



**COMMISSION
AGENDA MEMORANDUM**

Item No. 6d

ACTION ITEM

Date of Meeting September 8, 2020

DATE: August 17, 2020

TO: Stephen P. Metruck, Executive Director

FROM: Tina Soike, Chief Engineering Director, Engineering Services
Janice Zahn, Assistant Engineering Director, Construction Services

SUBJECT: South Satellite (SSAT) Infrastructure Upgrade (CIP #C800798) Change Order Over \$300,000

Amount of this request: \$0
Total estimated project cost: \$52,232,000

ACTION REQUESTED

Request Commission authorization for the Executive Director to execute a Change Order to Contract MC-0319530 South Satellite Infrastructure Upgrade for repair, replacement and modifications to the heating hot water circulating pumps at the South Satellite (SSAT), Seattle-Tacoma International Airport for an estimated amount up to \$600,000.00.

EXECUTIVE SUMMARY

This change order will replace the existing 50-year-old constant volume hot water circulating pumps and piping system with a new variable volume hot water circulation system. The new variable volume system will provide both the new and existing HVAC systems with the required hot water at the required operating pressure for a fully functioning heating system for the South Satellite. Adequate contingency exists within the current project budget and therefore no additional funding is required.

JUSTIFICATION

This project was authorized for construction by Commission on October 23, 2018. When completed in the fourth quarter of 2021, the project will improve the effectiveness, reliability, and increase the capacity of the Heating, Ventilation, and Air Conditioning (HVAC) system for the SSAT, a terminal that has seen dramatic passenger growth since its construction in 1970's and expansion in 1982. The scope of the work includes replacement and upgrade of the existing original air handler and HVAC system on the concourse level, ceiling, lights and associated electrical equipment, fire sprinkler system, signage, portions of the terminal-wide voice paging system, column cladding, and carpet.

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The new HVAC system, currently under construction, was designed with a variable hot water recirculating system to provide greater energy efficiency for the Port. The variable hot water recirculating system is a critical component required to meet Washington State Energy Code. While performing initial testing and balancing of the new HVAC system, it was discovered that the operating pressure of the existing hot water circulating system was less than 2 psi compared to the required operating pressure of 50 to 60 psi. Upon investigation, it was determined the existing 50-year-old constant volume hot water circulating pumps and piping configuration is not compatible with the variable volume flow requirements of the new system and will not provide the required operating pressure to allow the HVAC system to operate as needed. Unfortunately, the implications of providing water to a variable volume system from a constant volume system were overlooked during design.

The additional HVAC capacity will also accommodate the expansion of the Airport Dining and Retail (ADR) at the SSAT, providing needed customer amenities. Maintaining comfortable heating and cooling is a necessity for a satisfying customer experience. While the Port is interested in undertaking a major renovation of the SSAT within the next 10 to 15 years, the project currently underway is addressing the inadequacy of the old HVAC system and its risk of failure. Currently the SSAT Concourse level is supported by a temporary HVAC system; the old HVAC system has been demolished; and the new permanent HVAC system is being installed.

In addition to providing a more reliant HVAC system, upon completion it is anticipated the Port will realize an increased heating and cooling energy efficiency of 15% to 20% on the SSAT concourse level system. Calculations estimate electric savings of 163,300 kwh/year and natural gas savings of 20,600 therms per year for a total energy savings of 21,168 therms/year and reduced greenhouse gas emissions of 110 metric tons/year. (Approximately \$20,000/year in energy savings)

When design on this project began in 2015 the Port undertook a very detailed review of the scope of work to be performed in the SSAT. This review focused on maintaining a minimal scope of repairs and improvements to the SSAT to maintain building operations for a 10 to 15 year period while the Port planned for a major renovation of the SSAT. An outcome of the scope review was a determination that the existing constant volume (CV) hot water circulating system could be operated and maintained for the next 10 to 15 years.

The project's design team has developed a design solution which will be implemented with this change order.

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FINANCIAL IMPLICATIONS

There is no additional funding being requested in this memo.

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ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Perform work as separate Major Contract. \$800,000 to \$900,000

Pros:

- (1) None

Cons:

- (1) The cost of a separate Major Works contract would exceed cost of a Change Order. Performing this work as a separate major contract would result in additional administrative costs to prepare and issue bid documents and manage the contract. For projects of this size, the costs typically range from 33% to 50% of direct construction costs (\$200,000 to \$300,000 additional).
- (2) A separate major contract would result in delays to the current construction contract. Completion of the SSAT HVAC renovation project will not occur until the hot water circulation system has been modified. The time required to procure and complete this work under a separate contract is estimated to be 6-9 months. This delay would impact the completion of the SSAT project by 4-6 months with the Port responsible for the delay costs of approximately \$100,000 per month.
- (3) Complicates Warranty Management. Every Major Works contract comes with a one-year warranty on the work. Doing this work as a separate contract would result in two warranties from two different contractors on a single system. If there was a system problem during this time, maintenance staff would be required to perform additional investigation to determine which warranty applies. Additionally, either contractor could dispute the findings resulting in additional time and effort by the Port to determine responsibility further delaying repairs.

This is not the recommended alternative.

Alternative 2 – Approve the Change Order request

Pros:

- (1) Adequate contingency exists within the current project budget.
- (2) Eliminates the 6-9-month procurement time and maintains the project schedule. Planning to execute the work is underway.
- (3) Single point of contact for warranty issues. All work will have been performed under a single contractor. The contractor will be the single point of contact for warranty issues.

Cons:

- (1) None.

This is the recommended alternative.

ATTACHMENTS TO THIS REQUEST

None.

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PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

April 8, 2019 – Commission approved execution of Regulated Materials Management Monitoring Specific Service agreement of \$1,000,000

June 26, 2018 -Commission approved the additional scope and authorized design at a cost of \$800,000 that was briefed on June 12, 2018.

June 12, 2018 -Commission was briefed on irregular bid and adding scope to the project to reduce risk to the Port and Contractor.

November 28, 2017 -The Commission authorized \$1,425,000 additional, for a total project cost of \$13,925,000.

August 8, 2017 -The Commission authorized \$11,200,000 for the advertisement, bid, and award the construction contract for the South Satellite HVAC Upgrade project. November 8, 2016 - The Commission authorized \$3,450,000 for the preparation of design and construction bid documents, the advertising and execution of a major works construction contract, and the utilization of Port crews for the South Satellite Structural Improvements (CIP C800818).

July 24, 2012 - The Commission authorized \$6,500,000 for the redesign the SSAT HVAC systems to meet current and future requirements. The design included adding an additional penthouse system, replacing three existing systems, reconfiguring the ductwork, and replacing all the distribution boxes. The 2012 estimated costs of these improvements were about \$37 million. The design effort was suspended in 2013 and canceled in 2014 after staff determined that:

- (1) The SSAT would require a seismic upgrade to facilitate any new systems.
- (2) IAF and SAMP may change the use of SSAT.

May 3, 2011 - The Commission authorized the negotiation and execution of a professional services contract for design services. No funding was associated with this authorization.

September 22, 2009 - The Commission was briefed on the condition of the HVAC systems of the North and South Satellites.