

**MANAGING MEMBERS**  
**STAFF BRIEFING**

<b>Item No.</b>	<u>6A</u>
<b>Date of Meeting</b>	<u>October 6, 2020</u>

**DATE:** September 18, 2020

**TO:** Managing Members

**FROM:** John Wolfe, Chief Executive Officer

**Sponsor:** Kurt Beckett, Deputy CEO

**Project Manager:** Emma Del Vento, Capital Program Leader, Port of Seattle

**SUBJECT:** Terminal 5 Modernization Program Quarterly Update

**A. BRIEFING REQUESTED**

Regular Terminal 5 Modernization Program Update.

**B. SYNOPSIS**

**Scope**

Scope increases include previously reported wharf demolition and reconstruction for slope stabilization.

Recent scope increases include:

- Additional soil removal in the berth modernization increasing cost by approx. \$6M compared to bid
- Feasibility level definition of the north reefer infrastructure project for a total of \$12-18M
- Marine Building budget increase following bid opening with low bidder 40% greater than engineer's estimate

**Schedule**

The T5 Berth Modernization construction project is currently on schedule to complete both phases of the project on the original schedule date of December 31, 2022. Phase 1 will be delivered by April 15, 2021. Turnover of south berth for start of work on Phase 2 has been accelerated from June 2021 to September 2020. Phase 1 north berth crane delivery is on schedule to be accepted on April 01, 2021. Phase 1 north berth crane commissioning can start April 15, 2021.

Bid award and Construction of north marine building is on track to meet Phase 1 schedule. South marine building construction has been deferred and is scheduled to meet Phase 2 lease obligation on or before December 31, 2023.

**Budget**

Through August 30, 2020 spent to date amounts of \$112,200,000 are on track with forecasted estimate at completion and progress.

## **Risk**

Recent Stochastic Analysis and Risk Register updates indicate the program has an 85% probability of being sufficient with a value of \$338.8M. The \$340M program budget has a near 90% probability of being sufficient. The increase in P-85 value over last quarter is due to two main factors:

1. Additional soil removal (estimated at +\$6-7,000,000 above the bid amount)
2. North reefer project (estimated at +\$12-18,000,000 and previously included with an estimate between \$3-8M in the forecast budget)

## **Safety**

Orion Marine Contractors (T5 Berth Modernization General Contractor) meets POS requirements with Health and Safety Plan and Site-Specific Safety plans. Over the 6 months of COVID-19, they have had continual adjustments and monitoring using additional supervision, access protocols, face coverings and hand washing. Precautions were also taken during the recent hot and smoky weeks. Orion has regularly conducted after-action reviews with crews and has been responsive to all POS direction, e.g., currently working with POS Safety on fall protection.

## **C. BACKGROUND**

The Northwest Seaport Alliance (NWSA) entered a long-term lease in April 2019 for the redevelopment of Terminal 5 in the North Harbor to create a modern international container terminal for ultra-large container ships. Once the Terminal 5 Modernization Program is completed, the facility will have the capability to handle the largest vessels currently calling the west coast, allowing the NWSA to compete for the super post-Panamax vessels, increasing current container volumes, supporting economic development and both creating and securing current jobs in the region for the next thirty years and likely beyond.

## **D. CURRENT STATUS**

Milestones:

Orion Marine Contractors are moving forward with:

- Above-water dock construction - on schedule, some re-sequencing and workarounds to avoid delays due to material procurement to repair existing piles
- Landside crane rail – on schedule, continuing concrete pours
- Electrical Substation – some delays preparing for Seattle City Light turnover 10/15 that will not impact the critical path
- Utility: sewer, water, and electrical duct bank - on schedule
- In water work - toe wall pile driving scheduled for end October

The Contractor's revised construction schedule shows substantial completion of Phase 1 on April 20, 2021, five weeks later than the previous quarterly update. The Program team has a high degree of confidence of reaching Phase 1 substantial completion on April 14, 2021 to meet turnover to SSAT on April 15, 2021.

Major milestones for Permit Conditions and Lease Obligations Q3 and early Q4 include:

- North Marine Building bid award (September 2020) and Notice to proceed (November 2020)
- Stormwater Treatment System 90% Design (October 2020)
- Rail Quiet Zone and Pedestrian Path design complete (Q4 2020)
- Gate Access design approved by City of Seattle Department of Transportation (September 2020)
- Installed Channelization (striping) for the T7 Access Road and restriping of access bridge (August 2020); signage installation will close the task (Q4 2020)
- Implementation of Spokane Street signalization and W Marginal Way Flashing Alert (September 2020)
- Reefer Infrastructure 60% Design (Q4 2020)
- South Berth Crane Removal: relocated 3 cranes to South Harbor, another 3 cranes to be removed (October 2020)
- Other: did not win BUILD grant

**E. BUDGET (TO AUGUST 31, 2020)**

Budget numbers are updated to the end of the full month prior to the meeting. Numbers include overhead which is posted the 10<sup>th</sup> of every month.

