

Terminal 5 Uplands Modernization and Rehabilitation Project Final Phase



U.S. Department of Transportation – Maritime Administration Port Infrastructure Development Program (PIDP)

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I. Project Description

I.a Project Overview

The Northwest Seaport Alliance (NWSA), which manages cargo facilities on behalf of the Ports of Seattle and Tacoma, has partnered with SSA Terminals (Seattle Terminals), LLC (SSAT), a private affiliate of SSA Marine and Carrix, in a \$458 million multi-year program to modernize and rehabilitate the Port of Seattle's Terminal 5 (T-5). T-5 is specified in the NWSA's strategic business plan as one of two commercially strategic container terminals designated for investment to draw large cargo ships to the Pacific Northwest (PNW). Though currently underutilized and in need of repair and modernization, T-5 is the best container terminal in the PNW in terms of its size, layout, and on-dock rail infrastructure, with immediate access to multimodal transportation nodes, including Class 1 rail corridors and intermodal yards, the National Highway System's Interstate-5 and Interstate-90, and Marine Highway M-5.

This PIDP application encompasses NWSA and SSAT's **\$35,374,666** Terminal 5 Uplands Modernization and Rehabilitation Project (T-5 PROJECT), comprising and accelerating the final phase of the overall Terminal 5 Upland Modernization Program (T-5 PROGRAM). NWSA and SSAT propose to partner with the USDOT to complete four 100% Buy American compliant project components that improve the safety, efficiency, and reliability of the movement of goods through the PNW. This request for **\$17,687,333** represents a 50% federal share of the T-5 PROJECT, completing the T-5 PROGRAM with a total federal contribution of only 3.86%.

The first phase of the T-5 PROGRAM was initiated in 2019 and is on schedule to be completed by the end of April 2021. The T-5 PROGRAM elements currently under construction include wharf strengthening and replacement, installation of new crane rail, procurement of new ship-to-shore cranes, and electrical upgrades that will increase the power supply to T-5 five-fold. These ongoing Program elements will enable T-5 to serve the largest container ships in use today. These PROGRAM elements are covered entirely by local funds.

T-5 is poised to be a cornerstone of economic activity in the PNW, and one of our nation's premier trade infrastructure assets. Modernization of T-5 will bring the underutilized facility—vacated since 2014 due to its inability to handle ships with a capacity of more than 6,000 TEUs—to a state of good repair, improving the safety, reliability, and efficiency of moving goods through the PNW. The T-5 PROJECT will complete the effort to transition the entire terminal into a full-service world-class, high-capacity container facility. The modernized terminal will be able to service ultra large container vessels (ULCV) with container capacities in excess of 18,000 twenty-foot equivalent units (TEU) and will help the region recapture market share lost to the nearby Canadian ports of Vancouver and Prince Rupert, which have enjoyed significant public and private investment in support of modernization and expansion over the past 15 years. The T-5 PROGRAM is a cornerstone of NWSA's strategy to respond to the challenge from Canada and ensuring the NWSA has the high-capacity, high-efficiency infrastructure necessary to remain a preferred port of call.

As one of only three U.S. West Coast container gateways providing global market access to U.S. exporters and importers, NWSA facilities are critical infrastructure with a vital role in the health of the North American economy. T-5 modernization benefits will stretch far beyond Washington state, supporting U.S. exporters from Oregon, Idaho, Montana, Minnesota, the Dakotas, and Iowa, who depend on the NWSA for the fastest and most cost-effective shipping of price- and

time-sensitive agricultural products such as refrigerated french fries, apples, dairy products, meat, and seafood, as well as oil seeds, hay, soybeans, pulses, and potatoes.

"[NWSA] ports often have the best rail and ocean carrier service for the Midwestern region and handle a strong share of these exports. SSGA member companies work hard to reliably supply field crops to their customers. The upgrades to Terminal 5 would help do that, making the movement of goods through the Pacific Northwest safer, more efficient and more reliable."¹

T-5's modernization expands capacity, increasing access to international markets for U.S. farmers, manufacturers, and consumers—as evidenced by the quote above and more than 45 letters of support from organizations that include the Washington State Hay Growers Association, Keuhne and Nagel (NJ), Ace Hardware Corporation (IL), Coalition of New England Companies for Trade (MA), Idaho Potato Commission, Retail Industry Leaders Association (VA), American Waterways Operators, Tricon Logistics (TX), SB&B Foods Inc. (SD), and many more. In Washington state, the project will support increased exports of agricultural products from the rural eastern portions of the state. It will also result in 6,600 new direct jobs, adding to the 20,000+ jobs already directly supported by activity at the two seaports.

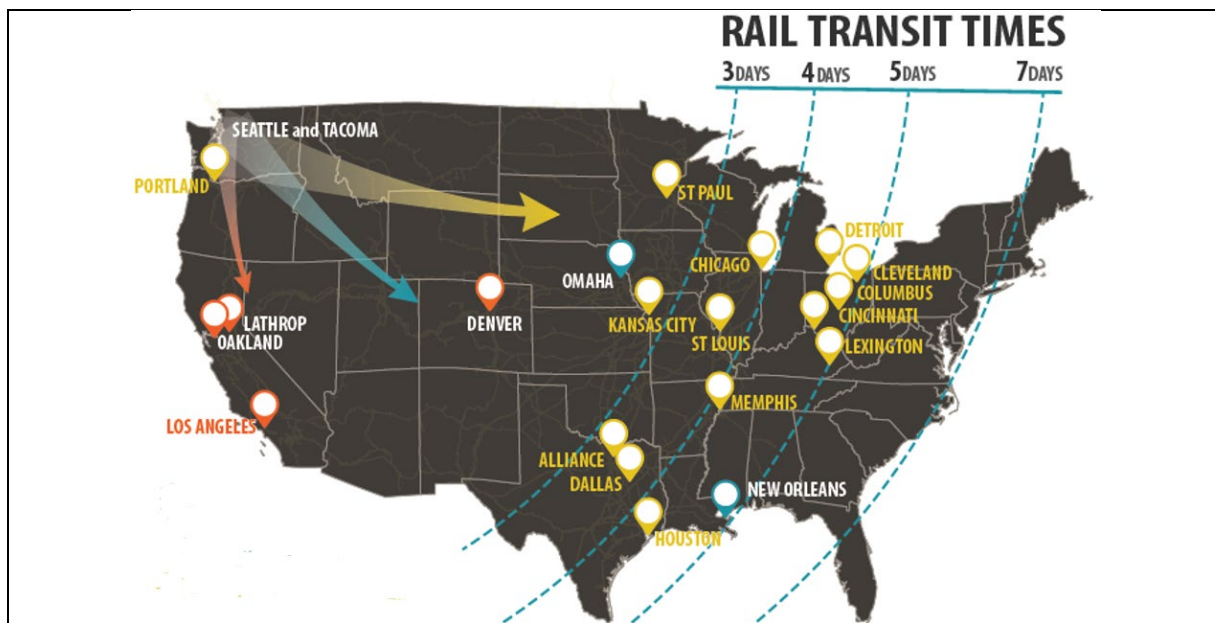


Figure 1. Rail shipments from the Port of Seattle and the Port of Tacoma can reach the Midwest within 4 days, highlighting strong cargo transit opportunities to the Midwest. These areas are targeted by Canadian ports seeking to compete with and displace our domestic shipping and logistics industries.

I.b Project Components

The T-5 PROJECT consists of the following components: 1) surfacing, paving, and reinforcement; 2) Phases C and D of a terminal-wide stormwater treatment system; 3) upsizing electric refrigerated (reefer) plug capacity; and, 4) on-terminal rail infrastructure improvements.

¹ Specialty Soya and Grains Alliance, "SSGA shows support for Seattle, Tacoma port upgrades" (May 12, 2020). Available at <https://soyagrainsalliance.org/2020/05/12/ssga-shows-support-for-seattle-tacoma-port-upgrades/>.

	Component	Description	Existing Conditions	Improved Conditions
1	Surfacing, Paving, and Reinforcement	Reinforce, pave, and resurface up to 50 acres of the terminal to support stacked container handling operations. Work will be done in two phases, reducing impacts to terminal operations.	115-acre area designed for wheeled operation and last resurfaced 15+ years ago. Unable to handle stacked containers. Phase 1 paving of 65 acres is underway and not included in this application. ²	Smooth, reinforced pavement that can support dense, four-high stacks of loaded containers, doubling on-terminal capacity.
2	Stormwater Treatment System	Construct Phase 2 of a terminal-wide stormwater treatment system capable of treating more than 91% of the water that falls on or flows through the terminal.	Stormwater flows untreated from the terminal into the Bay. Stormwater treatment system design is underway. Phase 1 is underway and will be completed by Q4 2021.	Capacity to treat up to 90 million gallons per year. Ensures Industrial Stormwater General Permit discharge benchmarks will be met.
3	Upsizing Electric Reefer Plugs	Expand the total count of grid-served refrigerated cargo (reefer) plugs from 640 to approximately 1,500.	640 plugs for wheeled operations. Not designed for stacked reefer operations.	Approximately 1,500 plugs for reefers stacked in four-high configuration.
4	On-Terminal Rail Improvements	Repair unusable escape track, upgrade on-terminal rail infrastructure by leveling the grade, replacing ballast, repairing or replacing rail ties, rehabilitating the control room, and installing optical character recognition (OCR) and other electrical upgrades.	16,920 feet of yard/working track (six tracks) in disrepair, unusable escape track, and the inability to support unit trains of full length to match the yard capacity.	16,920 feet of yard track and a usable escape track supporting two full-length unit trains, automated light panel, modern stoppers and derailleurs, OCR, and radiation portal monitors.

Table 1. Existing Conditions and T-5 PROJECT Components

NWSA and SSAT are well qualified to lead the proposed activities, which are critical to the economic health of the region. NWSA is North America's fourth largest port complex by container volume, the nation's top-ranked port for refrigerated exports and the only major container port in the PNW. In 2018, the NWSA ports exported containerized cargoes from 43 states, including refrigerated export cargoes from 31 states. As an affiliate of SSA Marine and its parent company Carrix, the largest marine and rail terminal operator in the Americas, SSAT has vast experience in executing large-scale capital improvement projects and efficient terminal operations. Together, NWSA and SSAT form a powerful team capable not only of planning such an ambitious and important project, but also of executing it in a timely, cost-effective manner. Please see *Section V.a. Technical Capacity* for additional detail regarding the Project Team's ability to successfully and cost-effectively execute the T-5 PROJECT on schedule.

I.c Project History & Context

T-5 is one of our nation's premier trade infrastructure assets. It is the largest container terminal in the PNW, with an efficient lay-out and convenient access to intermodal transportation nodes, including Class 1 rail, the National Highway System's I-5 and I-90, and Marine Highway M-5.

Until 2014, ocean carrier APL's terminal affiliate, Eagle Marine, operated T-5. The terminal was vacated because it could not support container vessels with capacities greater than 6,000 TEU.

² See, Appendix F1 and Appendix F2 for additional detail.

Since then, T-5 has remained largely underutilized, with only sporadic operations serving a variety of organizations, including the U.S. Department of Defense and, more recently, Matson.

The NWSA, the first partnership of its kind in North America, was created in 2015. The NWSA uses a gateway-wide strategic business plan to inform its integrated investment and operating decisions. This allows the two ports (Seattle and Tacoma) to conserve public resources by strategically focusing joint investments on key terminals, as opposed to independently upgrading multiple, potentially redundant, terminals.

