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Cover photo courtesy of Denver International Airport.
May 19, 2022

The objective of our audit of the Peña Boulevard improvements construction contract at Denver International Airport was to determine whether the airport's oversight of phase 1 ensured the city received the work it paid for. I am pleased to present the results of this audit.

The audit found the Airport Infrastructure Management Division needs better oversight of its contract changes, invoice approvals, and subcontractor management for the Peña Boulevard improvements project to ensure compliance with applicable city and contract requirements.

By implementing recommendations for stronger construction project oversight, documented policies and procedures, and optimal use of its project management system, Denver International Airport's Infrastructure Management Division will be better equipped to ensure it receives the work it pays for and at the best possible value. These recommendations will also ensure the city can accurately track payments to subcontractors.

This performance audit is authorized pursuant to the City and County of Denver Charter, Article V, Part 2, Section 1, “General Powers and Duties of Auditor.” We conducted this performance audit in accordance with generally accepted government auditing standards. 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.

We extend our appreciation to the personnel in Denver International Airport's Infrastructure Management Division who assisted and cooperated with us during the audit. For any questions, please feel free to contact me at 720-913-5000.

Denver Auditor's Office

Timothy M. O'Brien, CPA
Auditor
**Objective**

To evaluate whether the Airport Infrastructure Management Division provided adequate oversight of phase 1 of the Peña Boulevard improvements construction contract to ensure the city received the work it paid for.

**Background**

The Airport Infrastructure Management Division used a “design-build” project delivery method by awarding one contract to Interstate Highway Construction Inc. for both the design and construction work related to making improvements along Peña Boulevard — the main access road to Denver International Airport.

Because of the COVID-19 pandemic, the airport reduced the original scope of phase 1. This reduced the cost from $93.4 million to $35.3 million.

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**Denver International Airport Needs Better Oversight of the Peña Boulevard Improvements Construction Project to Ensure the Best Value for the City**

- The contractor, Interstate Highway Construction, did not meet its deadlines for submitting invoices and contract-change proposals. Meanwhile, the airport did not meet its review deadlines and did not formalize deadlines to finalize contract changes and to review the contractor’s requests for information.
- The airport did not correctly document and track issues regarding the contractor’s performance and it did not accurately track the project budget.
- The airport did not provide cost estimate services, and documentation does not fully support increases in both the project schedule and cost.
- The airport did not ensure all invoices supported the amount it paid.
- The airport did not comply with requirements to approve subcontractors, and it did not ensure the contractor paid all of its subcontractors the correct amount they were owed.
- The airport lacks a process to choose the best delivery method for construction projects.

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**WHY THIS MATTERS**

*Without strong project oversight, the airport may not ensure it receives all work in compliance with its contract, and the airport risks overpaying for construction projects and failing to meet project deadlines.*
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DENVER INTERNATIONAL AIRPORT REPORTS 2021 PASSENGER TRAFFIC

BACKGROUND

Denver International Airport is the third-busiest airport in the United States and is one of the top 10 busiest airports in the world. Owned by the City and County of Denver, the airport operates as an enterprise — a government entity that operates as a self-sustaining business.

The airport must generate enough revenue to cover all its costs to support planning, development, operation, and maintenance of the airport. The airport is the primary economic engine for Colorado, generating more than $33 billion for the region annually.

In 2021, about 59 million passengers traveled through the airport, compared to 69 million passengers in 2019 — before the COVID-19 pandemic. In response to the pandemic, the airport reprioritized capital projects and programs to position the airport for a strong recovery.

To reach Denver International Airport's terminal by car, travelers must use Peña Boulevard — a 12-mile access road connecting the airport to major Denver highways, including I-70 and the E-470 tollway.

Peña Boulevard Improvements

In 2020, the airport recognized that Peña Boulevard had reached its life expectancy and needed a major upgrade to keep pace with the airport's growth. The airport developed a 10-year improvement plan to expand and enhance the existing roadway. As shown in Figure 1 on the next page, the plan outlines inbound and outbound improvements, divided into four project phases:

- Phase 1 spans Jackson Gap Street to the main terminal.
- Phase 2 spans I-70 to 64th Avenue.
- Phase 3 spans E-470 to Jackson Gap Street.
- Phase 4 spans 64th Avenue to E-470.

PHASE 1 – The focus of this audit is the airport's oversight of the phase 1 contract. In March 2019, the airport awarded the contract to Interstate Highway Construction Inc. through a two-step request-for-qualifications and request-for-proposals process, which was based on the best value in terms of cost and innovation.

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2 Denver International Airport, “Denver International Airport Reports 2021 Passenger Traffic.”
FIGURE 1. The Four Phases of the Peña Boulevard Improvement Plan

The airport’s contract required Interstate Highway Construction to design and construct improvements along the inbound and outbound lanes of Peña Boulevard from Jackson Gap Street to the terminal. The original project cost was set at almost $94 million and was scheduled to be completed by May 30, 2022.

However, in June 2020 — because of the impacts of the COVID-19 pandemic — the airport reduced that original scope of work. Figure 2 on the next page illustrates the differences in the project before and after the scope changed. As shown, the airport removed two major aspects of the project: the work along the outbound portions of Peña Boulevard and the removal and relocation of the ground transportation lot.

The change in scope lowered the total project cost from about $94 million to about $35 million — a 62% reduction.

Source: Auditor’s Office illustration based on information from Denver International Airport.
FIGURE 2. Comparison Between the Current Scope of Peña Boulevard Improvements versus the Original Scope of Work

Terminated work
Current scope

Source: Auditor’s Office illustration based on information from Denver International Airport.

Peña Boulevard Contract Oversight and Governance

AIRPORT INFRASTRUCTURE MANAGEMENT DIVISION – This division is responsible for overseeing all airport construction projects. The division’s mission is to ensure all projects are completed safely and efficiently. As of June 2021, the division had 37 active construction projects, totaling $2.4 billion.

The division consists of five sections:

- Airport Infrastructure Management Development.
- Facility Services.
- Infrastructure.
- Technical Programs and Systems.
- The Project Management Office.

In addition, the division hires outside consultants to assist in performing some day-to-day oversight activities. On the Peña Boulevard improvements construction contract, the division hired Atkins to help oversee the design and construction of the project. Atkins and airport division staff work...
Construction projects at the airport must be conducted in line with the city’s Executive Order No. 8.

