



**COMMISSION  
AGENDA MEMORANDUM**

**Item No.** 8e

**ACTION ITEM**

**Date of Meeting** November 16, 2021

**DATE:** October 15, 2021

**TO:** Stephen P. Metruck, Executive Director

**FROM:** Laurel Dunphy, Director, Aviation Operations  
Wayne Grotheer, Director, Aviation Project Management

**SUBJECT: 2021-2025 Airfield Pavement and Supporting Infrastructure Replacement Program  
(CIP #C800930)**

**Amount of this request:** \$24,000,000

**Total estimated project cost:** \$153,500,000

**ACTION REQUESTED**

Request Commission authorization for the Executive Director to (1) advertise and execute a major works construction contract and (2) include a Project Labor Agreement for the 2022 Airfield Pavement and Supporting Infrastructure Replacement Project, at the Seattle-Tacoma International Airport. This authorization is for \$24,000,000 with a total authorized to date of \$79,195,000 and a previously approved total 2021-2025 program budget of \$153,500,000.

**EXECUTIVE SUMMARY**

The 2021-2025 Airfield Pavement and Supporting Infrastructure Replacement Program is a continuation of the programmatic approach of replacing distressed airfield pavements, joint sealant, and supporting infrastructure at the Airport. With many of the pavements and supporting airfield infrastructure having long exceeded their planned lifespan, a robust pavement and utility infrastructure replacement program is required. It is required to provide safe and efficient conditions for aircraft operations and meet Federal Aviation Administration (FAA) requirements. The 2022 construction project is the second year of the five-year program and focusses on existing assets meeting the three following criteria: (1) exceptionally high age, (2) continual need for repair, and (3) high strategic value to airfield operations.

**JUSTIFICATION**

The Airport has approximately 21,850,000 square feet of runway, taxiway, taxilane, and apron pavement. To comply with the Federal Aviation Administration (FAA) Pavement Management Program requirement, the Airport must complete yearly pavement inspections detailing pavement conditions according to specific FAA criteria.

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These yearly inspections support FAA project funding requests and aid in the development of prioritized work plans. Most airfield pavements included in this project have far exceeded their 20-year design service life and lack the thickness to support the weight and volume of the Airport's aircraft operations; these pavements have become cracked and damaged. Damaged and distressed concrete and asphalt produce loose gravel and rock Foreign Object Debris ("FOD") which is then picked up by vehicle tires or blown by jet engine exhaust and spread across the apron, taxiways and runways. Loose debris then becomes a major hazard when ingested into an aircraft engine, causing significant and costly damage. Boeing estimates that FOD causes an estimated \$4 billion in damage worldwide, to engines and aircraft taken out of service each year.

Replacing distressed pavement and supporting infrastructure on the airfield supports the long-term strategy of the Port's Century Agenda objective to "meet the region's air transportation needs at Seattle-Tacoma International Airport for the next 25 years." The Airport's Pavement Maintenance Management Program maintains the integrity of airfield pavements and enables efficient airport operations.

The 2021-2025 Airfield program was presented at the Airline Airport Affairs Committee (AAAC) meeting in September 2019 and the Majority-In-Interest ballot was approved in January 2020. Design for the entire five-year program was authorized by Commission in October 2019. Construction for the 2021 year of work was authorized in November 2020 and will be completed on-time and under budget this month. This authorization for year 2022 continues the approach of annual Commission authorization for each year's construction.

### ***Diversity in Contracting***

This program includes federally assisted funding that requires the use of the federal Disadvantaged Business Enterprise (DBE) program rules, which includes the setting of DBE goals. The Diversity in Contracting Department, along with project staff, have identified 9% DBE requirements for the 2022 project.

### **DETAILS**

The overall purpose of the 2021-2025 program is to replace distressed and/or damaged pavements on the airfield that will cause FOD in the aircraft operational areas. It also replaces joint seal in areas that are most problematic or where missing; and replaces infrastructure/utilities near pavement work areas or in support of airfield operations. Abandoned fuel line systems and contaminated in-situ soils will also be removed. The work completed in 2021 included a continuation of pavement reconstruction around the South Satellite as well as reconstruction of the Cargo 4 apron. The work in 2022 is detailed below.

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**Scope of Work**

The 2022 project scope includes the following items:

- Work Area N - Portland Cement Concrete Pavement (PCCP) and supporting infrastructure replacement on portions of the ramp and taxiway serving the southeast side of the North Satellite.
- Work Area C – IWS channel drain upgrade and Cargo 2 Taxiway PCCP replacement.
- Work Area B – Replacement of a portion of Taxiway B PCCP; near the intersection of Taxiway S and Taxiway B.
- Work Area H – Installing over height vehicle clearance bar protection system on Perimeter Road leading to RW 16R-34L Approach Lighting System bridge.
- Work Area J - Replacement of PCCP joint sealant materials and pavement markings on portions of Taxiways M, N, P and Q.

The 2022 project will be constructed between April and November 2022. The construction phasing plan was developed to minimize the impacts from construction to airlines and airfield operations. In addition, technical reviews and a Construction Safety Risk Management Panel were conducted in July 2021 with the FAA, Airlines, Ramp Tower, and Airport Operations to identify safety hazards during construction and document mitigations to ensure safe airfield operations during construction. The final report from the Safety Risk Management Panel was approved by the FAA in October 2021.