- Program forecast is currently within overall budget but approaching the total program budget, as also noted in Q2 2020 T-5 Modernization Program Quarterly Report.
- Construction is 49% spent and 33% complete (discrepancy is due to early material purchase for Phases 1 and 2)

2020 Quarter 3 Program Budget	Authorized Budget	Quarter 3 Changes	Updated Budget	Spent to Date	Forecast at Completion	Remaining Authorized Budget
Design, Construction, Project Management	\$283.1	\$0.4	\$283.5	\$107.6	\$281.9	\$175.5
Permit Conditions	\$14.0	\$-	\$14.0	\$3.3	\$14.0	\$10.7
Stormwater Treatment	\$30.0	\$-	\$30.0	\$1.3	\$30.0	\$28.7
Management Reserve*	\$12.9	\$(0.4)*	\$12.5	\$-	\$12.6	\$12.9
<b>Total</b>	<b>\$340.0</b>	<b>\$-</b>	<b>\$340.0</b>	<b>\$112.2</b>	<b>\$338.5</b>	<b>\$227.8</b>

\*\$380,000 moved out of Management Reserve this quarter and into construction are for Radiation Portal Monitor and Customs and Border Protection design and construction (previous \$20,000 was approved for the study phase of the project).

Increases to the forecast at completion in this quarter are below (explanation of future risks is on Page 7 and 8 of this memo):

- Primary construction contract budget increased due to additional soil-related site conditions (+\$6-7M).
  - The material excavated from the site has a higher in-place density than the assumed weight in the estimate resulting in additional disposal tonnage.
  - Increase to volume due to encountering water table, all vaults have had to be excavated to greater than design depths due to encountering saturated soils or higher than expected water table. The impact is that the soil must be over excavated and backfilled with quarry spalls/gravel to achieve bearing.
  - Water line was designed at 3 feet depth but was completed to 4 feet below ground surface to accommodate fire code.
  - Open trenches with side slopes rather than the “box” or neat line cuts that were originally estimated at the landside crane rail.
- Adjustments to slope stabilization change order (+\$2M to previous \$14M estimate), and time impact of Phase 1 schedule delay (+\$2.5M).
- Slope stabilization changes necessitate renegotiation of the Tribal Agreements for additional in-water work period has generated a \$1,040,000 budget increase in design, construction, and project management forecast at completion.
- Marine Building low bid is 40% above the engineer’s estimate (+3.972M).

## F. CONTINGENCY AND RISK

The contingency and risk section provides the Managing Members’ early visibility to emerging issues and associated costs in T5 modernization program implementation.

The following table shows details of:

1) Known Costs (already discussed in the forecast)

Known costs are further broken into two sub-categories of:

- a) Executed Known Costs (agreed to) and
- b) Potential Known Costs (known costs but not final, and not agreed to officially).

2) Future Costs, based on actual program implementation

Future costs capture issues that currently exist or could exist (the latter are items not always likely but could have a cost should they occur).

These are captured early to closely track all issues that could affect delivering the program within the \$340m program authorization. The future costs are modelled using a three-point average intersected with the likelihood of the event occurring to generate the probable cost and a range.

Contingency Funding -- the program has three distinct forms of contingency funding to cover risk:

- 1) typical construction contingency of 15%, which for the \$160M contract results in \$24M.
- 2) a unique management reserve of \$20M was established to cover both program unknowns, like pinch-pile issues, and knowns (but not budgeted for the initial management reserve

calculation), such as tenant improvements like the marine buildings.

3) a fortunate bid variance of \$24M from original engineers estimate of the primary \$160M construction contract.

The program is within its authorization of \$340m but if all the Known Costs (executed & potential) and Future Costs occur at the high end of the range, the program costs will exceed \$340M (by approx. \$19M).

While these forecasted costs are designed to be comprehensive, conservative and cover all project phases, final program completion is 2.5 years out and inherent unknown risks can still emerge.

