schedule**

The LRV Fleet Expansion project schedule is shown below. The progress schedule for July 2018 (see below) was established by using the last monthly schedule submittal and comparing them to the manufacturer weekly tasks and milestones during the weekly progress and coordination meeting. In addition, the manufacturer's monthly reports are reviewed to monitor for potential delays in any of the critically dependent events as identified on the schedule. This period's progress includes completion of final design reviews and working open item issue with SII with the exception of lighting and communications which is to be completed in Aug 2018 and completion of all the first article of inspections with the exception of the ATP. Final assembly on LRVs #001 has begun.

Project completion for Light Rail Vehicle Expansion is scheduled to complete in August 2024.

AdtivityName	Start	Finish	8	20	19	2020	)	2021	2	022	2023		2024	2025
			Q Q	QQ	QQ	QQQ	Q	QQQ	2 Q C	QQQ	QQQ	QQ	QQQ	Q Q Q Q
LRV Procurement Schedule	24-Feb-15A	12-Jul-24		П			П			П				
LRV Vendor Procurement	24-Feb-15A	10-Oct-16A												
LRV Engineering and Manufacture	11-Oct-16A	04-Oct-18												
LRV Design Reviews, Manufacturing, and System Tests	11-Oct-16A	04-Oct-18												
LRV Delivery Schedule	20-Dec-18	12-Jul-24												
LRV #1-122 (122 LRV Base Order)	20-Dec-18	13-Jan-23						1111		П				
Delivery of 1st LRV (BL 27-Mar-19)		20-Dec-18	∃i∢											
Delivery of 40th LRV - Northgate Link Vehicle Deliveries Complete (BL 26-Jun-20)		05-May-20				•								
Delivery of 42nd LRV - Existing OMF at capacity (104 LRVs) (BL 27-Jul-20)		26-May-20	71			•								
Final Acceptance of Vehicles (BL 28-Feb-23)		13-Jan-23	71								<b>*</b>			
Delivery of 122nd LRV - Final ST2 Delivery (BL 26-Aug-22)		07-Jul-22	11				П	TIT	1	•			m	
LRV #123 - 152 (30 LRV Options) - Change Order #4	11-Jan-24	12-Jul-24												
Delivery of 152nd LRV - Final Delivery (BL 26-Feb-24)		11-Jan-24	7									•		
Final Acceptance of Vehicles (BL 26-Aug-24)		12-Jul-24											•	

#### **Critical Path Analysis**

As of July 31, 2018 the manufacturer continues trending ahead of their baseline schedule; the delivery of the first LRV is projecting to be completed in late 4th QTR 2018, current schedule is forecasting that LRV#001 is approximately 3 months ahead of the schedule target completion date of March 27, 2019. The critical path is completing Truck, lighting and communications and Final Design Reviews in Aug 2018. Completing the ATP FAIs in Aug 2018 is required to complete equipment delivery to SII for complete equipment installation into LRV#001 by September 2018. Shipment of the LRV#001 in 4th QTR 2018 could be impacted due to the final design not being complete.

The delivery of all the light rail vehicles requirements for Northgate Link operations is currently anticipated approximately a year ahead of the start of revenue service. This is well within fleet requirement for a successful commissioning and testing of the LRVs prior to revenue simulation period. Consequentially, the planned deliveries and commissioning and testing of light rail vehicles are also ahead of requirements for East Link Extension.

