

PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA
ACTION ITEM

Item No. 4j
Date of Meeting July 12, 2016

DATE: July 5, 2016
TO: Ted Fick, Chief Executive Officer
FROM: Jeffrey Brown, Director AV Facilities and Capital Program
Wendy Reiter, Director, Aviation Security and Emergency Preparedness
Wayne Grotheer, Director, Aviation Project Management Group
SUBJECT: Baggage Optimization Authorization for Construction Phase 1 (CIP #C800612)

Amount of This Request:	\$115,000,000	Source of Funds:	Airport Development Fund, TSA Federal Funding and revenue bonds
Est. Total Project Cost:	\$319,050,000		
Est. State and Local Taxes:	\$8,788,000		

ACTION REQUESTED

Request Commission authorization for the Chief Executive Officer to (1) advertise and execute a contract for the first phase of construction for the Baggage Optimization Project at Seattle-Tacoma International Airport at an estimated cost of \$115,000,000; (2) amend Service Agreement P-00317641 in the amount of \$3.5 million for a total contract value of \$21,500,000 to include construction support; (3) execute contracts for the purchase of equipment and TSA baggage inspection tables; and (4) utilize Port crews and small works contracts to perform construction work.

SYNOPSIS

This project will optimize the outbound baggage handling system at the Airport and allow the Airport to meet current and future growth needs. The Commission earlier authorized design work, which has now been broadly completed. This is the first construction request, of four requests over the next five years, to advertise construction bids to modernize the aging baggage system at the airport. This work is necessary to provide good customer service to both the 50,000 plus travelers who depart through the airport each day and to our growing airline partners. The airlines have earlier approved this project via a Majority and Interest vote totaling \$317 million for the scope of work identified. Airline representatives have continuously participated in the design process. No additional airline approvals are necessary.

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Today's request seeks authority to advertise and execute the first construction contract, to amend a baggage consultant agreement to include construction phase services now that the construction work has been defined, and to make equipment purchases and perform preliminary enabling work to clear areas and speed work for the coming contractor activities.

Baggage projects are often behind the scenes from traveler areas in the airport terminal. In order to make the baggage authorizations more transparent, staff has progressively briefed the Commission several times, in addition to earlier design authorizations – the most recent ones being May 17, and June 28 with another planned before bids are opened.

The completed project will provide operational flexibility for the airport to send outbound bags from any ticket counter to any gate while saving on energy usage for every section of conveyor and motor. The project will also provide greater efficiency for the Transportation Security Administration (TSA) in ensuring that bags are safe to load on the aircraft. TSA staff has reviewed designs multiple times and have approved the designs for construction. Our cooperation with the TSA includes their \$93 million grant toward the total project cost. TSA Leaders have earlier traveled to Seattle to testify before the Commission to voice their support for the project.

This request to advertise for bids is the culmination of work since 2012 to get this long-range project underway in order to meet the consecutive year double-digit traveler growth at our airport. The huge growth will ultimately drive more baggage needs, and those will be part of later separate authorizations and part of the master planned additional future concourses to serve additional aircraft gates.

BACKGROUND

The highly utilized and aging baggage conveyor system is one of the most complex systems in the Airport. All baggage-screening systems were modified in rapid fashion immediately after the events of September 11, 2001; however, there are remaining portions of the systems that are over 25 years old.

In its current state, the Airport's baggage system is not a single system, but rather many separate systems. After the events of September 11, modifying the separate systems was the best way to rapidly increase security. At the time, each separate system was designed to include a nominal amount of passenger growth. Over the ensuing years as specific airline needs emerged or as airlines were relocated, the separate systems have been updated to meet the carriers' specific operating needs. Although various baggage projects have been implemented to address operating needs over the years, the systems continue to have limited capacity to meet both near and long-term growth needs of the Airport.

The Airport is faced with three problems: 1) the existing separate systems have major subsystems, such as controls, that are aging and must be replaced; 2) there is limited ability for the current systems to be expanded in their current configuration to adequately meet growing passenger demands; and 3) separate systems lack interconnectivity between ticket counters and

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all of the aircraft gates. Passenger growth is expected to continue. This is a major and near-term challenge for the Airport due to both the complexity of keeping operations on going during construction and major space constraints on expanding the systems' capacity to meet future growth.

