

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

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

**Item No.** 6d  
**Date of Meeting** December 8, 2015

**DATE:** December 4, 2015  
**TO:** Ted Fick, Chief Executive Officer  
**FROM:** David Soike, Director, Aviation Facilities and Capital Program  
Wayne Grotheer, Director, Aviation Project Management Group  
**SUBJECT:** C60 Interim Baggage Handling System Project (CIP #C800823)

<b>Amount of This Request:</b>	\$4,377,000	<b>Source of Funds:</b>	Airport Development Fund
<b>Est. Total Project Cost:</b>	\$14,200,000		
<b>Est. State and Local Taxes:</b>	\$259,000		

**ACTION REQUESTED**

Request Commission authorization for the Chief Executive Officer to:

- (1) Proceed and complete the design for the work elements in the C60 Interim Baggage Handling System (BHS) Project;
- (2) Authorize the use of Port crews to self-perform work;
- (3) Purchase equipment for various work elements;
- (4) Amend the BNP Baggage Handling System Design Indefinite Design Indefinite Quantity (IDIQ) by \$3,500,000 and;
- (5) Execute a contract to provide proprietary software services for the integration of upper and lower level controls and software programming on the baggage handling systems, campus-wide.

The amount of this request is \$4,377,000.

**SYNOPSIS**

The C60 system is at or beyond design capacity during peak operations and had the highest negative impact to airline customers in 2015. This current body of work is necessary to meet the airlines' growth and baggage handling demands by accomplishing as much of it as possible before the 2016 summer peak travel season beginning in late May. This project has been vetted by Delta Air Lines, the Transportation Security Administration (TSA), Port of Seattle, and the Port's baggage system design consultant to be the most likely to provide immediate operational relief and efficiency gains for the C60 system. Without these improvements, it is likely that some

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baggage volume would need to be moved to the north systems, C1 and C88, creating additional capacity issues for those systems; and require increased manual handling of baggage.

During challenging operations on the C60 system, the C61 system is negatively impacted due to its use as a contingency. Airlines that used the C60 and C61 systems reported over 2,100 missed bags and over 200 delayed flights during June, July, and August 2015. These were directly related to baggage system capacity and performance issues. This translates to an estimated \$500,000 - \$1,000,000 of cost to airlines for baggage delivery and delayed flight time (based on industry-accepted standards for baggage delivery costs, the cost per minute of aircraft and crew time, and the value of a passenger's delayed time).

Other impacts included slowed passenger check-in processing in the terminal check-in lobbies. Staff is continuing to evaluate the other areas among all baggage systems at the Airport. Staff expects that work yet to be defined will also be needed to manage interim baggage capacity needs prior to optimization on some of the other baggage handling systems.

This project will accelerate improvements to the C60 baggage handling system to provide essential capacity and improve performance in order to handle current passenger demands and expected growth at minimum through 2016. Multiple projects have been performed on the C60 system to improve performance over the last two years. Because of the challenges the Airport faced this past summer, it was determined that the Port should indeed move forward as quickly as possible with additional enhancements to the system. Some of these enhancements have been identified in the past, but have not been pursued due to the cost and the expectation that the Baggage Optimization Project would address these needs. However, the unprecedented growth of our airline customers in the south end specifically has highlighted the need to move forward with as many of the enhancements as possible.

A major renewal and replacement of the baggage handling systems, the Baggage Optimization Project, is now underway. Due to constraints in the airport baggage area, however, the C60 upgrade will be the last phase of the project, scheduled for completion in 2023.

This project is to include design and construction of four work elements that bolster capacity, reliability, and performance in the C60 Baggage Handling System. These work elements specifically related to C60 are intended to have design and the majority of construction completed prior to the summer peak in 2016. The balance will be completed before summer 2017. As needed to improve the C60 Baggage Handling System, other individual work elements may be identified or the scope of these four elements may require changes as the design progresses. This work will also help the C61 system.

The four work elements currently included in this project are:

1. The Baggage Input Load Balancing element will allow for better utilization between two screening loops in the system, gaining better efficiency.

