

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

**COMMISSION AGENDA**  
**STAFF BRIEFING**

<b>Item No.</b>	<u>7c</u>
<b>Date of Meeting</b>	<u>June 28, 2016</u>

**DATE:** June 10, 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 Program Update

**SYNOPSIS**

The objective for this briefing is to update the Commission on the Baggage Program that currently includes the Baggage Optimization and Interim Baggage projects, and will include future projects targeted to increase capacity in the existing terminal, as well as any baggage systems proposed by the Sustainable Airport Master Plan (SAMP).

The Baggage Optimization project increases screening capacity for greater baggage volumes, increases flexibility to allow bags to be checked in anywhere in ticketing and be conveyed to any makeup device, meet a minimum-connect-time goal, and increase energy efficiency. The project was scoped in 2012 to accommodate 45 Million Annual Passengers (MAP) which was projected to be an adequate level through 2027 based on growth projections at that time. Due to unprecedented growth at the airport, we now expect to hit 45 MAP this year, more than ten years earlier than anticipated. These levels of growth have left the airport with a severely stressed existing baggage system which is operating at or beyond its maximum capacity. The existing system will not be fully replaced by the Baggage Optimization project until 2023, necessitating the Interim Baggage Project which is being performed to increase capacity, security, and reliability of existing systems. Interim projects are currently underway, and more projects will be necessary to maintain operations until Baggage Optimization is complete. Unprecedented growth has also left the Baggage Optimization project without the scope necessary to handle the increase to passenger loads beyond 2016. Fortunately the project was designed to be expanded to handle larger volumes in the future, but we now need to expand immediately rather than completing this expansion in 2027 as originally planned.

To mitigate the challenges the airport faces, additional projects will be brought in front of the Commission. These projects include:(1) scope increases to Baggage Optimization to increase the system capacity beyond the 45 Million Annual Passengers (MAP) capacity that the existing project is currently scoped to support, (2) Additional Interim Baggage projects that are currently being evaluated for feasibility, and cost. (3) Other Interim Baggage projects as need arises (4) new outbound makeup devices within the recently approved International Arrivals Facility (IAF) Makeup Space Opportunity project space

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and at the South Satellite, (5) an early bag storage system, (6) modifications made to existing claim devices to also increase capacity of the inbound baggage system (7) Potential SAMP baggage system projects include a new terminal system with an anticipated connection to the optimized baggage system being completed in 2023.

### **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 system is not a single system, but rather many separate systems that bags must manually transfer between. After the events of September 11<sup>th</sup>, 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 all of the aircraft gates. The Airport is expected to see continual passenger growth and is faced with a major and near-term baggage systems challenge due to both the need for and complexity of keeping existing system operations on-going during construction, and major space constraints on expanding the systems' capacity to meet future growth.

Although the challenge is large, the Airport is fortunate that the Transportation Security Administration (TSA) has decided to invest to improve their operations at Sea-Tac. 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 and the TSA has approved the 100% design of the optimized system.

Longer-term demands on the airport's baggage program include the ability to handle 66 million annual passengers (MAP) which is the expected top-end limit of the Airport

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based on the Sustainable Airport Master Plan (SAMP). The results of the SAMP are not yet available, however the baggage design team is engaged and working with the SAMP team. Should the SAMP result in a recommendation for a new north terminal, additional baggage system improvements beyond the current scope of this Baggage Optimization project will be required. If there is a new north terminal, we would expect that new terminal would have its own baggage screening system, with interconnections between the new one and the current one for transfer baggage, since the baggage transport distances from another terminal to/from the central baggage screening location are too great to have central baggage screening for the entire airport and meet airline operational needs. The design has therefore focused on capability to readily enable adding to the current design target of supporting 45 MAP. Thus inherent in the overall design is the flexibility for later projects to add additional conveyor and equipment to increase the capacity of the centralized TSA security screening and search areas. SAMP may also provide relief by providing additional new space for baggage facilities in future remote concourses, thereby relieving pressure within the constrained footprint of the existing terminal bagwell area.

### **PROGRAM ELEMENTS:**

The Baggage Program is currently focused in four areas:

1. Current and future Interim Baggage Projects
2. Baggage Optimization Phasing and Progress
3. Potential Long-Term Capacity Projects
4. Potential SAMP Baggage Projects

### **INTERIM BAGGAGE CAPACITY PROJECTS**

The interim baggage capacity projects address increased capacity and security needs until the baggage optimization project is complete in 2023. A study was performed in 2015 to determine the capacity capabilities of the six existing baggage systems and determine when each of the systems would exceed its maximum capacity based on forecasted growth rates for the airport. The results of the study showed that C60 and C61 systems at the South end of the terminal are currently near or over capacity. Unfortunately footprint constraints and the necessary sequencing required to maintain operations through the Baggage Optimization project dictate that the systems at the South end of the terminal be the last systems to be permanently replaced.