The larger T-5 modernization effort improves both water and landside transportation infrastructure serving the gateway, as detailed in Table 2 below. Recent execution of a 30-year T-5 lease agreement by SSAT and NWSA established the public-private partnership. For the overall modernization effort, the NWSA has committed \$340 million in construction funds, and SSAT has committed to investing up to an additional \$118 million of its own capital into modernization and rehabilitation of the terminal and equipment.

Element	Existing	Post Modernization
Terminal Throughput	Historical annual limit of 647,000 TEUs	1.3 million TEUs annual
Ship-to-Shore (STS) Cranes	Six cranes capable of servicing ships of 6,000 TEU capacity	Up to 12 cranes capable of servicing ships of 18,000 TEU capacity
Berth Depth (MLLW)	-47' to -50'	-56' to -58'
Electrical Capacity	5 kilovolts (KV) provided by a single 5 MVA transformer	25 KV provided by two 10 MVA transformers
Dock Rehabilitation	Limited load capacity unable to support the larger ship-to-shore cranes necessary for servicing modern container ships	Preserved/strengthened deck loading capacity to support 600 pounds per square foot
STS Crane Rail	Existing rail is narrow gauge and unable to support the weight of modern STS cranes	2,750 lineal feet supporting 12 of the largest STS cranes in the nation, capable of working 18,000 TEU vessels. Includes strengthening the dock.
Shore Power Connections	None	Shore power capable
Surfacing, Paving, and Reinforcement	100-acre facility last resurfaced 15+ years ago to host wheeled operations. Phase 1 is currently repaving 65 acres	185-acre facility with 115 acres of reinforced paving to support stacked container handling operations.
Railroad Corridor Proposed Quiet Zone	None	New quiet zone – approximately 2,000' in length, covering 5 at-grade railroad crossings adjacent to a densely populated neighborhood.
Secondary Truck Gate	Single lane access and security shed	Dual lane access with OCR arc increasing gate capacity

Table 2. T-5 PROGRAM - Ongoing Activities

T-5 modernization complements a congressionally authorized joint project with the Army Corps of Engineers to deepen the federal channel adjacent to T-5 (the West Waterway) to 57 feet to accommodate 18,000-TEU vessels without tidal restrictions.

The agreement with SSAT to modernize T-5 is an example of how the NWSA has sought to leverage public-private partnerships to execute its capital development strategy. Not only has this partnership enabled private-sector funds to support NWSA's infrastructure program, but it also reset the lease arrangements for Seattle harbor's four primary container terminals, enabling the

NWSA and terminal operator partners to better manage capacity and cargo throughput throughout the harbor and securing a 30-year future for both T-5 and NWSA's Terminal 18.

Loss of market share to Canadian ports is a significant challenge in the PNW. On September 5, 2019, the government of Canada unveiled investments totaling C\$153.7 million (approximately \$110 million USD) toward infrastructure projects improving capacity, terminal access, and cargo velocity at the Port of Prince Rupert.³ This is in addition to the C\$223 (\$169 USD) million awarded to the Port of Vancouver and C\$36.9 (\$28.6 USD) million awarded to the Port of Prince Rupert in 2018. This substantial investment in the Canadian ports and their connecting surface infrastructure has created a new paradigm that displaces American jobs, industry, and economic growth.

About 60% of import cargo moving through the NWSA is discretionary, meaning that its final destination is not the Northwest states, but the Midwest or beyond. In addition, a substantial volume of NWSA export cargo originates from inland points. The NWSA's discretionary cargo has been aggressively targeted by ports in Canada. Since 2007, the NWSA has lost 18% of its market share of containerized cargo to Vancouver and Prince Rupert, B.C. In fact, in 2018 two-thirds of Prince Rupert's container volume and 27% of Vancouver's container volume was U.S. cargo that would otherwise likely have shipped through the NWSA and other U.S. West Coast ports.⁴ Aided by hundreds of millions of dollars in infrastructure investments by the Canadian government, Prince Rupert and Vancouver have introduced highly competitive marine facilities. Canada's Class 1 operators have upgraded national rail corridors specifically to attract Asian import cargo destined for the U.S. interior. This cargo diversion threatens 58,400 American marine cargo sector jobs in Washington state.⁵ Prompted in part by the recent loss of market share, the NWSA and SSAT began a multi-year effort to modernize T-5. This multi-year effort was initiated by the Port of Seattle and recently resulted in the contract with SSAT and the T-5 PROGRAM breaking ground.

I.d Port-related Transportation Challenges

The T-5 PROJECT addresses major transportation-related challenges involving inadequate infrastructure to serve the world's largest container vessels and move goods safely, reliably, and efficiently through the PNW. These challenges are resulting in loss of market share to Canadian seaports (see also *Section I.c*) and impact utilization of American logistics companies and labor.

The following infrastructure challenges restrict the terminal's ability to service the largest modern container vessels: T-5 can only service vessels with a capacity of up to 6,000 TEUs due to infrastructure constraints. On-terminal rail can only serve trains up to 6,000 feet in length due to track degradation, outdated control and electrical systems, and lack of security infrastructure. The inability to effectively service standard 7,200-foot unit trains results in annual rail yard capacity losses of up to 77,000 TEUs. The lack of a fully operational rail yard will serve as a drag for our gateway's competitiveness relative to the Canadian ports in terms of cost and efficiency. Figure 2 depicts the extent to which T-5's on-dock rail infrastructure has deteriorated

³ Mongelluzzo, B., JOC.com, "Prince Rupert gets C\$154 million in project funds" (Sept. 5, 2019). Available at https://www.joc.com/port-news/terminal-operators/prince-rupert-wins-c154-million-project-funds_20190905.html

⁴ Mercator, "Analysis of BC Ports Container Volume by Origin/Destination" (2019).

⁵ NWSA, "Economic Impact" (2019). Available at <https://www.nwseaportalliance.com/stats-stories/economic-impact>. See also, Studies, Environmental Review and Reports at <https://www.nwseaportalliance.com/2020-pidp-grant-application-terminal-5>.

since 2014. The surface infrastructure is inadequate to support stacking of loaded containers and refrigerated cargoes, thereby limiting on-terminal container capacity. T-5 has only 640 reefer plugs, which limits the quantities of perishable products that could cost-effectively, safely, and reliably move through the terminal for rural agricultural exporters.

These challenges prevent the NWSA from realizing the true potential of regional multimodal infrastructure that would otherwise provide safe, efficient, and reliable cargo movement. Compounded with the significant economic losses caused by the novel coronavirus (COVID-19), the challenges will likely create additional budgetary constraints on the Port that will make federal investment in the T-5 PROJECT even more critical to ensure the health and economic competitiveness of the PNW seaports for the benefit of American exporters and importers.



Figure 2. On-terminal rail track condition.

I.e Detailed Statement of Work

The T-5 PROJECT will be completed in discrete phases broken out by project component, with multiple tasks occurring simultaneously across T-5. The Project Team will undertake project management and administrative activities necessary for project completion on time and within budget. Pursuant to the terms of the T-5 lease, some of the T-5 PROGRAM components must be completed in early 2021 to allow operation of a portion of the terminal to commence by April 2021. Other components, such as the reefer plugs, are targeted for future phases that would, absent federal funds, be reliant upon strong market conditions. This application seeks only funding for those components of the T-5 PROJECT that can be federalized, with work beginning in early 2022. It does not include any other T-5 PROGRAM elements currently under construction. See *Section V.b.3* for a detailed list of milestones and deliverables associated with each task. *For each component, dates shown in parentheses (i.e., 2022Q2) reflect targeted completion date.*

Task 1 – Overall Project Management and Planning

The Project Team will perform overall project management activities, including project planning and control, permitting, subcontractor control, financial management, data management, management of supplies and/or equipment, risk management, and reporting as required to successfully achieve the overall project objectives. Specific activities will include: 1.1) ongoing project management, administration, and planning for the duration of the grant period; 1.2) submission of permitting and environmental documents; 1.3) monitoring grant awardee selection; 1.4) contract execution; 1.5) kickoff meeting; 1.6) project scheduling; 1.7) quarterly reporting; and, 1.8) final report development.

Task 2 – Component 1: Surfacing, Paving, and Reinforcement

The Project Team will prepare the site and reinforce, pave, and resurface up to 50 acres of the terminal to support stacked container handling operations. Specific activities will include: 2.1) design and engineering (2022Q2); 2.2) permitting and environmental approvals (2022Q2); 2.3) procurement and delivery of equipment and supplies (2022Q2); 2.4) construction and installation

(2022Q3); 2.5) initiation of operation (2022Q4); and, 2.6) data collection/reporting (begins 2023Q1).

Task 3 – Component 2: Stormwater Treatment System

The Project Team will install the final phases of a terminal-wide stormwater treatment system, including two of four on-terminal treatment locations. Specific activities under this Final Phase will include 3.1) procurement and delivery of equipment and supplies (2022Q1); 3.2) construction and installation (2022Q3, 2023Q3); 3.3) commissioning and initiate operation (2022Q3, 2023Q3); and, 3.4) data collection/reporting (begins 2024Q2).

Task 4 – Component 3: Upsizing to 1,500 Electric Reefer Plug Capacity

The Project Team will install electrical conduit, infrastructure, and plugs to support the grid-tied storage of 1,500 refrigerated containers on the terminal. Specific activities will include initial planning (already underway, completion 2022Q1); 4.1) design and engineering (2022Q1); 4.2) permitting and environmental approvals (2022Q2); 4.3) procurement and delivery (2022Q2); 4.4) construction and installation (2022Q3); 4.5) commissioning and initiate operation (2022Q4); and, 4.6) data collection/reporting (begins 2023Q1).

Task 5 – Component 4: On-Terminal Rail Improvements

The Project Team will evaluate necessary repairs to Track 7 and undertake all required rehabilitation to enable full operation of the on-terminal rail system. Improvements include replacing ballast, repairing or replacing rail ties, rehabilitating the control room, and installing optical character recognition (OCR), radiation portal monitors, and other electrical upgrades. Specific activities will include 5.1) design and engineering (2022Q4); 5.2) permitting and environmental approvals (already underway, complete 2022Q4); 5.3) procurement and delivery (2023Q2); 5.4) construction and installation (2023Q4); 5.5) commissioning and initiate operation (2023Q4); and, 5.6) data collection/reporting (begins 2024Q1).

II. Project Location

T-5 is located at 2701 26th Ave SW, Seattle, WA 98106, on the west shore of the Duwamish Waterway at Elliott Bay. Geocoordinates for the site are: Latitude 47° 34' 40" N, Longitude 122° 21' 43" W. The site falls within Census Tract 53033009900. All proposed project components will be located on T-5. The T-5 PROJECT is a “coastal Port project” subject to the Army Corps of Engineers’ regulatory jurisdiction for oceanic and coastal waters pursuant to 33 CFR § 329.12. Both ports are capable of receiving oceangoing vessels with a draft of at least 20 feet.

II.a Connections to Existing Transportation Infrastructure



Figure 3: Map with Major Intermodal Connections and Multimodal Yards

T-5 is served by a designated National Highway System (NHS) Freight Intermodal Connector, SW Spokane Street. SW Spokane Street connects T-5 and other freight-dependent businesses like Nucor Steel to I-5, I-90, warehousing and distribution centers serving Alaska, and both international and domestic rail yards operated by BNSF Railway and Union Pacific. T-5's on-terminal rail provides immediate access to the nation's Class 1 rail network connecting the PNW to America's heartland and the East Coast. Ease of access to these national transportation infrastructure assets reduces the costs of moving cargo through T-5 and other NWSA terminals, making American goods more competitive on the international market and supporting reliable delivery of components needed for domestic manufacture of U.S. products, including Boeing airplanes.

