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COMMISSION

AGENDA MEMORANDUM Item No. 8d

ACTION ITEM Date of Meeting January 24, 2023

DATE: January 06, 2023

TO: Stephen P. Metruck, Executive Director

FROM: Dan Berry, AV Facilities and Infrastructure Engineer

Keri Stephens, Director Aviation Facilities and Capital Programs

SUBJECT: Legacy Baggage System Upper-Level Control Upgrade C801351

Amount of this request: \$1,139,360.00

Total estimated project cost: \$1,139,360.00

ACTION REQUESTED

Request Commission authorization for the Executive Director to proceed with the purchase and installation of software and hardware upgrades for A Concourse, D Concourse, and North Satellite Legacy Baggage System (C60 and C88) upper-level controls at Seattle-Tacoma International Airport. This single authorization is for \$1,139,360.00.

EXECUTIVE SUMMARY

The upper-level controls for the C60 and C88 Baggage Handling System (BHS) were installed with several projects beginning with the South Terminal Expansion Project in 2001 and have been upgraded through the years, most recently in 2014. The control system is used to manage and direct the distribution of passenger baggage through the airport, as well as generate reports, alarms, and interface with airlines and Transportation Security Administration (TSA) screening systems. Recent failures have caused extended loss of baggage sortation, leading to significant impacts to the operations of the Port of Seattle, our airline partners, and the passengers. The failures have resulted in BHS delays, delayed flights, lost baggage, and strained resources for the Port and airlines. The reliability of the systems has been impacted by necessary changes to support capital projects in construction. The existing upper-level control system software possesses components that are no longer supported and present a significant risk of failure, and security vulnerabilities in software that interacts with TSA Screening systems. Port staff recommends procuring and installing the upper-level controls system with a resilient software and hardware upgrade to mitigate security risk and controls failures. The delivery of this request will improve stability, security, and extend the useful life of the upper-level controls of C60 and C88 baggage systems.

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This upgrade will support the Century Agenda Goals to position the Puget Sound region as a premier international logistics hub and advance this region as a leading tourism destination and business gateway. Unfortunately, the severity of the issues being faced were not identified in time for the 2023 budget approvals and funding was not requested. Due to the high risk of probability and severity of impact to operations and security, performing the upgrades now will ensure the Port of Seattle's BHS resilience and the ability to operate these systems effectively and securely.

JUSTIFICATION

The upgrade provides a timely response to existing baggage security concerns, ensures the needed resilience for airport baggage operations, and extends the useful life of the upper-level baggage control system.

The C60 and C88 BHS upper-level upgrade will significantly improve the reliability of the system, resulting in a more robust infrastructure that airlines can rely on and decrease operational impacts. It also creates a more secure operating environment, reducing existing vulnerabilities using modern and supported software in a system that is robust to keep the airport operating securely and efficiently. The upgrade extends the useful life of the C60 and C88 BHS upperlevel control system and allows the Port of Seattle the time to appropriately plan for the future of the BHS control systems without the pressure of imminent failure.

Brock Solutions has a current Sole Source agreement in place to allow them to move forward quickly on the necessary work.

This project will help support the following Century Agenda Goals:

- (1) Position the Puget Sound region as a premier international logistics hub.
- (2) Advance this region as a leading tourism destination and business gateway.

#### Diversity in Contracting

This upgrade is required to be completed by our vendor, Brock Solutions, through their existing sole source agreement.

#### DETAILS

The upper-level controls for the C60 and C88 BHS is used to manage and control the distribution of baggage for airline partners through the facility, as well as generate reports, alarms, and interface with airline and TSA screening systems. Recent failures in these systems have led to the loss of sortation capabilities for several hours at a time. This causes significant impacts to the operations of the Port of Seattle and our airline partners, ultimately resulting in missed baggage, delayed flights, and strained resources. The failures have occurred more frequently as time goes on.

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Through investigation and analysis, the causes of BHS failures stem from multiple sources. The stability of the systems has been impacted by necessary changes to support capital projects in construction. The system is reliant on several pieces of software that are no longer actively supported by their vendors and now present a significant risk of failure, as well as security concerns of potential exploitable vulnerabilities in software that interacts with TSA Screening systems. Current Information and Communication Technology (ICT) guidance strongly advises against using unsupported software, and the critical nature of these systems is a risk multiplier. Due to the future actions of ongoing capital projects, the substantial majority of the controls systems impacted in this upgrade will be replaced within the next three years. Upon completion of the ongoing capital projects there will still be critical components of the targeted upper-level control infrastructure in place and the existing risks remain if upgrades are not completed. The proposed upgrade is required to alleviate the dependency on unsupported software, to improve stability and security of the upper-level controls, and to extend the useful life for the current system as well as the portion that will remain beyond completion of the capital projects. It is not believed that the system in its current state can survive through the remainder of the capital projects without producing significant harmful failures and operational complications.

