



**COMMISSION
AGENDA MEMORANDUM**

Item No. 8d

ACTION ITEM

Date of Meeting January 4, 2022

DATE: December 10, 2021

TO: Stephen P. Metruck, Executive Director

FROM: Eileen Francisco, Interim Director, Aviation Facilities & Capital Programs
Wayne Grotheer, Director Aviation Project Management Group

SUBJECT: Chiller Control Panel Upgrade Project Phase 2 (C801181) – Project Approval

Amount of this request: \$1,258,000

Total estimated project cost: \$1,288,000

ACTION REQUESTED

Request Commission authorization for the Executive Director to (1) prepare design and construction bid documents for the Chiller Panel Upgrade project phase 2 at Seattle-Tacoma International Airport (STIA), and (2) develop, advertise, and execute a Public Works Building Engineering Systems Contract to replace chiller control panels in the Central Mechanical Plant. The amount of this request is \$1,258,000 for a total estimated project cost of \$1,288,000.

EXECUTIVE SUMMARY

The reliable operation of the Central Mechanical Plant (CMP) is essential for passenger comfort and Sea-Tac Airport operations. This project ensures operational integrity of the CMP through the removal and replacement of the integrated control panels for five chiller units in the CMP. The control panels for the five chillers are at the end of their useful life and are no longer manufactured. If the control panels fail, the result is the chiller not being operable, reducing chilling capacity and placing the Airport at risk of loss of essential facility cooling including terminal, tenant, office areas, electrical, data and communication rooms, and all aircraft cooling through the preconditioned air system. This upgrade will replace the integrated control panels at the chiller, as well as any necessary hardware to maintain the existing interfaces to the Building Automation System (BAS) Direct Digital Controls (DDC), and to the chiller starters located remotely in the electrical room.

JUSTIFICATION

The reliable operation of the CMP is essential for passenger comfort and Sea-Tac Airport operations. This project ensures operational integrity of the CMP through the removal and replacement of the integrated control panels for 5 chiller units in the CMP. If one or more chiller panels fail, the airport chilling capacity will be reduced greatly for the summer season.

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Diversity in Contracting

Project staff is engaged with Diversity in Contracting and is collaborating on a cohesive plan to establish women and minority owned business enterprise (WMBE) aspirational goals and inclusion plan.

DETAILS

In the central mechanical plant, replace and upgrade the chiller control panels on chillers 1, 2, 5, 6, and 8 with an updated visual control screen that will match chillers 3, 4, and 7 that were upgraded in phase 1 of this project in 2019 under a separate CIP. The existing chiller control panels are no longer manufactured and if they fail the chillers will not operate and provide cooling to the airport terminal. The chiller control panel interfaces between the chiller, starter, motor, oil system, compressor, and the building automation system to achieve the cooling process required by the airport terminal. The 5 chillers each produce 1500 to 2,100 tons of cooling and together represent 55% of the cooling capacity in the central plant. This upgrade will replace the integrated control panels at each chiller as well as any necessary hardware to maintain the existing interfaces to the building automation system and the chiller starters located remotely in the electrical room. The new control panels will provide an updated visual control screen, more reliability, updated software, and utilize parts that are readily available for future service issues.

Scope of Work

Replace and upgrade the chiller control panels on chillers 1, 2, 5, 6, and 8. Replace hardware to maintain the existing interfaces to the BAS, and to the chiller starters located remotely in the electrical room. Add conduit, wire, fiber, and programming required to achieve the replacement of the panel and interface to the electrical starters and BAS. Commission each of the 5 chillers at the component, equipment, and then systems level to ensure each chiller operates independently and in concert with the others to achieve the airport terminal cooling requirements.

Schedule

The proposed schedule is to complete this project in Q3 2022.

Activity

Design start	2022 Quarter 1
Commission construction authorization	2022 Quarter 1
Construction start	2022 Quarter 2
In-use date	2022 Quarter 3

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Cost Breakdown

	This Request	Total Project
Design	\$344,000	\$374,000
Construction	\$871,000	\$871,000
Total	\$1,258,000	\$1,288,000

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Do not perform the Chiller Upgrade.

Cost Implications: \$30,000 of funding gets expensed

Pros:

- (1) None

Cons:

- (1) Project will cost more in the future when infrastructure fails.
- (2) Infrastructure providing terminal cooling is at risk of failing.

This is not the recommended alternative.

Alternative 2 – Complete the project as proposed.

Cost Implications: \$1,288,000

Pros:

- (1) Fastest option for accomplishing the project

Cons:

- (1) None

This is the recommended alternative.

FINANCIAL IMPLICATIONS

Cost Estimate/Authorization Summary

	Capital	Expense	Total
COST ESTIMATE			
Original estimate	\$1,288,000	\$0	\$1,288,000
AUTHORIZATION			
Previous authorizations	\$30,000	0	0
Current request for authorization	\$1,258,000	0	\$1,258,000
Total authorizations, including this request	\$1,288,000	0	\$1,288,000
Remaining amount to be authorized	\$0	\$0	\$0

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Annual Budget Status and Source of Funds

This project, CIP C801181, was included in the 2022-2026 capital budget and plan of finance with a budget of \$1,288,000. The funding source will be the Airport Development Fund.

Financial Analysis and Summary

Project cost for analysis	\$1,288,000
Business Unit (BU)	Terminal Building
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	Less than \$.01 in 2023

Future Revenues and Expenses (Total cost of ownership)

This project ensures the asset life of the chillers is realized. There is no anticipated increase to Operations and Maintenance costs for this project.

ATTACHMENTS TO THIS REQUEST

None

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

January 2, 2017, Commission approval for C800811 Chiller Panel Upgrade Project