



**COMMISSION
AGENDA MEMORANDUM**

Item No. 6c

ACTION ITEM

Date of Meeting October 22, 2019

DATE: October 14, 2019

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: \$ 16,000,000

Total estimated project cost: \$156,300,000

ACTION REQUESTED

Request Commission authorization for 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.

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, 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 pavements and utility infrastructure identified for this 2021-2025 Capital Improvement Program (CIP) have been determined by annual pavement inspections and reporting. While this program is not inclusive of all distressed airfield pavements and infrastructure, the scope of the program focusses on those assets having the three following criteria: (1) exceptionally high age, (2) continual need for repair, and (3) high strategic value to airfield operations.

Meeting Date: October 22, 2019

This program is included in the annual FAA Airport Capital Improvement Program (ACIP) letter for FAA Airport Improvement Program (AIP) Grant funding. Moving forward, this replacement program is set to continue to align with the rolling 5-year FAA ACIP to utilize available federal funds. To better align with both FAA grant schedules and to plan and execute the work efficiently we are requesting full 2021-2025 CIP program design authorization. Yearly construction design phases, significantly overlap the preceding year's construction contracts. Full design authorization allows each year's project to move forward meeting FAA grant required schedule milestones and to do programmatic level planning for airfield operational impacts. Yearly issuance of construction contracts, will still receive separate authorizations from Commission.

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 proposed CIP are 40 to 50 years old and 14 to 16 inches thick; much thinner than the 20- to 22-inch standard used in the current airfield pavements at the Airport. Having far exceeded their 20-year design service life and lacking the thickness to support the weight and growing volume of the Airport's current aircraft operations, these pavements have become cracked and damaged.

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.

This proposed CIP will focus on comprehensive replacements of 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 will perform phasing work in advance to reduce airline impacts.

Diversity in Contracting

One of the Century Agenda goals is to use the Port's influence as an institution to promote small business growth and workforce development. 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.

Meeting Date: October 22, 2019

The Port’s Diversity in Contracting program will support minority and women business enterprise (MWBE) for specific projects, where federal funding is not applied.

DETAILS

The overall purpose of this program is to replace distressed and/or damaged pavements on the airfield that will cause Foreign Object Debris (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.

Scope of Work

Each year of work will include pavement replacement of apron and/or keel sections, joint reconstruction, replacement and repair of miscellaneous infrastructure/utilities within the footprint and close to pavement, or in support of airfield operations. Where operationally necessary, a limited number of individual damaged concrete panels will be replaced with Quick Setting High Early Strength Concrete, which is not eligible for federal funding. Some scope items or the schedule may change based on the continued aging of the airfield infrastructure and the need to prioritize replacements of failing infrastructure. Yearly issuance of construction contracts will receive separate authorizations from Commission.

Project Scope:

- Replace portions of damaged pavements in the taxilanes and taxiways serving gates at the Satellites and Concourses
- Replace pavements in cargo apron areas
- Replace failing and aging airfield utilities and related airfield infrastructure
- Extend an airfield electrical power ductbank
- Perform airfield compliance upgrades to runway and taxiway systems
- Replace various runway, taxiway and taxilane joint seal

Schedule

2021:

FAA Pre-Design Conference	2020 Quarter 1
Construction Authorization	2020 Quarter 4
Contract Execution	2021 Quarter 1
Construction Start	2021 Quarter 1
In-use Date	2021 Quarter 4

Meeting Date: October 22, 2019

2022:

FAA Pre-Design Conference	2021 Quarter 1
Construction Authorization	2021 Quarter 4
Contract Execution	2022 Quarter 1
Construction Start	2022 Quarter 1
In-use Date	2022 Quarter 4

2023 – 2025: Follows above scheduling format meeting FAA Grant milestone time frames.

Cost Breakdown	This Request	Total Program
Design	\$16,000,000	\$16,000,000
Construction	\$0	\$140,300,000
Total	\$16,000,000	\$156,300,000

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Only replace individual damaged concrete panels on taxiway, taxilanes and runways.

Cost Implications: Average number of panels = 50 per year; Cost in 2021: \$7,700,000

Pros:

- (1) Reduced capital spending in the short term.
- (2) Meets minimum Pavement Management Program requirements.
- (3) Replacement of damaged panels helps to reduce Foreign Object Debris (FOD) safety hazards.
- (4) Less prolonged construction impact 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.
- (3) No federal funding for maintenance work.
- (4) Scope of work is uncertain and needs to be determined each year.
- (5) Return each year for both design and construction authorization.
- (6) Cost to escalate 5 percent per year.