EXECUTIVE ORDER NO. 8 – This order requires city agencies to ensure contractors meet the terms of their contracts. In addition, it requires agencies to document their contract monitoring efforts and all required deliverables.

As part of this executive order, the airport must ensure each project complies with all requirements outlined by the city’s policy for “general contract conditions.” For example, these conditions list requirements for how payments are made, how contracts can be changed, and how subcontractors can be used.

Each construction contract establishes the project delivery method, the project’s payment term, and the project’s scope of work.

- **PROJECT DELIVERY METHOD** – This refers to the roles and responsibilities between the project owner, the designer, and the builder. For the Peña Boulevard contract, the airport selected a “design-build” delivery method — meaning a single contractor performs both the design and construction work for the project.

- **PAYMENT TERM** – The Peña Boulevard contract follows a “lump-sum” payment term, which means the airport pays an established amount for the project. Any adjustments to the cost must be made only through formal changes to the contract, referred to as a “change order.”

- **SCOPE OF WORK** – All contracts specify the technical requirements each contractor must follow for the project.

The Airport Infrastructure Management Division developed a project management plan for the airport to monitor its contractor’s compliance with these requirements. The plan establishes roles and responsibilities to describe how the airport will oversee the Peña Boulevard project. This audit refers to the airport’s project management plan as “procedures.” In addition, the airport has other sets of procedures specific to reviewing contract changes and the project schedule.

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**Systems Used for Project Oversight**

The Airport Infrastructure Management Division uses four primary systems for its construction project oversight: Unifier, Textura, Workday, and B2G.

- **UNIFIER** – This is the airport’s designated project management system.
system. For this project, the airport, Atkins, and Interstate Highway Construction must use this system to document all project information, such as invoices and contract changes.

- **TEXTURA** – The contract requires Interstate Highway Construction to use this system to submit requests for payment. This system also documents the contractor’s payments to its subcontractors.

- **BIM 360** – This is the airport’s system to record quality inspection and quality assurance information. This information is used as support documentation to verify work completed and to ensure work is in accordance with project technical specifications.

- **WORKDAY** – This is the city’s financial system of record. The airport and Atkins use this system to process payments to Interstate Highway Construction.

- **B2G** – Interstate Highway Construction uses the city’s B2G contract management system to report all payments to its subcontractors.
FINDING 1 AND RECOMMENDATIONS

Denver International Airport Needs Better Oversight of the Peña Boulevard Improvements Construction Project to Ensure the Best Value for the City

Denver International Airport’s Infrastructure Management Division needs better oversight of its construction projects. Although our audit focused on the division’s oversight of phase 1 of the Peña Boulevard improvements construction contract, the issues we identified may apply to the division’s oversight of other construction projects as well.

Specifically, we found:

- The Airport Infrastructure Management Division did not ensure all deadlines were met, including requirements for both receiving and reviewing invoices and changes to the contract.
- The division is not maximizing the use of its project management system to ensure accurate oversight of its contractor’s compliance with requirements and to ensure accurate tracking of the project budget.
- The division did not adequately review all invoices and contract changes to avoid potentially overpaying.
- The division did not ensure all subcontractors were qualified and paid.
- The division lacks a formal policy to ensure its project delivery method follows a risk-based approach.

Without stronger project oversight, the Airport Infrastructure Management Division cannot ensure contractors provide the required services on time and at the best value for the city.

We found three issues related to deadlines:

1. The airport’s construction contractor, Interstate Highway Construction Inc., failed to meet established deadlines for invoices and contract-change proposals.
2. The airport failed to meet its review deadlines for invoices and contract-change proposals.
3. The airport did not formalize submission deadlines for finalizing contract changes and reviewing the contractor’s requests for information.

Failure to consistently meet deadlines can have multiple impacts on a project. Without ensuring contractors submit the required number of
invoices on time, the airport may fail to closely review each invoice and it risks overpaying for work contractors did not do. In addition, the airport may miss project deadlines by not ensuring contractors submit contract-change proposals on time.

**Interstate Highway Construction Was Frequently Late in Submitting Invoices and Contract Changes**

According to the contract, Interstate Highway Construction must submit its draft invoice within seven days after each month. The project team then discusses the draft invoice with them during a monthly invoice review meeting. Following this meeting, Interstate Highway Construction must submit the final invoice within five days.

We looked at all 20 invoices the airport had approved as of January 2022 to see whether they were submitted on time. As seen in Figure 3 on the next page, Interstate Highway Construction submitted:

- Four invoices covering more than one month.
- Fourteen invoices after the draft submission deadline.
- Sixteen invoices after the final invoice deadline.

In one case, the contractor was 43 days late in submitting a draft invoice and 60 days late in submitting a final invoice.

**PROJECT IMPACT OF LATE SUBMISSIONS**

The airport cannot extend a project schedule until it receives and approves a contractor’s proposal. Delays in receiving this proposal could force the airport to extend the project unnecessarily.

For example, the airport sent Interstate Highway Construction a change notice for extra traffic signs on Sept. 22, 2020, with a one-week response deadline. However, Interstate Highway Construction did not submit its proposal until more than four months later, on Feb. 4, 2021. This added about 130 days to the project schedule.

Had Interstate Highway Construction submitted its proposal on time, it could have potentially completed the extra work without extending the project schedule.

Meanwhile, the airport can adjust the contract through either a “change directive” or a “change notice.” These adjustments do not officially amend the contract amount or project timeline until the airport finalizes the change through a “change order.”

- A change directive requires a contractor to make the change immediately because of health or safety concerns instead of waiting to make the change after the airport and the contractor have agreed on the cost and time impact of the work. The city’s policy for general contract conditions requires contractors to submit a proposal within
FIGURE 3. Interstate Highway Construction Invoice Submissions Compared to Deadlines