II.b Qualified Opportunity Zone

T-5 is located approximately 4,500 feet to the west of Census Tract 53033009300, which is designated as a Qualified Opportunity Zone (QOZ). Both BNSF and Union Pacific operate intermodal rail yards in the QOZ, and there are several warehousing and distribution centers that serve domestic and international cargo moving through NWSA terminals. The ITS improvements included in the T-5 PROGRAM—separate from this application—will improve access and reduce congestion between cargo handling facilities in the QOZ and the NWSA's Terminals 5, 18, and 115. These benefits will also accrue to other businesses and industry in the QOZ, and to longshoremen from Seattle's ILWU Local 19, whose dispatch hall is in the QOZ.

III. Grant Funds, Sources and Uses of all Project Funding

NWSA and SSAT have committed to investing an estimated \$458 million over the coming years to modernize T-5 in its entirety. To date, NWSA and SSAT have spent \$95 million for planning, design, permitting, procurement, and construction of other elements of the T-5 Upland Modernization Program. The Parties anticipate expending more than \$250 million on non-federalized components of the overall modernization effort by March 2021. Through this public-private partnership, all costs associated with the redevelopment of T-5 are being split on an approximately 70/30 basis, with NWSA responsible for 70% of all costs and SSA Marine for the remaining 30%.

The T-5 PROJECT is a \$35,374,666 effort to complete the uplands phase of the overall modernization project. This requested funding will offset the capital costs of both entities and further strengthen this unique public-private partnership. As shown below, NWSA and SSAT are requesting \$17,687,333 in funding from the PIDP and providing \$17,687,333 in non-federal public and private match. The public-private partnership's commitment in this application represents a 50% non-federal cost share for the T-5 PROJECT, and a staggering 96.14% non-federal share for the totality of the T-5 PROGRAM.

III.a Project Costs

With this application, the Project Team is seeking \$17,687,333 in funding from the Department of Transportation Maritime Administration to support \$35,374,666 in Buy American compliant project outlays that align with the timing of the PIDP and the T-5 PROGRAM's strict development timeline.

III.b Source and Amount of Eligible Project Cost Funds

Total eligible project costs equal \$35,374,666, with \$17,687,333 requested from the PIDP and \$17,687,333 in total cost share collectively committed and mutually guaranteed by the NWSA and SSAT (see also, *Section III.e* budget table). Managing Members of the NWSA voted to fund the modernization project in April and May 2019, authorizing up to \$340 million in construction funds, with private partner SSAT contributing up to an additional \$118 million. The 185-acre terminal is expected to open in two phases, with one major berth ready to handle international container cargo in spring of 2021, the other berth ready in 2023, and on-terminal rail becoming fully operational in 2024. Documentation demonstrating these funding commitments is included in Appendix A2.

III.c Documentation of Funding

The Project Team has documented all funding commitments for non-federal funds to be used on eligible project costs. Found in Appendices A1 and A2, this documentation includes:

- Appendix A1: NWSA Board Minutes, April 2, 2019, Action Agenda Sections 4(C) and 4(D); and NWSA Board Minutes, May 20, 2019, Action Agenda Section 1(A)
- Appendix A2: Letter of Commitment from SSAT dated May 11, 2020; and Letter of Commitment from NWSA dated May 14, 2020

III.d Amount, Nature, and Source of Required Non-Federal Match Funds

The project partners are seeking a total of \$17,687,333 in federal funds for the T-5 PROJECT, which has a total eligible cost of \$35,374,666. The amount requested of the federal government for the T-5 PROJECT amounts to only 3.86% of the overall T-5 PROGRAM. For the present

application, \$17,687,333 in total cost share has been collectively committed and jointly guaranteed by the NWSA and SSAT (see attached commitment letters in Appendix A2). These committed funds should be evaluated as being aggregated or pooled to carry out the proposed federalized components of the T-5 PROJECT. All proposed non-federal funds are fully reserved, committed, and/or obligated with no conditions.

NWSA, the ports of Seattle and Tacoma, and SSAT have dedicated significant labor and capital over the past three years to the T-5 PROGRAM, which is already underway, with \$95 million expended to date. All previous program expenditures and earlier phases of the T-5 modernization program are funded through local public and private capital investments.

III.e Project Budget

All local funds will be available at initiation of the project to ensure completion of the project according to the proposed schedule. There are no restrictions or conditional approvals that could impede their use for the project.

Component	Non-Federal	PIDP	Other Federal	Total
Grant Administration and Management	\$352,500.00	\$352,500.00	\$0	\$705,000
Surfacing, Paving, and Reinforcement	\$5,460,125.00	\$5,460,125.00	\$0	\$10,920,250
Stormwater Treatment	\$5,597,889.50	\$5,597,889.50	\$0	\$11,195,779
Upsizing Electric Reefer Plug Capacity to 1,500	\$4,368,100.00	\$4,368,100.00	\$0	\$8,736,200
On-Terminal Rail Improvements	\$1,908,718.50.00	\$1,908,718.50	\$0	\$3,817,437
TOTAL	\$17,687,333	\$17,687,333	\$0	\$35,374,666

Table 3: T-5 PROJECT Budget

III.f Availability and Conditionality of Project Funds

Federal funds will expedite key project components by several years or more. Building the additional investments now will incent earlier utilization of the full capacity of the facility, taking advantage of the deepening project with the Army Corps of Engineers. Without federal funding, these T-5 capacity expansion investments could be delayed by several years, with ultimate timing depending upon commercial factors, including increasing competition from ports in Canada. Without federal assistance for T-5, NWSA might have to forego or delay the delivery of other critical capital projects, a challenge that is further compounded by the economic uncertainty surrounding COVID-19. The Project Team elected to request PIDP funding only for project components that can be federalized, while complying with the strict timeline for the T-5 PROGRAM. None of the committed funds are subject to expiration nor are they constrained by the timing of implementation of the various components of the T-5 PROJECT. No previously incurred or encumbered funds nor ineligible costs have been included in the project budget.

IV. Selection and Merit Criteria

NWSA is a port development authority governed by the ports of Seattle and Tacoma as equal members, with each port acting through its elected commissioners. Both ports are port authorities under Washington State Law RCW 53.04.010, and as such are eligible to receive PIDP program funds. Moreover, T-5 is a coastal seaport capable of receiving oceangoing vessels with a draft of at least 20 feet. The T-5 PROJECT has been designed to be compliant with Buy-America provisions and other eligibility requirements.

IV.a Effect on the Movement of Goods – Safety, Efficiency, or Reliability Improvements

Expanding the cargo handling and rail capacity of T-5 in the PNW improves safety, efficiency, and reliability of the movement of goods to the benefit of Americans throughout the nation. As discussed in the sections on Net Benefits (*Section IV.c*) and Additional Considerations (*Section VII*), this project will produce significant quantitative and qualitative benefits to American citizens and businesses throughout the nation by improving the quality and capacity of goods movement infrastructure in the PNW.

IV.a.1 Improving the Safety of the Movement of Goods

Surfacing, Paving, and Reinforcement. Current pavement conditions are poor. The cracks, bumps, and holes in the pavement create safety concerns that prevent safe container stacking and require rerouting throughout the terminal. This creates trip and fall hazards for workers as they move about the terminal on foot, increases damage risks for vehicles and equipment operating on the terminal, and increases the risk of collision or injury as operators must dedicate more attention than typical to navigating the pavement damage and associated surface disruptions.

On-Terminal Rail Improvements. Currently, the intermodal yard (IY) at T-5 consists of seven tracks: one escape track and six 2,820-foot working tracks where trains can be built, loaded, and unloaded. The escape track is not operational due to the development of a sinkhole. As a result, NWSA has had to repurpose one of its 2,820-foot working tracks as an escape track, leaving only 14,100 feet of yard/working track. Reduced availability of working track limits the NWSA's ability to simultaneously serve two trains of lengths for which the IY was designed.

Improvements to on-terminal rail systems are expected to result in some mode shift from over-the-road trucks to long-distance rail transportation. This shift will reduce large truck traffic related to terminal operations and thereby reduce safety risks on highways and roads throughout the PNW and the Midwest. This will save lives and reduce injuries due to truck collisions. The diversion to rail will avoid 871,199,234 truck miles traveled and reduce traffic-related fatalities by up to 15 persons. This impact is discussed further in the Benefit-Cost Analysis and the Net Benefits Section (*IV.c*).

Stormwater Treatment System. When operations increase, water contaminants are expected to reach concentrations that require mitigation. Without storm water treatment, non-point source pollution from the terminal is deposited directly into Elliott Bay, the Duwamish River, and Longfellow Creek then making its way to Puget Sound. This contamination can negatively impact the health and safety of people who eat fish from these waters.

Upsizing to 1,500 Reefer Plugs. Increasing the capacity to store refrigerated goods will improve safety to the end users of those goods by ensuring proper temperatures are maintained throughout shipping. This will prevent spoilage and reduce the risks of bacterial growth in perishable goods that could cause foodborne illness.

IV.a.2 Improving the Efficiency of the Movement of Goods

“The cornerstone of our strategy to respond to the challenge from Canada is ensuring we have the high-capacity, high-efficiency infrastructure we need to remain a preferred port of call. The NWSA is making substantial investments to modernize our marine terminals and deepen our

waterways.”⁶ Building out the cargo handling capacity in the PNW will result in direct improvements to the efficiency of the movement of goods, reducing vessel and truck turn times, increasing the cargo volumes able to transit the terminal, and improving multimodal connectivity to achieve widespread logistics efficiencies.

Surfacing, Paving, and Reinforcement. Rehabilitating the T-5 surface infrastructure will enable SSAT to nearly double its cargo handling capacity to 1,040,000 TEU per year.⁷ The ability to stack containers, as compared to its baseline wheeled operations, will improve efficiency by reducing the distance cargo handling equipment must be operated to conduct cargo moves on a per-TEU basis. This results in fuel cost and time savings as well as emissions reductions. Additionally, the ability to stack containers provides for greater shading, protecting perishable or temperature sensitive cargoes from solar heating.

On-Terminal Rail Improvements. Rehabilitation of on-dock rail will expand capacity and enable 7,200-foot standard unit trains to access the terminal without having to decouple cars, undertake costly and time-consuming repositioning of the engines. Addressing this infrastructure need will reduce freight bottlenecks, improving the rate at which imports and exports can transit the terminal and reach their ultimate destination. Since rail is the most efficient mode of ground surface transportation, expanding on-dock rail access will reduce fuel consumption on a ton-mile basis, displace significant vehicle miles traveled, and reduce emissions throughout the freight corridors in which goods transit to and from the PNW.

In its current condition, the NWSA’s on-terminal rail can realistically only serve two 6,000-foot trains at once—a significant competitive disadvantage when compared to the on-terminal rail service available at the Canadian ports of Prince Rupert and Vancouver. This situation decreases the terminal’s throughput capacity for discretionary inland point intermodal cargo and the cost and the velocity at which that cargo could be moved. With the project, on-terminal rail will be able to serve two 7,200-ft trains per day, supporting an additional 50 well cars (200 TEUs). Lack of this capacity will serve as a drag on our competitiveness relative to other ports and will increase dwell times for the traffic we are able to retain.

