COMMISSION
AGENDA MEMORANDUM Item No. 8c
ACTION ITEM Date of Meeting March 26, 2024

DATE: March 19, 2024
TO: Stephen P. Metruck, Executive Director
FROM: Mike Tasker, Director, Aviation Maintenance
Eileen Francisco, Director, Aviation Project Management
SUBJECT: Public Safety Distributed Antenna System (DAS) Upgrade (CIP #C801238)-Design & Construction Authorization
Amount of this request: $10,976,000
Total estimated project cost: $11,226,000
ACTION REQUESTED
Request Commission authorization for the Executive Director to (1) authorize design and preparation of construction bid documents for the Public Safety Distributed Antenna System Upgrade project, (2) advertise, bid, and execute a major works construction contract, execute related project change orders, amendments, work authorizations, purchases, contracts, and take other actions necessary to support and deliver the Distributed Antenna System project within the approved budget, (3) authorize use of Port of Seattle crews to support the design and construction activities, (4) increase the project authorization by $10,976,000 for a total project cost estimated at $11,226,000.
EXECUTIVE SUMMARY
The Distributed Antenna System (DAS) supplies in-building public safety and critical radio coverage to first responders and mission/business-critical responders operating at the SeaTac International Airport at locations where the outdoor radio signals cannot penetrate dense belowground structures. It contains 12 Bi-Directional Amplifiers (BDAs) that augment coverage to areas throughout SeaTac International Airport, including all terminals, FAA tower, Rental Car Facility, and underground pathways connecting these locations. The DAS legacy equipment has reached end of useful life, and its infrastructure needs to be upgraded to mitigate potential loss of public safety and critical communication due to equipment failure.
JUSTIFICATION
During the notebook and planning phase of this project, a comprehensive study was prepared to survey the scope of work, coordinate with the Authority Having Jurisdiction (AHJ), permitting officials, stakeholders, and system experts to prepare scoping narrative and design

recommendation reports. This study found many additions to the scope of work required to be compliant with the new fire codes NFPA-72 & 1225 and Rules of Airport Construction (RAC). The project is also required to conduct wireless coverage testing to determine current system deficiencies. This represents a substantial increase in the project scope and budget compared to the original preliminary estimated budget of $5.6M. The original Status 2 document was preliminary in nature and the project scope was not based on the field investigation or system condition. Increase in the project scope of work, cost escalation, and inflation have resulted in an increase to the budget estimate which is now $11.2M. Airport leadership approved the additional scope of work and budget in Q4, 2023.
The project will replace aging infrastructure and provide 15+ years of useful life for the associated active hardware, and 25+ years useful life for the associated passive infrastructure. Failure of any equipment can result in loss of radio coverage impacting life-safety and emergency communication. The DAS will be upgraded to a digital and modular design which will carry multiple range of frequencies such as Port public safety and mission critical 700/800 MHz spectrum, Very High Frequency (VHF) spectrum used by Customs and Border Protection (CBP) and Federal Bureau of Investigation (FBI), support Long Term Evolution (LTE) and nationwide public safety broadband FirstNet Band 14.
Diversity in Contracting
Women & Minority Business Enterprises (WMBE) aspirational goal for the design service directive is 10%. WMBE construction aspirational goal will be established, post design efforts.
DETAILS

The tables below provide a breakdown of the requested increase in budget.
Description Original Budget New Budget Total Change
(Status 2)
Design $2,360,000 $4,270,000 $1,910,000
Construction $3,240,000 $6,956,000 $3,716,000
Total Estimated Cost $5,600,000 $11,226,000 $5,626,000

Scope of Work
The project occurs throughout the SeaTac International Airport, including all terminals, FAA tower, Rental Car Facility, and underground pathways connecting these locations.
The key elements of project's scope of work include, but are not limited to, the following:
(1) Replacement of existing 12 BDAs and associated components with digital and modern equipment.
(2) 2-hr fire rated home run fiber optic cabling for each BDA.