<table>
<thead>
<tr>
<th>PERIOD COVERED BY INVOICE</th>
<th>DRAFT INVOICE</th>
<th>FINAL INVOICE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DAYS BEFORE</td>
<td>DAYS AFTER</td>
</tr>
<tr>
<td>Sept. 13–30, 2019</td>
<td>On time</td>
<td>9</td>
</tr>
<tr>
<td>Oct. 1–31, 2019</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Nov. 1–30, 2019</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>Dec. 1–31, 2019</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Jan. 1–31, 2020</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Feb. 1–29, 2020</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Mar. 1–20, 2020</td>
<td>9</td>
<td>21</td>
</tr>
<tr>
<td>Mar. 21–June 19, 2020</td>
<td>14</td>
<td>22</td>
</tr>
<tr>
<td>June 19–July 31, 2020</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Aug. 1–31, 2020</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Sept. 1–30, 2020</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Oct. 1–31, 2020</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Nov. 1–30, 2020</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Dec. 1–31, 2020</td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>Jan. 1–31, 2021</td>
<td></td>
<td>19</td>
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<tr>
<td>Feb. 1–28, 2021</td>
<td></td>
<td>25</td>
</tr>
<tr>
<td>Mar. 1–31, 2021</td>
<td></td>
<td>21</td>
</tr>
<tr>
<td>April 1–May 31, 2021</td>
<td></td>
<td>32</td>
</tr>
<tr>
<td>June 1–30, 2021</td>
<td></td>
<td>43</td>
</tr>
<tr>
<td>July 1–Aug. 31, 2021</td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

Note: Our analysis included all invoices the airport approved as of January 2022. In the graphic, “Days Before” indicates the number of days Interstate Highway Construction submitted its invoice prior to the deadline, and “Days After” indicates the number of days a submission was late.

Source: Auditor’s Office analysis of Interstate Highway Construction’s invoice submission dates using information recorded in the airport’s project management system, Unifier.

20 days of receiving a change directive.6

- Under a change notice, the airport and the contractor have time to reach an agreement on the cost and time impact of the work before the change needs to be made. The contract says Interstate Highway Construction cannot begin the revised work until a change order is finalized. The Peña Boulevard contract requires Interstate Highway Construction to submit a proposal for change notices within at least 20 days — or earlier if requested by the airport.

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A contractor’s proposal includes a description of how it will perform the additional work, a breakdown of the estimated cost, and whether the extra work impacts the project schedule.

We looked at all change notices and change directives the airport approved as of January 2022 to see whether Interstate Highway Construction submitted its proposals on time. As shown in Figure 4 on the next page, of these 20 change notices and 15 change directives, the contractor was late submitting almost all of them — sometimes by extensive periods of time.

For example, Interstate Highway Construction took more than four months to submit three change notices and it took eight and a half months to submit a proposal for a change directive. While the proposal for this particular change directive was submitted late, we reviewed meeting minutes to confirm that Interstate Highway Construction began working on the change to address the airport’s request. However, by receiving a late proposal the airport was unable to accurately track the cost and project impact of the change.

After the airport reviewed the draft of this report, they explained the contractor’s requirement to submit a proposal for change directives depends on the pricing structure of the change. However, the city’s policy for general contract conditions requires a “complete and itemized proposal” for every change directive regardless of the pricing structure.

When we asked what was done in response to Interstate Highway Construction’s failure to meet established deadlines for both invoices and contract changes, airport staff members said they discussed the late submissions with the contractor throughout the project, which is part of an escalation process outlined in the procedures. We confirmed this by reviewing meeting minutes and found the airport did remind Interstate Highway Construction of outstanding items. For instance, the airport consistently included the status of invoice submissions as a reminder in the weekly meeting agenda.

Although the airport reminded Interstate Highway Construction, the airport lacks a formal way to hold the contractor accountable for meeting deadlines.

Airport staff said the project manager developed a penalty matrix for a separate, non-airport construction project to impose monetary penalties for that contractor’s failure to meet deadlines. The airport could develop a similar matrix for the Peña Boulevard project to hold Interstate Highway Construction accountable for missed deadlines.
FIGURE 4. Total Days Interstate Highway Construction Took to Submit Proposals for Change Notices and Change Directives, as of January 2022

<table>
<thead>
<tr>
<th>Change Notices</th>
<th>Change Directives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractor must provide proposal within 20 days*</td>
<td>Contractor must provide proposal within 20 days</td>
</tr>
<tr>
<td>1</td>
<td>96</td>
</tr>
<tr>
<td>3</td>
<td>74</td>
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<tr>
<td>6</td>
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<td>118</td>
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</table>

Note: *The airport can request for a contractor to submit their proposal for a change notice in fewer than 20 days. The airport requested Interstate Highway Construction to submit nine of the proposals within seven to 14 days.

Source: Auditor’s Office analysis of contract-change submissions using information from the airport’s Unifier system.

The Airport Also Failed to Meet Its Review Deadlines for Invoices and Contract Changes

According to the airport’s procedures, the project team should review draft invoices within three days of receipt. We used our professional judgment to select a sample of four invoices to see whether the airport complied with this requirement. Of these, we found the project team missed its review deadline each time.

In one case, the project team was 15 days late.

Project staff said the three-day review time frame is not enough time to complete its review. However, the procedures say staff should update the procedures throughout a project as new information becomes available. However, the project team never made updates to adjust the invoice review time frame.
Airport staff said they conduct a “lessons learned” meeting after each project to identify areas of improvement for the next project. Staff said they could review the procedures as part of this meeting to ensure staff make all necessary updates.

Delays in reviewing a contractor’s invoices can affect how quickly a contractor gets paid. In turn, this could affect whether subcontractors also receive timely payments for their work.

Meanwhile, the city’s policy for general contract conditions requires the airport to review and respond to contractors’ change requests within 10 days. If the airport fails to do so, this indicates the airport has denied the request. A contractor change request is similar to a change notice because the airport and contractor must agree on the cost and time impact of the change, and finalize a change order, before work can begin.

We looked at all 23 change requests approved as of January 2022. In 13 instances, the project team failed to respond within 10 days, and nine of the airport’s responses took longer than 20 days; the longest response time was 40 days. To test the airport’s response time, we compared the date of the most recent update in Unifier to the contractor’s request with the “answered date” field.

Following a review of our draft report, the project team said the 10-day response is based on when the team determines whether the change request is justified and not when the team “answers” the request in Unifier. However, neither the city’s policy for general contract conditions nor the airport’s procedure specifies when the response time frame begins. Despite this, using the date suggested by the project team, the airport still failed to provide its determination for four of the 23 requests within 10 days.

We determined the reason for the airport’s late responses is because its contract-change procedures do not reference the city’s contract conditions. By being late with its responses, the airport could potentially delay projects when a change request requires more work.

**The Airport Did Not Formalize All Deadlines**

Lastly, the airport did not formalize deadlines for finalizing “change orders” to amend the Peña Boulevard contract. In addition, the airport did not formalize a deadline for when to respond to Interstate Highway Construction’s requests for information.

