



May 20, 2021

# Phase 2 Roundtable Update – General-Purpose Cargo Terminal, Essential Features (Criteria), Concept Design Overview and Cost Update

- Terminal 1 (Lift-on/ Lift-off) Modified Concept/ Hybrid Near Shore Concept
- Terminal 2 (Roll-on/ Roll-off) Modified 2021 TOTE Concept
- Cost Estimate Update
- Liquid Bulk Capability





# Phase 2 General-Purpose Cargo Terminals Information Update

- Essential Features (Approved Criteria)
- Terminal 1 Modified and Hybrid Near-Shore Concept Designs
- Terminal 2 Modified TOTE 2021 Modified and Hybrid Near-Shore Concept Designs
- Liquid Bulk Capability
- Cost Estimate Update



# General-Purpose Cargo Terminal Essential Features

Municipality of Anchorage Perspective



## Essential Features – Approved Criteria

- Port of Alaska Replacement Cargo Terminals & Second Fuels Infrastructure Essential Features Rev. 01
- Published March 22, 2021
- Defines Municipality of Anchorage perspective for general-purpose cargo terminal essential features, segregated as:
  - Essential Features for all cargo terminals
  - Essential Features for the Roll-on/ Roll-off Terminal (T2)
  - Essential Features for the Lift-on/ Lift-off Terminal (T1)



# Essential Features – Approved Criteria for all Cargo Terminals (1 of 2)

- Provide a continuous general-purpose wharf
- Construction phasing must accommodate the current containerized cargo operators (TOTE and Matson)
- Accommodate future harbor deepening to -39 MLLW
- Accommodate Anchorage Harbor sea level and 500-year storm surge throughout the design life by establishing the wharf deck elevation at +44 MLLW



# Essential Features - Approved Criteria for all Cargo Terminals (2 of 2)

- Provide a minimum design life of 75-years for the superstructure through a combination of specific concrete and steel design parameters along with coatings and impressed current cathodic protection
- Berth face must be positioned such that there is a reasonable expectation the project can be permitted by the USACE and in a reasonable time frame
- Must have minimum wharf load bearing capacity of 1,000-psf
- Fendering systems must be similar or equal to the Petroleum and Cement Terminal design



## Essential Features - Approved Criteria for Roll-on/Roll-off Terminal (1 of 2)

- Comply with minimum damage seismic performance requirements for pile-supported marine structures designated as Seismic Berths, including the wharf, trestles and trestle abutments
- Provide structural support at two locations along the wharf to accommodate equipment (large cranes) that can perform a 200 Ton heavy lift
- Provide petroleum transfer capabilities connected by pipeline to the Port of Alaska Valve Yard, to augment the new Petroleum Cement Terminal



## Essential Features - Approved Criteria for Roll-on/Roll-off Terminal (2 of 2)

- Include three trestles geometrically configured for the TOTE Orca Class vessel truck ramp operations and emergency access
- Include mooring features to accommodate the Orca Class 840-LOA vessel, including a mooring dolphin north of the northern end of the terminal





# Essential Features - Approved Criteria for Lift-on/Lift-off Terminal (1 of 2)

- Comply with minimum damage seismic performance requirements for pile-supported marine structures designated as Seismic Berths, including the wharf, trestles and trestle abutments
- The lift-on/lift-off terminal will be the primary berth for general-use cargo handling
- Design vessel to support Department of Defense Strategic Defense Program is a Bob Hope Class Large Medium Speed Roll on/Roll off (LMSR)



## Essential Features - Approved Criteria for Lift-on/Lift-off Terminal (2 of 2)

- Be a minimum of 129-ft wide to provide for three (3) 10-ft wide traffic lanes and adequate safety lanes in accordance with OSHA safety criteria for three (3) traffic lanes
- Include two (2) 30-ft wide trestles that are geometrically configured at the outboard north and south terminal end
- Support at least three (3) ship-to-shore cranes, including deck lockdowns
- Include mooring features to accommodate a 712-LOA, 2600 TEU vessel, including a mooring dolphin(s) at the southern end of the terminal

