**PORT OF SEATTLE**
**MEMORANDUM**

**COMMISSION AGENDA**
**ACTION ITEM**

**Item No.** 6a

**Date of Meeting** September 24, 2013

**DATE:** September 17, 2013

**TO:** Tay Yoshitani, Chief Executive Officer

**FROM:** David Soike, Director, Aviation Facilities and Capital Program
Wayne Grotheer, Director, Aviation Project Management Group

**SUBJECT:** NorthSTAR Program – North Satellite Refurbish Baggage System Project (CIP#C800555)

| | | | |
|---|---|---|---|
| **Amount of This Request:** | $11,987,000 | **Source of Funds:** | Airport Development Fund, Existing Bonds and Future Revenue Bonds |
| **Est. Total Project Cost:** | $15,747,000 | | |
| **Est. State and Local Taxes:** | $942,000 | **Est. Jobs Created:** | 236 |

## ACTION REQUESTED

Request Commission authorization for the Chief Executive Officer to: (1) advertise, award, and execute a major public works contract for the construction of the North Satellite Refurbish Baggage System Project; and (2) authorize the use of Port crews. This request of $11,987,000 is in an addition to the $3,760,000 that was previously authorized for a total project authorization of $15,747,000.

## SYNOPSIS

Alaska Air Group (AAG) is now using all gates at the North Satellite (NSAT), including ticket lobby and gate locations formerly occupied by United Airlines. This project will refurbish existing baggage systems in support of AAG's expanding operations at NSAT and continued use of Concourse D. AAG's baggage volumes are an estimated five times greater than United's requirements in recent years. The work will extend the service life for portions of the C92 Concourse D baggage systems, C88 North Satellite systems, and C88 tunnel systems. This project is a component of the North Sea-Tac Airport Renovation (NorthSTAR) program and is included in the 2013-2017 capital budget and plan of finance.

The project will replace aging conveyor belts, motors, drives, and controls of the existing C88 and C92 systems, as required to improve reliability and provide greater functionality. The project will provide significant operational benefits to AAG including potentially increasing the rate of speed for certain conveyers. The Port and AAG worked together to develop evaluation criteria and metrics to minimize component replacements and costs to refurbish the systems.

During the refurbishment, the Port and AAG staff will continue to work collaboratively to refine selection of component replacements to improve functionality.

## BACKGROUND

As part of the Airline Realignment and United Airlines' relocation from NSAT to Concourse A; AAG's baggage handling consultant evaluated the existing systems and conditions and prepared a detailed analysis of each system's performance requirements to meet future baggage volumes. These volumes are based on AAG's future growth projections. The scope of work for this project is a result of AAG's previous study and Port staff input. It represents a critical component in providing improved baggage handling systems for AAG. AAG prefers to continue all baggage makeup operations at the C92 system under Concourse D to allow for early completion of the North Satellite baggage refurbishment prior to its use. The C88 system that connects to and serves NSAT will be shut down for limited durations as coordinated closely with AAG operations during construction to minimize impacts to AAG and Airport operations and to allow for early completion of the refurbishment.

The typical (or standard) design life of a baggage system is 15 years. The C92 system is 21 years old. This project will allow the Port to extend the useful life of the system to satisfy the customer's requirements. This project is being coordinated with the proposed Checked Baggage Optimization Project. The physical work may be completed by a construction contract within the Optimization project. Port and AAG staff will work together to coordinate both projects to include the most beneficial and cost effective elements.

The current C88 tunnel systems and C88 North Satellite systems are nearly 25 years old. The longevity of the C88 system can be attributed to: 1) the current running speed of the conveyors is relatively slow, resulting in minimal wear on the conveyor components; 2) the current low demand on the system is approximately 3,000 bags per day, on a system designed for up to 15,000 bags per day; and 3) the maintenance program of the existing system is proactive and extensive.

In support of the project, Port crews will perform baggage tunnel conveyor work and any incidental regulated materials management.

## PROJECT JUSTIFICATION AND DETAILS

The volume of AAG's projected baggage would be too heavy a burden on existing systems, therefore improvements are required.