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Federal standards say that organizations should define and document time frames for processes to ensure they meet key objectives.\(^8\)

**REQUESTS FOR INFORMATION** – When a contractor or subcontractors have questions about complying with a project’s drawings, they submit a request for information to the project owner — in this case, the airport. Timely responses to these requests are important to ensure contractors stay on schedule and to help ensure the project owner answers these questions before the contractor moves ahead with its work.

To avoid potential impacts on a project schedule, the Institute of Internal Auditors’ construction auditing guide recommends project owners establish a response deadline for all contractor requests.\(^9\) It suggests a deadline of three business days.

The airport’s procedures say project management should perform “prompt and in-depth” reviews for each contractor’s request for information. Project staff members said they follow the contract’s 14-day time frame for their review. However, the Peña Boulevard contract does not include a 14-day time frame specific to Interstate Highway Construction’s information requests.

We reviewed the project team’s response times for all 16 requests from Interstate Highway Construction. In two instances, the project team failed to respond within 14 days — and instead took 42 days to respond in one case and took 18 days in the other.

Interstate Highway Construction included a due date for 13 of the 16 requests. But for 10 of them, the airport’s response was late.

By not establishing a formal review deadline, the airport cannot hold itself or project management accountable for providing contractors with answers to their requests. In addition, without a formal response deadline, the airport risks delaying projects by not providing timely responses.

**CHANGE ORDERS** – Requested changes to a contract are not binding until the airport finalizes them through a change order. The city’s policy for general contract conditions requires the airport to work with contractors to “promptly” execute change orders.\(^10\) Project staff said they follow a 10-day standard to finalize all contract changes. However, neither the contract nor any procedures document this standard review time.

As of January 2022, the airport had approved 36 change orders. As shown in Figure 5 on the next page, the airport approved 21 of these orders after the 10-day time frame. Twice, the airport took 40 days. For our testing, we

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compared the date in Unifier that indicated when the airport created the change order with the date the airport finalized the order.

Following the airport's review of the draft report, the project team claimed the start day for the 10-day review time frame does not begin until the contractor provides their approval for the change. Using this date, the airport still failed to meet the 10-day review for 11 of the 36 change orders approved as of January 2022.

FIGURE 5. Total Days the Airport Took to Finalize Requested Change Orders, as of January 2022

<table>
<thead>
<tr>
<th>Change orders must be finalized within 10 days</th>
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<td>34</td>
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</table>

*Change orders two, 29, and 36 were not approved as of January 2022.

Source: Auditor's Office analysis using information from the airport's project management system, Unifier.
The Institute of Internal Auditors’ construction auditing guide says organizations should adopt a policy to process and approve change orders within 10 days.\textsuperscript{11} While this review time matches the airport’s informal review standard, the airport has not documented it.

Because requested contract changes are not binding until the airport finalizes a change order and because the airport does not have established deadlines, there is a risk that any work a contractor completes before the airport finalizes a change order may not end up in the final, amended contract.

Additionally, contractors cannot begin requested work until a change order is finalized. Therefore, delays in finalizing a change order could unnecessarily extend a project’s schedule.

1.1 RECOMMENDATION  Establish Monetary Penalties for Late Submissions

The Airport Infrastructure Management Division should establish a formal mechanism to impose monetary penalties on contractors that fail to meet required submission deadlines.

AGENCY RESPONSE: AGREE, IMPLEMENTATION DATE – AUG. 17, 2022
SEE PAGE 40 FOR THE AGENCY’S FULL RESPONSE TO OUR RECOMMENDATIONS.

1.2 RECOMMENDATION  Review Policies and Procedures

The Airport Infrastructure Management Division should formally review project management plans and other procedures during its post-project lessons learned meetings to ensure the plans include procedures that reflect actual practice.

AGENCY RESPONSE: AGREE, IMPLEMENTATION DATE – JULY 18, 2022
SEE PAGE 41 FOR THE AGENCY’S FULL RESPONSE TO OUR RECOMMENDATIONS.

1.3 RECOMMENDATION  Update Procedures for Project Management Review

The Airport Infrastructure Management Division should update its policies and procedures to formally establish review times and deadlines for contract changes and contractor requests for information.

AGENCY RESPONSE: AGREE, IMPLEMENTATION DATE – AUG. 17, 2022
SEE PAGE 41 FOR THE AGENCY’S FULL RESPONSE TO OUR RECOMMENDATIONS.

The Peña Boulevard contract requires the airport to use Unifier as the sole project management system for the phase 1 contract. In addition, Airport Infrastructure Management’s internal goal is to incorporate all project management processes in Unifier.

Each year, staff members send surveys to the project management teams asking what processes could be added to Unifier. Based on that feedback, the system administrator works to incorporate these processes in Unifier.

Federal standards recommend organizations develop and design systems to meet their objectives. These standards help government entities ensure efficiency, effectiveness of operations, and compliance with laws and regulations. As part of general project oversight, system design helps ensure all project information is accurate and complete.

However, we found Airport Infrastructure Management staff tracked Interstate Highway Construction’s noncompliant work and monitored the project budget outside Unifier — which led to issues with both processes.

The Airport Did Not Correctly Document and Track Issues with Interstate Highway Construction’s Performance

“Non-conforming work” refers to when a contractor or subcontractor fails to complete work in compliance with its contract requirements. The project team identifies such noncompliant work during walk-throughs where the inspectors verify that the materials and construction meet requirements.

The airport’s procedures require staff to perform the following steps to ensure contractors correct all noncompliant work:

- Fill out a work form detailing the issue identified.
- List the deadline for the contractor’s response.
- Once the contractor provides its proposal to resolve the issue, project management reviews the proposal to ensure the proposed steps address the issue.
- After the contractor addresses the issue, project management inspects the work to ensure the issue was resolved and then documents its inspection on the form.
- If the issue led to any monetary penalties, project management documents this on the form and follows the contract-change process to apply the penalties.

In addition, Airport Infrastructure Management’s procedures require staff to keep an up-to-date log in Unifier that tracks the status of all noncompliant work. However, we found staff members did not use Unifier to maintain the status log or to document all noncompliance issues.

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**Related Information**

PEÑA BOULEVARD IMPROVEMENTS
CONSTRUCTION WORK | Interstate Highway Construction uses traffic signs and traffic cones to direct travelers during construction from August to November 2021. PHOTOS COURTESY OF DENVER INTERNATIONAL AIRPORT

As of December 2021, the project team had issued 41 work forms to Interstate Highway Construction about noncompliant work. Of these:

• Thirty-two did not include the required response deadline.
• Forty did not document whether Interstate Highway Construction fixed the identified issue.