T5 Berth Modernization Program Contingencies		Probabilistic Risk Range	Balance
	Totals: Construction Contingency (\$24M), Management Reserve (\$20M), Bid Variance (\$24M)		\$68,000,000
	Projected Residual of Construction Contingency, Bid Variance, and Management Reserve between P-20 and P-100 probabilistic risk range	P-20: \$10,563,896 (\$329,436,104) P-85: \$1,159,524 (\$338,840,476) P-100: \$-18,807,494 (\$358,907,494)	\$57,436,104 to \$86,807,494

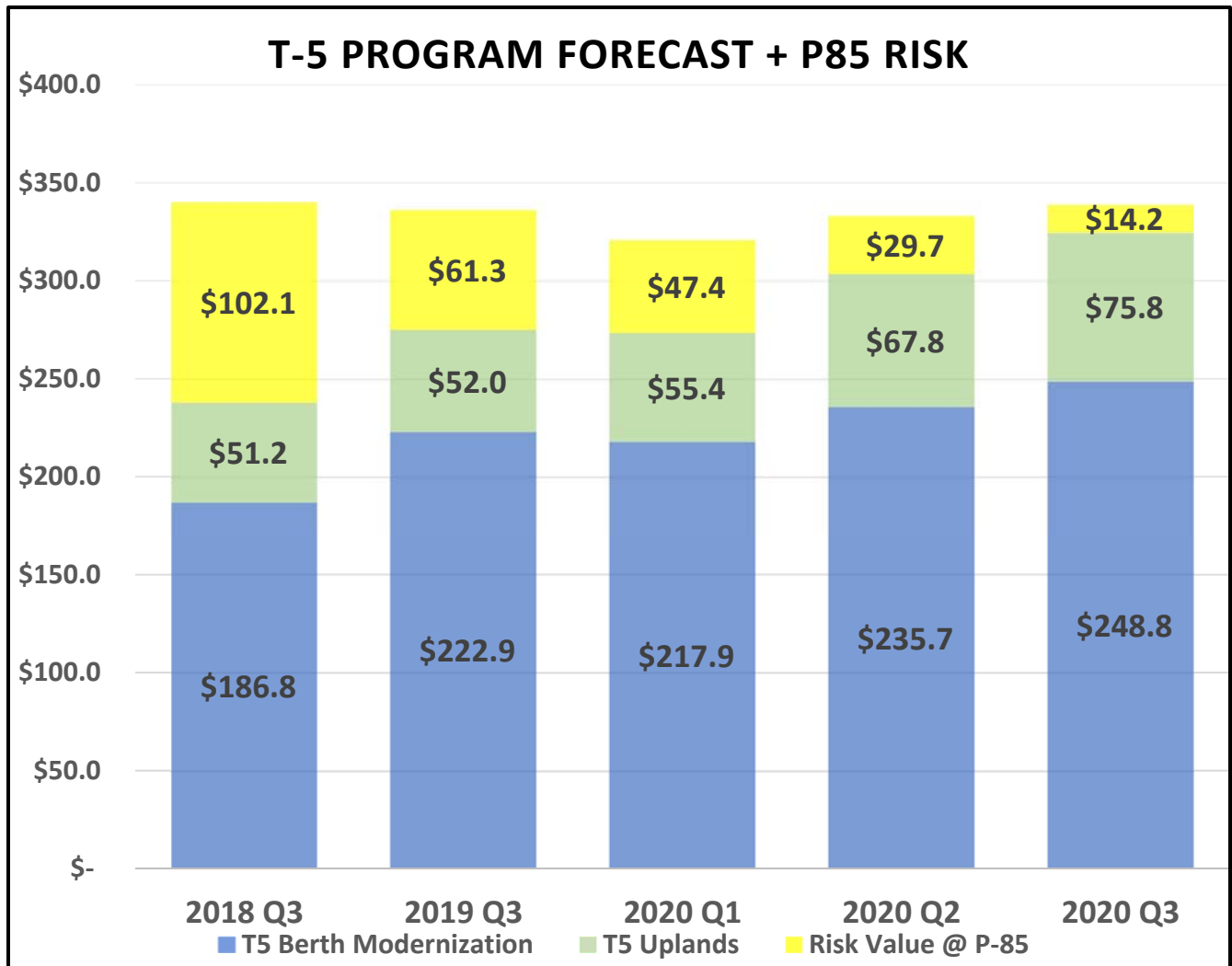
Q3 2020 T5 Construction Contingency (Committed Funds)		Known and Potential Costs	Balance
	T5 Berth Modernization Construction Contingency – committed funds		\$24,000,000
<b>Executed</b>	<b>Total to 8/28/2020</b>	<b>-\$8,120,979</b>	<b>\$15,879,021</b>
<b>Potential</b>	<b>Total to 8/28/2020</b>	<b>-\$19,163,379</b>	<b>-\$3,284,358</b>
<i>Future</i>	<i>Remaining Phase 1 and 2 Construction Risk</i>	<i>-\$5,000,000 to -\$10,000,000</i>	<i>-\$8,284,358 to -\$13,284,358</i>
Q3 2020 T5 Management Reserve			
	Management Reserve Budget		\$20,000,000
<b>Allocated</b>	<b>Marine Buildings, Clean Truck Gate Equipment, CBP and RPM Power, Reefer Study, North Reefer Infrastructure first phase</b>	<b>-\$7,320,000</b>	<b>\$12,680,000</b>
<i>Future</i>	<i>Quiet Zone Property Acquisition, Seattle City Light Variance and Tax, North Reefer Infrastructure, Stormwater above \$30M, T5 Access Bridge, Reefer Phase 1 Plus Reimbursement, North and South Marine Building Construction, Dredging 40' Overlap, Tribal Agreement, Open water disposal, Insurance Premium, South Reefer Repair</i>	<i>-\$12,250,000 to -\$35,700,000</i>	<i>\$430,000 to -\$23,020,000</i>
Q3 2020 T5 Construction Bid Variance			
	Bid Variance Budget (Program Contingency)		\$24,000,000