A project labor agreement was evaluated in collaboration with Port of Seattle Labor Relations and will be used based on the location and complexity of this project and the importance of labor continuity and stability to minimize the operational impacts during construction.

**Schedule**

*Activity*

Construction start	2022 Quarter 2
In-use date	2022 Quarter 4

**Cost Breakdown**

	This Request	Total Project
Design	\$0	\$16,000,000
Construction	\$24,000,000	\$137,500,000
Total	\$24,000,000	\$153,500,000

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**ALTERNATIVES AND IMPLICATIONS CONSIDERED**

**Alternative 1** – Postpone the replacement of the distressed and damaged airfield pavement and supporting infrastructure included in 2022 Scope to 2023 or beyond.

Cost Implications: Increases the total program cost from \$153,500,000 to \$158,540,000. (Postponing the 2022 scope to 2023 will end up postponing the remaining annual airfield pavement replacement scope.)

Pros:

- (1) Reduced capital spending in 2022.
- (2) Less construction impacts to airport/airline operations in 2022.

Cons:

- (1) Continued use of aging and distressed asphalt and concrete pavement increases risk of producing FOD and potentially increased risk of ingestion and aircraft damage.
- (2) Delay in aging concrete replacement pushes full replacement into future, escalating actual cost for the 2021-2025 program by over \$5,000,000.
- (3) Additional disruption to airport/airline operations in 2023 or beyond.
- (4) Deteriorating pavement and infrastructure may cause incidents on the airfield and lead to unplanned disruptions to airfield operations.
- (5) Potential loss of FAA’s AIP Funding (approx. \$8M).

This is not the recommended alternative.

**Alternative 2** – Replace the distressed and damaged airfield pavement and supporting infrastructure in the 2022 Scope and continue the program on schedule for the period 2021 – 2025.

Cost Implications: Keeps project on-schedule to complete within \$153,500,000 budget

Pros:

- (1) Programmatic replacement of aged and distressed pavements and related infrastructures.
- (2) Coordination between resource assets increases efficiencies and minimizes airport and airline operational disruption and impacts during construction.
- (3) Portions of construction are eligible for Federal Funding (approx. \$8M).
- (4) In alignment with FAA’s 5-year Airport Capital Improvement Plan.
- (5) Lower capital spending for the overall 2021-2025 program as compared to Alternative 1.

Cons:

- (1) Earlier capital spending in 2022.

***This is the recommended alternative.***

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**FINANCIAL IMPLICATIONS**

The 2021-2025 Airfield Pavement and Supporting Infrastructure Replacement Program is included in the annual FAA Airport Capital Improvement Program (ACIP) letter for FAA Airport Improvement Program (AIP) Grant funding. The program will receive federal grant funding for eligible items meeting the FAA standards and the anticipated FAA grant reimbursement over the five-year program is \$48 million. In 2021 the estimated grant capture will be \$17.6M with an additional \$8.0 million targeted for the year 2022.

<i>Cost Estimate/Authorization Summary</i>	Capital	Expense	Total
<b>COST ESTIMATE</b>			
Original estimate	\$155,740,000	\$560,000	\$156,300,000
Prior change (transferred to C800483)	(\$2,800,000)	0	(\$2,800,000)
Revised estimate	\$152,940,000	\$560,000	\$153,500,000
<b>AUTHORIZATION</b>			
Previous authorizations	\$55,085,000	\$110,000	\$55,195,000
Current request for authorization	\$23,850,000	\$150,000	\$24,000,000
Total authorizations, including this request	\$78,935,000	\$260,000	\$79,195,000
Remaining amount to be authorized	\$74,005,000	\$300,000	\$74,305,000

***Annual Budget Status and Source of Funds***

This project, C800930 Airfield Pavement and Supporting infrastructure Replacement Program, was included in the 2022-2026 capital budget and plan of finance with a budget of \$152,940. This project has a Majority-In-Interest approval from the airlines in January 2020. The funding sources will be the Airport Development Fund, AIP grants, and revenue bonds.

***Financial Analysis and Summary***

Project cost for analysis	\$153,500,000
Business Unit (BU)	Airfield movement and airfield apron
Effect on business performance (NOI after depreciation)	NOI after depreciation will increase due to inclusion of capital (and operating) costs in airline rate base
IRR/NPV (if relevant)	N/A
CPE Impact	Total project cost CPE of 0.37 in 2026; annual CPE of .05

**ATTACHMENTS TO THIS REQUEST**

1. Presentation slides

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**PREVIOUS COMMISSION ACTIONS OR BRIEFINGS**

- \$295,000 - Seed funds to support 2021 Airfield Pavement and Supporting Infrastructure Replacement Project preliminary design (commission authorization was not required).
- \$16,000,000 - 2021-2025 Airfield Pavement and Supporting Infrastructure Replacement Project design authorized on 10/22/2019.
- (\$2,800,000) - Transferred portion of 2021-2025 APSIRP program (C800930) to 2016-2020 AIP (C800483) program to fund accelerated scope authorized on 5/12/2020
- \$37,900,000 - 2021 Airfield Pavement and supporting Infrastructure Replacement Project construction authorized on 11/10/2020.
- \$3,800,000 - North Runway Protection Zone Culvert construction authorized on 8/10/2021.