



1 Introduction and Purpose & Need

1.1 Introduction

This Environmental Assessment (EA) for the Seattle-Tacoma International Airport (SEA) Sustainable Airport Master Plan (SAMP) Near-Term Projects (NTPs) is being prepared in accordance with the requirements set forth by the Council on Environmental Quality (CEQ) in its regulations for implementing the National Environmental Policy Act (NEPA), as amended (40 Code of Federal Regulations [CFR] 1500-1508),¹ and Federal Aviation Administration (FAA) Orders 1050.1F, *Environmental Impacts: Policies and Procedures*, and 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. The purpose of this EA is to determine if the development and operation of the Proposed Action has the potential to significantly affect the human environment. Environmental review and approval are required under NEPA because the Proposed Action would require multiple federal actions (see Section 1.4, Requested Federal Actions). **Table 1-1** provides an outline and description of the chapters included in this EA.

The FAA invited the U.S. Army Corps of Engineers (USACE) to participate as a cooperating agency as described under 40 CFR § 1501.8, and USACE accepted.

TABLE 1-1: OUTLINE OF THE EA

Chapter	Description
Chapter 1, Purpose and Need	Describes the background for the project, as well as the purpose and needs for the project
Chapter 2, Alternatives	Describes the process for identifying and evaluating alternatives for further consideration in the environmental review process
Chapter 3, Affected Environment	Describes the baseline conditions for each of the environmental resource categories
Chapter 4, Environmental Consequences	Describes the potential environmental effects, the significance of those effects, and proposed mitigation (where necessary), of the different alternatives for each environmental resource category
Chapter 5, Cumulative Impacts	Describes the cumulative impacts of the project and other past, present, and reasonably foreseeable future actions
Appendices	Provide more detail on individual topics and the outreach that has been conducted to date

1.2 Background

1.2.1 Planning Process

The SAMP² identified a Long-Term Vision to accommodate future passenger levels and address identified needs for SEA over the 20-year planning horizon (through 2034). One of the overarching needs from the SAMP was to improve the experience for passengers at SEA. The current passenger processing functions, such as on-site parking, check-in hall, security screening, holdrooms, and the number of gates, were limited or undersized for the number of passengers SEA served in 2018 and

¹ Public Law (P.L.) 91-190, 42 United States Code (U.S.C.) 4321, et. seq., National Environmental Policy Act, 1969, Section 102(2)(c). CEQ amended its regulations implementing NEPA effective April 20, 2022.

² The SAMP was prepared over a three-year period (2015 to 2018).



continue to be undersized. The results of these limitations are crowded spaces, long lines, and delayed flights. These problems are expected to worsen as passenger demand increases.

The SAMP ultimately concluded that even with the implementation of the full Long-term Vision, unconstrained 20-year demand would result in airfield congestion and high levels of delay. This congestion and delay would occur primarily as a result of limitations in the airfield / airspace system. The Port of Seattle (Port) and FAA determined that addressing these long-term airfield / airspace limitations is outside of the scope of SAMP and that a more comprehensive airfield and airspace planning study is needed to understand if additional actions would be required before the Long-term Vision could be fully implemented. Because additional planning is needed, the FAA determined that the Long-term Vision was not yet ripe for environmental review.

The Port developed the NTPs, which is a plan to address the near-term needs, whether the Port pursues the long-term projects or addresses the long-term airfield / airspace limitations. The NTPs are the subject of this environmental review and include 31 projects that would improve the efficiency and safety of SEA, access to SEA, and support facilities for the airlines and SEA. Because the NTPs focus on a more immediate timeframe and address needs that are distinct from what may come from future planning, the NTPs are independent from the Long-term Vision. The FAA determined that the NTPs are ripe for environmental review.

The sustainability component of the SAMP focused on the Port's long-standing history of implementing sustainability initiatives to achieve its environmental goals and objectives. Through the SAMP process, the Port focused on what facilities are needed, where these facilities would be located, and how these facilities would be operated from a sustainability perspective.³

1.2.2 EA Timeline

The FAA and Port initiated the EA for the SAMP NTPs on July 30, 2018 with a 60-day public and agency scoping period. The scoping period closed on September 28, 2018 and the FAA and Port reviewed comments received from the public and agencies. Based on scoping comments, the FAA and Port made the decision to complete the NEPA and State Environmental Policy Act (SEPA) analysis separately and sequentially. In March of 2020, the COVID public health emergency resulted in dramatic reductions in passengers and aircraft operations and resulted in a partial deferral of spending by the Port. Due to the reduction in activity between 2020 and 2022 and the partial deferral of spending, the Port reevaluated the opening year for the NTPs. Based on the projections of activity in the 2023 Updated Forecast and the time it would take to construct the NTPs, the Port determined the opening year for the NTPs would be 2032. Updated impact analyses were prepared in 2023 through 2024 based on the revised timeframe.