### Stochastic Analysis and Risk Register (updated quarterly in 2020)

T5 key staff meet quarterly with the T5 Program risk consultant to model variables around future T5 risk and update the risk register. Risks are identified by likelihood and impact to generate a score and are modelled into the forecast budget along with the actuals to date.

Recent Stochastic Analysis and Risk Register updates from Q3 2020 indicate:

- The program has P-85 value (85% probability of being sufficient) of \$338.8M
  - Q2 2020 P-85: \$333M
  - Q1 2020 P-85: \$321M
  - Q4 2019 P-85: \$336.2M
- The \$340M program budget has a near 90% probability of being sufficient
  - Q2 2020 97% probability
  - Q1 2020 100% probability
  - Q4 2019 95% probability



#### Programmatic Trends:

- Risk Items are down, there has been a steady decrease in low, likely, and high impacts and probabilities since Q3 2018 to present.
- Planned values and forecasts are up since last quarter due to missing forecast/budget items.
- Lease Obligation planned values are higher as design progresses. The probable budget (Q3 2018) was defined before the lease obligations (Q2 2019) were finalized except for the stormwater treatment system. T5 Program was authorized in April and May 2019 by Managing Members. T5 Program Budget was not adjusted to include the increased scope generated by the lease obligations; the intent of including the upland project in the authorization without increasing the budget was that the \$20M management reserve would be enough to cover the lease obligations. The lease contained four projects for T5 that had not previously been included in the T5 Berth Modernization scope:
  - Marine Buildings
  - North and South Reefers
  - CBP, RPM
  - Clean Truck
  - Reefer Phase 1 Plus Reimbursement

The preliminary budgets for these projects are currently between \$34M - \$39M (not including Stormwater Treatment System overrun).

#### Future Potential risks:

- Quiet Zone Property Acquisition (\$1-2M) and schedule delay

Under the Memorandum of Understanding we have with the City of Seattle, we are responsible for all the costs associated with the Quiet Zone. As part of the project, a property acquisition will need to be made by the City and the project will pay the cost; the City will hold the title to the property. Discussions have begun with property owner. Risks are in the finalization of the costs of the acquisition and in the potential impacts to the schedule.

- Stormwater budget (\$29M – \$38M + soft costs) based on 60% Design

NWSA received the Stormwater 60% design in July 2020 with the updated estimate. Based on known conditions, and similar projects at neighboring locations, we agree with the tenant's estimate range. The estimate will continue to be refined as the deliverables progress. No program costs above \$30M have been agreed to currently.

- North Reefer Study, design, and construction (additional \$9M – \$15M to the \$3M already authorized) feasibility study

Lease obligations are for NWSA to install electrical infrastructure in the uplands up to a vault to provide power to the reefer plugs. Material costs, including purchase of the substations, make up about half of the budget. Initial \$3M was approved to start the project and adjust the budget incrementally as required.

- South Reefer repair (\$800K) based on initial feasibility level estimate

320 of the 640 existing southern reefers need to be repaired prior to Phase 1 as 640 reefers are required for the start of Phase 1 operations.

- Reefer Scope delineation for definition of responsibilities between NWSA and SSA (\$6M-

\$9M) rough order of magnitude

Lease obligations are for NWSA to install electrical infrastructure and power to a manhole in the uplands for the reefer plugs. Tenant maintains the obligation is for NWSA to provide electrical infrastructure and power all the way to the reefers.