Port Maintenance provided statistical data metrics tying volume of passenger traffic to critical failure of conveyors. Although the data cannot quantify impacts to airline operations, it shows that with increasing AAG bag traffic, there is increased failure frequency potential of critical components. Currently, at peak loads, the system has a critical failure once every three days. This current peak load is AAG's baseline. If refurbishment of the conveyors is not completed before the increased demand, it is reasonable to expect there will continue to be a critical failure at least once every three days at baseline levels, with an increased frequency of critical failures during AAG's peak loads. As a result of this detailed analysis, AAG approved the addition of a

redundant recirculation conveyor at the C88 systems and construction of other scope within the North Satellite.

Another system improvement addressed in this project is avoiding the congestion of the C1 sortation loops. Currently, all transfer bags are conveyed through the central C1 sortation loops. These loops get congested and may cause delivery times to increase during peak operations. The proposed modifications will divert most of the transfer bags to the appropriate sortation systems before they enter the C1 loops, creating baggage sortation efficiencies.

***Project Objectives***

1. Improve the long-term reliability of the baggage conveyance system
2. Increase the overall speed of the conveyors, but not the overall baggage capacity (unless necessary).
3. Reduce baggage volume pressure on C1 sortation loop
4. Extend the service life of the systems

***Scope of Work***

The C92 systems between the C1 sort loops and the C92/C88 connection, the C88 tunnel systems, and the C88 North Satellite systems will be refurbished and/or overhauled. A mini-sort system will be installed to presort transfer bags at the C92 transfer input to sort bags directly to the C92 and C88 systems, instead of sending them to the C1 sortation loops, which will reduce C1 sort-loop bag volume pressure.

The scope includes the following elements:

1. Refurbish North Satellite tunnel and pier conveyor: replacement or refurbishment of motors, gears, conveyor belts, and support equipment.
2. Evaluate and replace pushers as necessary: total replacement of internal pusher hardware and components in the C88 system.
3. Add mini-sort conveyor system at C92-TX1 transfer input to presort transfer bags.
4. Upgrade / replace programmable logic controllers (PLC's) at C92.
5. Refurbish C1 to the C88 cross-over: replacement or refurbishment of conveyor sections, motors, gears, belts, and support equipment.
6. Upgrade of C88 computer systems and programmable logic controllers (PLC's).
7. Replacement of automatic tag readers (ATRs) at C88 North Satellite system.
8. Add a redundant recirculation conveyor for the C88 system at the North Satellite Bagwell.
9. Add in C88 sortation. Selectively replace other field control devices and wiring for both the C92 and C88 systems.
10. Replace motor control panels (MCPs) for C88 sortation system
11. *Evaluate and refurbish the C92 sortation system pushers, sortation conveyers, and recirculation conveyers as necessary.

*Item 11 was identified in an earlier memo and presented to Commission as delayed until deemed to be justified by metrics, benefit to the system, and availability of funds. As a result

of discussions with AAG, this authorization request includes the design and construction of the scope.

***Schedule***

- Commission Authorization of Design — November 6, 2012
- Design Start — January 2012
- Design End — October 2013
- Commission Auth. of Construction — September 2013
- Construction Start — March 2014
- Construction End — October 2014

## FINANCIAL IMPLICATIONS

| ***Budget/Authorization Summary*** | Capital | Expense | Total Project |
|---|---|---|---|
| Original Budget | $22,000,000 | $0 | $22,000,000 |
| Budget reduction | -$6,253,000 | | -$6,253,000 |
| Revised budget | $15,747,000 | | $15,747,000 |
| Previous Authorizations | $3,760,000 | $0 | $3,760,000 |
| Current request for authorization | $11,987,000 | $0 | $11,987,000 |
| Total Authorizations, including this request | $15,747,000 | $0 | $15,747,000 |
| Remaining budget to be authorized | $0 | $0 | $0 |
| Total Estimated Project Cost | $15,747,000 | $0 | $15,747,000 |

| ***Project Cost Breakdown*** | This Request | Total Project |
|---|---|---|
| Construction | $9,421,000 | $9,421,000 |
| Construction Management | $1,417,000 | $1,417,000 |
| Design | $0 | $2,169,000 |
| Project Management | $0 | $1,591,000 |
| Permitting | $207,000 | $207,000 |
| State & Local Taxes (estimated) | $942,000 | $942,000 |
| Total | $11,987,000 | $15,747,000 |

***Budget Status and Source of Funds***

This project was included in the 2013-2017 capital budget and plan of finance within CIP project #C800555. Funding sources include the Airport Development Fund, existing bond proceeds, and future revenue bonds. As indicated in the plan of finance, the Port anticipates issuing revenue bonds in 2014 to fund a number of projects.