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(3) Coverage testing to evaluate wireless coverage.
(4) Replacement of distribution equipment and cabling.
(5) Additional redundant cabling and hardware to improve reliability.
(6) Modularity and expandability for future additions.
(7) Compliance with applicable codes, standards, and AHJ requirements.
(8) Integration with the fire alarm system, a separate monitoring system, and dispatch system.
(9) Possible improvements to spaces where equipment is deployed to ensure appropriate fire rating and protection of those spaces.
Schedule
Activity
Design start 2024 Quarter 4
Construction start 2026 Quarter 2
In-use date 2027 Quarter 4
Cost Breakdown This Request Total Project
Design $4,020,000 $4,270,000
Construction $6,956,000 $6,956,000
Total $10,976,000 $11,226,000
ALTERNATIVES AND IMPLICATIONS CONSIDERED
Alternative 1 – Status Quo. Do not proceed with the project.
Cost Implications: Expenses incurred for project notebook development and planning - $200,000 will need to be expensed.
Pros:
(1) Capital investment won't be required.
Cons:
(1) Increases the risk of failure of any equipment which can result in loss of radio coverage impacting life-safety and emergency communications.
(2) The DAS will not be compliant with the new fire codes NFPA-72 & 1225 and RAC.
(3) The DAS will not have redundant cabling and equipment and will rely on a single feeder.
This is not the recommended alternative.
Alternative 2 – Proceed with the additional scope of work and budget.
Cost Implications: Capital investment of $11,226,000.
Pros:
(1) The DAS will be compliant with the new fire codes NFPA-72 & 1225 and RAC.
(2) Wireless testing will be performed to analyze and improve the reliability of the system.
(3) The DAS will be redundant in cabling and hardware.

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(4) The DAS will be continuously monitored after integration to the monitoring and dispatch system.
(5) The DAS equipment will be replaced to a modular and digital design along with the

ability to carry multiple range of frequencies.
Cons:
(1) High capital cost.
This is the recommended alternative.
FINANCIAL IMPLICATIONS
Cost Estimate/Authorization Summary Capital Expense Total
COST ESTIMATE
Original estimate (Status 2) $5,600,000 $0 $5,600,000
Current change $5,626,000 0 $5,626,000
Revised estimate $11,226,000 0 $11,226,000
AUTHORIZATION
Previous authorizations $250,000 0 $250,000
Current request for authorization $10,976,000 0 $10,976,000
Total authorizations, including this request $11,226,000 0 $11,226,000
Remaining amount to be authorized $0 $0 $0
Annual Budget Status and Source of Funds
Public Safety Distributed Antenna System (DAS) Upgrade CIP #C801238 is included in the 2024-2028 capital budget and plan of finance with a budget of $5,600,000. The capital budget increase of $5,626,000 will be transferred from the Aeronautical Allowance CIP #C800753 resulting in no net change to the Airport capital budget. The funding sources will be the Airport Development Fund and future revenue bonds.
Financial Analysis and Summary
Project cost for analysis $11,226,000
Business Unit (BU) Terminal Building
Effect on business performance NOI after depreciation will increase due to inclusion of
(NOI after depreciation) capital (and operating) costs in airline rate base.
IRR/NPV (if relevant) N/A
CPE Impact $0.03 in 2028
Future Revenues and Expenses (Total cost of ownership)
The scope of the project is to replace existing equipment which is beyond useful life and not to introduce any additional assets. Replacement of the equipment will require a similar level of maintenance; therefore, Aviation Maintenance anticipates a negligible or no impact on future

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operating and maintenance costs for the electronic technicians group as the equipment will be pre-programmed. Any potential impact will be absorbed by radio-trained technicians. Utilizing new electronic equipment will result in energy efficiency as compared to old analog amplifiers.
ADDITIONAL BACKGROUND
A Concourse Extension for Delta Lounges project is expected to expand the public safety DAS system in the A concourse by installing new DAS equipment similar to this DAS Upgrade project. The DAS Upgrade project should coordinate with A Concourse Extension for Delta Lounges project for system & network architecture and integration.
ATTACHMENTS TO THIS REQUEST
(1) Presentation slides
PREVIOUS COMMISSION ACTIONS OR BRIEFINGS
N/A

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