- Reefer Reimbursement (\$9M) lease condition if Terminal 5 Phase 2 not executed.

Lease obligations are for NWSA to reimburse Tenant for reefer infrastructure should tenant elect Phase 1 Plus.

- T5 Access Bridge (\$0M – \$2.5M) rough order of magnitude

SDOT has responded to the T5 access bridge traffic mitigation plan with additional requests for study. The high end of the risk range shows the inability to meet the City criteria for over-legal 2 loads on the T5 bridge and the installation of a gated rail crossing on the at-grade roads.

- Open Water/Upland Spoils Disposal (\$0M – \$2.5M) rough order of magnitude

Sediment characterization of the north and south berths are underway to assess suitability for open water disposal of the spoils. Results will be available in early December 2020.

- Increased contractor costs for time extension due to Phase 1 slope stabilization scope change (\$0M – \$2.5M)

Construction team is working with the Berth Modernization general contractor to establish the amount due for the time impact in relation to the Phase 1 slope stabilization scope increase.

#### **Retired major risks are:**

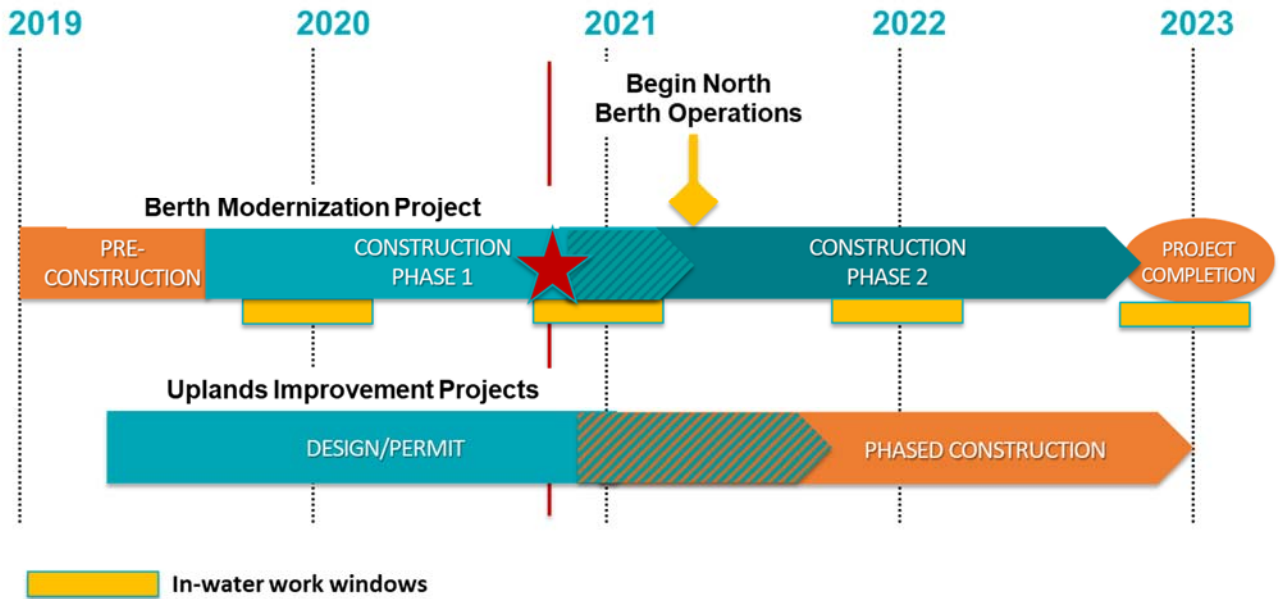
- Tribal Agreements and requirement for additional in water work window
- Structural piles do not encounter sufficient resistance
- Redesign of some Tenant projects

#### **Continuing risks:**

- Encountering in-water obstructions for sheet piles and phase 2 in water pile driving
- Further unknown COVID-19 impacts
- Lease Obligations: CBP Booth, RPM location, Reefer delineation
- Quiet Zone Property Acquisition
- Stormwater system estimate refinement
- Over-legal load 2 impacts to W Marginal and compliance with City permits (see note above in T5 Access Bridge)
- Unforeseen site conditions (to include open water disposal, soil, etc.)
- Other external factors (West Seattle Bridge, fires, etc.)
- Toe wall driving and dredging
- South Reefer repairs