At the end of this environmental review process, the FAA will either issue a Finding of No Significant Impact / Record of Decision (FONSI / ROD) or determine that the Proposed Action has the potential for one or more significant impacts to the human environment, thereby requiring the preparation of an Environmental Impact Statement (EIS).

³ The SAMP Technical Memorandum No. 9 Sustainability Planning and Management Strategy provides the specific ways the Port would incorporate sustainability into the development process and can be found here: <https://www.airportprojects.net/sampenvironmentalreview/tm-no-9-sustainability-plan-management/>.



1.3 Proposed Action

In this EA, the NTPs are collectively referred to as the Proposed Action, which are described in **Table 1-2** and shown on **Exhibit 1-1**. Based on the current schedule for environmental review, construction could begin late 2025. If the Port decides to proceed with the project following the environmental reviews, the Proposed Action could be substantially complete and operational by 2032.

Section 163 of the FAA Reauthorization Act of 2018, H. R. 302, (Public Law (P.L.) 115-254) and Section 743 of the FAA Reauthorization Act of 2024, H.R. 3935 (P.L. 118-63) limited FAA’s approval authority to portions of Airport Layout Plans (ALPs) that meet certain statutorily defined criteria and prohibited the FAA from directly or indirectly regulating airport land use unless certain exceptions exist. While the Proposed Action details the Port’s intended development at SEA, only some of these development components now are subject to federal approval and / or funding. However, the entire Proposed Action is analyzed in this EA.

The airfield projects (A01-A10) would require the FAA to relocate FAA-owned equipment (including navigational and visual aids (NAVAIDs)) and associated infrastructure. These relocations would also require modifications to existing procedures. The extent of these relocations and modifications are not known at this time and would be determined during the design of the Proposed Action. The analysis in this EA includes details that are currently known.

TABLE 1-2: PROPOSED ACTION PROJECTS

Project Element	Description
Airfield Projects	Airfield Projects Description
A01 – Taxiway A/B Extension	<p>Extension of parallel Taxiways A and B by approximately 1,800 feet to provide access to the south end of Runway 16L/34R. Includes:</p> <ul style="list-style-type: none"> • Construction of parallel taxiway connectors from Taxiway B to Runway 16L/34R. • Relocation of Taxiway S 310 feet south. • Relocation of the Runway 34R glideslope antenna and shelter to the southeast. • Adjustment of the Runway 34R glideslope angle and precision approach path indicator (PAPI) to match the glideslope. • Amendments to flight procedures to accommodate change in glideslope angle. • Relocation of a vehicle service road bridge over S. 188th Street <p>Taxiways would have in-pavement centerline lights, elevated taxiway edge lights, hold position markings with in-pavement lights, elevated runway guard lights, and signage.</p>
A02 – Runway 16R/34L Blast Pads	Expansion of Runway 16R/34L blast pads from 200 feet by 200 feet to 220 feet by 400 feet to meet current FAA standards and relocation of NAVAIDs.
A03 – Taxiway C/D Reconfiguration and Runway Incurion Mitigation (RIM)	Modification of existing taxiway geometry of Taxiways C and D to correct non-standard intersection angles and reconfigure non-standard intersections. Includes the extension of Taxiways C and D by approximately 500 feet to intersect with Taxiway A and removal of pavement north of Taxiway C to mitigate the existing RIM location.
A04 - Taxiway B 500-foot Separation	Relocation of Taxiways A and B 100 feet east between Taxiways C and L to provide the required 500 feet runway/taxiway separation. Includes extending Taxiways C, D, E, H, and K to the relocated Taxiway B and relocating NAVAIDs. Taxiways would have in-pavement centerline lights, elevated taxiway edge lights, hold position markings with in-pavement lights, elevated runway guard lights, and signage.
A05 – North Hold Pad	Construction of a new approximately 90,000 square foot hold pad for four aircraft to reduce congestion on the taxiways and at the terminal.