The Airport is fortunate that the TSA invested to improve their operations in Sea-Tac, yet having multiple screening systems in six locations results in the TSA having higher operating costs than what they will have with a consolidated baggage system. Therefore, the Baggage Optimization project is designing the new system to accommodate Port of Seattle needs for operational flexibility while meeting the TSA needs for modern baggage screening equipment and reduced operating costs for baggage screening. Airport and TSA staffs have been working cooperatively during design. The TSA has approved the 100% design of the optimized system and is a cost-share partner.

The comprehensive design incorporates a single centralized screening area that is located in the middle of the existing terminal. The central screening area will occupy 21,000 square feet of the existing basement level and 28,000 square feet of the existing apron level, with the necessity to construct a building extension for an additional 3,800 square feet. The optimized design is based upon a common use outbound system where any bag can be inserted anywhere in the system, screened, sorted, and sent to any destination. This provides Aviation Planning and Operations flexibility since any airline can be relocated anywhere within in the ticketing lobby and among aircraft gates without requiring baggage system changes.

PROJECT JUSTIFICATION AND DETAILS

The checked baggage optimization project replaces the six individual baggage-screening systems with a centralized system that optimizes the operation and functionality of the baggage system. The purpose of this project is to optimize the baggage system to achieve the maximum outbound baggage capacity within the current airport footprint.

When complete, this project will have achieved the following outcomes:

- Increased outbound system capacity to 45 MAP
- Increased system reliability, redundancy, and security
- Flexibility in Airline ticket counter use and related gate assignments
- Reduced minimum connect times where possible
- Long term energy savings

This is the first of four phases of construction for the Baggage Optimization project. The majority of this work will be complete by a major public works construction contract, advertising in the fourth quarter of 2016 and beginning construction in the second quarter of 2017. By completing work in phases, the project can use the lessons learned from one phase and apply them to the next. The construction contracts are also priced in the ranges where contractors that do this type of work are able to secure bonding and insurance.

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The project team has identified elements of work that Port crews and small works contractors can perform prior to the major contract. By completing this “pre-work” construction, the project will be able to meet this accelerated schedule.

TSA is funding a \$93,220,422 reimbursement through an Other Transaction Agreement (OTA) for the total project. The project team has estimated the approximate OTA reimbursement for Phase 1 will be \$40,000,000.

The Port has contracted with BNP Associates for design of the baggage optimization project. It is necessary to amend this contract to add an additional \$3.5M for design construction support during construction from 2016 thru 2019. This Service Agreement increase is within Commission authorized project spending. In accordance with RCW 53.19, the Commission is notified that this amendment exceeds 50 percent value of the original contract and this memorandum will be made available for public inspection.

Project Objectives

- Replace Explosives Detection System (EDS) equipment that has reached the end of its useful life.
- Meet TSA federal mandates for Electronic Baggage Screening Program.
- Leverage federal improvements to provide expandable capacity to meet Airport long-term growth needs.
- Incorporate sustainability, including energy efficiency, into our baggage system.
- Minimize impact to airlines throughout construction.

Scope of Work

The following work has been designated for Port Construction Services to perform in order to accelerate the project schedule. By performing this work ahead of the major contract, the project is able to accelerate the schedule by approximately 5 months.

This “pre-work” will consist of the following items:

- Install new makeup device MKN3 and associated conveyor feed lines to the device.
- Complete demolition of existing conveyor in the right of way. Consisting of Claim 13 feed and C1-TX4 transfer input conveyors.
- Complete testing, activation, TSA equipment relocation, and miscellaneous demolitions items.
- Renovate existing C88 odd size conveyor system to provide new north odd size subsystem.
- Port will purchase all necessary conveyor equipment and bid programming and controls contract for the pre-work package.
- Assist Horizon Airlines in moving operational equipment to the new make-up device.

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The Baggage Optimization Phase 1 package will be contracted as a major construction contract and will consist of the following items:

- Demolish C94 conveyor and make-up subsystems
- Install 8 new EDS machines.
- Construct new building extension and associated structure in front of Central Terminal.
- Construct new centralized Check Baggage Resolution Area (CBRA) for TSA.
- Construct new conveyor systems to feed the new EDS machines.
- Connect existing ticket counter zones to the new Check Baggage Inspection System (CBIS)
- Install temporary baggage sortation and manual encoding operations.
- Provide new upper and lower level controls system for the baggage handling systems.
- Construct new Maintenance breakrooms and locker rooms.
- Construct new TSA breakrooms.
- Construct new elevator pits and structural modifications in coordination with ADR program.
- Install new baggage handling control room.
- Modify existing ramp to new concession storage area.
- Modify the electrical infrastructure to meet new demands.
- Modify the mechanical infrastructure to meet new demands.
- Perform testing, activation, and TSA required certifications.

