



**COMMISSION
AGENDA MEMORANDUM**

Item No. 10d

ACTION ITEM

Date of Meeting November 10, 2020

DATE: October 30, 2020

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: \$37,900,000

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 replacement of distressed pavements and supporting infrastructure for the 2021 portion of the 2021-2025 Airfield Pavement and Supporting Infrastructure Replacement Program at the Seattle-Tacoma International Airport. This construction authorization is for \$37,900,000 for a total authorization to date of \$51,395,000. The total 2021-2025 program cost is \$153,500,000.

EXECUTIVE SUMMARY

An ongoing program of airfield pavement maintenance and replacement is required to provide safe and efficient conditions for aircraft operations and meet FAA requirements; the 2021-2025 Airfield Pavement and Supporting Infrastructure Replacement Program is a continuation of the programmatic approach of replacing distressed airfield pavement (concrete and asphalt), joint sealant, and related and supporting infrastructure at the Airport. The Airport’s Pavement Replacement Management Program supports the FAA mandated Pavement Maintenance Management Program (PMMP), which identifies pavement replacement priorities and is directly related to grant funding. 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.

The 2021 project is the first year of the 2021-2025 Airfield Pavement and Supporting Infrastructure Replacement Program. The pavements and utility infrastructure identified for this 2021 project have been determined by annual pavement inspections and reporting. The scope of the 2021 project focusses on those assets having the three following criteria: (1)

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exceptionally high age, (2) continual need for repair, and (3) high strategic value to airfield operations.

The 2021 project was included in the 2021-2025 capital plan and the funding sources will be the Airport Development Fund, FAA AIP grants, and revenue bonds.

JUSTIFICATION

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

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 to engines and aircraft taken out of service each year.

Previous pavement and utility investments over the last 20 years have focused on the airfield's runway and connecting taxiway system (i.e., the Movement Area). The apron and taxilanes around the terminal areas (i.e., the Non-Movement Area) have been managed through a focus on individual replacement of failed panels. This ad hoc approach does not result in a logical progression of planned investments and is ineligible for federal grant funding.

The 2021-2025 program replaces aging and damaged pavements and utilities with an emphasis on the taxilane centerline areas around the terminals, which receive the highest traffic. This program focuses on strategic assets, combines work to make the most of grant funding, and performs phasing work to reduce airline impacts.

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 Pavement and Supporting Infrastructure Replacement 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 5-year program was

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authorized by Commission in October 2019. As part of the April 2020 Commission study session on the Capital plan, this project was included as a prioritized aviation project accomplishing the stated aviation goals of meeting safety, operational continuity, and critical infrastructure needs, as well as utilizing available federal funding. Additionally, the study session prioritized this project as meeting all four guiding principles: (1) Maximize economic benefit, (2) Ensure high M/WBE utilization, (3) Benefit small business, and (4) Advance environmental protection.

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 9.4% DBE requirements for the 2021 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 in close proximity to pavement work areas or in support of airfield operations. Abandoned fuel line systems and contaminated in-situ soils will also be removed.

Scope of Work for 2021 Project

The 2021 project scope includes the following items:

- Work Area S - Replacement of the Portland Cement Concrete Pavement (PCCP) and supporting infrastructure on the south side of the South Satellite.
- Work Area C - Replacement of PCCP, the adjacent Asphalt Concrete Pavement vehicle service road and supporting infrastructure at Cargo 4.
- Work Area R/T - Replacement of PCCP joint sealant materials along RW 16R/34L, Taxiway T and associated connector taxiways.

The 2021 project will be constructed between April and November 2021. 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 the second quarter of 2020 with the FAA, Airlines, Ramp Tower and Airport Operations to identify safety hazards during construction and documented mitigations to ensure safe airfield operations during construction. The final report from the Safety Risk Management Panel was approved by the FAA in August 2020.

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.

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Schedule for 2021 Project

Activity

Commission construction authorization	2020 Quarter 4
Construction start	2021 Quarter 2
In-use date	2021 Quarter 4

Cost Breakdown

	This Request	Total Project
Design	\$0	\$13,495,000
Construction	\$37,900,000	\$140,005,000
Total	\$37,900,000	\$153,500,000

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Postpone the replacement of the distressed and damaged airfield pavement and supporting infrastructure included in 2021 Scope to 2022 or beyond.

Cost Implications: Increases the total program cost from \$153,500,000 to \$161,100,000. (Postponing the 2021 scope to 2022 will end up postponing the remaining annual scope to the following year or beyond).

Pros:

- (1) Reduced capital spending in 2020 and 2021.
- (2) Less construction impacts to airport/airline operations.

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 \$7,000,000.
- (3) Additional disruption to airport/airline operations in 2022 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.

This is not the recommended alternative.

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Alternative 2 – Replace the distressed and damaged airfield pavement and supporting infrastructure in the 2021 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.
- (4) In alignment with FAA’s 5-year ACIP.
- (5) Lower capital spending for the overall 2021-2025 program as compared to Alternative 1.
- (6) Takes advantage of the anticipated lower operations in 2021 as compared to 2022 or beyond.

Cons:

- (1) Earlier capital spending in 2020 and 2021.

This is the recommended alternative.

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 life of the program is \$45,000,000 with \$12,700,000 targeted for the year 2021.

<i>Cost Estimate/Authorization Summary</i>	Capital	Expense	Total
COST ESTIMATE			
Original estimate	\$156,300,000	\$0	\$156,300,000
Prior change (transferred to C800483)	(2,800,000)		(2,800,000)
Revised estimate	153,500,000	0	153,500,000
AUTHORIZATION			
Previous authorizations	16,295,000	0	0
Authorization Adjustment (transferred from C800930 to C800483)	(2,800,000)		(\$2,800,000)
Current request for authorization	37,900,000	0	37,900,000
Total authorizations, including this request	51,395,000	0	51,395,000
Remaining amount to be authorized	\$102,105,000	\$0	\$102,105,000

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Annual Budget Status and Source of Funds

This project C800930 Airfield Pavement Program was included in the 2020-2024 capital budget and plan of finance with a budget of \$156,300,000. A budget reduction of \$2,800,000 was transferred to the Airfield Pavement Program 2016-2020 (C800483) to accelerate pavement and supporting infrastructure work to take advantage of the lower operations in 2020. There was zero net change to the Aviation capital budget. This project has a Majority-In-Interest 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 0.41 in 2026; annual CPE of .07

ADDITIONAL BACKGROUND

Previous five-year pavement replacement programs have focused on individual panel repairs and replacement – all as part of the required pavement management program – but did not serve as a holistic program for maintaining the overall airfield pavement system. Previous program projects have not been covered by federal grant funding. Age has caught up with Airport pavement and a more robust pavement replacement is now required above and beyond individual panel repair and replacement. Extensive review and identification of the 2021-2025 Airfield Pavement and Supporting Infrastructure Replacement Program is in alignment with and is included in the FAA’s five-year ACIP look ahead program.

ATTACHMENTS TO THIS REQUEST

- (1) Presentation slides

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

October 22, 2019 – The Commission authorized the Executive Director to authorize design and preparation of construction documents for the 2021-2025 Airfield Pavement and Supporting Infrastructure Replacement Projects at the Seattle-Tacoma International Airport in the amount of \$16,000,000 and approve the use of a project labor agreement (PLA) for each year’s construction contract. The use of a PLA will be subject to approval by the Federal Aviation Administration (FAA) for work receiving federal funding.