Stormwater Treatment System. The completion of the terminal-wide stormwater treatment system will improve efficiency by proactively complying with forthcoming water quality regulations that could negatively future impact terminal operations. Undertaking this infrastructure project while the terminal is still in its early stages of rehabilitation, and prior to full terminal operation, reduces the impacts to terminal operations and thus avoids negative impacts to cargoes, shippers, and beneficial cargo owners.

Upsizing to 1,500 Reefer Plugs. Expanding the reefer plug count by some 150% will improve the efficiency of moving refrigerated cargoes through the PNW and enable the NWSA to maintain its leadership as the United States’ top seaport for exporting refrigerated cargoes. These plugs, in conjunction with the rehabilitation of the pavement, will enable containers to be

⁶ McCarthy, John. Testimony to U.S. Senate Committee on Commerce, Science and Transportation - Subcommittee on Transportation and Safety: “Building Infrastructure in America: Overview of the Build America Bureau and the U.S. Department of Transportation Rural Initiatives” (Jan. 28, 2020).

⁷ Maximum capacity of T-5 after T-5 PROJECT completion is estimated to be 1.3 million TEUs. 1,040,000 is the estimated throughput of the terminal when operating at 80% of capacity. This number is the “maximum realistic capacity factor” used in the benefit cost analysis.

stacked—providing energy efficiencies while protecting agriculture products by reducing direct exposure to solar radiation—which could offset thermal heating of shaded containers by 17% (i.e., 12.6 degrees Fahrenheit). Since most electricity provided by Seattle City Light comes from renewable resources like hydropower and wind, this project component will also reduce related air quality impacts by an estimated 80%.

IV.a.3 Improving the Reliability of the Movement of Goods

The T-5 PROJECT will directly improve the reliability of moving goods through the United States' northern freight corridors, protecting American logistics jobs and improving the utilization of existing freight infrastructure in the U.S. As discussed above, the NWSA is a premier gateway for importing and exporting products rapidly and reliably from across the Midwest and northern states. Rehabilitating T-5 will significantly expand cargo handling capacity in the PNW, remove freight bottlenecks, and reduce occurrences of cargo delays and spoliation.

Surfacing, Paving, and Reinforcement. The ability to densify cargoes on the terminal will improve reliability by increasing storage capacity and enabling the use of more productive yard cargo handling equipment. This results in time, fuel, and cost savings that accrue to the benefit of the beneficial cargo owner.

On-Terminal Rail Improvements. On-terminal rail improvements will improve the reliability of moving goods by reducing freight bottlenecks across the transportation network, providing greater certainty of shipping times, and reinforcing the infrastructure for long-term utilization. T-5's connections to Class 1 rail will enable shippers to choose from two competing rail carriers and enable cargoes to more easily transit into the heartland with minimal disruption.

Stormwater Treatment System. A terminal-wide stormwater treatment system will improve the reliability of moving goods through T-5 by reducing the likelihood of terminal shutdowns due to water quality issues. This second phase of the stormwater treatment system will not impact the reliability of ongoing terminal operations because it will be completed before the terminal area covered by the T-5 PROJECT will be become operational.

Upsizing to 1,500 Reefer Plugs. Increasing the reefer plug count at T-5 will improve the reliability of exporting perishable products through the nation's premier agricultural gateway by expanding capacity and interconnecting to the utility grid instead of relying upon diesel generators. These grid-tied reefer plugs will provide cost certainty to shippers by avoiding the need to purchase diesel—a volatile commodity—and enabling safer long-term dwelling as necessitated by the cargo. As discussed above, these reefer plugs will reliably safeguard refrigerated products from spoliation by reducing the thermal solar heating of the stacked containers by up to 12.6° F.

IV.b Leveraging Non-Federal Funds

To maximize the impact of the PIDP, the Project Team will leverage the proposed \$17,687,333 in non-federal contributions from both public and private sources to carry out this \$35,374,666 project, as described in Section III. This represents a \$1.00 : \$1.00 leveraging of federal funds.

Through this public-private partnership, all costs associated with the broader redevelopment of Terminal 5 are being split on a roughly 70/30 basis, with NWSA responsible for approximately

70% of all costs and SSA Marine the remaining 30%. This requested funding will offset the capital costs of both entities and further strengthen this public-private partnership.

IV.b.1 Maximizing Non-Federal Share of Project Costs

NWSA, the ports of Seattle and Tacoma, and SSAT have dedicated significant labor and capital over the past three years to the T-5 PROGRAM. The T-5 PROGRAM is already underway, with \$95 million expended to date. To date, all landside improvements of the project have been undertaken exclusively with local public funding and private capital investments. For those components proposed to be federalized in the T-5 PROJECT, the federal share of costs for which expenditures will be made under the PIDP grant will not exceed 50%—significantly lower than the maximum allowable percentage of 80. Viewed in its totality, this public-private partnership's request for \$17,687,333 seeks to federalize 3.86% of the full costs of the T-5 PROGRAM (\$458 million). Further, our team understands that adhering to the proposed cost share is a condition of receiving funding. Cost share funds are not affected by project or external conditions (*Section III.f*).

IV.b.2 Description of Evaluations for Private Funding

This public-private partnership is undertaking innovative approaches to fund a \$458 million Program that provides significant benefit to the United States, its citizens, and businesses. The T-5 PROGRAM—including the T-5 PROJECT elements contained in this proposal—has undergone a multi-year process that included evaluations of different project designs, business models, and approaches to public and private investment. NWSA evaluated potential financing mechanisms and the outcomes of multiple terminal lease arrangements. Ultimately, this process resulted in the recent execution of the 30-year T-5 lease agreement by SSAT and NWSA, establishing the public-private partnership. SSAT has committed to investing up to an additional \$118 million of its own capital into the modernization and rehabilitation of the terminal. NWSA and SSAT have collectively obligated the full amount of funds required for cost share, assuming risk to generate a return in the form of new U.S. jobs and economic development.

IV.b.3 Potential Fiscal Constraints

There are no known or anticipated fiscal constraints that could impact the applicant's ability to increase the amount of non-federal revenue dedicated to the proposed project's transportation infrastructure. All funds required for the public capital outlays in the proposed project have been committed by the ports of Seattle and Tacoma for the NWSA and SSAT, its private partner. Please see Sections C and D of the Meeting Minutes and relevant memos of the NWSA Special Joint Meetings held on April 2 and May 20, 2019, included in Appendix A1, for documentation of this commitment. In those two meetings, the NWSA committed its investments to the larger T-5 PROGRAM by authorizing \$340 million for its implementation. Some of the proposed T-5 PROJECT elements, absent federal investment, may not otherwise begin construction until the mid- to late-2020's, contingent upon market and commercial factors.

IV.b.4 Previous and Future Non-Federal Investment

In the past five years, the Port of Seattle has received one TIGER grant to support marine terminal and multimodal infrastructure projects at Terminal 46. This limited federal investment has required NWSA, the Port of Seattle, and Port of Tacoma to undertake significant capital outlays. For the T-5 PROGRAM, the project partners will invest some \$458 million.

In the last 20 years, the Port of Seattle has contributed about \$500 million to state and local projects outside its jurisdiction to improve access to its facilities. Completed projects include SR-

519 and Alaskan Way Viaduct Replacement projects.⁸ Local projects include the Spokane Street Viaduct,⁹ the East Marginal Way Grade Separation,¹⁰ truck access improvements to Union Pacific's ARGO Yard,¹¹ and the South Park Bridge. The Port contributed \$15 million to the City of Seattle's \$77 million Lander Street Grade Separation,¹² which is currently under construction.

Other projects to which the Port of Seattle may decide to contribute funds in the future include rehabilitating East Marginal Way SW¹³ between SW Spokane and Massachusetts Streets. East Marginal Way provides access to the freeway system and BNSF Seattle International Gateway intermodal yard, the rehabilitation will include a new pavement depth that can accommodate 98,000-pound trucks. The Port of Seattle could also decide to support the City of Seattle's efforts to rehabilitate or replace the recently closed West Seattle High-Rise Bridge, which runs parallel to the low bridge providing truck access from the freeway system to T-5. While the high bridge does not carry truck traffic serving NWSA facilities, general traffic detouring from the bridge could cause congestion on T-5 truck access routes.

On October 1, 2019, Washington State Department of Transportation (WSDOT) officially broke ground on the first element of its \$1.8 billion Puget Sound Gateway Project (SR509 and SR167), leveraged by a \$60 million contribution by the ports. This regional project is designed to connect both ports and the Seattle-Tacoma International (Sea-Tac) Airport to the region's major warehousing and distribution clusters in the Green River Valley. The ports have made strategic investment in these state and local projects to improve freight access to NWSA's terminals and minimize the impact of their operations on other freight and general-purpose traffic, reducing congestion while improving safety and air emissions.

In Tacoma, the port's \$19 million contributions to the Lincoln Avenue Grade Separation and the Port of Tacoma Road Rehabilitation Project leveraged \$64 million in investment. The cities of Fife and Tacoma and the Port of Tacoma are currently developing and executing multiple infrastructure projects to improve the movement of goods and people through the PNW, including rail crossing improvements,¹⁴ the Taylor Way Rehabilitation Project,¹⁵ and the Interstate 5 - Port of Tacoma Road Interchange Project. The Port is contributing \$1.5 million to the \$42.5 million Port of Tacoma Road Interchange Phase 1 Project¹⁶, which is currently under construction.

A majority of funding for these projects, all of which support freight mobility, has and will come from local and state sources. For additional information of ongoing and planned future freight

⁸ <https://www.wsdot.wa.gov/Projects/Viaduct/>

⁹ <https://www.portseattle.org/projects/spokane-street-viaduct-widening>

¹⁰ <https://www.seattle.gov/transportation/projects-and-programs/programs/freight-program/east-marginal-way-corridor-improvement-project>

¹¹ <https://www.portseattle.org/projects/argo-yard-truck-roadway-east-marginal-way-phase-ii>

¹² <https://www.seattle.gov/transportation/projects-and-programs/programs/bridges-stairs-and-other-structures/bridges/lander-st-bridge>

¹³ <https://www.seattle.gov/transportation/projects-and-programs/programs/freight-program/east-marginal-way-corridor-improvement-project>

¹⁴ <https://www.cityoftacoma.org/cms/One.aspx?portalId=169&pageId=141147>

¹⁵ <https://www.cityoftacoma.org/cms/One.aspx?portalId=169&pageId=110510>

¹⁶ <https://www.cityoffife.org/451/15---Port-of-Tacoma-Interchange-Improvement-Project>

investments please see the Tacoma Transportation Master Plan and the City of Seattle Freight Master Plan.^{17, 18}

IV.c Net Benefits / Economic Vitality

The T-5 PROJECT will drive considerable benefits in Washington State and regionally, through increased exports of agricultural and processed food products from rural Eastern Washington and improved connectivity as far away as Illinois and New England. T-5 will support 6,600 new direct jobs, adding to the 20,000+ jobs already directly supported by cargo activity at NWSA ports. Outside of Washington, exporters from states in the Northwest and Midwest depend on the NWSA as the fastest and most cost-effective option for shipping price-sensitive agricultural products such as hay, apples, pulses, and potatoes. The NWSA handles over half of containerized exports from Oregon and Idaho, 90+% from Montana, and 20+% from Minnesota, the Dakotas, and Iowa. By expanding NWSA capacity, the T-5 PROJECT will increase access to international markets for U.S. farmers, manufacturers, and consumers. Moreover, results from the benefit cost analysis (BCA) show a net present value of \$1.07 billion, with a benefit cost ratio of 3.8.