TABLE 1-2: PROPOSED ACTION PROJECTS (CONTINUED)

Project Element	Description
Airfield Projects	Airfield Projects Description
A06 – Runway 34L High-Speed Exit	Construction of a new high-speed exit for Runway 34L arrivals between Taxiways J and E to allow for more efficient use of the runway by arriving aircraft. The high-speed exit would be equipped with in-pavement centerline lights, elevated taxiway edge lights, hold position markings with in-pavement lights, and taxiway signage. Includes the relocation of the multilateration remote unit.
A07 – Taxiway D Extension	Extension of Taxiway D by approximately 500 feet from Runway 16C/34C west to Taxiway T. Includes in-pavement centerline lights, elevated taxiway edge lights, hold position marking with in-pavement lights, elevated runway guard lights, and signage.
A08 – North Cargo Hardstand	Construction of a new approximately 360,000 square foot (1,200 feet by 300 feet) cargo aircraft hardstand in the North Cargo area east of Taxiway A. The hardstand would accommodate five aircraft for loading and unloading of cargo freight and parking of cargo aircraft. Construction would require the relocation of the existing United maintenance hangar and Swissport cargo facility (S08), relocation of the Port’s aviation maintenance facility (S07), and relocation of ground service equipment maintenance (S09).
A09 – Central Hardstand	Construction of a new approximately 292,000 square foot hardstand for seven aircraft north of Concourse D and east of the North Satellite to accommodate increased demand for passenger hardstand operations and overnight parking of passenger aircraft. Buses would bring passengers to / from aircraft on the hardstand. Construction of A09 requires relocating portions of the North Airport Expressway (NAE) (L01).
A10 – Taxiway Fillets	Construction of new full strength pavement panels and shoulders and the installation of edge lighting and signage to bring taxiway fillets up to current FAA standards.
Terminal Projects	Terminal Projects Description
T01 – North Gates	<p>Construction of a new multi-level terminal concourse and aircraft apron to accommodate up to 19 gates. The new terminal concourse would have a footprint of approximately 203,000 square feet and contain three levels (approximately 609,000 square feet total). The new terminal concourse would include:</p> <ul style="list-style-type: none"> • Ramp level for baggage handling and aircraft support functions. • Concourse level with passenger holdrooms, concessions, restrooms, and other passenger and airline support functions. • Mezzanine level with office space. • Above-ground elevated pedestrian walkway to the passenger terminal. <p>The new facility would be located north of the North Satellite Concourse and would displace the Aircraft Rescue and Firefighting (ARFF) station (S02), Cargo 6 warehouse (C01), de-icing tanks (S06), NAE (L01) and fuel rack (S04).</p>
T02 – Second Terminal and Parking	<p>Construction of a new multi-level passenger terminal across the NAE from the proposed terminal concourse (T01). The new terminal would be approximately 575,000 square feet in size, with a footprint of approximately 166,000 square feet. The new terminal would include:</p> <ul style="list-style-type: none"> • Basement level for baggage handling and screening. • Baggage claim level for arriving passengers. • Interstitial (or open) level connected to a new garage that provides commercial curbside space. • Departures level with passenger check-in and security screening facilities. <p>Includes a new multi-level parking garage to provide approximately 1,350 parking spaces. The new facilities would displace the Doug Fox Parking Lot.</p>



TABLE 1-2: PROPOSED ACTION PROJECTS (CONTINUED)