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2. TSA Search Room Expansion/Enhancements element will increase the TSA search room capacity; eliminate a single point of failure; incorporate reinsertion/rescreening equipment; and will improve the overall system functionality.
3. Security Zone Tracking Enhancements element will reduce error bags to the TSA search room and improve the overall system capability.
4. Clear Bag Reconciliation Scanners element will reduce error bags to TSA search room, reduce manual bag transfers, and improve worker safety.

## **BACKGROUND**

The C60 system was in the process of being assembled as part of the South Terminal Expansion Program (STEP) including construction of Concourse A when the events of September 11, 2001, occurred. As a result, the bag screening capability of C60 was dramatically and rapidly built to meet federal requirements while those requirements were still being developed. C60 was one of the first operational in-line baggage scanning systems in the country. As new systems were built and brought on line here in Seattle, lessons learned and best practices were added to avoid some of the challenges that came with the C60 system design.

The most recent project executed on the C60 baggage system replaced existing aging computer hardware and software and added baggage make-up capacity. This upgrade improved system performance outside of the security tracking-zone. The results of this project have proven to be very effective. Although there were some performance improvements to the system from this work, it was primarily renewal and replacement and did not address the capacity constraints. The need to improve and upgrade the security tracking-zone may even be of more value to the overall operation than the work that has been completed recently.

Because of capacity and performance issues during the summer of 2015, impacts to airline customers have occurred, including delayed flights, delayed baggage, and customer dissatisfaction. Delta Air Lines has indicated that the baggage system in Seattle is of great importance to them as they grow their operation. Other airline users of the C60 system have expressed similar concerns because of the impacts to their operations. This project is critical to addressing those concerns as we move towards the next summer season. Staff has only recently completed the evaluation of the work needed on the C60 system to address these concerns and are therefore bringing this project forward now.

The urgency of this work is very high. The Port's airline customers have demanded that the Airport find solutions to the frequent disruptions to their operations they experienced this past summer, and be prepared to handle an even larger volume of passengers on the system in the summer of 2016. The elements of the project are designed to address these concerns.

## **PROJECT JUSTIFICATION AND DETAILS**

This project, consisting of four distinct work elements, is focused on addressing the most urgent C60 baggage system challenges. These elements are being proposed to meet interim baggage

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capacity needs prior to optimization. The current request will upgrade the security tracking-zone, install robust software, and implement best practices that enhance the baggage screening process.

Interim improvement projects are necessary to keep up with airline customers' rapid growth of flights and passengers prior to when the Baggage Optimization project will affect this portion of the airport. This request is to approve a project to implement interim improvements that are expected to be put in place over the next two years on the C60 system as baggage volumes grow. Meetings with both airline and TSA leadership and their respective technical staff teams from across the country confirm that these interim elements are necessary.

### ***Project Objectives***

The project is necessary for the following reasons:

- The C60 baggage system has exceeded capacity during peak operations;
- Twelve airlines regularly use C60 for normal operations and all airlines may use it for irregular operations;
- Delta Air Lines, the largest user of C60, intends to grow their operation for the next several years including adding approximately 30 flights in 2016 at summer peak; and Baggage Optimization will not be ready to replace the C60 system for several years – estimated date of completion is 2023.

### ***Scope of Work***

Currently the project includes the following work elements:

- Baggage Input Load Balancing: Install crossover TX-4/TC9-OB1 at an estimated cost of \$970,000.
- TSA Search Room Expansion/Enhancements: Expand C-60 search room and install additional feeds, CTX machine, increased number of search tables and input belt at an estimated cost of \$7,730,000.
- Security Zone Tracking Enhancements: Eliminate slope from XR tracking lines and provide multiple enhancements to improve tracking within the system at an estimated cost of \$5,200,000.
- Clear Bag Reconciliation Scanners: Install decision diverter scan guns at an estimated cost of \$300,000.

The elements currently being proposed under the C60 Interim Baggage Handling System Project are needed prior to the 2016 summer peak; therefore, the project must move forward immediately. While specific elements have been identified to be included in the project, necessary adjustments to element scopes and budgets is a risk due to the rapid pace required to meet summer deadlines.