#### LRV Manufacturing Critical Path Schedule

ActivityName	Start	Finish	2018	2019	2020	2021	2022	2023	2024
			200	0000	Q Q Q Q	0000	0000	0000	0000
ST2 Light Rail Vehicle Fleet Expansion	10-May-18	08-Jan-21							
Car Shell Production LRV#003 (to be used on LRV#004)	10-May-18	24-Jul-18	<b> </b>						
Car Shell Production LRV#121	24-Nov-20	08-Jan-21	71 1			• : : :			
ST3 LRV Manufacture and Delivery	02-Dec-20	29-May-24							
Car Shell Production LRV#122	02-Dec-20	14-Jan-21	711			• 1 1 1			
Car Shell Production LRV#0123	24-Mar-22	28-Apr-22					•		
Shipment and Arrival at O&M Facility LRV#151	29-Jan-24	02-Feb-24	1 : :			1 1 1		1 1 1	
Shipment and Arrival at O&M Facility LRV#152	15-Feb-24	21-Feb-24							[1] [ [ ]
Burn-In LRV#151	08-May-24	29-May-24					1 1 1 1		
Burn-In LRV#152	08-May-24	29-May-24							

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#### Link Capital Program Staffing April - June 2018 (updated quarterly)

#### **Recruiting Status**

The following positions were filled in 2nd QTR 2018 to support the Link Capital Program:

Position
Deputy Director Northgate Link Extension*
Project Manager East Link Extension (2)
Assistant Permit Administrator (2)
Corridor Design Manager Lynnwood Link Extension*
Sr. Civil Engineer Non-corridor Projects
Engineering Standards Program Manager
Electrical Engineer
Sr. Mechanical Engineer
Engineer 1
Systems Construction Manager
Sr. Document Control Coordinator
Project Control Specialist (2)
Sr. Scheduling Engineer
Sr. Administrative Specialist
Outreach Specialist North Corridor
Outreach Specialist South Corridor
Architect (3)
Real Property Coordinator
Sr. Real Property Agent*

<sup>\*</sup>Position filled with internal candidate

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As of the end of 2nd QTR 2018 recruiting was on-going for the following positions:

Position	Position
Sr. Project Manager - Operations and Mainte- nance Facility East	Sr. Project Control Specialist (3)
Executive Project Director	Project Control Coordinator
Business Efficiency and Compliance Manager	Risk Engineer Program Manager
Sr. Project Coordinator - East Link Extension	Risk Engineer
Assistant Permit Specialist	Project Control Supervisor
Track Engineer Manager	Principal Construction Manager (3)
Civil Engineer (2)	Construction Manager East Link Extension
Corridor Design Manager Non-corridor	Administrative Specialist
Sr. Corridor Design Manager	Community Outreach Specialist (3)
Sr. Civil Engineer - Right-of-Way	Sr. Project Manager – Sounder (2)
Manager Structural Engineering	Project Manager - Sounder (2)
Sr. Civil Engineer - Non-corridor projects	Sr. Project Coordinator (2)
Sr. Civil Engineer BRT	Construction Manager - East Link Extension
Manager Engineering Light Rail Vehicles	Principal Construction Manager - W. Seattle – Ballard Link Extension
Sr. Systems Engineer - Signals	Principal CM Northgate Link Extension
Sr. Systems Engineer - Light Rail Vehicles	Assistant Property Manager
Manager Civil-Systems Integration	Property Management Coordinator
Sr. Fire Protection Engineer	Deputy Project Director OMF East
Sr. Systems Engineer	Capital Signage Specialist
Community Outreach Specialist (3)	
Deputy Director - Northgate Link Extension	
Corridor Design Manager Non-corridor	

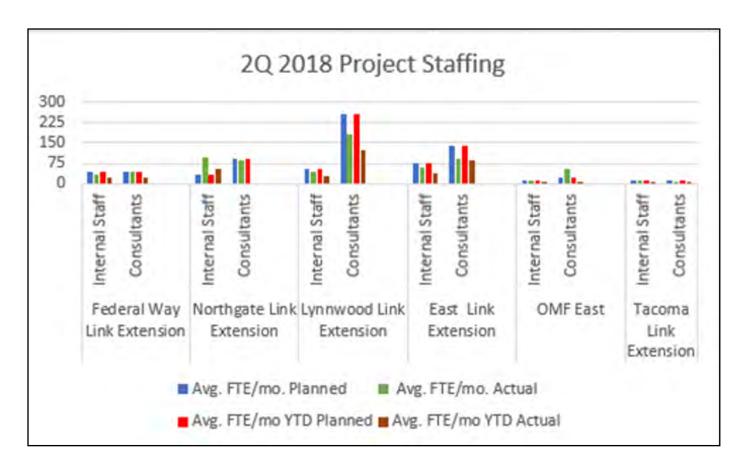
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#### Staffing Variance relative to Plan