For example, the project team documented instances in which the actual work conducted did not match the project schedule. However, the team gave no explanation on the form about whether Interstate Highway Construction addressed the issue.
• Two of the dates indicating when staff sent the form did not match the log used to track the status of the noncompliant work.
• Three did not include a resolution date on the corresponding log.
• One form staff sent to Interstate Highway Construction was missing.

After we reviewed these issues with project team members, they provided us with updated forms. However, we noted additional issues with the updated information. Specifically:
• Fourteen of the updated forms still did not document whether Interstate Highway Construction addressed the noncompliant work or whether the airport should have assessed monetary penalties.
• While the updated forms included inspection dates, 30 of the dates did not match the log used to track the noncompliance issues.

Inaccuracies in the log and a lack of complete documentation prevents the airport from ensuring a contractor fixes all issues. Additionally, failure to document whether the airport should assess a monetary penalty could lead to the airport overpaying for the work provided and may lead the contractor to believe there is a lack of accountability.

While the project management team said tracking noncompliance issues through paper files outside Unifier presents room for error, they explained they documented all correspondence regarding the noncompliant work in Unifier’s email function. But in one instance, the form the airport sent to Interstate Highway Construction was missing. In addition, sending forms to a contractor through the system’s email does not ensure project management consistently documents its inspection and final disposition in the forms emailed in Unifier.

If the airport incorporated its steps to address noncompliant work using a dedicated workflow in Unifier, the airport could better ensure all required documentation is complete and accurate.

The Airport Did Not Accurately Track the Budget for Phase 1 of the Peña Boulevard Project

Construction project budgets typically include a provision to cover unforeseen design or construction costs — known as a “project contingency” — to prevent cost overruns. The Institute of Internal Auditors’ construction auditing guide says organizations should track project contingencies to limit excessive use of funds for additional work. Specifically, the organization should track the total project contingency amount and all the costs paid from it.

In the case of the Peña Boulevard project, the airport paid for all contract changes with the project contingency fund and all change order costs are recorded in Unifier. However, the airport uses a separate tracker to monitor the use of the contingency fund.

We assessed the accuracy of the airport’s contingency tracker by

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comparing it with the source data in Unifier — and we found it did not match. Specifically:

- The amount for Interstate Highway Construction’s change requests was about $63,000 higher than the approved amounts in Unifier.
- The amount for change notices was about $17,000 less than the approved amounts in Unifier.
- The amount for change directives was $10 higher than the approved amounts in Unifier.

Airport staff use the contingency tracker during stakeholder meetings to provide updates on the project budget. While the inaccuracies have not led to the airport exceeding its budget for the Peña Boulevard work, inaccurate information could lead to future project overruns if the airport incorrectly approves adjustments to the project that exceed the budget.

Staff said the tracker is updated manually, which may have led to the inaccuracies. However, staff members said they had to do this because Unifier lacks a workflow to track costs within the system.

Federal standards say management should ensure the information it uses to support operations is reliable and accurate. By adding a project contingency tracker to Unifier, the airport can better ensure the amounts paid from the contingency fund are complete and accurate.

1.4 RECOMMENDATION  Design Workflow to Track Noncompliant Work

The Airport Infrastructure Management Division should design and implement a workflow in Unifier dedicated to tracking and documenting all required documents to monitor the noncompliance reports it issues to contractors.

AGENCY RESPONSE: AGREE, IMPLEMENTATION DATE – DEC. 14, 2022
SEE PAGE 42 FOR THE AGENCY’S FULL RESPONSE TO OUR RECOMMENDATIONS.

1.5 RECOMMENDATION  Design Workflow for Budget Tracking

The Airport Infrastructure Management Division should design and implement a workflow in Unifier dedicated to tracking contract-change approvals that affect a project’s contingency fund.

AGENCY RESPONSE: DISAGREE
SEE PAGE 42 FOR THE AGENCY’S FULL RESPONSE TO OUR RECOMMENDATIONS.
AUDITOR’S ADDENDUM: SEE PAGE 49.

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The Airport Did Not Ensure Changes to Project Costs and Time Always Contained Required Supporting Documentation

In “lump-sum” agreements such as the one for the Peña Boulevard project, the contract sets both a total project cost and schedule. After the contract is signed, the only way to adjust the project cost or schedule is through a change order. This makes the contract-change process one of the highest risks in construction projects because changes may not be justified or costs could be inflated.

Figure 6 summarizes the contract changes the airport approved for the Peña Boulevard project as of January 2022 — which altogether increased the project cost by about $2.4 million. In total, the airport approved 36 change orders, which contain multiple types of contract changes bundled together. Of these, 18 were related to the scope reduction due to the impacts of the COVID-19 pandemic and seven of the 18 were credits to the airport.

FIGURE 6. Peña Boulevard Improvements Construction Contract Changes, as of January 2022

Changes to contract

<table>
<thead>
<tr>
<th></th>
<th>20</th>
<th>15</th>
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<td>Change notices</td>
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<tr>
<td>Change directives</td>
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<tr>
<td>Contractor change requests</td>
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Combined into

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<th></th>
<th>36</th>
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</thead>
<tbody>
<tr>
<td>Change orders</td>
<td></td>
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</tbody>
</table>

Contract amounts

- **Original Contract**: $93.48 million
- **Approved Contract (after scope reduction)**: $35.95 million
- **Total amount of change orders (as of Jan. 17, 2022)**: $2.42 million

**Supplemental Text**: There are three ways to change a contract. The airport can initiate a change through either a “change notice” or a “change directive,” and the contractor can also ask to change the contract.

**Note**: The total dollar amount of approved change orders reflects the net increase of the contract amount after the scope was reduced because of the COVID-19 pandemic. Of the 36 change orders, 18 were related to the scope reduction due to the impacts of the COVID-19 pandemic.

**Source**: Auditor’s Office analysis using information from the airport’s project management system, Unifier.
The contract-change process is one of the highest risks in construction projects because changes may not be justified, or costs could be inflated.

The Airport Did Not Provide Cost Estimate Services

Performing internal cost estimates for contract changes are important to help limit the risk of overpaying for increases in a project’s cost. The city’s policy for general contract conditions requires contractors to support each requested contract change with a cost proposal. Each proposal must include pricing for labor, materials, and equipment.

