



**COMMISSION  
AGENDA MEMORANDUM**

**Item No.** 9c

**BRIEFING ITEM**

**Date of Meeting** February 26, 2019

**DATE:** February 15, 2018

**TO:** Stephen P. Metruck, Executive Director

**FROM:** Jeffrey Brown, Director AV Facilities and Capital Program  
Wendy Reiter, Director, Aviation Security  
Wayne Grotheer, Director, Aviation Project Management

**SUBJECT:** Baggage Optimization Project Phase 1 and Phase 2 Update (CIP #C800612)

**EXECUTIVE SUMMARY**

Baggage Optimization is an airport-wide project that improves customer service for both airlines and passengers. This is a long-term, 3-phase project that won't be completed until 2025. This project was initially cost estimated and scheduled in 2013. Phase 1 is under construction, within budget, and will be substantially complete in early 2020.

Phase 2 is now fully designed so estimated costs can be compared to projections from 2013. Since that time market conditions have changed for four reasons. Baggage equipment prices have raised, tariffs have been imposed which drove up steel prices, airline customer reviewers have added scope, and a hot construction market has escalated labor and material costs at a rate faster than general inflation. A sensitivity analysis using 100% Phase 2 design documents and 70% Phase 3 design documents indicates the increase in overall project cost ranges between \$40 and \$80 million atop the original estimated cost of \$445 million. The project budget is currently sufficient to cover Phase 2 costs, but will likely require a budget increase prior to Phase 3 construction in 2022. The current budget will carry the project 4 years into the prior approved year capital plan of finance. The soonest that staff would be able to reevaluate overall cost ranges is mid-2022 when the latest costs and local construction economy can be assessed.

Port staff are meeting with contractors to gather more market information and to increase the number of bidders to reduce market condition impacts on construction costs. Following bid results in the third quarter of 2019, staff will return for authorization of additional funds. Port executive management believes that in this hot construction market it is wise to adjust our practice for mega-projects from projecting exact construction costs at 30% design to awaiting actual bids prior to authorizing construction funds.

**SUMMARY OF PROJECT OBJECTIVE AND BENEFITS**

The Baggage Optimization project replaces six individual baggage screening systems with a centralized system that optimizes operation of the checked baggage system at Seattle-Tacoma

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International Airport. The purpose of this project is to optimize the baggage system to achieve the maximum outbound baggage capacity within the current airport footprint. The project increases screening capacity for greater baggage volumes, increases flexibility to allow bags to be checked in from any ticket counter and be conveyed to serve any gate, meets the established minimum-connect-time goal, and increases energy efficiency. Additional benefits include increased reliability, redundancy, and security. Meeting travelers' baggage needs will significantly contribute to increased customer service, and address growing passenger demands of the region. The project is currently scoped to accommodate 60 million annual passengers (MAP).

The project is being bid and constructed in three separate phases. Phase 1 is currently on budget but has recently experienced schedule setbacks of an estimated three to six months. The biggest risks to future phases of the project are Phase 1 schedule delays and baggage handling market conditions affecting Phase 2 and 3 bids.

## **PROJECT UPDATE**

### ***Phase One***

Notice to Proceed was issued to the Phase 1 prime contractor, PCL Construction Services Inc., on May 26, 2017. Construction is currently underway, including the following activities and accomplishments:

- (1) Conveyor Factory Acceptance Retest has been successfully completed.
- (2) All conveyor equipment has been delivered to Seattle and stored at provided warehouse location.
- (3) Structural steel has been installed at the Central Terminal to create additional building space on ramp level.
- (4) Conveyor installation is scheduled to be complete in May.
- (5) Construction on utilities and infrastructure continues.
- (6) Network hardware equipment for baggage handling system has been purchased and delivered.

Upcoming critical elements include conveyor installation, computer programming, and completion of the new baggage system control room.

On-going stakeholder coordination continues to be essential, particularly with other projects, Aviation Maintenance, and airport tenants.

The contractor has increased work shifts from five to six days per week. As of the latest December pay application, 103,726 work hours have been reported and work completed is estimated to be 73 percent.

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*Contracting requirements (status as of January 2019)*

<u>Program</u>	<u>Requirement/Goal</u>	<u>To-Date</u>
Small Business Enterprise (SBE)	15% of total contract	14.12%
Small Contractors & Suppliers (SCS)	5% of SBE	9.76%
Apprenticeship	15% of total hours	21.43%

***Phase Two***

The Port of Seattle and the Design Consultant continue to develop bid documents for Phase 2 that includes the previously approved scope increase to bring the new baggage system to a capacity of 60 MAP. The project is currently in the permit phase awaiting the Airport Building Department and Fire Department review and permit approval.

Critical upcoming activities include obtaining the airport building permit and preparing bid documents. We expect to request Commission authorization for Phase 2 construction in April 2019 and to advertise in Q2 2019, pending an anticipated completion of Phase 1 in Q4 2019. This timing will allow fastest possible completion of the overall 3-phase project.

