



# INTERNAL AUDIT REPORT



OPERATIONAL AUDIT - CAPITAL  
Checked Baggage Optimization Project - Phase I  
MARCH 2017 – JUNE 2019

ISSUE DATE: June 10, 2019  
REPORT NO. 2019-08



INTERNAL AUDIT

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## EXECUTIVE SUMMARY

In collaboration with Talson Solutions, LLC, an independent construction auditing firm with experience in baggage handling systems, Internal Audit completed an audit of the Checked Baggage Optimization Project – Phase I (Project) for the period March 2017 through June 2019. The audit was performed to assess the quality of the Port's monitoring of the Project to assure it was meeting project management standards.

Overall, the Port's project team is managing the Project well and has gone through additional efforts to steer the project completion as close as possible to the contractual substantial completion and overall Phase I completion date. Without this effort, Phase I would be further behind the original schedule than the currently projected four to six months. Without continuous oversight from Port staff, the project could incur additional schedule delays.

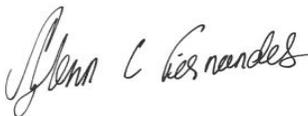
Our review noted that Port management's monitoring and documentation of change management aligned with industry standards and best management practices. This was especially evident in the areas of documenting the reasons for changes, estimating change values, complying with contractual mark-up provisions, assessing and implementing lessons learned, and using detailed subcontractor hourly wage rates for support of labor costs. Furthermore, the project team closely monitored PCL Construction Services, Inc. (PCL) deficiencies in oversight of its subcontractors and expressed those deficiencies through numerous serial letters of deficient performance. We noted that Force Account Change Orders have not been reconciled as required and should be prior to final payment to PCL.

PCL experienced significant challenges in maintaining staff with baggage handling project experience, which may have resulted in lack of sufficient oversight and unanticipated, less than average subcontractor performance and delays. Furthermore, PCL's addition of the current project manager was not facilitated by a formal submission to the Port as required by the contract's specifications. Other than these noted concerns, PCL is generally meeting its contractual obligations and responsibilities. PCL's initial schedule appeared appropriate to meet the contractual substantial completion and overall Phase I completion dates.

We noted the following issue for managements' consideration upon completion of Phase I:

1. (Medium) – PCL did not effectively monitor its subcontractor's performance. As a result, critical milestones were not met by agreed upon target dates, negatively impacting the completion dates for Phase I.

This issue is discussed in more detail beginning on page seven of this report.



Glenn Fernandes, CPA  
Director, Internal Audit



Kenneth Brzozowski, CCA, CCP  
Talson Solutions, Engagement Director

## RESPONSIBLE MANAGEMENT TEAM

Ralph Graves, Sr. Director Capital Development  
Jeffrey Brown, Director Aviation Facilities & Capital Programs  
Wendy Reiter, Director Aviation Security  
Wayne Grotheer, Director Aviation PMG  
Janice Zahn, Assistant Engineering Director, Construction

**BACKGROUND**

In collaboration with the Transportation Security Administration (TSA), the Port of Seattle, is optimizing the outbound baggage handling system at the Airport which encompasses roughly 110,000 square feet within the baggage screening area. The new system will replace the existing aging system which has reached capacity with significant passenger growth at Seattle-Tacoma International Airport in the last five years; including the addition of ten new airlines. The Project increases screening capacity for greater baggage volumes, increases flexibility for bags to be checked from any ticket counter, allows the airport to meet the established minimum-connect-time goal, and increases energy efficiency.

The Port entered into a \$52 million Lump Sum Contract in March 2017, with PCL for Phase I construction activities which commenced in April 2017 and was scheduled to be completed in June 2019. The Port also entered into a \$12 million contract with BNP Associates, Inc., for comprehensive design work on the Project, primarily focusing on Phase I.

The Port acknowledged a four to six-month delay in achieving completion of Phase I construction activities. As of the Contractor’s April 2019 Payment Estimate No. 22, there have been \$2.5 million in change orders.

The overall project budget appears to have sufficient funding in place. Potential risks include material price increases and continued unforeseen conditions for future phases that could result in unexpected contingency usage. Phase I budget details include:

- a) Project contingency \$7.2 million (has not yet been used).
- b) Construction contingency to fund change orders (original budget of \$8 million with approximate \$5.6 million remaining).
- c) Remaining Allowance and Contingency funds will be transferred to Phase II & III.