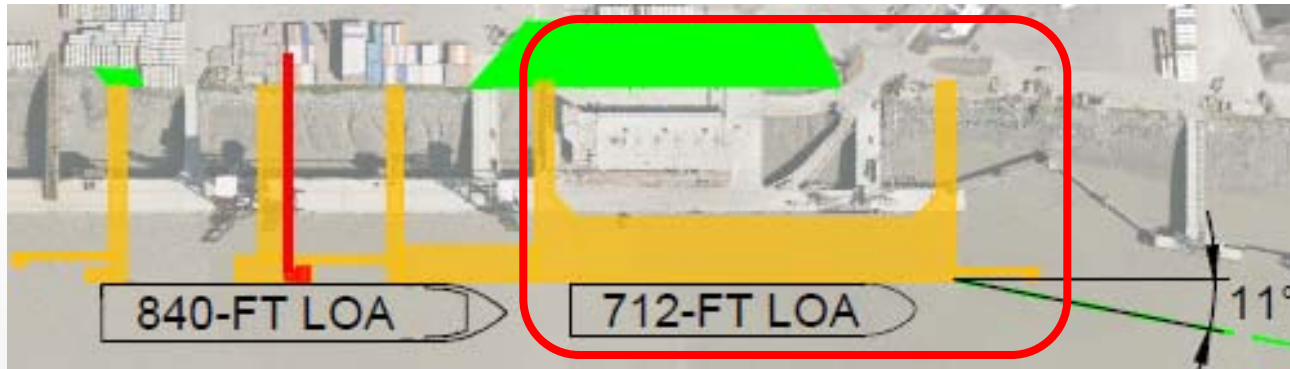


# Modified and Near Shore Hybrid Concept with incorporated Modified TOTE 2021 Concept

Geometric Concepts under Consideration



# T1 Modified Concept



Estimated Cost:  
\$598.5M

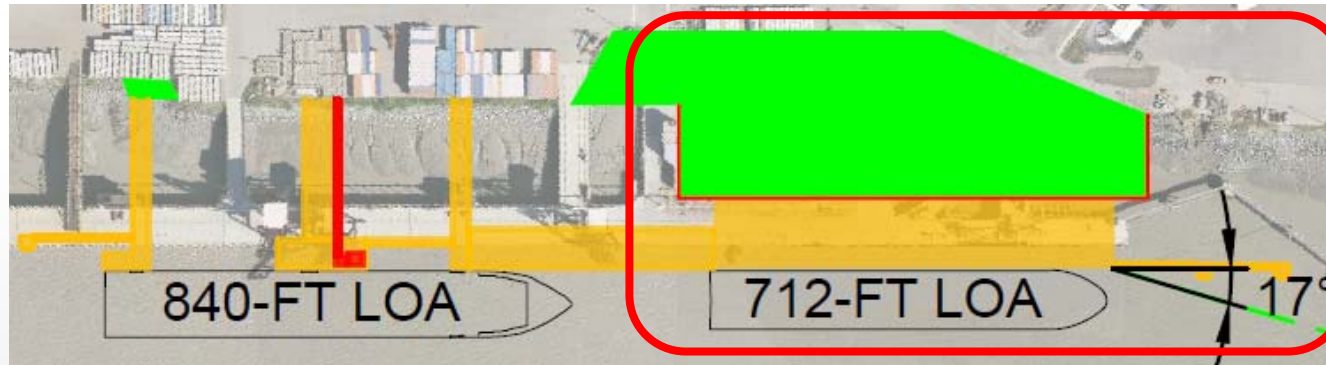
Estimated  
Construction  
Duration: 4-yrs.

## Key Features:

- 75-year service design life
- Terminal elevation at 44-ft MLLW
- Design for -39 MLLW harbor depth
- Berth line location coordinated with USACE and evaluated in USACE 2017 Sedimentation Modelling
- 1,000-psf wharf load bearing capacity
- Seismic Berth: 10-day recovery after DE event (exceeds highest standards)
- 870-ft x 129-ft Wharf
- 30-ft wide Trestles at north and south ends
- 3-ship-to-shore cranes
- Panzer belt/ trench crane power
- 3-truck lanes w/ safety lanes (OSHA)
- South dolphin to support contingent Matson requirements