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Staff anticipates Port Crews will be utilized in each of these elements at varying levels of engagement. The Port will be advertising and executing one major works contract for the TSA Search Room Expansion/Enhancements element.

A Sole Source Competition Waiver was authorized for Brock Solutions to provide proprietary software services for integration of upper and lower level controls and software programming for the baggage handling systems, campus-wide. This waiver also authorized the Port to require construction contractors to use Brock Solutions for such proprietary software services.

Additionally, with the Commission's approval, staff will amend an existing Baggage Handling Systems Design Indefinite Delivery Indefinite Quantity (IDIQ) with BNP Associates to provide design and design support during construction.

### ***Schedule***

The goal of this project is to complete design and construction of all elements prior to summer peak 2016, or as soon thereafter as possible.

## **FINANCIAL IMPLICATIONS**

<b><i>Budget/Authorization Summary</i></b>	<b>Capital</b>	<b>Expense</b>	<b>Total Project</b>
Original Budget	\$0	\$0	\$0
Previous Authorizations	\$0	\$0	\$0
Current request for authorization	\$4,377,000	\$0	\$4,377,000
Total Authorizations, including this request	\$4,377,000	\$0	\$4,377,000
Remaining budget to be authorized	\$9,823,000	\$0	\$9,823,000
Total Estimated Project Cost	\$14,200,000	\$0	\$14,200,000

<b><i>Project Cost Breakdown</i></b>	<b>This Request</b>	<b>Total Project</b>
Design Phase	\$2,455,000	\$4,599,000
Construction Phase	\$1,663,000	\$9,022,000
Sales Tax	\$259,000	\$579,000

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

This project was not included in the 2016-2020 capital budget and plan of finance. After the summer peak season, during which the C60 baggage system was regularly pushed to the breaking point, staff worked to identify solutions to the most critical problems. The budget for this project (C800823) will be transferred from the aeronautical allowance CIP (C800404) resulting in no net change to the Aviation Division capital budget. Since the expected average life of the assets will be approximately seven years (until replaced by the Baggage Optimization project), the funding source will be the Airport Development Fund.

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### ***Financial Analysis and Summary***

<b>CIP Category</b>	Renewal/Enhancement
<b>Project Type</b>	Infrastructure Upgrades
<b>Risk adjusted discount rate</b>	N/A
<b>Key risk factors</b>	N/A
<b>Project cost for analysis</b>	\$14,200,000
<b>Business Unit (BU)</b>	Baggage Equipment cost center
<b>Effect on business performance</b>	NOI after depreciation will increase (capital costs added to airline rate base, amortized over 7 years)
<b>IRR/NPV</b>	N/A
<b>CPE Impact</b>	\$.11 in 2017

### ***Lifecycle Cost and Savings***

These elements are not anticipated to add significant cost or savings to the Aviation Maintenance budget. It is anticipated these elements will improve system performance as their primary objective. Staff recognizes the shorter useful life of these elements and is adjusting the amortization period accordingly.

## **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.

## **TRIPLE BOTTOM LINE**

### ***Economic Development***

This project will improve the system functionality to address Airlines' growth. This project improves the effectiveness of the existing system.

### ***Environmental Responsibility***

This project demonstrates environmental sustainability by improving existing Port assets to better utilize existing resources.

### ***Community Benefits***

This project will help enable airline activity to grow at the airport, and that helps increase vitality across neighboring communities. The project manager will collaborate with the Office of Social Responsibility (OSR) to maximize small business participation.

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### **ALTERNATIVES AND IMPLICATIONS CONSIDERED**

**Alternative 1)** – Authorize the funding for design only, leaving construction, purchasing of equipment and additional funding authorization as a separate Commission action in January.

Cost Estimate: \$2,500,000

Pros: This allows for design to get started. This alternative also allows Commission additional time prior to committing construction funding.

Cons: This project is extremely time sensitive and this alternative creates inefficiencies and delays. This project requires equipment with long lead times; this alternative will not allow summer completion and will affect airline operations and costs.

This is not the recommended solution.

**Alternative 2)** - Status Quo - Do not proceed with these projects

Cost Estimate: No cost to airport.