The airport’s procedures say project staff should estimate costs for each proposed contract change. Likewise, the Institute of Internal Auditors’ construction auditing guide says project owners should perform their own internal cost estimates to ensure a contractor’s proposal is not inflated. As an example, suppose a contractor submits a proposal to add a traffic speed sign with an estimate of $100 for labor and materials. An internal cost estimate would help verify the $100 of labor and materials is reasonable compared to market rates.

For the Peña Boulevard contract, we requested all the airport’s internal cost estimates, but airport staff members said they conducted no cost estimates for any of the contract changes. They said they “rarely” conduct internal cost estimates for change notices or change directives for this project because Interstate Highway Construction must submit backup documentation to support its pricing.

The airport’s guide for estimating services says the project estimator can provide cost estimates to project managers as a basis for negotiating costs not included in the original contract, such as change notices or change directives. Furthermore, the airport’s explanation does not align with the project management plan, which explicitly says a project estimator provides internal cost estimates for each contract change.

In addition, project staff members expected an estimator to provide price estimates for each “not-to-exceed” amount included on a change directive. The not-to-exceed amount sets the maximum price ceiling for a contractor’s proposal, which allows the contractor to begin work immediately. Once the contractor completes the work, it submits the actual costs.

But of the 13 change directives that had a not-to-exceed amount, we found the airport did not have documentation to support any of these amounts.

We determined the airport did not perform any cost estimates for contract changes because it lacks specific procedures outlining exactly when — and how — to provide cost estimate services.

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Failing to do its own internal cost estimates for these contract changes means the airport may have overpaid for the extra work Interstate Highway Construction did. Because no internal estimates were done, we cannot verify whether or to what extent this occurred.

**Documentation Does Not Fully Support Increases in Project Schedule and Cost**

The city’s general contract conditions set documentation requirements for every change made to a contract. Adjustments to a project cost must be supported by invoices detailing all labor, materials, and equipment costs. Adjustments to a project schedule must be supported by a forecast detailing whether the added work impacts the contractor’s ability to meet the project deadline.

In addition to the contract conditions, the city’s Fiscal Accountability Rules require supporting documentation for every payment the city makes. The support must provide a clear picture of the payment and include documentation such as invoices, reports, or spreadsheets.

We used our professional judgment to select a sample of 26 contract changes to assess whether each change had the required documentation to support changes in project time or cost. Of these, the airport approved 11 changes without complete supporting documentation. We found:

- Two contract changes — for about $14,000 in extra work — did not have invoices for the actual costs of labor and materials.
- Two contract changes increased the project cost by adding to the scope of work already included in the contract. For example, the original cost of removing pipes was about $34,000. The airport added to this work by increasing the cost to $52,380, but the changes did not have invoices or other documentation justifying the extra $18,000.
- The airport paid Interstate Highway Construction for one contract change before receiving and approving all required invoices detailing labor and equipment costs. In addition, the airport paid more than the maximum of 85% of the total cost established by its internal standard before it finalized a change order.
- Three contract changes included costs for terminated portions of the project:
  - Two contract changes contained payments for subcontractor project management support from the beginning of the contract through March 2020. Because the contract is based on monthly progress for the work completed, Interstate Highway Construction could have included these costs in its monthly invoices before

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The airport terminated the work. However, the supporting documentation did not contain evidence to ensure the airport did not pay again for work in previous invoices.

- The third contract change included paying for a piece of equipment that Interstate Highway Construction no longer needed. The airport nonetheless overpaid for the equipment because the amount included $2,260 in city sales tax. According to the contract, the airport is not responsible for paying taxes related to any of the project scope.

- Two contract changes to the project schedule were approved without the required analysis detailing whether the added work would affect Interstate Highway Construction’s ability to meet the project deadline.

We reviewed these issues with both airport personnel and project staff as summarized in Table 1.

**TABLE 1. Summary of Airport’s Explanations for Issues with Contract Changes**

<table>
<thead>
<tr>
<th>Issue</th>
<th>Airport’s Explanation</th>
<th>Documentation Issue</th>
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<tbody>
<tr>
<td>Lack of supporting documentation for increases in project cost.</td>
<td>Staff performed internal negotiations to increase several line-items included in the original contract. In one case, management directed the project team to remove more pipes than initially planned. Separately, management also requested an additional traffic sign.</td>
<td>The internal negotiations to justify the additional costs were not documented in Unifier and could not be provided to us.</td>
</tr>
<tr>
<td>Payments for terminated work.</td>
<td>Staff said it paid for the terminated portions of work on a lump-sum basis. Therefore, the airport held internal meetings and meetings with Interstate Highway Construction to negotiate the costs incurred before the airport stopped the work.</td>
<td>The meeting minutes and internal negotiations were not included in Unifier to justify the amount paid. The city’s general contract conditions allow the airport to request documentation directly from subcontractors. Staff could have requested more documentation from the subcontractors to ensure payments for the work were not made in prior monthly invoices. Staff considered making this request but never obtained the documentation.</td>
</tr>
<tr>
<td>Lack of support for changes to project schedule.</td>
<td>Staff used their professional judgment by allowing Interstate Highway Construction to proceed with contract adjustments before reviewing the schedule impact to take advantage of the airport’s low traffic volumes during the COVID-19 pandemic. Staff also approved another schedule change based on verbal agreements with the contractor because of its inability to provide a time-impact analysis for multiple contract changes.</td>
<td>The internal discussions to approve the changes to the project schedule were not fully documented in Unifier and could not be provided to us.</td>
</tr>
</tbody>
</table>

*Source: Auditor’s Office summary based on information provided by the Airport Infrastructure Management Division.*
The airport’s Unifier system requires multiple approvals for every contract change. The system generates automatic emails to project management staff and airport personnel to review and approve each change. The review begins with the project management team. Once they review and approve a change, the system requires final approval from airport personnel.

Meanwhile, the project team is supposed to follow a set of procedures to review contract changes. For instance, the procedures require the project team to review the merit of each change based both on cost and schedule.

However, although these review procedures are meant to ensure contractors provide all required supporting documentation, we identified several gaps.

- The procedures do not ensure all internal negotiations, meeting minutes, and internal reviews are attached to each change in Unifier.
- The procedures do not include detailed review steps to ensure all invoices and supporting documentation are received and approved before the airport pays for the changes in work.
- The airport has not formalized its internal standards to withhold full payment for change directives until finalized as a change order.

Without ensuring all project documentation is obtained and reviewed — and without analyzing the effects those changes will have on the schedule before approving them — the airport may potentially be costing itself time and money unnecessarily.