The results of the existing systems capacity study initiated the first of the Interim Baggage Capacity projects: The C60 Interim Baggage Handling System Project. The project has an extremely fast-paced schedule, receiving design and construction authorization from the Commission in December, 2015, and January, 2016 respectively. The project is comprised of four distinct work elements that will provide essential capacity and improve both the security and performance of the C60 system in order to handle the current passenger demands and expected growth in the near to medium term. The four work elements include:

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1. The Baggage Input Load Balancing element will allow for better utilization between two screening loops in the system, gaining better efficiency. This element was designed by Port Engineering, and constructed by Aviation Maintenance and Port Construction Crews (PCS). It became operational May 31.
2. The 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. Design has been completed and the major contract advertised May 27, 2016. Construction is scheduled to start in September and reach substantial completion before the Holiday peak season in November. Due to the extremely aggressive nature of this scope element schedule and budget will remain a high risk factor.
3. Security Zone Tracking Enhancements element will reduce error bags to the TSA search room and improve the overall system capability. This element has two phases: 1. Slope modifications and 2. C60 Re-control. Slope modifications were completed and certified by TSA in April. The re-control element involves intricate programming modifications to the entire system that will occur through May 2017.
4. The Clear Bag Reconciliation Scanners element was cancelled due to TSA disapproving the Checked Baggage Inspection System (CBIS) Change Request (CCR) to implement the work element.

An additional Interim Baggage project (Phase 2) is currently in planning stages to determine cost/benefit and feasibility. This planning phase will be complete in Q3, 2016. Potential elements include:

- C61 Makeup Capacity
- C61 Screening Expansion
- C1 Sortation
- South Satellite Makeup Feed

## **BAGGAGE OPTIMIZATION PROJECT**

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
- Reduce minimum connect times where possible
- Long term energy savings

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This project will occur in four phases. Phase 1 will begin construction in the second quarter of 2017. Completion of the fourth and final phase is scheduled for 2023.

- This project is currently within the allocated budget to provide the 45 MAP system currently scoped, however growth rates exceeding forecasts at the time of the Baggage Optimization scoping require consideration to take advantage of the expandable design and install additional Explosive Detection Systems (EDS) machines, conveyor spur lines, ticketing, sortation, and recirculation conveyor mainlines to increase the overall capacity of the system. It is important to recognize that at the time the Baggage Optimization project scope was developed in 2012, the forecasted growth level at project completion was expected to be less than 41 MAP.

Potential needs driven by unforeseen growth that were not scoped as part of the Baggage Optimization project:

- Capacity beyond 45 MAP
- Interim baggage projects and studies
- Additional baggage claim
- Early bag storage
- Radio frequency identification (RFID)

To address these potential future needs, the following items are currently in the planning phase:

- Baggage Optimization capacity beyond 45 MAP
  - A cost estimate is being developed and will be complete in Q3, 2016. The decision to expand beyond 45 MAP is not critical to Phase 1 construction, but is critical to subsequent phases and needs to be determined in 2016.
- New outbound makeup devices
  - A facility wide makeup study is underway that will include current and future requirements.
  - Cost estimates and feasibility studies for new outbound makeups in the IAF and South Satellite are being conducted.
- Early bag storage
- Baggage claim modifications

## **SAMP BAGGAGE OPTIMIZATION**

The SAMP baggage optimization projects will address the needs of a potential new terminal system, including the interface and connection between the systems as well as the issues with minimum connect time and how to combat them. Specific requirements will be addressed when the SAMP is implemented.

## **ATTACHMENTS TO THIS BRIEFING**

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- Computer slide presentation.

## **PREVIOUS COMMISSION ACTIONS OR BRIEFINGS**

- May 17, 2016 Baggage Quarter 1 Briefing.
- March 8, 2016 Commission authorization for the Chief Executive Officer to amend the Baggage Optimization Design Services contract.
- January 12, 2016 Commission authorized for the Chief Executive Officer to advertise, award, and execute a major public works contract for the C60 Interim Baggage Handling System Project in the amount of \$9,823,000.
- December 4, 2015 The Commissioners authorized design for the work elements in the C60 Interim Baggage System Project; use of Port crews to self-perform work; purchase equipment for various work elements; amend the BNP Handling System Design Indefinite Design Indefinite Quantity (IDIQ) by \$3,500,000; and 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.
- 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.