There were 257 internal and 451 consultant full time equivalents (FTE) supporting design and construction of Link light rail extensions (Table 1). Staffing for the Federal Way Link Extension and the OMF East was within 10% of plan. Staffing for the Northgate, Lynnwood, East, and Hilltop Tacoma Link Extensions was 150%, 73%, 70%, and 66% of plan respectively.

	Consultants				9	Sound Tr	ansit Staff		Total (AVG. YTD)				
	FT	E	Varia	ance	FTE		Variance		FTE		Varia	nce	
Droinet				% of				% of				% of	
Project	Planned	Actual	FTE	Plan	Planned	Actual	FTE	Plan	Planned	Actual	FTE	Plan	
Federal Way Link Extension	41.0	41.2	0.2	0%	40.8	32.9	-7.9	-19%	81.8	74.1	-7.7	-9%	
Northgate Link Extension	91.0	83.8	-7.2	-8%	30.4	98.1	67.8	223%	121.4	181.9	60.6	50%	
Lynnwood Link Extension	255.0	179.6	-75.4	-30%	53.5	44.7	-8.7	-16%	308.5	224.3	-84.1	-27%	
East Link Extension	140.0	88.4	-51.6	-37%	73.4	60.3	-13.1	-18%	213.4	148.7	-64.6	-30%	
OMF East	19.0	54.0	35.0	184%	13.1	9.1	-3.9	-30%	32.1	63.1	31.1	97%	
Tacoma Link Extension	12.0	4.0	-8.0	-67%	12.0	11.9	-0.1	-1%	24.0	15.9	-8.1	-34%	
Total	558.0	451.0	-107.0	-19%	223.0	257.0	34.0	15%	781.0	708.1	-73.0	-9%	



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

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## Link Light Rail Acronyms



PE Preliminary Engineering
PEP Project Execution Plan

PEPD Planning, Environment and Project Develop-

ment

**PMOC** Project Management Oversight Consultant

PSST Pine Street Stub Tunnel
QA Quality Assurance
QC Quality Control

QTR Quarter

RE Resident Engineer
RFC Request for Change
RFD Request for Deviation
RFI Request for Information
RFP Request for Proposal
RFQ Request for Qualifications

RIR Recordable Injury Rates
RMP Risk Management Plan

**ROD** Record of Decision

ROW Right of WaySB Southbound

**SCADA** Supervisory Central and Data Acquisition

SCC Standard Cost Categories

**SCL** Seattle City Light

SDEIS Supplemental Draft Environmental Impact

Statement

SEPA State Environmental Policy Act
SIP Street Improvement Permitting
SPI Schedule Performance Index

SR State RouteST Sound Transit

**START** Seattle Tunnel and Rail Team

SWI Stacy and Witbeck, Inc.

TBM Tunnel Boring Machine

TCE Temporary Construction Easement

**TE** Traction Electrification

**TFK** Traylor Frontier Kemper Joint Venture

TOD Transit Oriented Development
TVM Ticket Vending Machine

UAC Unallocated Contingency
U-Link University Link project

**UDS** University District Station

USFWS U.S. Fish and Wildlife Service
UW University Of Washington
UST Underground Storage Tank

**UWS** University of Washington Station

VE Value Engineering

**VECP** Value Engineering Cost Proposal

WBS Work Breakdown Structure

WDFW Washington Department of Fish and WildlifeWSDOT Washington Department of Transportation

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