



# INTERNAL AUDIT REPORT



Operational Audit- Capital

Central Terminal Infrastructure Upgrade Project  
(Bid and Design Phases)

October 2014 – November 2020

Issue Date: November 24, 2020  
Report No. 2020-18

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## Executive Summary

Internal Audit (IA) completed an audit of the Central Terminal Infrastructure Upgrade Project (Project) for the period October 2014 through November 2020. The audit was performed to assess the quality of the Port's monitoring of the Project to assure it was meeting project management standards in an efficient and effective manner.

The Project will be audited in two parts; this audit focused on the bidding and design phases while the second audit will focus on the construction and closeout phases, which is scheduled to occur in the 1<sup>st</sup> quarter of 2021.

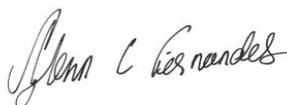
The delivery method for this Project was a design-bid-build with a lump sum contract. The Port entered into an agreement with HNTB Corporation (HNTB) on October 23, 2014 to furnish design services for the Terminal Utility Upgrades Design of Airport Dining and Retail project. In 2016, the Airport, Dining and Retail Infrastructure Modifications project and the Central Terminal HVAC Upgrade project were advertised, but due to incoming bids being higher than the engineer's estimate, both procurements were canceled in October 2016. As a result of these irregular bids, the project management team combined the two construction projects into one larger project and estimated the combined Project to be \$10.2 million. Osborne Construction Co. (Osborne) was awarded the contract in the amount of \$9.3 million.

The contract required that the contractor substantially complete the work no later than 730 days following the contract execution date, which would have been December 26, 2019. Based on the October 2020 trend log, there have been an additional 278 approved days that have extended substantial completion to September 29, 2020. As of the conclusion of this audit, the Contractor had not completed the Project. Currently, the Port's project team stated that the Project will be substantially completed at the end of November 2020.

Through discussions with the Port's project staff, one of the main reasons that the project did not meet critical milestones, and experienced cost overruns, was the lack of involvement from key stakeholders during the review and approval of designs. Additional reasons that contributed to project delays and cost overruns, included the lack of design review after merging the two original projects, and Port turnover in key departments involved with the Project. Management conducted a "lessons learned" assessment for the Project in 2019, in which they self-identified these issues.

The construction contract total is currently \$12.2 million, which includes approximately \$2.7 million in change orders (COs); a 29% increase in project costs. Although not all change orders could have been prevented during the design phase, a stronger design and approval process could have prevented some of them. Additionally, we have noted similar concerns in other audits of capital projects. We identified the following opportunity where internal controls need to be enhanced or developed. This opportunity is discussed in more detail beginning on page seven of this report.

1. **(Medium)** The lack of involvement, participation, and collaboration between the key stakeholders during the review and approval of designs resulted in additional project costs and schedule delays.



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**Responsible Management Team**

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## Background

The purpose of the Project was to provide the shell space and associated vertical circulation for expansion of, and improvements to, the airport dining and retail (ADR) space in the Central Terminal. The outcome was anticipated to improve customer service and increase non-aeronautical revenues. A space demand analysis showed there was a need in the Central Terminal for an additional 12,000 square feet of ADR space to meet the anticipated 2025 passenger projections. This project will add approximately 10,000 square feet of new ADR space to the Central Terminal. The Port entered into an agreement with HNTB Corporation (HNTB) on October 23, 2014 to furnish design services for the Terminal Utility Upgrades Design of Airport Dining and Retail project.

In 2016, the Port advertised two separate projects for bids. The first project was the ADR Modifications Central Terminal Project with an engineer's estimate of \$3.4 million. The ADR Modifications Project received one bid of \$7.5 million, which was 120% above the engineer's estimate. The second project was the Central Terminal HVAC Upgrade Project with an engineer's estimate of \$2.9 million. This project also received one bid of \$8.7 million, which was 194% above the engineer's estimate. As a result of these irregular bids, the Port's Project Management Team combined the two construction projects into one larger project, the Central Terminal Infrastructure Upgrade Project, with an estimated project cost of \$10.2 million. Osborne Construction Co. (Osborne) was awarded the contract for \$9.3 million.

The Project has experienced multiple construction change orders. Some of these were driven by business and customer service related decisions, but nonetheless, have resulted in schedule delays and increases to the Project's budget.

The following table details the current schedule and budget.

<b><i>Schedule (Per October 2020 Trend Log)</i></b>	
Original Contract Completion Date	12/26/2019
Forecasted Contract Completion Date	09/29/2020
<b><i>Budget (Per October 2020 Trend Log)</i></b>	
Original Contract Sum	\$9,309,641
Executed COs and Potential Cost Risks	\$2,969,591
Projected Contract Sum to Date	\$12,279,232
Original Contingency	\$1,021,000
Revised Contingency Total	\$3,021,000
Remaining Contingency	\$51,409

## **Audit Scope and Methodology**

We conducted the engagement 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 conduct an engagement to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our engagement objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our engagement objectives.

The period audited was October 2014 through November 2020 and included the following procedures:

### Bid-Law Compliance

- Obtained an understanding of Port staff's understanding and compliance with bid law regulations through inquiry with the Central Procurement Office's management and staff.
- Reviewed supporting documentation from bid packets, including: the public solicitation, bid proposals, bid tally sheets, applicable state laws, and Port policies and procedures.

### Invoice Review Process

- Obtained an understanding of the Port project team's review and approval process of designer invoices.
- Assessed whether the process was adequate to assure invoices were accurate, for allowable purposes, and properly supported by reviewing supporting documents and performing testing procedures.