# T1 Hybrid Near-Shore Concept



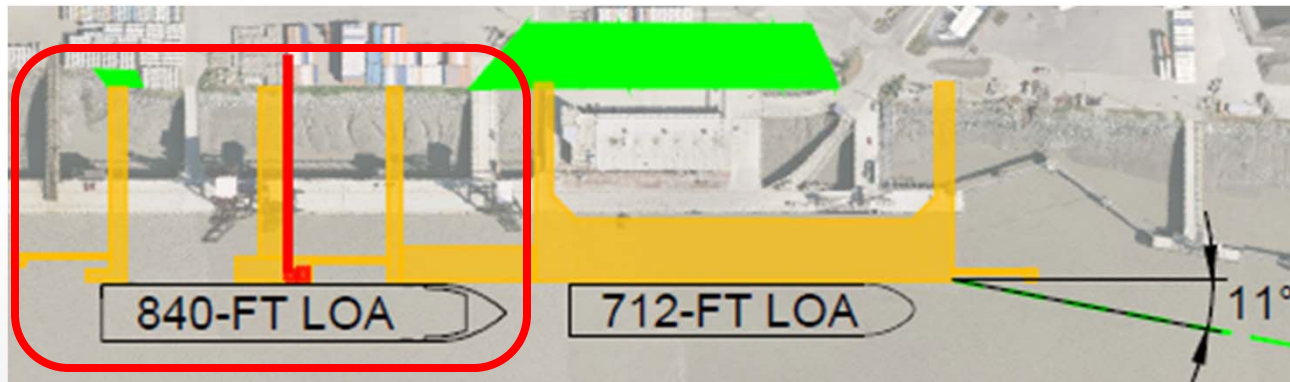
Estimated Cost:  
\$615.0M  
Estimated  
Construction  
Duration: 4-yrs.

## Key Features:

- 75-year service design life
- Terminal elevation at 44-ft MLLW
- Design for -39 MLLW harbor depth
- 1,000-psf wharf load bearing capacity
- Seismic Berth: 10-day recovery after DE event (exceeds highest standards)
- Marginal wharf – Large structural bulkhead w/ engineered soil fill and tie-back systems
- 720-ft x 129-ft plus 160-ft x 69-ft Wharf
- 3-ship-to-shore cranes
- Panzer belt/ trench crane power
- 3-truck lanes w/ safety lanes (OSHA)
- 2-south dolphins to support contingent Matson requirements



## T2 Modified TOTE 2021 Concept



Estimated Cost:  
\$360.5M

Estimated  
Construction  
Duration: 3-yrs.

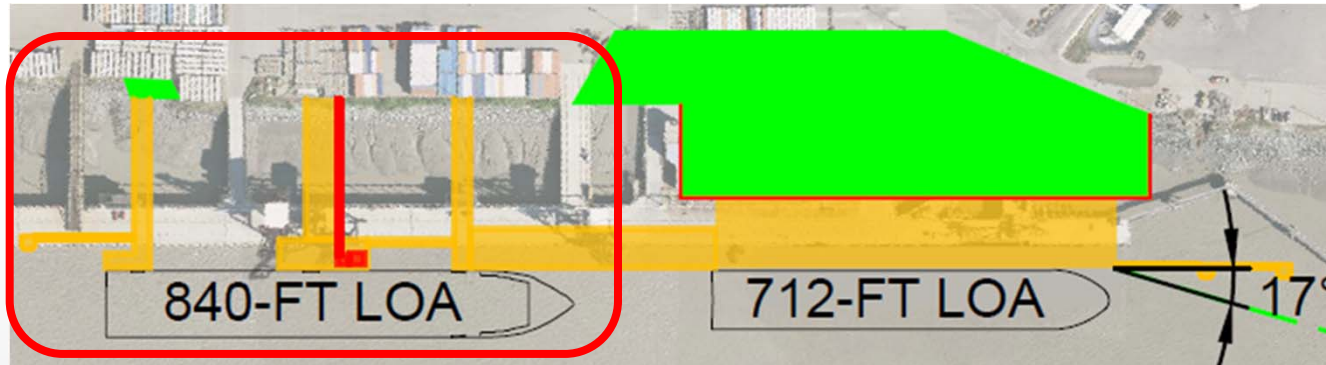
### Key Features:

- 75-year service design life
- Terminal elevation at 44-ft MLLW
- Design for -39 MLLW harbor depth
- Berth line location coordinated with USACE and evaluated in USACE 2017 Sedimentation Modelling
- 1,000-psf wharf load bearing capacity
- 200-Ton heavy lift capability at 2 locations
- Seismic Berth: 10-day recovery after DE event (exceeds highest standards)
- 934-ft Berth length
- Wharf structural components: 312-ft x 69-ft (southern end) plus 160-ft x 50-ft (center) plus 84-ft x 25-ft (northern end)
- 3-trestles/piers configured for Orca Class vessel truck ramp operations and emergency access
- Liquid Bulk Transfer capability





## T2 TOTE 2021 Hybrid Near-Shore Concept



Estimated Cost:  
\$349.6M

Estimated  
Construction  
Duration: 3-yrs.

