

PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA
ACTION ITEM

Item No. 4g
Date of Meeting April 28, 2015

DATE: April 21, 2015
TO: Ted Fick, Chief Executive Officer
FROM: Dave Soike, Director, Aviation Facilities and Capital Program
Wayne Grotheer, Director, Aviation Project Management Group
SUBJECT: North Terminals Utilities Upgrade project (CIP #C800717)

Amount of This Request:	\$2,000,000	Source of Funds:	Airport Development Fund
Est. Total Project Cost:	\$9,950,000		
Est. State and Local Taxes:	\$665,000		

ACTION REQUESTED

Request Commission authorization for the Chief Executive Officer to execute service agreements and conduct studies, cost estimates, design, and prepare construction documents for the North Terminals Utilities Upgrade project at Seattle-Tacoma International Airport. This request is for \$2.0 million of an estimated total project cost of \$9.95 million.

SYNOPSIS

This project will augment the aging infrastructure piping that supplies the steam, condensate, and chilled water that support parts of Concourse C, Concourse D, and the North Satellite. The majority of the existing piping is 45 years old, well past its useful life, and is undersized to adequately support the North Satellite, and Concourses C and D.

This project was included in the 2015 – 2019 capital budget with an estimated cost of \$11.95 million. As originally conceived, the project scope also included the creation of a loop to add redundancy. Due to a significant increase in the estimated cost (up to \$16 million), the project as now proposed eliminates the creation of the loop, and consequently the estimated cost has been reduced to \$9.95 million. During design, if it becomes apparent that the loop could be implemented in a cost effective manner with demonstrated corresponding benefits, staff may propose adding back the scope associated with the loop. Further details on these two alternatives are included in the back of the memo (see Alternatives 3 and 4).

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BACKGROUND

The Central Mechanical Plant has the capacity to support Concourses C and D and the expansion of the North Satellite, however the current piping infrastructure is aging and too small to adequately supply these areas. The existing piping is undersized, which means the system cannot properly heat or cool the ends of Concourses C and D on the hottest and coldest days. The heating cooling systems on Concourses C and D will be improved by the larger pipes that will be installed as part of this project, which will improve the customer comfort and experience. Additionally, the current chilled water supply and condensate return piping is not sufficient to meet the demands of the expanded North Satellite. This project will increase the size of multiple pipes feeding Concourses C and D and the North Satellite. For example existing steam pipes will be increased from 8 inch to 12 inch diameter, while chilled water pipes will be increased from 12 inch to 24 inch diameter.

The design for this project will evaluate two possible routes that if combined would create a loop on the North end of the terminal. The original project budget and scope included construction of both routes, however this project has been reduced to only include the “must have and must do” infrastructure improvements. These pipes must transverse constrained spaces, and it is not possible to know which of the routes will be the easiest to construct prior to design. The most cost effective route will be constructed. This project will be coordinated with the baggage handling systems program, the NorthSTAR Program, and the Service Tunnel Renewal/Replacement Project.

PROJECT JUSTIFICATION AND DETAILS

Project Objectives

Upsize the existing steam, condensate, and chilled water supply piping from the Central Terminal Mechanical Room to Mechanical Room Four in support of Concourses C and D and the North Satellite.

Scope of Work

This project will authorize a design firm to conduct detailed studies and analysis of the existing systems to determine the best design and most cost effective method to upsize the steam, condensate and chilled water supply system from the Central Terminal Mechanical Room to Mechanical Room Four and beyond in support of Concourses C and D and the North Satellite. The firm will design each of the possible routes which in combination would complete the north loop. One of the two legs would be selected for construction under this project and the other leg may be considered to be part of a potential near-term project or an addition to this project (a determination cannot be made until design is underway).

Schedule

Start Design	3 rd quarter 2015
Complete Design	3 rd quarter 2016
Commission Authorization for Construction	4 th quarter 2016

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Advertise for Construction
Substantial Construction Complete

1st quarter 2017

1st quarter 2018

FINANCIAL IMPLICATIONS

<i>Budget/Authorization Summary</i>	Capital	Expense	Total Project
Original Budget	\$11,950,000	\$0	\$11,950,000
Budget Increase/(Decrease)	(\$2,950,000)	\$950,000	(\$2,000,000)
Revised Budget	\$9,000,000	\$950,000	\$9,950,000
Previous Authorizations	\$40,000	\$0	\$40,000
Current request for authorization	\$1,960,000	\$0	\$1,960,000
Total Authorizations, including this request	\$2,000,000	\$0	\$2,000,000
Remaining budget to be authorized	\$7,000,000	\$950,000	\$7,950,000
Total Estimated Project Cost	\$9,000,000	\$950,000	\$9,950,000

<i>Project Cost Breakdown</i>	This Request	Total Project
Design	\$2,000,000	\$2,000,000
Construction	\$0	\$7,285,000
Sales Tax	\$0	\$665,000
Total	\$2,000,000	\$9,950,000

Budget Status and Source of Funds

This project, C800717, was included in the 2015-2019 capital budget and plan of finance at an estimated cost of \$11,950,000. A capital budget decrease of \$2,950,000 was transferred to the Aeronautical Allowance CIP, resulting in no net change to the Airport capital budget. The funding source for this project will be the Airport Development Fund and revenue bonds to be issued in 2015.