### Project Management (Lessons Learned)

- Reviewed the "lessons learned" spreadsheet from the Lessons Learned Database.
- Obtained an understanding of issues encountered during the project through inquiry with management.
- Reviewed supporting documentation, including email correspondence, invoices and service directives.

## Schedule of Findings and Recommendations

### 1) Rating: Medium

**The lack of involvement, participation, and collaboration between the key stakeholders during the review and approval of designs resulted in additional project costs and schedule delays.**

We interviewed multiple departments that were identified as key stakeholders and sponsors for the Project, including the Aviation Project Management Group, Construction Management, Aviation Maintenance, Aviation Facilities and Infrastructure, ADR, HNTB, and the prime contractor (Osborne), to understand the history of the project including the planning, design, and issues encountered. Although the Port has a process in place which gives stakeholder and department sponsors an opportunity to review designs and provide feedback, we noted the following weaknesses in the process that could potentially impede the success of a project:

- It is not mandatory for key stakeholders to provide feedback and approve key design milestones. Full approval of the designs early, may decrease the potential for scope changes after the design is approved.
- An email with the designs is sent for review and feedback to stakeholders. For projects with major operational and customer service impacts, stakeholder departments not regularly affiliated with construction projects, may not have the technical expertise to understand engineering drawings. The project management team has an opportunity to be more involved with these stakeholders to assure they have a complete understanding of a project and its impacts.

As a result of the weaknesses highlighted above, the project experienced multiple design changes which resulted in numerous error and omission change orders, scope changes, and schedule delays. In multiple instances, the Aviation Division Directors collectively made the decision for these changes. The following table details the total designer error change orders and owner error/omission change orders:

Justification Code Summary	No. of COs	Amount	Approved Contract Extension
Error/Omission Designer	79	\$497,206	0
Error/Omission Owner	11	\$1,236,310	123
Total:	90	\$1,733,516	123 days

Source: SQL Server Reporting Services Production- *Full Trend Log*, October 7, 2020

Additional reasons that contributed to the added cost were management and staff turnover in key departments. Port management self-identified these issues by conducting a “lessons learned” review in 2019. IA recognizes that errors and/or omissions do periodically occur during a project; however, better involvement, participation and collaboration between key stakeholders, project sponsors, and the designer during the pre-construction and design phases would have prevented some of these change orders.

### Recommendations:

- Obtain approval from stakeholder departments for all critical milestones during the design phase (15%, 30%, 60%, 90%, and 100%) within a set deadline. It should be the responsibility of the design reviewer/approver from the stakeholder departments to respond timely. Once each design milestone is approved, there should be no deviation from the approved designs, except in rare circumstances.

**Management Response/Action Plan:**

There are three key points from the Aviation Division in response to the audit findings. First, since this project went through the bid and design phase there have been significant changes to project processes that if in place at the time could have mitigated the cost increases. Second, two significant changes to construction sequencing and project design were made as conscious business decisions to meet customer service needs and to gain revenue which offset the cost of the changes. Finally, additional process changes are under development to address the recommendation of mandatory design review participation.

The first relevant project process change made in 2020 is additional requirements during the project definition phase. There are three main areas of focus that were added to our project definition process in January 2020: 1) anticipated operational impacts or constraints, 2) temporary facilities or systems, and 3) customer service or external communications.

The second relevant project process change was in April 2020, when the Aviation Division adopted a change management process for discretionary project scope changes from initial project approval through construction. Project budget changes still require approval of the Aviation Investment Committee and Port Commission and existing approval authority for construction change orders under EX-2 are also unchanged. This new process is intended to put further scrutiny on changes within the budget as well as those ultimately requiring further approvals due to the need for project budget increases. Discretionary changes in project scope above \$50,000 now require approval of a Project Review Board (which consists of the Directors of Aviation Finance & Budget, Aviation Facilities & Capital Programs, and Aviation Project Management); additional approvals are required for changes above \$500,000 (Aviation Chief Operating Officer) and above \$1,000,000 (Aviation Managing Director).

For the central terminal infrastructure upgrade project, the significant changes made during construction included delayed closure of the Anthony's restaurant and addition of HVAC utilities for temporary hot food dining options in front of the construction barrier. These decisions were made by the Aviation Division Directors in response to customer service and ADR tenant impact concerns, recognizing that this would add construction cost. The added construction cost of those two changes was \$563,000 while the additional Port revenues resulting from these changes was over \$1,100,000 during the months of November 2018 through March 2020.

Finally, Aviation Project Management is developing additional process changes to address the recommendation of mandatory design review participation. Changes include designation of mandatory reviewers for each project beginning or already in design and development of communications expectations for non-technical design reviewers (e.g. Aviation business management), These changes will be complete in Q2 2021.

**DUE DATE: June 30, 2021**

## Appendix A: Risk Ratings

Findings identified during the audit are assigned a risk rating, as outlined in the table below. Only one of the criteria needs to be met for a finding to be rated High, Medium, or Low. Findings rated Low will be evaluated and may or may not be reflected in the final report.

Rating	Financial Stewardship	Internal Controls	Compliance	Public	Commission/ Management
<b>High</b>	Significant	Missing or not followed	Non-compliance with Laws, Port Policies, Contracts	High probability for external audit issues and / or negative public perception	Requires immediate attention
<b>Medium</b>	Moderate	Partial controls Not functioning effectively	Partial compliance with Laws, Port Policies Contracts	Potential for external audit issues and / or negative public perception	Requires attention
<b>Low</b>	Minimal	Functioning as intended but could be enhanced to improve efficiency	Mostly complies with Laws, Port Policies, Contracts	Low probability for external audit issues and/or negative public perception	Does not require immediate attention