### Key Features:

- 75-year service design life
- Terminal elevation at 44-ft MLLW
- Design for -39 MLLW harbor depth
- 1,000-psf wharf load bearing capacity
- 200-Ton heavy lift capability at 2 locations
- Seismic Berth: 10-day recovery after DE event (exceeds highest standards)
- 934-ft Berth length
- Wharf structural components: 318-ft x 69-ft (southern end) plus 160-ft x 50-ft (center) plus 84-ft x 25-ft (northern end)
- 3-trestles/piers configured for Orca Class vessel truck ramp operations and emergency access
- Low-structural bulkhead w/ engineered soil fill
- Liquid Bulk Transfer capability



# POA CAPEX (Initial), OPEX (Lifecycle), Berth Occupancy Rate (BOR) and Schedule





## Cost Estimate Background

- PAMP \$1.9B estimate completed on October 15, 2018
  - Values were extrapolated from the PCT 65% Owner's Estimate
  - Completed during the CMAR process
- Current Modified and Near Shore Concept Estimates
  - Based on contracted values for Soil Improvements in 2018
  - Based on contracted values for SBS and Transitional Dredging in 2019
  - Based on contracted values for PCT 2020 (+10%)
  - Based on contracted values for PCT 2021
- Revised estimates:
  - Are considered ASTM Class 4
    - Accuracy range of -20% to +30%
  - Are calculated in 2020 dollars
  - Assume cost escalation at 3% per year



# Summary of Cost for Modified and Near Shore Concepts

	Modified Concept		Near Shore Concept	
	Initial	Lifecycle	Initial	Lifecycle
<b>Base Cost Elements</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>
Terminal 1	\$598,485,500	\$598,485,500	\$615,021,054	\$657,209,550
Terminal 2 Total	\$360,464,287	\$360,464,287	\$349,553,594	\$386,523,881
TOTE Concept Elements Subtotal	\$215,368,120	\$215,368,120	\$208,636,172	\$245,606,459
Recommended Deviations from TOTE Concept Subtotal	\$52,121,986	\$52,121,986	\$47,943,241	\$47,943,241
Common Elements to Any Concept Subtotal	\$92,974,181	\$92,974,181	\$92,974,181	\$92,974,181
Other Associated Costs	\$461,342	\$134,921,809	\$14,516,080	\$374,392,767
<b>Base Total</b>	\$959,411,129	\$1,093,871,596	\$979,090,728	\$1,418,126,199
<b>Low Range (-20%)</b>	\$767,528,903	\$875,097,277	\$783,272,583	\$1,134,500,959
<b>High Range (+30%)</b>	\$1,247,234,468	\$1,422,033,075	\$1,272,817,947	\$1,843,564,058
<b>Current PAMP Budget Amount</b>	\$1,114,195,109		\$1,114,195,109	



# Detail of Cost for Terminal 1

	Modified Concept		Near Shore Concept	
	Initial	Lifecycle	Initial	Lifecycle
<b>Base Cost Elements</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>
Terminal 1	\$598,485,500	\$598,485,500	\$615,021,054	\$657,209,550
Existing Terminal T1 & POL1 Demolition	\$37,809,134	\$37,809,134	\$37,809,134	\$37,809,134
Additional Tug Support due to Discontinuous Dock	\$22,597,170	\$22,597,170	\$22,597,170	\$22,597,170
Trestle Structure	\$33,293,340	\$33,293,340	\$0	\$0
Wharf Structure	\$194,386,077	\$194,386,077	\$186,756,486	\$186,756,486
Terminal Utilities	\$14,960,487	\$14,960,487	\$13,828,067	\$13,828,067
Terminal Finishes	\$48,213,800	\$48,213,800	\$39,000,000	\$39,000,000
STS Gantry Cranes	\$31,827,000	\$31,827,000	\$31,827,000	\$31,827,000
Landside Site Work	\$18,831,747	\$18,831,747	\$65,453,877	\$65,453,877
Shoreline Bulkhead Replacement at 40 years	\$0	\$0	\$0	\$42,188,496
Landside Utilities	\$13,787,776	\$13,787,776	\$24,374,131	\$24,374,131
POA Operations Contingency	\$4,000,000	\$4,000,000	\$4,000,000	\$4,000,000
Terminal Construction Mobe/Demobe	\$35,200,000	\$35,200,000	\$39,600,000	\$39,600,000
Soil Improvements Mobe/Demobe	\$750,000	\$750,000	\$3,000,000	\$3,000,000
Escalation	\$88,421,196	\$88,421,196	\$90,864,185	\$90,864,185
10% Contingency	\$54,407,773	\$54,407,773	\$55,911,005	\$55,911,005