This project involves upgrading multiple Brock Solutions upper-level control systems in the BHS including Sort Allocation Controllers (SAC), Data Historian Server (DHS), Manual Encode Console (MEC), the SmartSuite Web Client (MIS), and Programmable Logic Controllers (PLCs) that communicate to within the overall BHS network. Total project costs are estimated to be \$1,139,360.00. All recurring hardware and software license and maintenance costs will be budgeted within the Aviation Maintenance department's operating budget.

#### Scope of Work

The Scope of work per system is as follows:

- (1) Documentation - Functional Specification and Manual Updates or replacements as required.
- (2) Refresh of existing Manual Encode Console (MEC) software - Utilizes existing equipment.
- (3) Refresh of existing Baggage Status Displays (BSD) software - New Contecs Provided.
- (4) PLC Programming - Added Communications to Brock Upper-Level Controls System to match latest standard SmartSort messaging format.
- (5) Integration of Flight Information Departure System (FIDS) to the SmartSort system - Connection to the existing FIDS feed.
- (6) Development, testing and Implementation of Upgraded Upper-Level Controls System.
- (7) Factory Acceptance Test (remote FAT w/ attendance by Port Staff).
- (8) Commissioning.
- (9) Training - 40 Hours for span of project.
- (10) On Site Standby (post go-live support) - 10 Days per SmartSort system.

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#### Schedule

Activity

Commission authorization 2022 Quarter 4

Procurement complete 2023 Quarter 1

Implementation start 2023 Quarter 2

In-use date 2023 Quarter 3

Cost Breakdown This Request Total Project

Engineering \$782,520 \$782,520

FIDS integration \$21,600 \$21,600

Hardware and Software \$100,000 \$100,000

Travel and Expenses \$85,240 \$85,240

Contingency \$150,000 \$150,000

Total \$1,139,360 \$1,139,360

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Three alternatives are considered in detail below summarizing the key cost implications and potential advantages and disadvantages of each. Option 3 maintains integrity and resilience for the BHS controls while integrating into a larger airport-wide BHS control strategy and infrastructure vision plan.

Alternative 1 – Airport-wide replacement of the entire control system with a vendor selected through the competitive procurement process.

Cost Implications: Projections more than \$20M have been discussed with the Project Management Team

Pros:

- (1) Airport-wide replacement would replace the entire controls asset for the BHS.
- (2) Standardizes the multiple existing upper and lower-level controls into a single controls system.
- (3) Risk of massive failure of BHS controls minimized.
- (4) Security risks are mitigated.

Cons:

- (1) Airport-wide replacement costs are high.
  - (2) Schedule of implementation is significantly longer resulting in additional time risk of reliance upon the existing compromised system.
  - (3) Replacement would interfere and replace work being completed by other ongoing capital projects.
  - (4) Option does not fit into BHS vision plan.
- This is not the recommended alternative.

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Alternative 2 – Full reconrol of C60 and C88 control system with a vendor selected through the competitive procurement process.

Cost Implications: Projections more than \$10M have been discussed with the Project Management Team

Pros:

- (1) Replacement would replace the entire controls asset for the C60 and C88 BHS.
- (2) Risk of massive failure of BHS controls minimized.
- (3) Security risks are mitigated.

Cons:

- (1) Schedule of implementation is significantly longer resulting in additional time risk of reliance upon the existing compromised system.
  - (2) Replacement would interfere and replace work being completed by other ongoing capital projects.
  - (3) Option does not fit into BHS vision plan.
- This is not the recommended alternative.

Alternative 3 – Use the existing vendor Brock Solutions to upgrade the system.

Cost Implications: \$1,139,360.00

Pros:

- (1) Provides a timely response to existing security concerns.
- (2) Ensures the needed resilience for airport baggage operations.
- (3) Extends the useful life of the system.

Cons:

(1) Solution is not airport-wide and long term.

This is the recommended alternative.

**FINANCIAL IMPLICATIONS**

Cost Estimate/Authorization Summary Capital Expense Total

**COST ESTIMATE**

Original estimate \$1,139,360 0 \$1,139,360

**AUTHORIZATION**

Previous authorizations 0 0 0

Current request for authorization \$1,139,360 0 \$1,139,360

Total authorizations, including this request \$1,139,360 0 \$1,139,360

Remaining amount to be authorized \$0 \$0 \$0

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Annual Budget Status and Source of Funds

This project C801351 was not included in the 2023-2027 capital budget and plan of finance. The capital budget was transferred from the Aeronautical Allowance CIP C800753 resulting in the no net change to the Airport capital budget. The funding source would be the airport development fund.

Financial Analysis and Summary

Project cost for analysis \$1,139,360

Business Unit (BU) Baggage

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 \$0.05 in 2023

Future Revenues and Expenses (Total cost of ownership)

There will be no changes to annual maintenance costs resulting from this upgrade. All maintenance will be covered by the existing maintenance agreement with Brock Solutions.

**ATTACHMENTS TO THIS REQUEST**

(1) Presentation slides

**PREVIOUS COMMISSION ACTIONS OR BRIEFINGS**

None.

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