IV.c.1 Background

The attached BCA quantifies the T-5 PROJECT's primary economic benefits (travel, operating, and safety cost savings) and costs (development, construction, operation, maintenance) of the terminal relative to a no-build baseline. NWSA has prepared two BCAs demonstrating: 1) the net benefits of no-project baseline (i.e., the rest of the T-5 PROGRAM without the project) wherein no build would occur for any project specific elements; and 2) the net benefits specifically attributable to the elements proposed within this application for the T-5 PROJECT. The full benefits of the T-5 PROGRAM cannot be realized without the Final Phase (i.e., the PROJECT) because the Final Phase includes critical needed upgrades to increase on site capacity.

The full BCA and documentation package are included as Appendices B1, B2, and B3. Two of these are detailed spreadsheets: Appendix B1 considers only the baseline scenario and Appendix B2 combines the baseline with the T-5 PROJECT scenario. The reviewers can use these two versions of the BCA to better understand, if desired, the specific economic impacts of the baseline scenario relative to the T-5 PROJECT. Appendix B3 provides a written summary of Appendix B2. Assumptions and results reported here are for the full (with T-5 PROJECT) BCA.

T-5 has been largely non-operational since 2014, due to insufficient crane size, power supply, and other infrastructure needed for an efficient container terminal capable of handling ships larger than 6,000 TEUs. No appreciable on-site cargo activity occurred from 2014 through 2018, and only minimal activity (i.e., <2% of capacity) occurred on site in 2019 when Matson moved its Hawaii service to T-5. In the absence of the T-5 PROGRAM and associated activities, the baseline scenario estimates initial operation of T-5 as ramping up from present capacity at an annualized rate of 1.5%, to a maximum operation state of 41% capacity (263,300 TEU/yr.), an assumption that is based on limited berthing and other limiting site conditions. A full list of assumptions is provided in Appendix B2. This approach is consistent with MARAD guidance, wherein the baseline considers onsite activities that would occur without implementation of the

¹⁷ www.cityoftacoma.org/government/city_departments/public_works/engineering/transportation_master_plan

¹⁸ https://www.seattle.gov/Documents/Departments/SDOT/About/DocumentLibrary/FMP_Report_2016E.pdf

project. The scope of the BCA overlays the T-5 PROJECT and its benefits on top of these other elements.

IV.c.2 BCA Results

The T-5 PROJECT BCA evaluates the freight transit mileage reductions and associated cost savings from freight costs, pavement damage reduction (trucks only), improved safety/reduced crashes, reduced loss of life from trucking accidents, and air pollutant emissions reductions. The BCA also evaluates emissions reductions associated with reefer electrification and considers the work zone benefits of completing the proposed stormwater improvements at present, before site operation ramps up, rather than during ongoing operations under the base case scenario. Routing of freight through T-5 rather than through competing ports will increase market penetration of NWSA in the PNW and Mountain / Upper Midwest states stretching from Idaho to Ohio. In comparison to routing ocean-going freight through other West Coast ports, the project will support reduced freight trucking and rail shipping distances to these target areas, generating a significant net benefit of the project. This optimization will leverage the lower costs of ship-borne transport available through the modernized terminal.

In addition to these benefits, the BCA also considers all relevant costs associated with constructing and operating the project. These include capital, procurement, and construction costs for all four project components, as well as applicable operations costs for each component (see Appendices B2 and B3 for a review of operations and maintenance costs). Applicant conservatively assumes that the baseline scenario would not include capital upgrades above and beyond those planned in non-project elements of the T-5 PROGRAM. Stormwater upgrades

would, however, be required (due to pending regulatory requirements) during 2025 and 2026. These elements were modeled as maintenance costs, as they would be required as a part of the baseline facility's ongoing stormwater upgrades.

Market share gains will occur primarily for Asian cargo originating from or

terminating in inland areas. This market share change is expected to lead, ultimately, to an annual increase of approximately 776,000 TEU/year in NWSA's volumes (import plus export), based on economic and throughput studies completed separately by NWSA—versus the base case scenario (Figure 5). This change in freight flows is expected to lead to average annual savings of 871 million miles for truck and 9.17 billion ton-miles (roughly 509 million miles) for rail transportation associated with the moving containers. Mileage reduction is a function of NWSA gaining share in PNW and Upper Midwest markets, which are currently being serviced by more distant West Coast ports and the Canadian Ports of Vancouver and Prince Rupert. Figure 5 summarizes the overall impact of the T-5 PROJECT on freight handling capacity by NWSA.

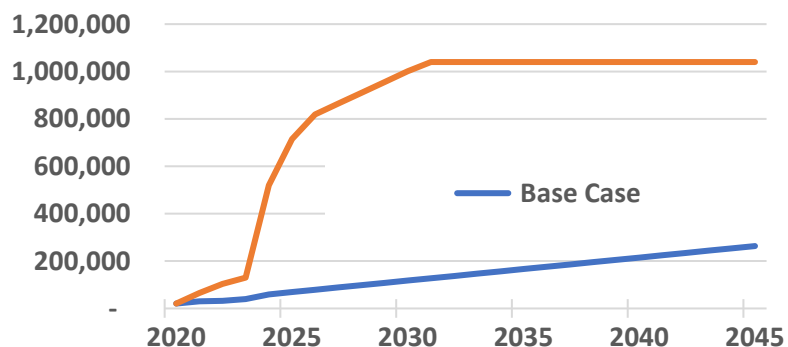


Figure 5: NWSA freight capacity baseline and with project, 2020 to 2045.

Thus, the incremental increase of the project in comparison to baseline will result in significant reductions in landside freight miles travelled over the 25-year projection timeframe. These reductions, along with benefits associated with the proposed reefer plug upgrades will generate the benefits shown in Table 4, discounted at 7% per grant guidelines. The T-5 PROJECT will also greatly reduce pollutant emissions including nitrogen oxides (NOx; 103.8 tons reduction), volatile organic compounds (VOCs; 49.3 tons), fine particulate matter (PM2.5; 1.96 million tons), and sulfur dioxide (SO₂; 1.9 tons). Per DOT guidance, net operations and maintenance costs were counted against total net benefits. Due to newer infrastructure and reduced stormwater costs, the T-5 PROJECT scenario resulted in a total net benefit of \$23.9 million when discounted at 7%.

Cost or Benefit Category	Total Value (7% Discount)
Truck Freight Cost Savings	\$638,686,425
Rail Freight Cost Savings	\$168,102,094
Truck Pavement Damage Reduction	\$21,658,188
Truck Crash Reduction & Alleviated Loss of Life	\$549,712,731
Rail Crash Reduction	\$425,601
Truck Air Pollution Reductions	\$26,725,301
Rail Air Pollution Reductions	\$19,593,336
Reefer Air Pollution Reductions	\$1,277,533
Operations and Maintenance (net benefit versus baseline)	\$23,893,811
Total Capital Costs ¹⁹	\$382,035,979
NET PRESENT VALUE	\$1,068,039,041
BENEFIT COST RATIO	3.796

Table 4. Net Present Value and Benefit Cost Ratio Calculations Summary

Based on these numbers and on total costs for deploying and operating the T-5 PROJECT, final results of the BCA show an exceptionally strong **net present value (NPV) of \$1.07 billion**. This NPV will be equivalent to a benefit cost ratio (BCR) of 3.796. Therefore, project implementation, when considered alongside other project scenario elements, will provide exceptional return on DOT's investment of only \$17,687,333. For additional information on the BCA, please refer to Appendix B2.

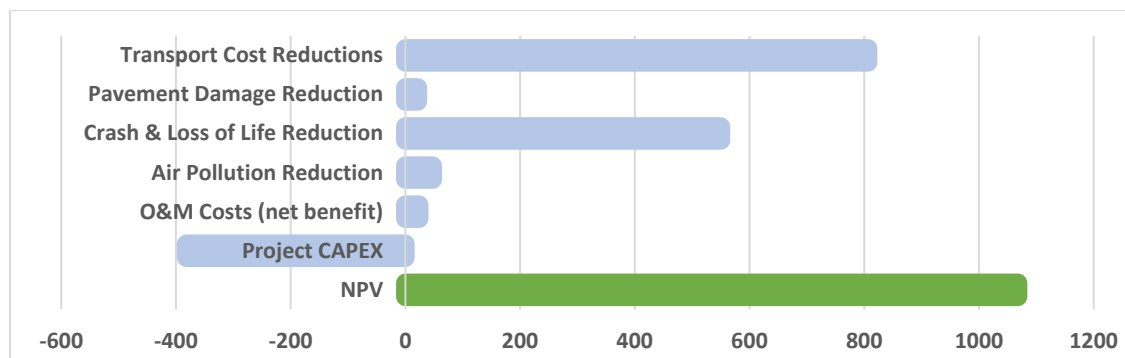


Figure 6. T-5 PROJECT Net Costs and Benefits Summary, with NPV.

IV.c.3 Project Outcomes

The T-5 PROJECT supports progress across all three merit criteria: 1) improving the safety, efficiency, and reliability of the movement of goods through the Port and the PNW; 2) leveraging federal funding; and, 3) generating significant net benefits.

The T-5 PROJECT supports the overall modernization of T-5, which aims to return an underutilized nationally significant cargo container facility to full operations. Infrastructure

¹⁹ Capital costs shown do not consider grant administration, which is included instead of operations costs, for the purposes of the BCA.

upgrades will enhance the safety, efficiency, and reliability of the terminal and its intermodal connectors, thus returning the terminal to full service. T-5 will be transformed into a world-class, high-capacity facility. It will deploy advanced technologies and innovative approaches to improve safety, design, and efficiency. These broad-ranging upgrades to the terminal will increase efficiency, operational safety, cargo capacity, and multimodal connectivity, while facilitating rapid transfer of cargo to other transportation modes across the NHS, Class 1 rail, and the Marine Highway System.

	Component	SAFETY	EFFICIENCY	RELIABILITY
1	Surfacing, Paving, and Reinforcement	Yes	Yes	Yes
2	Stormwater Treatment	No	Yes	Yes
3	1,500 Electric Reefer Plugs	Yes	Yes	Yes
4	On-Terminal Rail Improvements	Yes	Yes	Yes

Table 5. T-5 PROJECT Outcomes

A thorough discussion of the impacts on overall life-cycle costs is included in the BCA in *Section IV.c* and Appendix B3. NWSA is the premier international gateway for the PNW and much of the northern United States. This project will increase national export capacity for manufacturing, agriculture, and other goods. When the NWSA loses a ship call to a Canadian port, it often also loses access to those containers when they return from their inland destinations empty—which are now available to exporters in Western Canada but not the U.S.

Thus, by reclaiming cargo market share that has been lost to the Canadian ports of Vancouver and Prince Rupert, the proposed project will help increase NWSA's export capacity and bring associated transportation sector jobs back to the U.S. The NWSA is the leading U.S. export gateway for refrigerated agricultural cargoes and a major gateway for manufactured exports transiting the Pacific and Indian Oceans. Additional project outcomes, particularly those that are quantifiable, are addressed in the BCA (*Section IV.c*) and Appendix B2.