# Detail of Cost for Terminal 2 (Slide 1 of 4)

	Modified Concept		Near Shore Concept	
	Initial	Lifecycle	Initial	Lifecycle
<b>Base Cost Elements</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>
Terminal 2 Total	\$360,464,287	\$360,464,287	\$349,553,594	\$386,523,881
TOTE Concept Elements Subtotal	\$215,368,120	\$215,368,120	\$208,636,172	\$245,606,459
Recommended Deviations from TOTE Concept Subtotal	\$52,121,986	\$52,121,986	\$47,943,241	\$47,943,241
Common Elements to Any Concept Subtotal	\$92,974,181	\$92,974,181	\$92,974,181	\$92,974,181



# Detail of Cost for Terminal 2 (Slide 2 of 4)

	Modified Concept		Near Shore Concept	
	Initial	Lifecycle	Initial	Lifecycle
<b>Base Cost Elements</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>
TOTE Concept Elements Subtotal	\$215,368,120	\$215,368,120	\$208,636,172	\$245,606,459
TOTE Concept - Trestle Structure	\$64,166,407	\$64,166,407	\$47,218,646	\$47,218,646
TOTE Concept - Wharf Structure	\$28,709,042	\$28,709,042	\$28,709,042	\$28,709,042
TOTE Concept - Terminal Utilities	\$6,269,250	\$6,269,250	\$5,725,500	\$5,725,500
TOTE Concept - Terminal Finishes	\$28,500,000	\$28,500,000	\$28,500,000	\$28,500,000
TOTE Concept - Landside Site Work	\$17,476,649	\$17,476,649	\$30,346,538	\$30,346,538
TOTE Concept - Shoreline Bulkhead Replacement at 40 years	\$0	\$0	\$0	\$36,970,287
TOTE Concept - Landside Utilities	\$2,733,339	\$2,733,339	\$2,733,339	\$2,733,339
Escalation	\$47,934,513	\$47,934,513	\$46,436,182	\$46,436,182
10% Contingency	\$19,578,920	\$19,578,920	\$18,966,925	\$18,966,925



# Detail of Cost for Terminal 2 (Slide 3 of 4)

	Modified Concept		Near Shore Concept	
	Initial	Lifecycle	Initial	Lifecycle
<b>Base Cost Elements</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>
Recommended Deviations from TOTE Concept Subtotal	\$52,121,986	\$52,121,986	\$47,943,241	\$47,943,241
Credit for Deletion of (3) Breasting Dolphins	-\$13,598,722	-\$13,598,722	-\$13,598,722	-\$13,598,722
Addition of (3) 25' x 50' Platforms to (3) Replace Breasting Dolphins	\$8,492,407	\$8,492,407	\$8,492,407	\$8,492,407
Addition of Wider Midship Trestle for Expected Fire Marshal Requirements	\$9,525,275	\$9,525,275	\$6,556,203	\$6,556,203
Addition of Wider Midship Wharf for Petro Infrastructure	\$3,234,383	\$3,234,383	\$3,205,126	\$3,205,126
Addition of 278' x 69' Wharf to Support Non-TOTE Vessel Berthing (in addition to (2) 25' x 50' platforms)	\$28,129,483	\$28,129,483	\$28,259,017	\$28,259,017
Escalation	\$11,600,798	\$11,600,798	\$10,670,734	\$10,670,734
10% Contingency	\$4,738,362	\$4,738,362	\$4,358,476	\$4,358,476