Project Element	Description
Cargo Projects	
Cargo Projects Description	
C01 – Cargo 4 South Redevelopment	Construction of an approximately 80,000 square foot building (warehouse and office space, truck terminals, and parking) on the Cargo 4 South site located in the existing central cargo area of the Airport to replace the Cargo 6 warehouse demolished for T01.
C02 – Offsite Cargo Phase 1	Construction of a new approximately 330,000 square foot cargo warehouse building (warehouse and office space, truck terminals, and parking) on the Port’s L-shaped parcel located north of State Route (SR) 518.
C03 – Offsite Cargo Phase 2	Construction of a new approximately 90,000 square foot cargo warehouse building (warehouse and office space, truck terminals, and parking) on the Port’s L-shaped parcel located north of SR 518.
Landside Projects	
Landside Projects Description	
L01 – North Airport Expressway (NAE) Relocation (southbound lanes)	Construction of approximately 7,300-linear-feet of new NAE to access the Second Terminal and alleviate congestion on existing roadways. The new roadway would replace a section of the existing roadways eliminated for the construction of A09 and T01. The relocated portion of the NAE would also be widened from three lanes to four lanes.
L02 – Elevated Busway and Stations	Construction of approximately 6,000-linear-feet of elevated busway and three stations to connect the Main Terminal, new Second Terminal, and Rental Car Facility. The busway and stations would be located along the eastern edge of Airport property and would tie into existing bus routes. Displaces existing ground transportation holding lot (L05).
L03 – Second Terminal Roads and Curbside	Construction of a loop ramp from the southbound lanes of the NAE to provide access to the new passenger terminal. The ramp would connect to the existing S. 160 th Street Loop, westbound SR 518 on-ramp at S. 160 th Street, or the existing northbound lanes of the NAE. Includes construction of split-level curbsides for arriving vehicles, departing vehicles, and commercial vehicles (shuttles, taxis, and ride-share companies).
L04 – Northeast Ground Transportation Center (NE GTC)	Construction of a NE GTC on the north side of the existing parking garage. The NE GTC facility would be approximately 255,000 square feet and would include: <ul style="list-style-type: none"> • Expansion of the existing charter and cruise bus lot on the ground floor level. • Shuttle bus platform on level two serving as the southern terminus of the elevated busway (approximately 87,000 square feet). • Passenger circulation and check-in facilities on level three providing terminal-quality space for passengers arriving / departing on the elevated busway and Link Light Rail at the Airport Station to transition to / from the Main Terminal (approximately 64,000 square feet). • Office space on levels four and five (approximately 52,000 square feet per level).
L05 – North Ground Transportation (GT) Holding Lot	Relocation of the GT holding lot on Port property north of SR 518 and south of S. 144 th Street to replace the parking lot displaced by L02. This lot would be used for ground transportation holding, as drivers await trip requests or passenger arrival.
L07 – Employee Parking Structure	Construction of a new eight-story (i.e., one below grade and seven above-grade) parking structure that would provide approximately 3,500 parking stalls on Port property north of SR 518 and south of S. 144 th Street to accommodate employee parking demand. The structure would have a total footprint of approximately 3.3 acres.



TABLE 1-2: PROPOSED ACTION PROJECTS (CONTINUED)

Project Element	Description
Airport / Airline Support Projects	Airport / Airline Support Projects Description
S01 – Fuel Farm Expansion	Expansion of the existing fuel farm onto the former south employee parking lot. This would include: <ul style="list-style-type: none"> • Four new settling tanks, adding approximately 10-million-gallons storage capacity. • Blending tank (approximately 500,000-gallon) and approximately 100,000-gallon Sustainable Aviation Fuels (SAF) receipt tank. • Additional piping. • Expanded spill containment dike. • New truck fuel rack to support the delivery of SAF for blending.
S02 – Primary ARFF Facility	Relocation of the Primary ARFF station for construction of T01. The new ARFF would be approximately 50,000 square feet and would be located on the south airfield between Runway 16R/34L and Runway 16C/34C.
S03 – Secondary ARFF Facility	Construction of an approximately 10,000 square foot Secondary ARFF to provide ambulatory response to the terminals and concourses, fuel spill and fire response to the concourse ramp areas, and backup emergency response to the airfield. The Secondary ARFF facility would be integrated within the new Concourse (T01) at the southeast end of the concourse and would have both airside and landside access.
S04 – Fuel Rack Relocation	Relocation of the fuel rack from the Cargo 6 area to the Cargo 3 area for construction of T01. The fuel rack is where fuel trucks refill.
S05 – Triculator	Relocation of the triculator building from east of the existing ARFF station to the North Cargo area to clear the site for A09. The triculator transfers aircraft waste to the sewer system.
S06 –De-icing Tanks	Relocation of de-icing fluid tanks currently located at Cargo 6 and Cargo 7 to a northern location and southern location to clear the site for the new concourse. Each site would have a containment system and two tanks, one for Type I de-icing fluid (for shorter-term protection) and the second for Type IV de-icing fluid (for longer-term protection). Each set of tanks would also have a blending station.
S07 – Westside Maintenance Campus	Relocation of the Port’s aviation maintenance facility (AMF) for construction of A08 to vacant land on the west side of the Airport in the Westside Maintenance Campus, co-locating it with other related functions. The AMF facilities would include a vehicle fuel rack, airfield deicer storage, snow equipment storage, multi-bay buildings and associated maintenance facilities. The existing S. 168 th Street access would be reconstructed and a new access road would be constructed from S. 157 th Place to the new facility.
S08 – North Airline Support	Construction of an approximately 15,000 square foot airline support building in the northeast corner of the North Cargo area to accommodate airline support functions displaced by construction of T01 and A08.
S09 – West Airline Support	An approximately 25,700 square foot expansion to the west of the existing AMB / AFCO III building used for cargo operations. The expanded building would accommodate displaced maintenance functions for construction of T01 and A08.
S10 – Centralized Receiving and Distribution Center (CRDC)	Construction of a new approximately 55,000 square foot CRDC on Port property north of SR 518 and south of S. 144 th Street to improve security and efficiency in moving supplies to SEA dining and retail concessionaires in the passenger terminals. The new CRDC would include a warehouse, office space, truck terminals, and parking for visitors and employees.