The following table details the current schedule and budget.

<b><i>Schedule (Per April 2019, Pay Estimate 22)</i></b>	
Contractual Substantial Completion Date	08/10/19
Forecasted Substantial Completion Date	12/22/19
Contractual Project Completion Date	12/05/19
Forecasted Project Completion Date	03/23/20
<b><i>Budget (Per April 2019, Pay Estimate 22)</i></b>	
<b>Original Contract Sum</b>	\$52,000,000
<b>Change Orders</b>	\$2,526,743
<b>Contract Sum to Date</b>	\$54,526,743 <sup>1</sup>
<b>Total Completed and Stored to Date</b>	\$46,504,600
<b>% Complete</b>	85%

<sup>1</sup> PCL is forecasting approximately \$1.6 million additional change orders that will result in a revised lump sum contract value of approximately \$56 million.

## AUDIT SCOPE AND METHODOLOGY

We conducted this performance audit in accordance with Generally Accepted Government Auditing Standards and the International Standards for the Professional Practice of Internal Auditing. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

The period audited was March 2017 through June 2019 and included the following procedures:

### Lump sum agreement

- Reviewed agreements and exhibits for key contract provisions to identify scope, contractual obligations and deliverables.
- Assessed compliance to the contract.
- Assessed the selection process and the bid awarded to PCL.

### Subcontractor review

- Reviewed agreements and exhibits for key contract provisions to identify scope, contractual obligations, and deliverables.
- Assessed compliance to the contract.
- Assessed potential variances or gaps in contractual obligations and scope responsibilities between the subcontractor and PCL, suppliers, and vendors.
- Assessed contract status of notable subcontractors for change orders, conformance to contractual obligations, and schedule and delivery.

### Pay estimate review

- Tied amount disbursed to PCL with the Port's control group register.
- Assessed the reasonableness of the overall percent complete to PCL's percent complete.
- Verified the accuracy of monthly amounts paid to subcontractors.
- Tied PCL change orders to the change order log.
- Assessed the inclusion of supporting documentation for stored material.
- Verified the invoicing timelines.
- Assessed billing trends for irregularities.

### Project Communications

- Reviewed monthly reports between PCL and the Port.
- Reviewed drawings, submittals and requests for information (RFI).
- Reviewed RFI and submittal logs for open items affecting the project phase completion.
- Reviewed the submittal log for timeline of any delays (*Jervis B. Webb shop drawings*).
- Reviewed daily construction/manpower reports.
- Assessed trends within a specific area or trade.
- Identified significant impacts to schedule or cost.

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Schedule Review

- Reviewed schedule documentation, including review of resource loading, float durations and critical path modeling for accuracy and reasonableness.
- Performed a root cause analysis to identify contributing factors to known schedule delays.
- Reviewed baseline and update schedules.

Project Financial Testing

- Assessed the Project's current financial status.
- Reviewed Port cost reports, budgets, general ledgers, submittals and other cost documentation for potential duplicate payments.
- Assessed other budgeted values (*architect, consultants, legal, etc.*).
- Performed a root cause analysis to determine contributing factors to potential cost overruns.

Owner Change Orders

- Verified proper approvals.
- Confirmed the approved potential change order tied to the change order log.
- Reviewed potential change orders for reasonableness.
- Verified the accuracy of contractor and subcontractor markups.
- Reviewed subcontractor backup, including direct costs and inclusion of accurate markups allowed by subcontractor.
- Tested subcontractor hourly wage rate detail sheets.
- Reviewed documentation supporting PCL's change order/claim submissions, specifically for errors & omissions change orders.

Equipment Testing

- Assessed the installation, testing and certification of explosive detection system machines (EDS) provided by the TSA.
- Reviewed documentation for conformance of the design, manufacturing, testing and inspections of the EDS by third party inspection agencies and others.
- Assessed factory acceptance testing.
- Assessed local acceptance testing.
- Assessed any issues within test reports.
- Reviewed deliverables within the TSA's agreement with the Port.