# Detail of Cost for Terminal 2 (Slide 4 of 4)

	Modified Concept		Near Shore Concept	
	Initial	Lifecycle	Initial	Lifecycle
<b>Base Cost Elements</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>
Common Elements to Any Concept Subtotal	\$92,974,181	\$92,974,181	\$92,974,181	\$92,974,181
Existing Terminal 2 & 3 Demolition	\$18,238,926	\$18,238,926	\$18,238,926	\$18,238,926
Additional Tug Support due to Discontinuous Dock	\$15,064,780	\$15,064,780	\$15,064,780	\$15,064,780
POA Operations Contingency	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000
Terminal Construction Mobe/Demobe	\$26,400,000	\$26,400,000	\$26,400,000	\$26,400,000
Soil Improvements Mobe/Demobe	\$1,125,000	\$1,125,000	\$1,125,000	\$1,125,000
Escalation	\$20,693,277	\$20,693,277	\$20,693,277	\$20,693,277
10% Contingency	\$8,452,198	\$8,452,198	\$8,452,198	\$8,452,198



# Detail of Other Associated Costs

	Modified Concept		Near Shore Concept	
	Initial	Lifecycle	Initial	Lifecycle
<b>Base Cost Elements</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>
Other Associated Costs	\$461,342	\$134,921,809	\$14,516,080	\$374,392,767
Imputed Land Value for Infills Behind Terminals	\$0	-\$15,539,533	\$0	-\$36,258,910
Ship Simulation	\$461,342	\$461,342	\$461,342	\$461,342
Sedimentation Modeling	\$0	\$0	\$1,727,093	\$1,727,093
Maintenance Dredging	\$0	\$0	\$0	\$371,732,775
Increased Matson Cycle Time Due to Increased Trestle Length	\$0	\$0	\$0	\$0
Increased TOTE Cycle Time Due to Increased Trestle Length	\$0	\$150,000,000	\$0	\$0
Additional Cutback at NES	\$0	\$0	\$12,327,645	\$12,327,645
Imputed Land Value for Additional Cutback at NES	\$0	\$0	\$0	\$24,402,822
Rework of Existing Backlands to Support Tenant Operations	\$0	\$0	\$0	\$0





## Modified Concept Schedule

- T1 four (4) years of construction estimated to begin in 2025
- T2 three (3) years of construction estimated to begin in 2029
- Potential to shorten total duration to six (6) years of construction
- Duration estimate based on PCT 2020 pile production rates
  - PCT 2021 progress in the last week shows an improvement over 2020



## Hybrid Concept Schedule

- T1 four (4) years of construction estimated to begin in 2025
- T2 three (3) years of construction estimated to begin in 2029
- Due to the expected requirement by USACE to revise sedimentation modelling, beginning in 2025 is unlikely



# Liquid Bulk Capability

Provide petroleum transfer capabilities connected by pipeline to the Port of Alaska Valve Yard, to augment the new Petroleum Cement Terminal



# Liquid Bulk Capability

- BOR analysis based on 2017 – 2019 port calls indicates one terminal is not sufficient
- Liquid Bulk port calls increased in 2020
- Increased Ted Stevens International Airport freight traffic is anticipated based on published expansion plans by FedEx and others
- At this time, there is nothing supporting a need for a third Liquid Bulk terminal, but the PAMP plan can accommodate future expansion



# Liquid Bulk Capability

- Current facilities – POL1, POL2
- Post-PCT, Pre-Cargo Dock Construction – PCT, POL1\*, POL2
  - \*PCT and POL1 cannot offload the same product at the same time due to shared lines into POAVY
- Cargo Dock Construction – PCT, POL2\*
  - Construction coordination required on the north side of POL2 for the first year of construction



# Liquid Bulk Capability

## Petroleum Terminal project drivers

- Scheduled for follow cargo dock construction 2033 (12 years out)
- Life expectancy of POL2
- USACE sedimentation modeling and maintenance dredging analysis based on cargo dock construction duration of 5-years with replacement immediately thereafter
- Navigation safety and maintenance dredging concerns will drive an urgency to eliminate the “slot” affect of the discontinuous berthline



# Liquid Bulk Capability

- During construction of the Petroleum Terminal, there will be only the PCT to service Liquid Bulk
- A temporary (or permanent) second terminal is anticipated during PT construction
- Even a temporary facility will require a hose tower and operations building
- A second facility will either be another greenfield site similar to PCT or on the cargo dock
- If we construct a Liquid Bulk terminal integral with the cargo docks, the construction of the Petroleum Terminal could be delayed until there is a need for 3 terminals



# Questions?





**Thank you**