This is not the recommended alternative.

Alternative 2 – Reduce this CIP to pavement only – supporting infrastructure becomes an independent CIP.

Cost Implications: \$114,200,000

Meeting Date: October 22, 2019

Pros:

- (1) Reduced pavement CIP budget.
- (2) Pavement replacement portions already identified.
- (3) Portions of construction are eligible for federal funding.
- (4) In alignment with FAA’s 5-year ACIP.

Cons:

- (1) Loss of synergy and coordination between airfield resources.
- (2) Increased airport/airlines operational impacts with repeated closure of areas for construction.
- (3) Infrastructure CIP cost would be more than \$42,100,000 due to the loss of synergies between the programs.

This is not the recommended alternative.

Alternative 3 – Replace distressed and damaged airfield pavement and supporting infrastructure for program period 2021 – 2025.

Cost Implications: \$156,300,000

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) Full program design authorization supports the Port’s LEAN objectives by reducing both time and document preparation for repeat design authorizations.

Cons:

- (1) Higher capital spending.
- (2) Airport/Airline operational impacts during construction.

This is the recommended alternative.

FINANCIAL IMPLICATIONS

Total CIP estimate includes: construction bid estimate, design development allowance, escalation, construction contingency, sales tax, maintenance and Port construction support, soft costs, and project contingency.

The anticipated FAA grant reimbursement as detailed in the 2019 FAA ACIP is \$49,400,000. The pavement and utilities construction if packaged together as proposed by this program will have an approximate FAA eligible cost of up to \$81,000,000, should additional FAA grant funding become available.

Meeting Date: October 22, 2019

FAA eligible items are limited to bid items meeting FAA specifications within discernible, previously identified apron and taxiway replacements. It excludes maintenance and repair, individual panel replacements, force account, change orders, rapid-set, stand-alone utility replacement, contingency, and sales tax.

Cost Estimate/Authorization Summary

	Capital	Expense	Total
COST ESTIMATE			
Original estimate	\$72,649,000	\$0	\$72,649,000
Previous changes – net CIP transfers	(\$15,200,000)	0	(\$15,200,000)
Current change	\$98,851,000	0	\$98,851,000
Revised estimate	\$156,300,000	0	\$156,300,000
AUTHORIZATION			
Previous authorizations	\$295,000	0	\$295,000
Current request for authorization	\$16,000,000	0	\$16,000,000
Total authorizations, including this request	\$16,295,000	0	\$16,295,000
Remaining amount to be authorized	\$140,005,000	\$0	\$140,005,000

Annual Budget Status and Source of Funds

This project C800930 Airfield Pavement Program was included in the 2019-2023 capital plan with a cost estimate of \$72,649,000. The revised estimate includes the overall airfield pavement and support infrastructure program. The cost increase has been transferred from the Aeronautical Reserve CIP (C800753); resulting in no net change to the Aviation capital budget. The funding sources will be the Airport Development Fund, AIP grants, and revenue bonds. The cost-per-enplanement calculation below assumes \$49.4 million in AIP grants.

Financial Analysis and Summary

Project cost for analysis	\$156,3000,000
Business Unit (BU)	Airfield Movement Area and Airfield Apron Area
Effect on business performance (NOI after depreciation)	NOI after depreciation will increase
IRR/NPV (if relevant)	N/A
CPE Impact	Approximately \$0.07 annually, or \$0.36 total by 2026

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

Meeting Date: October 22, 2019

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 has been submitted to the FAA's five-year ACIP look ahead program.

ATTACHMENTS TO THIS REQUEST

- (1) Presentation slides

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

2016-2020 Pavement Replacement Program

October 9, 2018 – The Commission authorized design funds for construction documents for replacement of distressed pavement and related utilities in the 2019 portion of the 2016-2020 Airfield Pavement Program.

November 14, 2017 – The Commission authorized advertisement and execution of a single construction contract which included the 2018 Airfield Pavement Replacement as part of the 2018 Taxiway Improvement Projects and approved non-use of PLA.

May 9, 2017 – The Commission authorized design funds for construction documents for replacement of distressed pavement and joint sealant replacement in the 2018 portion of the 2016-2020 Airfield Pavement Program, and approved use of PLA.

October 25, 2016 – The Commission authorized advertisement and execution of contract for retrofits of 400 Hz In-ground power units and reconstruction of existing pavement at Cargo 2.

February 24, 2015 – The Commission authorized design funds for construction documents, for replacement of distressed pavement and joint seal in the 2016 portion of the 2016-2020 Pavement Program.