**SCHEDULE AND BUDGET*****Schedule: Phase One***

Based on the most current contractor schedule, Phase 1 is 104 days behind schedule. Holding this schedule would place Phase 1 Substantial Completion in 2019 Quarter 4. The contractor delay can be attributed to late conveyor submittals and lagging equipment fabrication, along with further delay caused by a failed factory acceptance test. While the contractor schedule shows the project 104 days behind schedule, the Port project team feels that the project is six months behind schedule due to the contractor delays.

While the current delay to the project is likely unrecoverable, the project team is working to eliminate further delay. To address the performance and schedule concerns, the team has implemented the following:

- Three additional design review meetings were held to help the contractor understand the project requirements.
- Port staff was sent to Denver to meet with both the contractor and designer in order to speed up critical submittal reviews.
- Multiple letters have been issued documenting the delay caused by the contractor.
- The project team now meets on-site with the contractor's executives quarterly to discuss ways to mitigate the schedule delays. Actions resulting from these meetings:
  - Baggage handling system (BHS) installation foremen were swapped with other projects to help speed production,
  - Night shift hours were adjusted to provide for more Port oversight,
  - The contractor added a field engineer to assist with field layout,
  - BHS subcontractor field staff were increased to speed installation and improve quality,

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- Three additional BHS installation crews were added (total of five) to mitigate submittal and fabrication delays,
- Work days were extended from Monday through Friday to include Saturday, and
- BHS manufacturer added a crew to help with conveyor installation quality control.
- To avoid further delay resulting from another failed factory acceptance test, the team required the contractor to provide a recovery schedule showing weekly milestones leading up to the re-test. Beginning September 19, a Port representative along with a member of the design consulting firm traveled weekly to the BHS contractor headquarters in Michigan to verify successful completion of the designated milestones. This extra attention allowed all the required tests to be demonstrated ahead of the official factory acceptance test and greatly contributed to a successful retest.
- Laydown area to store uninstalled conveyor had become a point of contention. The Port secured and provided warehouse space to the contractor to free the area of stored conveyor and speed installation at the site. This has resulted in a more organized and efficient work area.

**Schedule: Phase Two**

Phase 2 design efforts started on October 31, 2017, 100-percent design documents were received August 2018 and are currently being reviewed by the Airport Building Department. Planned Phase 2 construction advertisement in Q1 2019 was contingent upon on-time Phase 1 completion and will now be delayed for three to six months to avoid overlapping of Phase 1 and 2 work. The South Satellite portion of Phase 2 is dependent on the International Arrivals Facility project being operational in order to demolish the baggage system in the South Satellite tunnel and begin construction. The overall project is now scheduled for Phase 3 (the final phase) to obtain substantial completion in Q3 2025 (based upon a contractor delay of 6 months to Phase 1).

Phase 1 Substantial Completion (based on estimated 6-month Contractor delay)	2020 Quarter 1
Phase 2 Substantial Completion	2023 Quarter 1
Phase 3 Substantial Completion	2025 Quarter 3

**Budget**

**Overall Project Budget:**

Total Project Budget	\$445,050,000
Total TSA Contribution	\$94,043,296
Total Commission Authorization to Date	\$136,312,200
Amount Spent to Date (as of 12/03/18)	\$64,621,053
TSA Reimbursement to Date (as of 12/03/18)	\$30,899,397

**Phase 1 Budget:**

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Phase 1 Budget	\$111,000,000
Phase 1 Estimate at Completion	\$101,000,000

***Phase 2 Budget***

Phase 2- most recent estimate	\$238,000,000
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**ADDITIONAL BACKGROUND**

The Baggage Optimization project was scoped in 2012 to accommodate 45 MAP with an expandable design to accommodate future growth. At the time, growth forecasts were flat and predicted that 45 MAP would be adequate through 2027. The decision was made to proceed in building an expandable 45 MAP system with the expectation that an expansion would occur in the future in time to accommodate growth up to the 60 MAP level. Due to unprecedented growth at the airport, the 45 MAP threshold was met in 2016, over ten years earlier than anticipated. In June 2017, the Commission authorized the project to incorporate a capacity expansion of the Baggage Optimization project in order for the new outbound baggage system to accommodate 60 MAP. The additional capacity will be incorporated into Phases 2 and 3 and added 14 months to the overall project schedule and a net budget increase of \$126 million. The \$126 million increase is included in the overall budget of \$445 million.

**ATTACHMENTS TO THIS BRIEFING**

- (1) Presentation slides

**PREVIOUS COMMISSION ACTIONS OR BRIEFINGS**

- October 23, 2018 – Baggage Optimization Quarter 3 Project Briefing
- June 12, 2018 – Baggage Optimization Quarter 2 Project Briefing
- January 9, 2018 – Baggage Optimization Quarter 4 Project Briefing
- September 26, 2017 – Baggage Optimization Quarter 3 Project Briefing
- June 27, 2017 – Commission authorization to (1) authorize additional design and project management funds to expand the capacity to 60 million annual passengers (MAP); (2) use Port crews and small works contracts to perform additional construction work; and (3) amend Service Agreement P-00317641 to add \$10,160,000
- October 25, 2016 – Baggage Optimization Quarter 4 Project Briefing
- July 12, 2016 – Commission authorization to advertise and execute a contract for construction Phase 1
- 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

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- 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