TABLE 1-2: PROPOSED ACTION PROJECTS (CONTINUED)

Project Element	Description
Buildings to be Relocated	Project Requiring Relocation
Fuel Rack	T01 – North Gates
Portion of NAE	L01 – NAE Relocation (southbound lanes)
Triculator	T01 – North Gates
Buildings to be Demolished	Project Requiring Demolition
Primary ARFF Facility	T01 – North Gates
Swissport Cargo Facility (T01)	T01 – North Gates
United Airlines Maintenance / Cargo 4S	C01 – Cargo 4 South Redevelopment
Gate Gourmet Flight Kitchen	T02 – Second Terminal and Parking
De-icing fluid tanks	S06 – De-icing Tanks
Port Maintenance Building	A08 – North Cargo Hardstand
United Airlines Aircraft Maintenance Facility	A08 – North Cargo Hardstand
PACCAR	S02 – Primary ARFF
Doug Fox Payment Building & Office	T02 – Second Terminal and Parking
Guard Shack	A09 – Central Hardstand
Port Westside Field Offices	S07 – Westside Maintenance Campus
Overall Program Support Projects	Overall Program Support Projects Descriptions
Stormwater / industrial wastewater infrastructure	Expansion of existing stormwater / industrial wastewater infrastructure.
Stormwater management facilities	Construction of new stormwater management facilities.
Storm drainage vaults	Conversion of two existing storm drainage vaults (3 and 3A) to industrial wastewater system vaults.
Utilities	Utility connections (sewer, water, natural gas, fuel, and information / communication technology).
Central mechanical plant	Central mechanical plant upgrades.
Construction staging	Construction staging on Port property outside of sensitive areas.

Note: As a result of comments received during scoping, the Port integrated Project L06 (a proposed surface lot for employee parking) into Project L07. Therefore, this NTP is not being carried forward.