Schedule

Commission Authorization Construction Phase One:	3rd Quarter 2016
Construction Complete Phase One:	3rd Quarter 2019
Substantial Completion entire project:	4th Quarter 2023

FINANCIAL IMPLICATIONS

Budget/Authorization Summary

	Capital	Expense	Total Project
Original Budget	\$4,850,000	\$150,000	\$5,000,000
Budget Increase	\$312,150,000	\$0	\$312,150,000
Budget Transfer from C800638	\$3,400,000	\$0	\$3,400,000
Pending Budget Transfer back to C800638	(\$1,500,000)	\$0	(\$1,500,000)
Revised Budget	\$318,900,000	\$150,000	\$319,050,000
Previous Authorizations	\$20,225,000	\$150,000	\$20,375,000
Current request for authorization	\$115,000,000	\$0	\$115,000,000
Total Authorizations, including this request	\$135,225,000	\$150,000	\$135,375,000
Remaining budget to be authorized	\$183,675,000	\$0	\$183,675,000
Total Estimated Project Cost	\$318,900,000	\$150,000	\$319,050,000

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Project Cost Breakdown

	This Request	Total Project
Design Phase	\$7,303,000	\$29,095,219
Construction Phase	\$98,909,000	\$268,029,930
State & Local Taxes (estimated)	\$8,788,000	\$21,924,851
Total	\$115,000,000	\$319,050,000

Budget Status and Source of Funds

This project, C800612, was included in the 2016 – 2020 capital budget and plan of finance. The funding sources will include the Airport Development Fund, TSA funding (\$93,220,422) and future revenue bonds.

Financial Analysis and Summary

CIP Category	Renewal/replacement
Project Type	Renewal/replacement
Risk adjusted discount rate	N/A
Key risk factors	N/A
Project cost for analysis	\$227,550,000 (total less \$93 million from TSA)
Business Unit (BU)	Terminal, Baggage Handling Systems
Effect on business performance	N/A
IRR/NPV	N/A
CPE Impact	.71 by 2023

Lifecycle Cost and Savings

Standardizing certain equipment through the four phases of the project is necessary in order to reduce the total cost of ownership (TCO). The project team has been engaged with the Procurement Excellence Team to define critical components for possible standardization and developing procedures to solicit and evaluate bids based on TCO. These methods may increase the initial cost of equipment but save money over time through fewer repairs, less costly maintenance, reduced inventory, and better functionality. This process has allowed Maintenance and Operations to provide critical input as well as enable the evaluation of environmental goals.

STRATEGIES AND OBJECTIVES

This project promotes the Port's Century Agenda objectives to make Sea-Tac Airport the West Coast "Gateway of Choice" for international travel, meet the region's air transportation needs at Seattle-Tacoma International Airport for the next 25 years, and encourage the cost-effective expansion of domestic and international passenger and cargo services.

Currently, there is a unique opportunity with TSA reimbursing the Airport for \$93,220,422:

- This project will modernize Airport baggage systems, allowing the Airport to grow efficiently and foster business and leisure travel.
- After optimization, TSA equipment and ongoing costs will be reduced.

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- New system will allow for all airline growth and flexibility to relocate within the terminal in the future.

Environmental Responsibility

Optimization allows for fewer machines, which results in decreases to energy demand at the Airport. It also allows opportunities to improve controls and add high efficiency conveyor components for additional energy savings. The design will provide opportunities to reduce Airport lifecycle costs, improve operational efficiency, shorten passenger connecting time between flights, and minimize energy consumption.

In the past 10 years, the baggage industry has made major strides in energy efficiency. These efficiencies can save upwards of 30 percent in energy consumption. These energy savings are based on high-efficiency drives, improved belting materials, and smarter control algorithms. For example, using variable frequency drives eliminates the use of high-maintenance clutch brake drive systems for energy and labor savings. High-efficiency gearboxes will further decrease energy consumption as well as lengthen replacement intervals further reducing our environmental footprint. Smart controls will increase operational efficiency by starting conveyors and subsystems only when needed. By using higher efficiency motors, energy consumption can be reduced by two methods; first by reducing energy consumption with higher output torques and second by giving the ability to size smaller motors to run larger conveyor subsystems.