Cargoes	Imports (Thousands)			Exports (Thousands)			Ratio (Ex:Im) ²⁰		
	TEU	Mtons	Value	TEU	Mtons	Value	TEU	Mtons	Value
All	1,388.5	14,398.4	\$59,422,723.4	907.9	18,658.8	\$15,444,023.1	0.654	1.296	0.26
Reefer	50.03	N/A	N/A	194.37	N/A	N/A	3.885	N/A	N/A

Table 6. 2019 Ports of Seattle and Tacoma Import Export Statistics²¹

The NWSA, with its public and private partners, is engaged in a number of initiatives to encourage and support exports through the ports of Seattle and Tacoma. As evidenced by the attached Letters of Support, NWSA is partnering with inland cities and Class 1 rail operators, such as Minot, North Dakota, and BNSF, to expand rail export capacity powered by the American transportation labor force and ingenuity. These partnerships are designed to incentivize Class 1 rail operators to expand services to rural cities that have historically lacked regular access to, and federal investment in, critical multimodal freight infrastructure. The NWSA also works with the warehousing and distribution industry to attract cargo to Puget Sound, the 4th largest warehousing and distribution hub in the nation, including 2.3 million sq. ft. of cold storage facilities. Lastly, the NWSA's proximity to Sea-Tac Airport, one of the nation's

²⁰ Appendix E3 PIERS Data Summary, HIS PIERS (May 6, 2020). Values greater than 1.0 represent a trade surplus.

²¹ Appendix E1 and Appendix E2, IHS PIERS (Sept. 5, 2019 and May 6, 2020).

fastest growing air freight hubs, creates additional efficiencies that leverage continued investment in warehousing, in particular in cold storage and regional capacity for refrigerated cargoes.

V. Project Readiness

Based on the project's secure funding sources, work performed to date, and the team's experience on projects of a similar scope and scale, NWSA anticipates beginning construction on the proposed T-5 PROJECT components in 2022 and completing the final elements by December 2024.

V.a Technical Capacity

The Project Team has the personnel, knowledge, skills, and expertise necessary to implement the T-5 PROJECT on schedule and within budget to ensure the project's benefits are rapidly realized.

V.a.1 Experience and Understanding of Federal Requirements

The Project Team has:

- The requisite experience and understanding of federal requirements, from contracting to construction, to ensure the project can be delivered on time and within budget;
- Already conducted extensive environmental reviews that will reduce the likelihood of any challenges to the project under the National Environmental Policy Act (NEPA), Endangered Species Act, or Clean Water Act; and,
- Extensive experience procuring services and goods in compliance with the Federal Acquisition Regulation and is committed to maintaining an open, competitive bidding and procurement process for all components proposed within this application.

It will soon begin developing FAR-compliant bidding packages to enable this project to begin moving forward shortly after entering into contract with the Maritime Administration. The Project Team is committed to complying with the Buy American Act to the maximum extent possible and recognizes that obtaining a waiver for any project components would be extremely challenging and detrimental to the goals of this funding opportunity, particularly as we seek to support United States businesses as we recover from the recent tumult caused by the novel coronavirus (COVID-19).

V.a.2 Experience Working with Federal Agencies

The Project Team has vast experience working with a range of federal agencies, including the Department of Transportation, Maritime Administration, U.S. Army Corps of Engineers, U.S. Coast Guard, Federal Emergency Management Administration, and the Federal Aviation Administration. Partnerships with these and other federal agencies have resulted in direct funding of critical infrastructure projects, knowledge sharing and development of best practices, regional readiness planning for disasters, early compliance with forthcoming rules and regulations, and preparing for future economic and community growth.

V.a.3 Experience with BUILD and INFRA Awards

Both the NWSA and SSAT have direct experience with BUILD and TIGER grants that will be leveraged to help implement this project in time and on schedule. In 2014, the Port of Seattle was awarded \$20,000,000 from TIGER VI to rehabilitate Terminal 46 with several project components similar to those proposed for this project. The TIGER VI award enabled the Port to

cost-effectively rehabilitate deteriorated berth pile caps and dock deck panels; construct a stormwater system; pave 664,800 square feet of terminal area; and develop a public site to provide access to 13.8 acres of restored habitat that will serve as a public access offset for the terminal's development. The T-46 Project is on track to be completed in 2021.

SSA Marine is working with the Jacksonville Port Authority in a public-private partnership to rehabilitate and expand infrastructure assets at the Port of Jacksonville's Blount Island Terminal, a project that was recently awarded \$20,000,000 from the FY2019 BUILD Transportation Discretionary Grants Program. While that project is still in the contracting phase with MARAD, SSA is confident the project, which incorporates many similar infrastructure components as those proposed herein, will provide lessons learned that will smooth the process of implementing the federalized T-5 PROJECT.

V.a.4 Experience with Other Similar Large-Scale Infrastructure Projects

Husky Tacoma Pier 4 Reconfiguration

In 2016, the NWSA partnered with terminal operator International Transportation Services, Inc. to begin construction on the \$141-million Husky Tacoma Pier 4 Reconfiguration. The Husky Terminal upgrades included reconstruction of Pier 4 to align it with Pier 3, creating a contiguous 2,960-foot berth, as well as the installation of shore power plugs and the purchase of six more super-post-Panamax cranes to join two already ordered. These improvements, completed in 2019, will allow two 18,000-TEU ships to dock at the same time.

Seattle-Tacoma International Airport Center Runway Reconstruction

In 2015, the Port of Seattle completed the Center Runway Reconstruction Project at the Seattle-Tacoma International Airport, rehabilitating the oldest, most-heavily-utilized runway without disrupting air traffic at one of the West Coast's busiest airports. The Runway Reconstruction project posed many of the same challenges anticipated for T-5: managing construction in an active environment, completing construction during the limited construction season, and maintaining project accounting to best manage taxpayer moneys. The project required the complete closure of the Center Runway to rehabilitate and repave the runway without disrupting ongoing operations. Managing aircraft movements and other aviation operations during this project was a significant concern, as will be managing cargo movements throughout the T-5 PROJECT. Yet, the project successfully rehabilitated 9,425' of runway within a six-month construction period while coming in at only \$80,000,000—a savings of \$15,000,000 compared against the forecasted budget.

V.b Environmental Approvals and Environmental Risk

V.b.1 Project Schedule

The T-5 PROGRAM commenced construction on July 10, 2019. Refer to the component descriptions in *Section I.e* for a description of work completed to date. It is important to note that many of the largest critical components of the overall project could not be included in this proposal, either due to progress made to date or to anticipated dates of completion that pre-date MARAD's proposed timeline for announcing project awardees or executing contracts. The Project Team anticipates beginning work on the Final Phase by Q2 2020, with completion of all construction no later than January 2024. See Gantt chart below.

V.b.2 Gantt Chart

The following Gantt chart provides a detailed schedule for the project. Task numbers refer to those activities described in the Detailed Scope of Work at *Section I.e*.

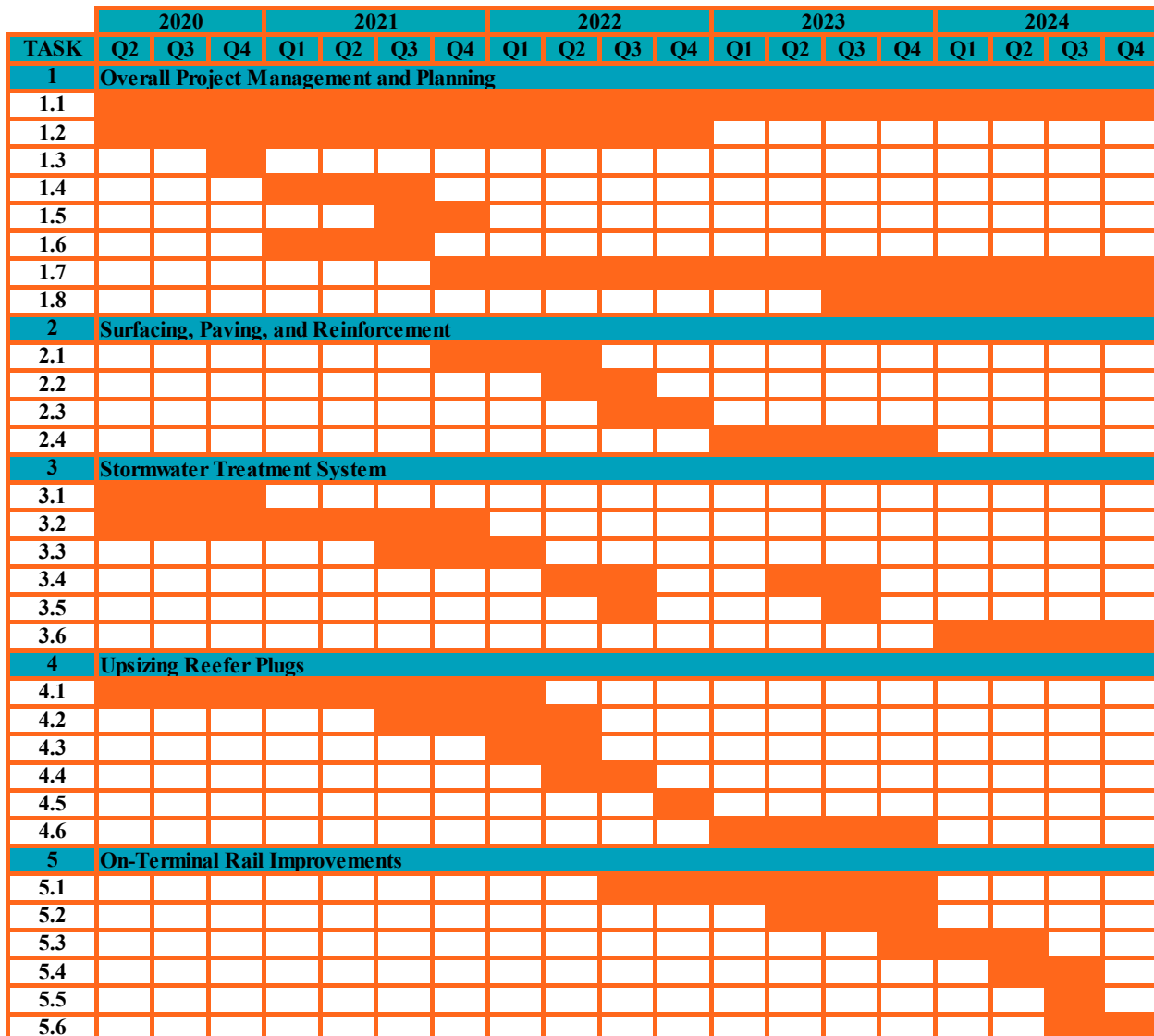


Figure 7. T-5 PROJECT Schedule Gantt Chart

V.b.3 Major Project Milestones

The T-5 PROJECT will be conducted in phases broken out by project component, with multiple tasks occurring simultaneously across the Terminal. The project team has identified major milestones and deliverables associated with the major project tasks described in *Section I.e.*