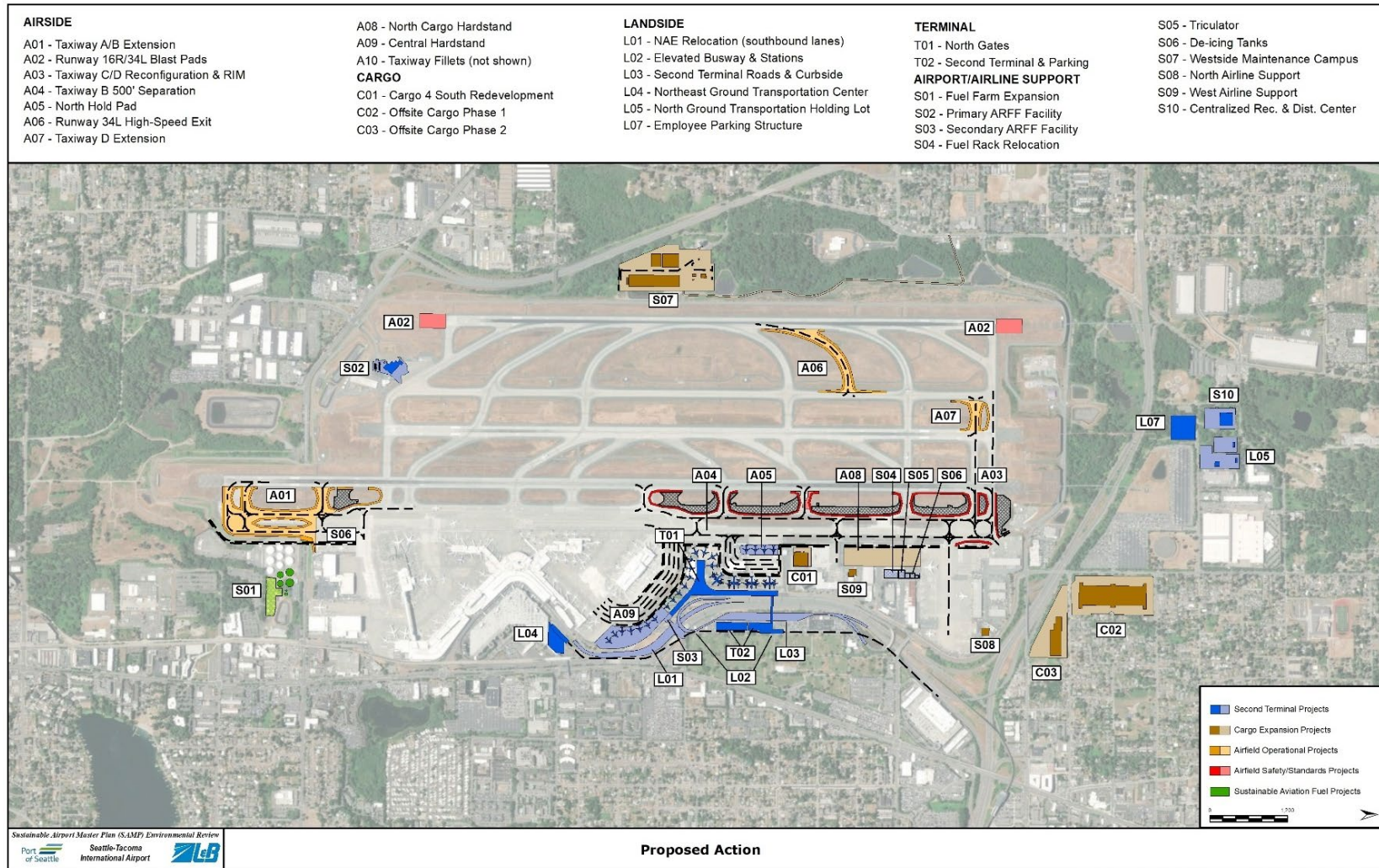


SEATTLE-TACOMA INTERNATIONAL AIRPORT
ENVIRONMENTAL ASSESSMENT
FOR THE SUSTAINABLE AIRPORT MASTER PLAN NEAR-TERM PROJECTS

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EXHIBIT 1-1: PROPOSED ACTION



Note: NAE = North Airport Expressway; GT = ground transportation; ARFF = aircraft rescue and firefighting



SEATTLE-TACOMA INTERNATIONAL AIRPORT
ENVIRONMENTAL ASSESSMENT
FOR THE SUSTAINABLE AIRPORT MASTER PLAN NEAR-TERM PROJECTS

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1.4 Requested Federal Aviation Administration Actions

The following are the actions or approvals the FAA must make before the Port can implement the Proposed Action, described in Section 1.3.

- Unconditional approval of the ALP to depict those portions of the Proposed Action subject to FAA review and approval pursuant to 49 U.S.C. § 47107(a)(16)(B).
- Approval and construction, installation, and relocation of FAA-owned equipment (including NAVAIDs) and associated infrastructure as well as any resulting flight procedures updates from the relocation of navigational aids.
- Release of federal obligations to use property for non-aeronautical purposes, including any obligations under 49 U.S.C. § 47107, in accordance with FAA Order 5190.6B.
- Approval of changes to the airport certification manual pursuant to 14 CFR Part 139.
- Determination of project eligibility for Airport Improvement Program (AIP) funding in accordance with 49 U.S.C. §§ 47101-47144.
- Determination of project eligibility to impose Passenger Facility Charges in accordance with 49 U.S.C. § 40117.

1.5 Aviation Activity

Forecasts of aviation activity are projections of aircraft operations and passengers for future conditions. They are useful for determining facility needs in the future, as well as for determining environmental impacts in the future. The forecasts prepared as part of the SAMP were completed in 2015 and projected activity through 2034. At the end of the scoping process, the Port initiated and prepared an updated aviation activity forecast in 2019. This forecast was approved by the FAA in January 2020. In March of 2020, the COVID public health emergency resulted in dramatic reductions in passengers and aircraft operations. Due to the reduction in activity between 2020 and 2022, the Port reevaluated the projected passenger and aircraft operations demand for SEA, as well as the opening year for the NTPs. Ultimately in 2022, the Port in collaboration with the FAA, decided to prepare an updated aviation activity forecast (2023 Updated Forecast) to capture the impact of the COVID-19 public health emergency on future passenger and aircraft operations at SEA. The forecast was approved by the FAA in April 2024. (**Appendix A, Forecast and Airport Operational Assumptions**).

Because demand would be constrained with or without the NTPs, the Port also prepared Constrained Operating Growth Scenarios (COGS) using the 2019 forecast as the base forecast that was then modified to reflect the relevant constraints and updated the COGS using the 2023 Updated Forecast. These COGS represent the best projection of how growth would occur over time with and without the NTPs. Therefore, the passenger and aircraft operations from the COGS were used for this EA. The FAA approved the updated COGS (provided in **Appendix A**) for use in this NEPA EA.