**G. PROGRAMMATIC SCHEDULE**



**H. OPPORTUNITIES**

- State budget for shore power infrastructure at Terminal 5 – NWSA’s application to the VW Settlement to support the T-5 shore power project was denied by the Department of Ecology, allowing the NWSA to claim a \$4.4M appropriation in the Washington State budget. Staff will work with the Department of Commerce to negotiate timing and conditions of collecting these funds, starting in late Q3 2020. Dept of Ecology grant for stormwater – \$5,000,000 awarded July 2020 (with \$1,666,667 match)
- PIDP–Grant submitted May 2020 (Tentative award announcement in November 2020)

**I. LOOK AHEAD**

- Q4 2020
  - Marine Building Execution
  - Start of Seattle City Light (SCL) work
  - Stormwater 90% Design
  - Continued Rail Quiet Zone property acquisition negotiation
  - Spokane Street signalization will be complete
  - Quiet Zone civil design will be finalized
  - Permit Conditions in review with Agencies
  - PIDP Grant Announcement

- Q1 2021
  - Marine Buildings construction
  - Completion of Seattle City Light (SCL) work
  - Stormwater 100% Design and Advertisement

**J. ALTERNATIVES CONSIDERED AND THEIR IMPLICATIONS**

No request is being made at this time.

**K. ENVIRONMENTAL IMPACTS / REVIEW**

No environmental impact/review is being made at this time.

**L. ATTACHMENTS TO THIS REQUEST**

- Computer slide presentation.

**M. PREVIOUS ACTIONS OR BRIEFINGS**

Date	Action	Amount
September 1, 2020	T5 Modernization - Tribal Agreement Update	\$0
August 4, 2020	T5 Marine Building - Approval to advertise for North Building construction only	\$0
July 2, 2020	Authorization to advertise for North and South Marine Buildings construction	\$0
July 2, 2020	T5 Modernization - Program Update	\$0
April 7, 2020	T5 Modernization - Program Update	\$0
January 14, 2020	T5 Modernization - Program Update	\$0
October 1, 2019	T5 Modernization - Program Update	\$0
August 6, 2019	T5 Modernization - Program Update	\$0
June 4, 2019	T5 Program Update	\$0
May 20, 2019	Program Authorization for Construction of Berth Modernization Program	\$0
April 2, 2019	Additional Program Funding and Authorization to Fund T5 Modernization Program	\$314,150,000
February 26, 2019	Authorization to advertise for construction	\$0
February 5, 2019	Pre-authorization Program Briefing	\$0
November 13, 2018	Motion to prepare construction documents for authorization to advertise	\$0
August 1, 2017	Railroad quiet zone funding, tribal payments, and Agreements	\$5,650,000
October 4, 2016	Additional Funding, Seattle City Light Agreement, and Project Labor Agreement	\$8,200,000
June 7, 2016	DEIS Briefing	\$0
November 4, 2015	Additional SEPA and Design Funding	\$2,000,000
October 13, 2015	Test Pile Bids Exceeded Engineer's Estimate	\$0
July 14, 2015	Additional Design Authorization	\$5,000,000
June 3, 2014	Initial Design Authorization	\$4,700,000



Item No: 6A  
Date of Meeting: October 06, 2020

# Quarterly Program Update Terminal 5 Modernization

Presenter: Emma Del Vento  
Capital Program Leader

# Terminal 5 – Program Overview

## Primary Elements of Scope



- **Berth Modernization**

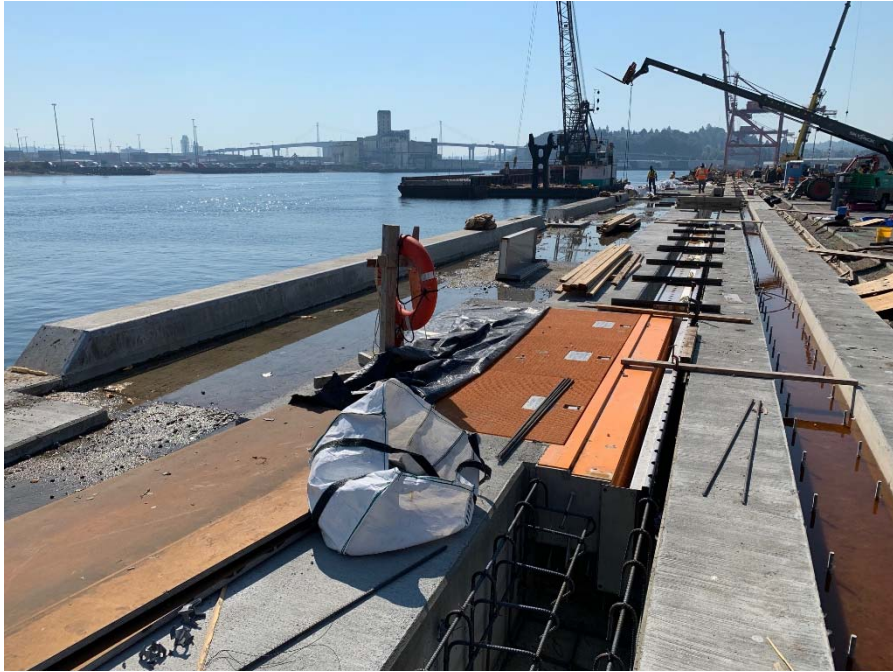
- Crane Rails
- Dock Rehabilitation
- Slope Stabilization
- Berth Deepening
- Power Supply/ Distribution