Community Benefits

This project will help enable airline activity to grow at the airport, and that helps increase vitality across neighboring communities.

- Increased reliability and decreases in the instances of missed bags will improve customer service with the Airlines.
- Optimizing baggage systems will better serve the region's transportation needs at Sea-Tac as the Airport continues to grow.
- The project team is working with the Port's Economic Development Division's Small Business team to establish an appropriate small business requirement on the construction contract.

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 - Suspend project effort and not proceed with this project.

Cost Estimate: \$15.7 million (expense)

Pros:

- No additional capital expenditure.

Cons:

- Airport is left with aging baggage system that cannot keep up with current passenger volumes and anticipated growth.
- Current design would be expensed at a cost of approximately \$15.7 million.

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- Loss of the remaining TSA OTA funding of \$87.6 million.
- Defaulting on current OTA agreement with TSA.

This is not the recommended alternative.

Alternative 2 - Do not phase construction, and bid comprehensive design as one package. Include design construction support, and PCS/ Small Works pre-work.

Cost Estimate: \$320 M

Pros:

- Eliminate need to standardize equipment across multiple construction contracts.
- One contractor would complete all four phases, ensuring consistency, reducing mobilization costs and schedule impacts, and eliminating the learning curve between contractors as one would become familiar with all phases.
- Reduced procurement costs due to only one bid.

Cons:

- Likely reduced number of bidders – in June 2015, potential bidders stated they may not have bonding capacity for a project of this magnitude and duration.
- The project will need more time to prepare for advertisement as it is currently prepared to advertise only for Phase 1 work.
- Missed opportunity to implement lessons learned between phases.
- Limits flexibility to make design modifications between phases.

This is not the recommended alternative.

Alternative 3 - Authorize Phase 1 construction, PCS pre-work, and amend service agreement for construction support.

Cost Estimate: \$115 M

Pros:

- PCS Pre-work can be completed to accelerate project completion.
- Designer's intent can be communicated throughout submittals, RFI responses and change orders by allowing Engineer of Record to provide construction support.
- Phasing the project allows for the greatest number of potential bidders.
- Opportunity to incorporate lessons learned into future phases.

Cons:

- Creates the possibility of four different contractors (and four different equipment types), standardization of some baggage system components will be necessary.

This is the recommended alternative.

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ATTACHMENTS TO THIS REQUEST

- Computer slide presentation.

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

- June 28, 2016– Baggage Program Briefing.
- May 17, 2016 – Checked Baggage Optimization Project Briefing.
- March 8, 2016 – Commission authorization for the Chief Executive Officer to amend the Baggage Optimization Design Services contract.
- June 23, 2015 – Checked Baggage Optimization Project Briefing.
- September 10, 2013 – The Commission authorized the execution of an Other Transaction Agreement (OTA) with TSA for reimbursable costs for design; construction, and to authorize \$15 million to continue from 30% to 100% design; and execute a consultant service agreement for program management support services.
- August 20, 2013 – Response to questions from Commissioners asked during August 6, 2013 Commission Meeting.
- August 6, 2013 – The Commission was briefed on the near-term and long-term challenges related to handling checked baggage at the Airport.
- January 22, 2013 – The Commission authorized \$5 million for staff to begin design through 30%, and to enter into an agreement to allow reimbursement from the federal government to the Port for eligible elements of the 30% design effort.
- January 8, 2013 – Baggage Systems Briefing.
- August 14, 2012 – Baggage system recapitalization/optimization was noted in the 2013 business plan and capital briefing as a significant capital project not included in 2013-17 capital program.
- August 7, 2012 – Baggage system recapitalization/optimization was referenced as one of the drivers for the need to develop an Airport Sustainability Master Plan.
- June 26, 2012 – The Airport’s baggage systems were discussed during a briefing on terminal development challenges.
- May 10, 2012 – TSA’s interest in a national recapitalization/optimization plan for all baggage-screening operations was referenced in a design authorization request for the C60-C61 Baggage Handling System Modifications Project.