Implementation of the NTPs would neither induce regional macro-economic growth nor induce demand for air services to higher levels than expected in the unconstrained forecast. However, the NTPs would increase SEA's ability to accommodate increased aircraft operations and passenger activity at an acceptable level of delay, by adding aircraft gates and passenger processing facilities. As a result, it is assumed that after implementation, the number of aircraft operations and passengers would increase toward the projected unconstrained levels in the 2023 Updated Forecast. This higher growth rate, which is effectively induced demand, is expected to occur for approximately 24 months as airlines adjust their schedules to the additional gate availability. However, it is not anticipated that SEA would be able to accommodate the projected unconstrained aircraft operations and passengers from the 2023 Updated



Forecast, even with the implementation of the NTPs. Therefore, it is assumed that SEA would again experience constrained growth rates after buildout of the NTPs, as airfield and airspace capacity then become the primary constraining factors.

1.6 Purpose & Need

The purpose and need is essential in establishing a basis for the development of reasonable alternatives. **Appendix B, Purpose & Need and Alternatives Supporting Information** provides additional information on the needs.

1.6.1 Purpose and Need Statement

The purpose and need for the Proposed Action is to accommodate 56 MAP (million annual passengers) at an optimal level of service and projected cargo levels; provide airfield infrastructure that meets current FAA airport design standards; enhance the efficiency of the overall taxiway layout; and meet projected fuel storage demand including SAF initiatives. While the NTPs were designed to accommodate 56 MAP at an optimal level of service (LOS)⁴, the COGS shows a higher passenger demand. The Port acknowledges passenger levels above 56 MAP would be served at a lower LOS.

1.6.2 Needs

The Proposed Action addresses five independent needs that affect the future ability of SEA to maintain its essential function as the primary commercial Airport in the Pacific Northwest (see **Table 1-3**). The five needs are:

1. Insufficient passenger processing facilities and gates to accommodate 56 MAP at an optimal LOS.
2. Insufficient facilities to accommodate projected cargo levels.
3. Portions of the airfield no longer meet current FAA airport design standards.
4. Inefficient / inadequate taxiway layout.
5. Lack of fuel storage to meet projected demand and the Port’s SAF initiative.

TABLE 1-3: NEEDS, DEFICIENCIES, AND RESOLUTIONS

Need	Problem	Resolution Needed
Insufficient passenger processing facilities and gates to accommodate 56 MAP at an optimal LOS	Passenger check-in areas do not provide the necessary check-in kiosks nor sufficient space for proper circulation around the kiosks.	Need an additional 54 check-in positions and 28,500 square feet of space (total of 66,200 square feet) to accommodate 56 MAP at an optimal LOS.
Insufficient passenger processing facilities and gates to accommodate 56 MAP at an optimal LOS	Insufficient security screening areas to handle peak passenger volumes in 2022.	Need an additional six screening lanes and 35,100 square feet of space (total of 80,500 square feet) to accommodate 56 MAP at an optimal LOS.

⁴ 56 MAP was identified as a benchmark for what the Airport could serve at an optimal level of service within existing airspace, airfield, and cost constraints. See explanation of “optimal (optimum) level of service” in Advanced Planning Terminal Needs Assessment located in Appendix B.



TABLE 1-3: NEEDS, DEFICIENCIES, AND RESOLUTIONS (CONTINUED)

Needs	Problem	Resolution Needed
Insufficient passenger processing facilities and gates to accommodate 56 MAP at an optimal LOS	Terminal ramp is limited and constrained by adjacent facilities, taxilanes, and taxiways. Additionally, adjacent aircraft parking positions can be affected by the type and size of aircraft being parked at a gate. The terminal ramp can accommodate 88 aircraft.	<ul style="list-style-type: none"> • Need 19 additional aircraft parking positions for 56 MAP. • Need 56,000-69,000 square feet of holdroom space and 43,000-86,000 square feet of circulation space for 19 narrowbody equivalent gates. • Need 35 remote parking positions to accommodate remain overnight (RON) aircraft at 56 MAP.
Insufficient passenger processing facilities and gates to accommodate 56 MAP at an optimal LOS	Existing parking constraints for employees and passengers.	<ul style="list-style-type: none"> • Need 12,440 public parking stalls to accommodate 56 MAP. • Need at least an additional 1,380 employee parking spaces to accommodate future employee parking demand (180 additional terminal garage parking and 1,200 additional remote parking spaces).
Insufficient passenger processing facilities and gates to accommodate 56 MAP at an optimal LOS	Arrival and departure curbsides both experience an overall LOS of F during the peak hour. ⁵	Need at least an additional 100-linear feet of departure curb, 620-linear feet of arrival curb, and one additional lane on the arrival curb to maintain LOS C to accommodate 56 MAP.
Insufficient facilities to accommodate projected cargo levels	Cargo facilities are approaching capacity limits. ⁶	Need up to four additional parking positions ⁷ and an additional 296,100 square feet of cargo warehousing to accommodate the 2032 level of cargo demand. ⁸
Portions of the airfield no longer meet current FAA airport design standards	Blast pads on the ends of Runway 16R/34L are 200 feet by 200 feet.	Need standard blast pads for Runway 16R/34L, which is 220 feet by 400 feet. ⁹
Portions of the airfield no longer meet current FAA airport design standards	Intersection of Taxiway A with Taxiways C and D near the Runway 16L threshold.	Need to meet design standards for taxiway intersections by limiting a pilot to no more than three choices.