Meanwhile, approving a contract change without analyzing impacts on the project schedule prevents the airport from monitoring the project’s progress while it waits for the most up-to-date project schedule.

### 1.6 RECOMMENDATION

**Develop Policies and Procedures for Cost Estimate Services**

The Airport Infrastructure Management Division should develop policies and procedures for providing cost estimate services in design-build contracts to ensure:

- A contractor’s labor and equipment estimates are reasonable before the airport approves a contract change.
- “Not-to-exceed” amounts are supported by documentation.

**AGENCY RESPONSE:** AGREE, IMPLEMENTATION DATE – AUG. 17, 2022

SEE PAGE 43 FOR THE AGENCY’S FULL RESPONSE TO OUR RECOMMENDATIONS.
**1.7 RECOMMENDATION**

**Update Policies and Procedures for Contract Changes**

The Airport Infrastructure Management Division should update its policies and procedures related to reviewing and approving contract changes to ensure all changes are fully supported by documentation before the airport makes payments toward the change.

The updated procedures should, at a minimum, include steps to ensure all related information — such as email review notes or verbal discussions — are documented and included in the contract-change workflow in Unifier as well as steps to ensure all invoices are provided and reviewed before the airport makes payments toward those changes.

**AGENCY RESPONSE: DISAGREE**

SEE PAGES 43-44 FOR THE AGENCY’S FULL RESPONSE TO OUR RECOMMENDATIONS.

**AUDITOR’S ADDENDUM: SEE PAGE 49.**

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**The Airport Did Not Ensure All Invoices Supported the Amounts It Paid to Interstate Highway Construction**

In lump-sum contracts, a contractor’s bid for all project costs is used as the basis for the original scope of work. Using the costs set by the contract, project owners make progress payments to the contractor as work is completed. In the case of the Peña Boulevard project, the contract further specifies that the airport should base its progress payments on the percentage of total work completed for each invoice period.

Each month, Interstate Highway Construction must submit an invoice detailing the work it completed. Table 2 on the next page summarizes the required documentation the contractor needs to include in each invoice to the airport — which are a breakdown of specific line-items, a monthly progress report, and a schedule tracking overall progress toward the project’s completion.

The airport’s invoice review procedures require project staff to ensure a contractor’s invoices are accurate and complete. Figure 7 on page 26 illustrates this process from when a contractor drafts its invoice to when the airport makes a final payment.

The airport reviews a draft invoice to ensure the work progress claimed by the contractor matches the actual work completed. Once the airport and contractor agree on the work progress, the contractor submits the invoice in Textura, the system to submit requests for payment. Next, the airport reviews the invoice to ensure all amounts match the backup documentation before it approves payment.
The Institute of Internal Auditors’ construction auditing guide says the most common way to monitor a contractor’s performance is through a monthly progress report. A progress report allows the project owner to ensure the contractor is on track to meet project deadlines and helps the owner resolve all issues as quickly as possible.

TABLE 2. Description of Required Invoice Documentation

<table>
<thead>
<tr>
<th>Invoice Documentation</th>
<th>Description</th>
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<tr>
<td>Schedule of values</td>
<td>This breaks down the contract’s scope of work by category. Specific line-items are included under each category to describe the type of work and the cost. As part of each invoice, Interstate Highway Construction must update the schedule of values to reflect the progress it has made on each line-item. For example, Interstate Highway Construction’s schedule of values includes a line-item covering the labor and materials needed to pour the initial concrete layer for Peña Boulevard. The total amount of concrete needed for the project was about 84,000 cubic yards and each yard cost about $28 — totaling about $2.4 million. If Interstate Highway Construction installs 5,000 cubic yards in one pay period, then the contractor should update the schedule of values to show about 6% of this line-item was completed. The airport then pays the contractor for 6% of the work, which would be about $150,000.</td>
</tr>
<tr>
<td>Monthly progress report</td>
<td>This report submission includes the schedule of values with a narrative description of the work completed. It also includes updates on key project information. For example, the report should include updates on pending change orders, summaries of noncompliant work, safety issues, a comparison of the project’s progress compared to the project schedule, and progress photos.</td>
</tr>
<tr>
<td>Monthly progress schedule</td>
<td>This tracks the progress toward project completion. The schedule lists the completion dates of each line of work included in the schedule of values. Each invoice period, Interstate Highway Construction updates the schedule to illustrate actual progress compared to the target date for completion. The schedule must also include a 30-day projection for the next invoice period.</td>
</tr>
</tbody>
</table>

Source: Auditor’s Office summary using information from the Peña Boulevard improvements construction contract for phase 1.

We used our professional judgment to select four invoices from August 2019 through December 2021 to assess the airport’s invoice review process.

As part of this work, we reviewed the project management team’s quality assurance process to ensure the work the airport paid for met all technical requirements laid out in the contract. From the four sampled invoices, we selected seven line-items to assess and found the project team ensured all work complied with the contract requirements.

FIGURE 7. Airport Infrastructure Management Division’s Process for Reviewing and Paying Invoices

Contractor sends draft invoice and progress schedule to project team in Unifier within seven days after each month.

1. CONTRACTOR

Project team reviews invoice within three days to check the accuracy of the progress made during pay period.

2. PROJECT TEAM

Final invoice is approved by project team and airport personnel.

3. AIRPORT PERSONNEL

Contractor sends draft invoice and re-submits for final approval.

4. CONTRACTOR

Contractor submits approved invoice into Textura for payment.

5. TEXTURA

Project team reviews invoice for payment in Textura and creates payment request in Workday.

6. WORKDAY

Source: Auditor’s Office illustration based on information from Airport Infrastructure Management Division’s procedures.

However, we found other issues:

- The project team did not ensure Interstate Highway Construction addressed the issues it identified when reviewing the draft invoice.
- The monthly progress report did not include all required documentation.
- Two invoices did not include a monthly progress schedule.
- Payments for bond costs in two invoices did not have supporting documentation.
- Interstate Highway Construction did not submit an updated schedule of values on time to reflect all new contract changes.
- The payment information on the invoice cover sheet did not match
the source documentation.

By approving these invoices without all required documentation and without adjusting all issues identified during the review process, the airport could have potentially overpaid for the work Interstate Highway Construction said it completed. Because the contract follows a lump-sum payment term, possible overpayments for the work completed during each invoice period will impact only the amount paid at that point in time.

Furthermore, by approving invoices without having a current progress schedule, the airport cannot ensure Interstate Highway Construction is on track to meet project deadlines.