- **Uplands Improvements**

- Permit Conditions
- Lease Obligations
  - Stormwater
  - Marine Buildings
  - Reefers



# Terminal 5 – Construction Progress



Fender and Cable Slot Mockup



Seattle City Light Pads at Substation

# Terminal 5 – Q3 2020 Progress

- **Berth Modernization Project**

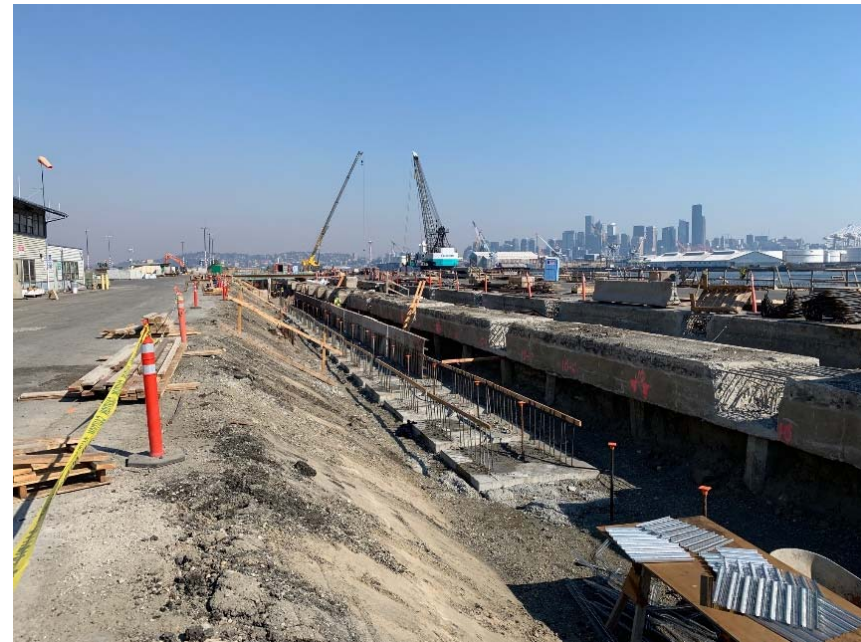
- Above-water dock construction - on schedule, some delays are emerging and tasks are being re-sequenced.
- Landside crane rail – on schedule, no issues and continuing concrete pours
- Electrical Substation – Architectural portion near complete; preparing for Seattle City Light work 10/15
- Utility: sewer, water, and electrical duct bank - on schedule, some challenges in relation to the duct bank
- In water work: toe wall pile driving scheduled to start end October

- **Uplands Improvements Projects**

- Permit Condition Progress
  - Gate design approval 9/2
- Lease Obligations
  - Stormwater Treatment: 90% Design October 2020
  - Marine Buildings:
    - Bids received 9/2
  - Reefer Design 60% Design

- **Grants**

- PIDP
- Stormwater – Awarded August 2020
- Shore power



Landside Crane Rail – Pads and Piles

# Terminal 5 – Construction Progress



Steel Pile at Landside Crane Rail



Unloading King Piles

# Terminal 5 – Budget (August 31, 2020)

Program currently on budget  
Construction is 49% spent and 33% complete

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# Terminal 5 – Berth Modernization Trends

- **Construction Contract**

- Original Contract Amount: \$160M
- Projected Contract Amount: \$196.6  
(New Contract Amount + Potential Risk to construction contract)
- Original Contingency: \$24M
- Remaining Construction Contingency: \$-12.6M