⁵ Port of Seattle, Landside Level of Service Analysis, Arrival and Departure Curbside and Roadway LOS (2019).

⁶ As demonstrated by the warehouse utilization and facility requirements calculated in the Air Cargo Growth Potential and Facility Requirements Assessment – Final Report.

⁷ As reported in Appendix A – Aviation Activity Forecast Update, September 2023, Table 6, cargo aircraft operations are forecast to increase by approximately 24% from 2022 (14,851 operations) to 2032 (18,557 operations). A corresponding 24% increased need for cargo parking positions from 18 positions in 2022 results in a need for up to 22 positions in 2032.

⁸ Cargo warehousing space requirements were calculated using Operating Concept #1 as described in SAMP Technical Memorandum No. 5, Facility Requirements, page 5-7. Available for review at:

<https://www.airportprojects.net/sampenvironmentalreview/tm-no-5-facility-requirements/>.

⁹ FAA AC 150/5300-13B, Airport Design, Appendix G, Table G-11. Runway Design Standards Matrix, C/D/E – V, 2022.



TABLE 1-3: NEEDS, DEFICIENCIES, AND RESOLUTIONS (CONTINUED)

Needs	Problem	Resolution Needed
Portions of the airfield no longer meet current FAA airport design standards	Taxiway B has 400 feet of separation from the Runway 16L/34R and operates under a FAA approved Modification of Standards (MOS). Based on the terms of this MOS, any future improvements along Taxiway B must be built to FAA standards.	Need to meet the required separation between the Runway 16L/34R centerline and Taxiway B centerline of 500 feet for any future improvements. ¹⁰
Inefficient/inadequate taxiway layout	A single taxiway (Taxiway B) serves the south end of Runway 16L/34R, which results in a long line of aircraft queuing on Taxiway B during peak departure periods in north flow (departures on Runway 34R). This taxiway layout is inefficient and a contributor to airfield delays.	Need to improve taxiway layout to enhance airfield efficiency and reduce delay.
Inefficient/inadequate taxiway layout	During peak operating periods, the taxiways west of Runway 16C/34C become congested due to a lack of taxiways, holding areas, and taxiways crossing Runway 16C/34C, resulting in delays to taxiing aircraft.	Need to improve taxiway layout to enhance airfield efficiency and reduce delay.
Lack of fuel storage to meet projected demand and the Port's SAF initiative	SEA's fuel storage system has a capacity to hold approximately 17-million-gallons of Jet A fuel. Based on average day peak month operations, the fuel farm has approximately seven days of fuel reserves. ¹¹	<ul style="list-style-type: none"> • Need 22 to 31-million-gallons of fuel capacity to provide approximately 7 to 10 days of fuel reserve, respectively • Need to meet Port goal to power every flight fueled with at least 10 percent SAF.

1.6.3 Purposes

Based on the various deficiencies (needs) discussed previously, the purposes of the Proposed Action are to provide:

- Additional passenger processing facilities and gates to accommodate projected 56 MAP at an optimal LOS.
- Additional cargo facilities to accommodate projected cargo demand.
- Airfield infrastructure to meet current FAA airport design standards.
- Improvements to enhance the efficiency of the overall taxiway layout.
- Additional fuel storage facilities to meet projected demand and the Port's SAF initiative.

¹⁰ FAA AC 150/5300-13B, Airport Design, Appendix G, Table G-12. Runway Design Standards Matrix, C/D/E – VI, 2022.

¹¹ SAMP Technical Memorandum No. 5, Facility Requirements, page 6-2. Available for review at: <https://www.airportprojects.net/sampenvironmentalreview/tm-no-5-facility-requirements/>.