Financial Analysis and Summary

CIP Category	Renewal/Enhancement
Project Type	Renewal/Enhancement
Risk adjusted discount rate	N/A
Key risk factors	N/A
Project cost for analysis	\$9,950,000
Business Unit (BU)	Terminal
Effect on business performance	NOI after depreciation will increase
IRR/NPV	N/A
CPE Impact	\$.03 increase in 2018

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Lifecycle Cost and Savings

The major assets this project will install are steam, condensate and chilled water piping, valves and connections. All of these assets have useful life spans of 25-30 years.

STRATEGIES AND OBJECTIVES

This project promotes the Port's Century Agenda objective of meeting the region's air transportation needs at the Airport for the next 30 years. This project will ensure that the utilities to the North Satellite have the capacity needed, and improve the customer experience in Concourses C and D. These infrastructure systems are critical to the customer experience at the Airport.

TRIPLE BOTTOM LINE

Economic Development

This project supports the Airport's initiative to provide efficient infrastructure systems. The Central Mechanical Plant has the capacity to support the C and D Concourses and the NorthSTAR programs planned expansion of the North Satellite.

Environmental Responsibility

These new systems will plan for and utilize components with long life expectancies of 25-30 years or longer.

Community Benefits

This project supports the Airport's strategy to operate a world class international airport by anticipating and meeting the needs of our tenants, passenger and the region's economy. Making new operational improvements with up-to date equipment and technology helps to minimize system outages (planned and unplanned) and long term costs to the airlines, thereby supporting the Airports strategy to reduce airline costs.

This program will collaborate with the Office of Social Responsibility (OSR) to maximize small business participation throughout the design and later the construction of this project.

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1) - Maintain Status Quo. Do not augment the steam, condensate, and chilled water pipes at the North End of the Airport.

Pros:

- Save capital spending.

Cons:

- Chilled water infrastructure does not support any planned expansion of the North Satellite footprint and steam and condensate systems do not support the ultimate North Satellite expansion plans.

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- The traveling public, airlines and tenants' experience and expectations during peak summer and winter weather will not be met with the existing infrastructure on the C and D Concourses and North Satellite increased footprint and traffic.
- A majority of the existing piping system that feeds the north end is over 45 years old and is approaching estimated service life

Alternative 2) - Redesign of the North Satellite Project heating, ventilation and air conditioning system to provide supplemental cooling for the expanded facility.

Pros:

- First costs may be equal to or slightly more than the recommended alternative to connect to the Central Terminal Mechanical Room via Mechanical Room four.

Cons:

- There is no physical space in the current design for additional mechanical cooling infrastructure at the North Satellite.
- This alternative impacts the current North Satellite architectural roof theme, structural design and overall appearance and would delay the current design and construction schedules. Current North Satellite program budget, design and schedule do not include additional mechanical cooling infrastructure.
- Life cycle cost of the recommended alternative including maintenance, energy consumption and replacement costs are anticipated to result in a lower overall long term cost than this alternative.

Alternative 3) - Upsize the piping from the Central Mechanical Room to the north end of mechanical room four for extension to the North Satellite and interconnect this new piping with the west and south steam, condensate and chilled water loops

Pros:

- This would provide adequate steam, condensate and chilled water capacity for the Concourses C and D and North Satellite expansion.
- Enables full system redundancy and thus flexibility to provide steam, condensate and chilled water from any of the loops in the event of a system failure or utility shutdowns to facilitate construction activities
- The traveling public, airlines and tenants' experience and expectations during peak summer weather will be met given these improvements to the infrastructure.

Cons:

- This will require detailed design and complex construction in order support the existing steam, condensate and chilled water demand of the entire facility while simultaneously installing the upsized steam, condensate and chilled water piping and connecting the loops.
- Estimated cost to design and construct this project is \$12,000,000 - \$16,000,000

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Alternative 4) - Upsize just the piping from the Central Terminal Mechanical Room to the North Satellite via mechanical room four, or from the junction in the CTE basement to the North end of mechanical room four.

Pros:

- This would provide adequate steam, condensate and chilled water capacity for the Concourses C and D and for North Satellite expansion.
- The Central Mechanical Plant has the capacity to supply the steam, condensate and chilled water needs of the C & D Concourses and NorthSTAR program.
- The traveling public, airlines and tenants' experience and expectations during peak summer weather will be met given these improvements to the infrastructure.
- Improves the heating and cooling systems on Concourses C & D

Cons:

- This will require detailed design and complex construction in order support the existing steam, condensate and chilled water demand at the North Satellite while simultaneously installing the upsized steam, condensate and chilled water piping.
- This alternative does not create system redundancy and the flexibility to supply steam, condensate and chilled water from the Central Mechanical Room throughout the facility from either of the loops.
- Estimated cost to design and construct this project is \$9,950,000.

This is the recommended alternative given the need to improve the heating and cooling systems on Concourses C and D and to support the North Satellite expansion.

ATTACHMENTS TO THIS REQUEST

- None.

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

- July 24, 2012 – Authorized the CEO to design, preform construction support and project management services and overall project support in an amount not to exceed \$32,000,000 for the renovation of the North Satellite passenger terminal and the Satellite Transit Systems stations lobbies (North Satellite / Concourse C / North Baggage Claim) at Seattle – Tacoma International Airport for an eventual total estimated project cost of \$194,000,000.