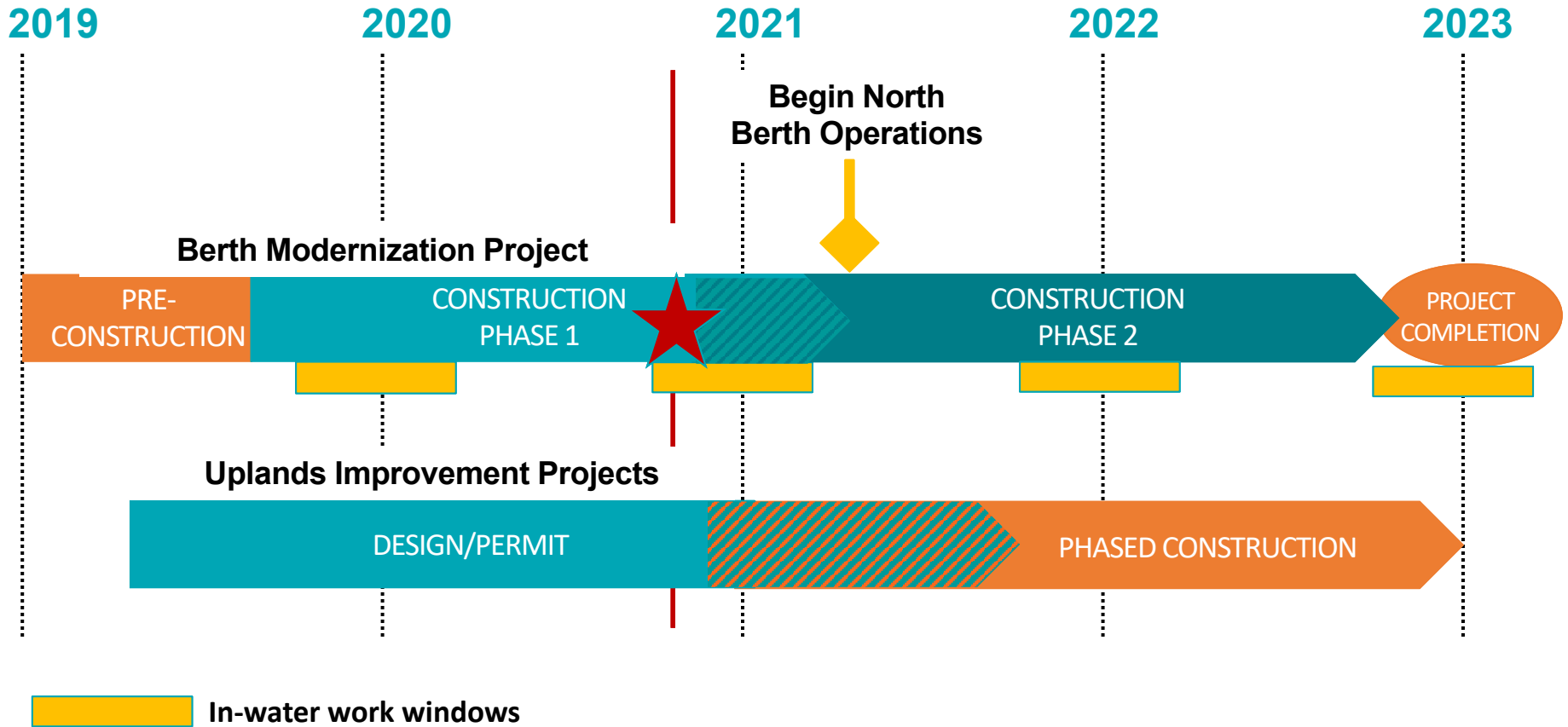
- **Risk Register and Stochastic Model:**

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# Terminal 5 – Programmatic Schedule

Construction 33% complete; 34% time elapsed



# Terminal 5 – Opportunities

- **State budget for shore power infrastructure at Terminal 5 – \$4.4M Budget Proviso**
- **Dept of Ecology Grant for Stormwater – Awarded July 2020**
- **PIDP Grant – Nov 2020**



Secondary Ductbank

**PIDP = Port Infrastructure Development Program**

# Terminal 5 – Community Outreach

- 8/27 West Seattle Transportation Coalition
- Ongoing updates of T5 websites
- Notification of major milestones, in water work, and pile driving



South Berth Vacant and Air Quality



South Berth Crane Removal

# Terminal 5 – Look Ahead

- **Q4 2020**
  - Marine Building Execution
  - Start of Seattle City Light (SCL) work
  - Stormwater 90% Design
  - Continued Rail Quiet Zone property acquisition negotiation
  - Spokane Street signalization completion
  - Quiet Zone civil design will be finalized
  - Permit Conditions in review with Agencies
  - PIDP Grant Announcement
  - Complete North Berth Toe Wall
- **Q1 2021**
  - Marine Buildings construction
  - Completion of Seattle City Light (SCL) work
  - Stormwater 100% Design and Advertisement



LSCR forms through conveyor tunnel



Substation Pad Pours