***Financial Analysis and Summary***

| | |
|---|---|
| **CIP Category** | Renewal/Enhancement |
| **Project Type** | Security |
| **Risk adjusted discount rate** | N/A |
| **Key risk factors** | N/A |
| **Project cost for analysis** | $15,747,000 |
| **Business Unit (BU)** | Terminal – baggage system |
| **Effect on business performance** | NOI after depreciation will increase |
| **IRR/NPV** | N/A |
| **CPE Impact** | Will increase CPE by $.08 |

***Lifecycle Cost and Savings***

The renovation of existing baggage systems in this project will decrease the risk of expensive equipment replacements due to operationally challenging unforeseen failures of aging equipment. The renovations will increase system size (conveyor length, etc.) and increase availability (operational up-time as a result of newer components with less risk of failure), but the renovations will not appreciably decrease the number of preventive maintenance activities performed on the systems.

## STRATEGIES AND OBJECTIVES

The anticipated growth in domestic and international enplanements will require additional capacity in baggage processing for all airlines. This project supports the Port's Century Agenda objective of meeting the region's air transportation needs at Sea-Tac Airport for the next 25 years. This project also supports the Aviation Division's strategy of anticipating and meeting the needs of our tenants, passengers, and the region's economy.

## TRIPLE BOTTOM LINE

***Economic Development***

This project will increase the long-term ability of the Airport to serve AAG's future growth. This project cost effectively meets AAG's needs by upgrading existing systems rather than building entirely new systems.

***Environmental Responsibility***

This project demonstrates environmental sustainability by improving existing Port assets to extend their life and better utilizing existing resources.

***Community Benefits***

Long-term vitality of the Airport benefits the regional economy, the local environment and nearby communities. The Office of Social Responsibility (OSR) will provide support in determining small business participation, as described in Resolution No. 3618.

## ALTERNATIVES AND IMPLICATIONS CONSIDERED

**Alternative 1)** Fully renovate or replace significant portions of the existing C88 and C92 systems to provide a newer system with adequate capacity for processing 100% of the AAG's future forecasted check-baggage volumes. Future baggage recapitalization projects are expected to replace C88 and possibly portions of C92 prior to their expected life and full depreciation making this alternative very expensive. *This is not the recommended alternative.*

**Alternative 2)** Modify the existing C88 and C92 systems to replace all sort-piers with eight recirculating makeup carousels to handle AAG's increase flight schedule and baggage loads. The infrastructure costs and the impacts to Alaska's operations due to the downtime required to implement this alternative are not desirable. *This is not the recommended alternative.*

**Alternative 3)** Renovate and upgrade existing systems to relocate much, but not all, of AAG's make-up to the North Satellite existing C88 system, while maintaining a split operation with some baggage make-up remaining on the Concourse D C92 system. This option balances the highest operational efficiency while minimizing impacts to system failures for the investment. **This is the recommended alternative.**

## ATTACHMENTS TO THIS REQUEST

- Airport Overall Baggage System Map

## PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

- July12, 2013 – The Commission was notified of 1 added scope item and 2 scope items moved into the scope that were previously identified as suggested scope in the November 6, 2012 Commission Memo.
- June 25, 2013 – Commission Quarterly Update for NorthSTAR Program.
- March 26, 2013 – Commission Quarterly Update for NorthSTAR Program.
- November 6, 2012 – The Commission authorized staff to prepare design documents and use Port crews to support site investigation needed to develop the contract documents, in the amount of $3,760,000.
- April 10, 2012 - The Commission authorized the execution of consultant contracts for design and construction support services; program management services; and the completion of site surveys for regulated materials management, in the amount of $1,200,000.