Comp.	Milestone	Deliverable	Due Date
		Overall Project Management and Planning	
1	1.1	MARAD Notification of Awardees	Q4 2020
1	1.2	Verified SEPA and NEPA Documentation	Q1 2021
1	1.3	Executed Grant Agreement Returned to MARAD	Q3 2021
1	1.4	Executed Subcontracts, As Applicable	30 Days After Milestone 0.3
1	1.5	Attend Kickoff Meeting	30 Days After Milestone 0.3
1	1.6	Internal Project Schedule	Q1 2021
		Updates to Project Schedule	As Necessary
1	1.7	Quarterly Progress Reports	15 Business Days after Quarter End
1	1.8	Draft Final Report	Q3 2024
		Final Report	Q4 2024

Comp.	Milestone	Deliverable	Due Date
2	Surface, Paving, and Reinforcement		
2	2.1	Copy of Executed Subcontract with Selected Bidder	Q2 2022
2	2.2	Completed Design Package	Q2 2022
2	2.3	Copy of Executed Purchase Order, Invoices	As Appropriate
2	2.4	Notice of Final Completion and Operation	Q4 2022
3	Stormwater Treatment		
3	3.1	Copy of Executed Subcontract with Selected Bidder	Q1 2021
3	3.2	Completed Design Package	Q2 2021
3	3.3	Copy of Executed Purchase Order, Invoices	As Appropriate
3	3.4	Notice of Final Completion and Operation	Q3 2023
4	1,500 Reefer Plugs		
4	4.1	Copy of Executed Subcontract with Selected Bidder	Q2 2022
4	4.2	Completed Design Package	Q2 2022
4	4.3	Copy of Executed Purchase Order, Invoices	As Appropriate
4	4.4	Notice of Final Completion and Operation	Q4 2022
5	On-Terminal Rail Improvements		
5	5.1	Copy of Executed Subcontract with Selected Bidder	Q4 2022
5	5.2	Completed Design Package	Q4 2022
5	5.3	Copy of Executed Purchase Order, Invoices	As Appropriate
5	5.4	Notice of Final Completion and Operation	Q4 2023

Table 7. T-5 PROJECT Milestones and Deliverables

V.b.4 National Environmental Policy Act

Based on information provided by MARAD's NEPA coordinator, Kristine Gilson on August 27, 2019, a Categorical Exclusion may be the most appropriate level of NEPA documentation for the project. The project will include upgrades and repairs to existing facilities and equipment on site, including replacement of existing paving, addition of reefer plugs in existing open cargo bays, repair of existing railroad tracks and switches, and construction of an on-site stormwater treatment system. These activities do not expand the developed area at T-5 or change the use from a port maritime facility. Therefore, the project could potentially be covered under MARAD's Categorical Exclusion 4, which covers reconstruction, modification, modernization, replacement, repair, and maintenance of equipment, facilities, or structures that do not substantially change the character of the equipment, facility, or structure. The Project Team is in the process of developing a Categorical Exclusion for the project, to be filed with the DOT immediately upon notice of award and initiation of contracting. Based on conversations with MARAD's NEPA coordinator, we expect approval and completion of a final NEPA determination quickly, well in advance of the project start date. The T-5 PROGRAM has completed an in-depth SEPA evaluation that can form the basis for any required future NEPA analysis.

V.b.5 Environmental Permits and Reviews

National Historic Preservation Act Section 106 concurrence will be necessary as part of NEPA documentation. A survey completed in support of the project's environmental documentation for T-5 indicated that there are no federal (or state/local) listed or eligible historic or cultural buildings, structures, or sites located within the project area or its immediate vicinity. The Applicant will coordinate with the State Historic Preservation Office (SHPO) early to aid in review of the NEPA documentation.

Endangered Species Act Section 7 review and concurrence will be completed as part of the NEPA review. The T-5 PROJECT site is entirely paved, with no areas of terrestrial habitat. There is no in-water construction; therefore, the project will not directly impact sensitive biological resources, but will provide benefit derived from the stormwater element.

V.b.6 Additional Information

NEPA Discussions with MARAD: The Project Team reached out to Kristine Gilson, the applicable Maritime Administration NEPA Coordinator in the Maritime Administration Office of Environment, regarding the project's NEPA compliance on August 27, 2019. Information from that discussion is summarized above.

Reviews, Approvals, and Permits by Other Agencies: The project would require acquisition of local building, electrical, and mechanical permits from the City of Seattle. The project would be required to acquire coverage under the Washington Construction Stormwater General Permit, which would be completed prior to the proposed initiation of construction. No other environmental permits are expected. These approvals are not expected to impact the schedule or interfere with or slow down the project implementation schedule.

U.S. Army Corps of Engineering Investment and Planning Activities: The project would not receive project support, benefit, or funding from any other federal agencies. It is worth noting, however, the USACE recently completed a feasibility study of deepening the West Waterway adjacent to T-5. Construction is scheduled for 2023. When complete, the deepening project will support future benefit to T-5, but the T-5 project does not depend upon this deepening. The project would not receive project support, benefit, or funding from any other federal agencies, except for DOT in the event of an award for this, or a parallel BUILD, grant application.

Environmental Studies or Other Documents: In October 2016, the Port of Seattle and The Northwest Seaport Alliance completed an Environmental Impact Statement (EIS) in compliance with the Washington State Environmental Policy Act (SEPA). All impacts of the project are considered in the Final EIS.²²

Public Engagement: The Project Team has completed extensive and significant outreach to gain public input on the project and the details of its implementation. Outreach has included 18 stakeholder events conducted in 2018 and 2019. These included presentations and Q&A sessions with local stakeholder groups, including the West Seattle Chamber of Commerce, Delridge District Council, West Seattle Transportation Coalition, Seattle Freight Advisory Board, and several other neighborhood groups. At these events, the Project Team received and responded to public comment on the project, provided project information and answered questions, and evaluated and—where reasonable—incorporated stakeholder concerns in the development of the project. Based on public comment, the Project Team strengthened several key environmental protection measures to minimize air quality impacts during construction and terminal operation. Other measures addressed water quality, noise, traffic, aesthetics, lighting, and impacts during operation.

²² See generally, Studies, Environmental Review and Reports at <https://www.nwseaportalliance.com/2020-pidp-grant-application-terminal-5>.

V.b.7 State and Local Approvals

The Applicant has already completed all state-level environmental compliance requirements (i.e., the SEPA FEIS was certified in October 2016) (see Appendix D). As noted above, state level water quality permitting will be completed prior to the initiation of construction, as will local building permits. The project has broad public support, as evidenced by the extensive letters of support located at <https://www.nwseaportalliance.com/2020-pidp-grant-application-terminal-5>.

V.c Assessment of Project Readiness Risks and Mitigation Strategies

Design for the on-terminal improvements proposed in this project is currently underway. Project plans and specifications are being advanced on an ongoing basis and construction documents will be ready to advertise in phases as described at *Section I.e.* For the larger construction components, peer reviews will be completed at 60% design. Construction and vendor estimates developed at current levels of design provided the basis for the proposed cost estimates. Contingency levels applied vary from 15% to 30% of the estimated direct construction or procurement costs. Cost estimates are provided in Appendix C, while a detailed statement of work is included in *Section I.e.* NWSA and SSAT believe each of the proposed components of this Final Phase is highly feasible and able to be completed on schedule.

Surfacing, Paving, and Reinforcement

The surface at T-5 will require reinforcement and paving to convert from the existing, primarily wheeled operation to one that can support the safe stacking of loaded and refrigerated containers. SSAT has evaluated the existing paving and contacted multiple vendors to determine the estimated cost for reinforcing and repaving up to 50 acres of T-5. Estimates include a 30% construction contingency.

Stormwater Treatment

As the largest cargo terminal in Elliott Bay, T-5 has a total of 197 acres of surface that collect stormwater. Capturing and treating this water is critical to maintaining the health of the marine environment and to ensuring long-term compliance with the facility's Industrial Stormwater General Permit. SSAT's affiliate is currently installing a similar stormwater treatment system at Seattle's Terminal 18; SSAT used the real-world costs from that project to estimate the cost for construction at T-5, including a 30% construction contingency. Cost estimates have been developed to identify four phases of constructing the Stormwater Treatment System, of which the final two phases are included in this application.

Electric Reefer Plugs

The existing reefer plugs at T-5 are designed to support a wheeled terminal operation, which reduces the efficiency and capacity of the terminal. Adding some 840 new reefer plugs and bringing the total number to approximately 1,500 will enable SSAT to stack refrigerated containers in up to a four- or five-high configuration, greatly increasing terminal capacity for exports of refrigerated cargoes. SSAT and NWSA have spoken with Seattle City Light to determine the required infrastructure upgrades and with potential vendors to determine the estimated cost of expanding the total count to 1,500 plugs. SSAT has included a 20% contingency for procurement and installation.

On-Terminal Rail Improvements

Existing rail capacity is limited by the inoperability of the escape track, creating congestion and inefficiency issues (see *Section II*). Rehabilitation of the 2,820-foot track 7 will achieve many benefits for the terminal, as described in *Section IV.c.* BNSF evaluated the state of the on-

terminal rail and identified the existing deficiencies with the escape track. The existence of a sinkhole has been confirmed and NWSA has determined the necessary repairs to return the track to a good state of repair and operability. Other improvements include replacing ballast, repairing or replacing rail ties, rehabilitating the control room, and installing OCR, radiation portal monitors, and other electrical upgrades. Preliminary designs are under development. A 20% construction contingency has been applied.

V.c.1 Assessment of Project Risks and Mitigation Strategies

The T-5 PROJECT has been thoroughly evaluated to identify project risks and develop appropriate mitigation strategies. NWSA engaged in a multi-year public process designed to mitigate potential risks to its development and operation. NWSA and SSAT believe there are minimal or no risks threatening project implementation. The greatest risk to the success of this project rests on the timing of award and contracting with MARAD, where delay could result in the project team being unable to federalize specific project components. The project team has chosen not to federalize many project components from previous phases, including those which must be implemented by March 2021 or sooner.

The project team has assessed a range of project risks and developed mitigation strategies for many aspects of the project. A realistic, yet rapid schedule for the project proactively advances the project to avoid procurement delays. Environmental uncertainties have been nearly eliminated due to extensive public engagement, robust mitigation measures, and permitting activities completed to date. It is unlikely that the City of Seattle's efforts to repair the bridge would require adjustments to the T-5 construction timeline or that bridge repairs would jeopardize the Project Team's ability to complete the T-5 PROJECT within the five year timeline required in the PIDP program. Real estate acquisition is not required for this project and the project has significant local, state, and regional support as evidenced by the many Letters of Support located at <https://www.nwseaportalliance.com/2020-pidp-grant-application-terminal-5>. The project team is confident that the T-5 PROJECT, the final phase of the T-5 PROGRAM, will be able to commence immediately upon approval from the Department of Transportation Maritime Administration and successfully complete the project and all reporting by December 2024.

Risk	Mitigation Strategies
Environmental Review	NWSA completed a thorough Washington State Environmental Protection Act (SEPA) evaluation that resulted in a range of mitigation measures that will offset adverse environmental impacts of the project's stormwater treatment system. ²³ After discussions with MARAD NEPA Coordinator, as discussed at <i>Section V.b.4</i> , the Project Team is confident it will be able to satisfy all NEPA requirements in a timely manner.
Permitting	The project will require some permits to be issued by NWSA, the Port of Seattle, City of Seattle, and Seattle City Light. The Project Team will work diligently to secure permits in a timely manner to avoid disrupting project implementation. As a lead agency having jurisdiction (AHJ), NWSA ensures any project construction activities may only commence upon securing all necessary permits and entitlements, including those required by or issued other AHJ's.