Pros: No capital expenditure.

Cons: Many bags would fail to make it to aircraft on time due to baggage system capacity overload events. Airline baggage delivery performance will suffer, and airlines will be dissatisfied with the Port's ability to provide a necessary service. Airlines have been complaining about system performance and will continue to do so in an escalated manner. Airlines expect their growth can be met and supported consistently and reliably. This alternative does not address their needs.

This is not the recommended solution.

**Alternative 3)** - Airlines and TSA add labor and equipment to process bags manually – ask airlines to change their operations to remove bags from the automated system by manually shuttling transfer bags between aircraft via tugs. Ask TSA to consider “pop-up” screening locations to facilitate re-screening of trans-border transfer bags and other re-screening needs that arise.

Cost Estimate: No cost to airport. Cost yet undetermined - Increased labor and equipment cost to airlines.

Pros: There would be little to no capital expenditure by the airport. Benefits to airport automated system would be varied depending on the quantity of bags removed. If enough bags are processed manually, the system would operate effectively.

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Cons: It is not expected that this alternative will create enough relief to keep the system operating properly during the peaks. This would require significant manual effort on the part of the airline staff and potentially the TSA who both expect automated bag systems. It would increase the amount of tug traffic on the AOA and in the bagwell, creating congestion related inefficiencies and heightened safety concerns between aircraft and concourses in order to shuttle bags manually. There may be unforeseen operational staffing and cost impacts to the airport to enable this non-automated process to occur.

This is not the recommended solution.

**Alternative 4)** - Remove the summer cruise bag peak from the system flow

Cost Estimate: Cost as yet undetermined – future separate long-term project

Pros: Removing volume is as beneficial, or more, than the manual shuttle process alternative above.

Cons: There is no current project defined to provide an alternative for cruise baggage. Planning, designing, & implementing a project to do so will take longer than the immediate need for 2016. Both manual shuttling of transfer bags and removing cruise bag volumes may be necessary in longer term future.

**Alternative 5)** - Move forward with a single design and construction authorization, funding, and enablement of the listed projects so they can be constructed and activated in time for the 2016 and 2017 summer peak volumes.

Cost Estimate: \$14,200,000

Pros: A single Commission authorization for design and construction would allow the work to start immediately and this will give the airlines, TSA, and the airport the best opportunity to be successful with the continued growth of the airlines. TSA will have improved and expanded operating space to provide the necessary baggage screening operations for the increased volumes. Airlines will benefit with improved system efficiency and will see reduced congestion in their check-in lobbies as well as less downtime of the baggage system. This alternative will also improve customer service. It is expected that these options will provide the best opportunity for success in the coming years. These projects will help increase the capacity and efficiency of the checked baggage inspection processing section of the system to match the automated sections of the system. Throughput should increase as a result.

Cons: Capital cost – However, it is necessary to meet rapid airline growth. Port processes may hinder the speed of delivery of these elements – it will be necessary to find ways to move these efforts ahead rapidly. This may not be enough to eliminate the need to manually process bags or to use north bag systems for cruise/trans-border screening. However, a single Commission

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authorization does not allow the typical two opportunities for public comment and Commission consideration of capital project authorization action.

This is not the recommended solution.

**Alternative 6)** - Move forward with design, use of Port crews, and purchase of equipment of the listed projects, leaving advertising, execution of contract, and construction activities as a separate Commission action in January.

Cost Estimate: \$4,377,000

Pros: This allows for design, Port crews and procurement of long lead items to being. This alternative also provides additional public transparency, and provides the Commission with additional review time prior to committing construction funding.

Cons: This project is extremely time sensitive and this alternative creates inefficiencies. This method is not a fast-track process and will create additional burden on the limited resources at the Port. This alternative requires additional and redundant Port processes and it will be necessary to find ways to move these efforts ahead rapidly.

**This is the recommended alternative.**

### **ATTACHMENTS TO THIS REQUEST**

- PowerPoint Presentation.

### **PREVIOUS COMMISSION ACTIONS OR BRIEFINGS**

- June 23, 2015 - Baggage Optimization Briefing.