Design Review

- Assessed designer obligations (conceptual, design, CDs, etc.).
- Assessed design issues leading to changes, delays, and cost impacts.
- Assessed for incomplete designs within contract documents.
- Assessed designer timeline for reviews (RFI, Submittals, etc.).
- Reviewed for potential designer error and omission types of changes.
- Performed a root cause analysis to determine contributing factors of potential open design items.

## SCHEDULE OF FINDINGS AND RECOMMENDATIONS

### 1) RATING: MEDIUM

**PCL did not effectively monitor its subcontractor's performance. As a result, critical milestones were not met by agreed upon target dates, negatively impacting the completion dates for Phase I.**

The project was awarded to PCL on March 2, 2017 with a duration of 891 calendar days. The Contract's terms require Substantial Completion by August 10, 2019 and Physical Completion by December 8, 2019. If these milestones are missed, the Contract allows the Port to pursue liquidated damages of \$3,243 per day after the Substantial Completion date and \$1,016 per day after the Physical Completion date. Based on the projected four to six-month delay, the Port would be entitled to pursue between \$545,000 and \$801,000 in liquidated damages.

PCL subcontracted with Jervis B. Webb Company (Webb), a subsidiary of Daifuku Co. Ltd., to design and engineer the baggage handling system conveyors (BHS). The Contract between the Port and PCL required PCL and Webb to host Factory Acceptance Testing that demonstrated the system met the minimum design and performance criteria.

Between August 27, 2018 and August 31, 2018, the Port, TSA, and design teams attended the Factory Acceptance Testing at Webb's headquarters in Michigan. Webb failed to meet numerous design and performance criteria and therefore, the entire system did not meet the requirements of the Contract. Port management attended two additional Factory Acceptance Tests in Michigan, as well as multiple weekly factory visits, to assure that the BHS conveyors met contractual requirements. Port staff put forth significant efforts to minimize further delays and steered the project appropriately. Not including staff time, this resulted in approximately \$20,000 in additional direct costs to the Port.

By not effectively managing its subcontractors and not passing the Factory Acceptance Test, PCL anticipates a schedule delay of approximately four months, while the Port estimates a schedule delay of approximately six months. This schedule delay will impact the Port's ability to commence Phase 2 and subsequently Phase 3 projects and ultimately impacts the overall completion date of the Project.

**Recommendation:**

Upon completion of Phase I, Port management should calculate and pursue liquidated damages from PCL.

**Management Response/Action Plan:**

The team is in agreement with the recommendation that liquidated damages should be imposed in the amount of \$3,243 / day for unexcused delays beyond the original Substantial Completion date and \$1,016 / day for unexcused delays beyond the Physical Completion date. The team fully intends to pursue liquidated damages and that has been previously conveyed to the Contractor. This will be done once the Contractor achieves Substantial Completion and Physical Completion, when we can quantify the actual delay.

## APPENDIX A: RISK RATINGS

Findings identified during the audit are assigned a risk rating, as outlined in the table below. The risk rating is based on the financial, operational, compliance or reputational impact the issue identified has on the Port. Items deemed “Low Risk” will be considered “Exit Items” and will not be brought to the final report.

Rating	Financial	Internal Controls	Compliance	Public	Port Commission/ Management
<b>HIGH</b>	Large financial impact  Remiss in responsibilities of being a custodian of public trust	Missing, or inadequate key internal controls	Noncompliance with applicable Federal, State, and Local Laws, or Port Policies	High probability for external audit issues and/or negative public perception	Important  Requires immediate attention
<b>MEDIUM</b>	Moderate financial impact	Partial controls  Not adequate to identify noncompliance or misappropriation timely	Inconsistent compliance with Federal, State, and Local Laws, or Port Policies	Potential for external audit issues and/or negative public perception	Relatively important  May or may not require immediate attention
<b>LOW/ Exit Items</b>	Low financial impact	Internal controls in place but not consistently efficient or effective  Implementing/enhancing controls could prevent future problems	Generally, complies with Federal, State and Local Laws or Port Policies, but some minor discrepancies exist	Low probability for external audit issues and/or negative public perception	Lower significance  May not require immediate attention
<b>Efficiency Opportunity</b>	An efficiency opportunity is where controls are functioning as intended; however, a modification would make the process more efficient				