²³ See, Terminal 5 Cargo Wharf Rehabilitation, Berth Deepening, and Improvements Final Environmental Impact Statement (Oct. 2016).

Risk	Mitigation Strategies
Technical Feasibility	All proposed project components are reliant upon existing technologies and construction methodologies. NWSA has extensively assessed technical and commercial risks, resulting in the T-5 PROGRAM and its mitigation activities. NWSA, the ports of Tacoma and Seattle, and SSAT are committed to futureproofing and making T-5 big ship ready. See <i>Section V.c.</i>
Funding	NWSA and SSAT have each committed substantial capital outlays of up to \$340 million and \$118 million, respectively, to the project which will ensure its successful completion. This funding is fully obligated and is not subject to expiry or divestiture. Further discussion of the available funding, including concrete steps and procedures in the event of an overage, is discussed at <i>Section III.b.</i>
Capacity to Manage Project Delivery	As an affiliate of the largest marine terminal operator in the Americas, SSAT has significant experience overseeing large marine terminal development projects. NWSA and the Ports of Seattle and Tacoma likewise have extensive experience managing large-scale port infrastructure projects in Elliott and Commencement Bays. The Project Team will leverage its decades of experience to ensure the project is delivered on time and within budget.
Procurement Delays	The Project Team has chosen to exclude major project components that are on a tight schedule from this request to avoid any risks associated with procurement delays. While this diminishes the total allowable private cost share, the project is on a strict schedule to begin terminal operations in March 2021. The components for which funding is requested are guaranteed to be delivered within three years of fund obligation.
Adjacent West Seattle High-Rise Bridge Closure	On March 23, 2020, the nearby West Seattle High-Rise Bridge was closed due to the discovery of cracking and structural deficiencies. It is unlikely that the City of Seattle's efforts to repair the bridge would require adjustments to the T-5 construction timeline or that bridge repairs would jeopardize the Project Team's ability to complete the T-5 PROJECT within the five year timeline required in the PIDP program. The Spokane Street Low Bridge, the primary route for freight traffic to T-5, is closed to passenger vehicles but remains open to freight traffic. The low bridge has sufficient capacity to handle the additional volumes anticipated to be generated by full operations at T-5. The NWSA and industrial stakeholders are working with the city to ensure traffic remains limited to cargo movement and other uses currently allowed, and that these restrictions remain supported by consistent enforcement.

Table 8. T-5 PROJECT Risk and Mitigation Strategies

V.c.2 Familiarity with MARAD Requirements

The Applicant, NWSA, has contacted the Ports Program staff for information on the pre-requisite steps to obligate federal funds and—after considering the requirements for receiving and expending federal grant funds administered by the Maritime Administration—has determined that the project schedule is reasonable and presents no significant risks of delays in satisfying federal requirements. The NWSA is currently working with MARAD on an ongoing TIGER grant. NWSA's project managers and Accounting and Financial Reporting departments are in regular contact with MARAD. NWSA is familiar with procurement rules, reporting requirements, and other relevant policies. This familiarity extends to our leadership, which has been actively engaged with MARAD as NWSA navigates the complexities of that other project.

V.c.3 Risk Management Strategy

In addition to in-depth planning efforts, the Project Team is undertaking a range of strategies to mitigate project risks and manage any issues that may arise. The Project Team will also apply the following risk mitigation strategies:

- *Project Change Management.* In the extremely unlikely event of a major project change the Applicant will alert MARAD at its earliest notice. The Project Team will recommend a preferred solution, having investigated all feasible options to find the lowest-cost

approach with the least impact to schedule. The Project Team will consult MARAD, update the Statement of Work, and complete required administrative actions.

- *Quality Assurance and Quality Control (QA/QC).* The Project Team will deploy its own internal standard QA/QC processes, including but not limited to: 1) adherence to specifications and design; 2) regular (at least monthly) inspections by project managers, including verification for all construction, installation, equipment, and functionality; 3) adherence to standard inspection plans and timeframes; 4) regular inspection of critical checkpoints for quality, safety, and operability; 5) inspections by port staff as warranted; and, 6) project managers will report to the project management team following each QA/QC event to identify and mitigate QA/QC issues or concerns as soon as identified.
- *Communications among Project Team.* NWSA and SSAT will collaborate on grant administration activities on the proposed project. The Project Team already maintains communication among project participants, providing updates and proactive strategy development. The Project Team will coordinate regular contractor meetings and team reviews of appropriate deliverables.

The Project Team has included budget contingencies ranging from 10% to 30% and identified conservative budget estimates that will greatly reduce the likelihood of the project encountering cost overruns. The T-5 PROJECT has reasonable buffers built into its schedule that comply with requirements for permitting, obligation, and expenditure of funds as outlined within the PIDP.

Perhaps the greatest risk to any terminal construction project is the requirement to shut down operations at select locations of the terminal during site preparation, construction, and commissioning. When phased improperly, marine terminal construction projects can require sporadic, long-term, isolated shutdowns, particularly where larger projects must span multiple seasonal construction periods. To avoid the potential for components dragging across multiple construction periods, the Project Team is requesting funding from the PIDP that would enable it to complete key elements of the project early and simultaneously, before on site operations ramp up. As a result, the Project Team will greatly reduce the need to temporarily reduce operational capacity to support construction activities. Constructing the project on this accelerated timeframe would not be possible without federal funding due to the economic risk of expanding terminal infrastructure beyond immediate demand and the risk of stranded investments.

To mitigate ongoing risks, monthly project reviews will include progress analysis, summary of costs incurred, tracking of expenditures against budget, stakeholder analysis, and monthly failure mode and effects analysis (FMEA) for all the risks on the project. In the FMEA, the Project Team will identify and score for likelihood and severity potential risks to all applicable project elements (engineering / design, procurement, construction, operation). The Project Team will regularly assess risk severity and mitigation strategies, developing a risk mitigation plans when determined appropriate. The Project Team has mitigated anticipated risks to base infrastructure and permitting requirements by managing them separately from the T-5 PROJECT. State level environmental clearance and most permits are complete, and funding is fully secured.

VI. Domestic Preference

NWSA and SSAT commit unreservedly that 100% of products to be used in the federalized portions of the Final Phase will be produced, manufactured, or assembled domestically in alignment with current guidance on complying with the Buy American Act (41 U.S.C. 8301-8305). NWSA and SSAT will apply, comply with, and implement all provisions of the Buy

American Act in the implementation of project components funded by the PIDP. The project components for which NWSA is requesting funding under the PIDP have been selected to avoid any undue delays or risks associated with the process of requesting a waiver to the Buy American Act.

VII. Additional Considerations

VII.a Opportunity Zones

Although Terminal 5 is not located immediately inside of a Qualified Opportunity Zone (QOZ), its proximity to Seattle's primary QOZ and its expanding intermodal connections to many QOZs throughout the nation will generate numerous benefits to increase further investment therein. In Seattle, T-5 is located approximately 4,500 feet west of the nearest QOZ which includes both BNSF and Union Pacific intermodal rail yards and several warehousing and distribution centers that serve domestic and international cargo moving through NWSA terminals. The rehabilitation of the terminal as well as ITS improvements along Spokane Street, which connects T-5 and the QOZ, included in the T-5 PROGRAM will further improve access and reduce congestion between cargo handling facilities in the QOZ, the NWSA's Terminals 5, 18, and 115, and other QOZs throughout the nation. The benefits of this project will also accrue to other businesses and industry in the QOZ, and to longshoremen from Seattle's ILWU Local 19, whose dispatch hall is in the QOZ.

VII.b R.O.U.T.E.S.

The T-5 PROJECT will advance the goals of the Rural Opportunities to Use Transportation for Economic Success (R.O.U.T.E.S.) Initiative by improving transportation safety and economic opportunities for rural America. The NWSA has a significant relationship with rural America and the millions of Americans that depend upon the PNW seaports for economic opportunity. Farmers rely on the NWSA as the largest point of export for refrigerated agricultural products in the United States—moving more than 244,393 TEU of refrigerated cargoes in 2019. This accounts for some 20% of the nation's total refrigerated exports. Relatedly, 46% of exports through the NWSA originate from rural and urban producers and manufacturers outside of Washington state. This relationship directly supports the success of U.S. agricultural and manufacturing industries, improving economic competitiveness in step with every incremental increase in NWSA's shipping capacity and efficiency.

Currently, 70% of the 10 billion pounds of potatoes from Washington state and 93% of containerized cargo from Montana depend on the NWSA to reach international markets, Alaska, and Hawaii. This is only a small sampling of the refrigerated goods that are moved through the NWSA ports yearly. The NWSA moves half of all containerized exports from Oregon and Idaho, and at least 20 percent from Minnesota, the Dakotas, and Iowa. Additionally, some 60% of NWSA containerized cargo imports are distributed to domestic markets in the Midwest and beyond the PNW.

Improvements to the infrastructure of T-5 will bolster the economic competitiveness of the U.S. against Canadian ports and logistics operators, which have recently taken significant market share from American counterparts. The upsizing of electric reefer plugs and on-terminal rail improvements will better position NWSA and its tenants to compete directly with the ports of Vancouver and Prince Rupert.

The T-5 PROJECT will increase the safety of our nation's transportation network and save hundreds of millions of dollars by reducing the risk of traffic fatalities across the United States. As discussed in the Net Benefits section (*IV.c*), this Final Phase project will expand on-dock rail capacity, reducing urban and rural vehicle miles traveled (VMT) by 871,199,234 miles. Per the Department of Transportation, there is a direct correlation of reductions in traffic fatalities equating to 1.70 deaths on rural roads and 0.86 deaths on urban roads per every 100,000,000 miles. Assuming constant growth in the value of a statistical life (VSL) of \$100,000 per annum and a baseline VSL of \$10,000,000 in 2020, this project will avoid traffic fatality related economic losses of more than \$63 million over the next 25 years, at a 7% discount rate.

VII.c Jobs Discussion

Cargo activity at the ports of Seattle and Tacoma supports an estimated 58,400 jobs, including 20,100 direct jobs in the transportation sector and 38,300 indirect and induced jobs within the PNW. Further, NWSA generates \$1.5 billion in labor income supporting \$4.5 billion in business output. The proposed project—estimated to total \$73.7 million—is projected to create an additional 2,400 FTE temporary direct design, construction, and engineering jobs over the project period, and an additional 6,600 permanent new direct jobs by 2050 responsible for approximately \$422 million in annual salary alone.

Year	Temporary Direct Jobs (FTE)	Forecasted Average Salary	Permanent Direct Jobs (FTE)	Forecasted Average Salary
2022	735	\$36,750,000	60	\$3,840,000
2023	480	\$24,000,000	95	\$6,080,000
2024	--	--	3,260	\$208,640,000
2050	--	--	6,600	\$422,400,000

Table 9. T-5 PROJECT Final Phase Jobs Impact

VII.d Harbor Maintenance Trust Fund

Cargo that transits NWSA facilities generates upwards of \$70 million annually for the Harbor Maintenance Trust Fund (HMTF). Less than 2% of HMTF revenue collected through the gateway is spent on projects at the NWSA, meaning that 98% is distributed to ports around the country for maintenance of in-water navigation infrastructure, enabling the free flow or commerce nationwide. This project will help the PNW to regain market share from Canadian ports and generate additional HMTF revenue over time that is estimated to significantly exceed the one-time federal construction cost of the project while increasing certainty and investment in our nation's maritime infrastructure.