MONTHLY PROGRESS REPORT – We reviewed each invoice's monthly progress report to ensure the reports were complete and accurate.

To assess accuracy, we reviewed the project team’s comments on the draft invoices to ensure all the issues it noted were resolved on the final invoice.

All four invoices we looked at had at least three unresolved issues. Across the four invoices, seven of the project team’s comments to adjust the narrative in the monthly progress report were not reflected in the final invoice. A comment included in the March 2021 invoice said Interstate Highway Construction failed to include a complete update on potential schedule impacts. Nonetheless, the project team approved the final invoice without ensuring Interstate Highway Construction included all schedule impacts.

We also found 12 instances in which the project team did not ensure Interstate Highway Construction resolved issues related to line-items in the final invoice.

In the July 2021 invoice, the project team noted Interstate Highway Construction had installed only 85% of the roadway signs in contrast to the contractor’s claim that it had completed 99% of the work. But the project team did not ensure Interstate Highway Construction corrected the percentage of work completed on the final invoice. In the same invoice, the project team also identified several line-items in which the percentage of work completed did not match the updated progress schedule. Yet, Interstate Highway Construction did not adjust the percentage of work completed on the final invoice.

Airport personnel confirmed Interstate Highway Construction should have updated the final invoices to reflect the issues noted by the project team.

In addition to the contract’s invoice requirements, federal guidance emphasizes the importance of ensuring the line-items are updated to reflect the actual work completed.20

To assess whether each monthly progress report was complete, we

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compared each invoice with the list of required documentation found in the contract. Of the four invoices, we found gaps in several areas:

- **NARRATIVE OF PROJECT PROGRESS** – Each progress report must include a brief narrative of the construction activities broken down by work category. Two of the four invoices did not have this.

- **SUMMARY OF RESOLUTIONS** – Each progress report must include a summary of the resolutions to address any issues identified in previous invoices and any issues identified during the current invoice period. This summary was missing from all four invoices.

- **PROJECT CASH FLOW** – Each progress report must include updates on Interstate Highway Construction’s cash flow for the project. The updated cash flow was missing from all four invoices.

We determined the cause of these issues is the project team does not follow the invoice review procedures in the project management plan and that the procedures lack details in other areas.

The procedures say the project team should note whether it agrees with the contractor’s claim of percentage of work completed by initialing the percentage recorded for every line-item. However, staff do not follow this step during its invoice review and stated it was not aware of this step.

Instead, staff use a spreadsheet to document any issues it identifies during its review. The procedures do not include steps outlining this process, nor do the procedures include a step to ensure contractors update the final invoice to reflect all necessary changes.

Furthermore, the invoice procedures lack steps to ensure each invoice contains all required documentation in the monthly progress report.

**MONTHLY PROGRESS SCHEDULE** – The Peña Boulevard contract says a monthly invoice cannot be approved until the airport receives and approves Interstate Highway Construction’s monthly progress schedule. In addition, the contract requires Interstate Highway Construction to submit a “recovery schedule” if the progress schedule shows a lag between expected completion dates for lines of work versus actual completion dates. The recovery schedule documents the contractor’s plan to recapture its lost progress.

We found issues with each progress schedule included in our sample.

Specifically, we found the airport approved two invoices without obtaining and approving Interstate Highway Construction’s progress schedule. And we identified a lag in the project schedule the contractor submitted for the two other invoices. While Interstate Highway Construction eventually...
submitted a recovery schedule for both invoices, the airport approved each invoice before it received the updated schedules.

The project team said that for the March 2020 invoice, Interstate Highway Construction followed a “working schedule,” which still allowed the project team to monitor the contractor’s progress. For the July 2021 invoice, staff acknowledged the missing schedule at the time of payment, but said they were waiting on Interstate Highway Construction to submit its analysis about schedule impacts before updating the project deadlines for several contract changes. Because of the delays in receiving an acceptable schedule analysis, the airport decided to approve the payment.

However, by approving invoices without a current project schedule, the airport may not accurately track a contractor’s progress to avoid project delays and ensure it pays accurately for the work completed.

The project team also gave explanations for the lack of recovery schedules, saying a lag in the schedule does not necessarily indicate work is behind the project deadlines. However, we found the project team’s review of the December 2019 invoice explicitly noted the project appears to be at risk for project delays. Furthermore, the project team eventually required Interstate Highway Construction to submit its recovery schedule based on a potential lag in the project schedule submitted for the March 2021 invoice.

In addition, project staff decided that a recovery schedule for the December 2019 invoice was not necessary because of the project changes due to the COVID-19 pandemic. This response does not align with the project timeline because Interstate Highway Construction submitted its December 2019 invoice in January 2020, but the impacts to the project due to COVID-19 did not begin until March 2020.

Meanwhile, the airport also allowed Interstate Highway Construction’s construction manager to perform the scheduler responsibilities — which conflicts with contract requirements. While we did not find evidence that this directly led to issues with the contractor’s schedules, project staff told us numerous times about the issues they had with receiving accurate schedules.

The airport’s procedures lack sufficient detail to ensure a contractor meets all requirements for the monthly progress schedule. While the airport has a set of procedures outlining the requirements specific to reviewing
a progress schedule, the procedures do not mention the requirements for approving the project’s current schedule or the requirements for the recovery schedule.

Without requiring a recovery schedule once lags are noticed in the current project schedule, the airport cannot ensure Interstate Highway Construction will be aware of those lags and have a plan to ensure it still meets project deadlines.

**BOND COSTS** – We assessed whether the airport received invoices to support all bond costs included for the contract changes added to the line-items.

Bonds in construction projects mitigate the risk of the contractor not completing the project by providing a backup plan for another contractor to finish any remaining work. The city’s general contract conditions require the airport to obtain supporting documentation for all bond costs related to contract changes. In addition, the city’s fiscal rules require supporting documentation for each transaction.

The airport allowed Interstate Highway Construction to apply a 0.5% bond estimate on all applicable contract changes. Therefore, project staff said the airport should not pay for bond costs until Interstate Highway Construction provides an invoice to support the cost. Obtaining an invoice for the actual costs ensures the airport does not overpay for the bond.

We reviewed minutes from the project team’s meetings where staff discussed payments for bond costs. As of March 2021, staff noted Interstate Highway Construction had not provided any backup for the bond costs it had billed. In addition, staff said the contractor was unaware of the requirement to provide invoices to support its bond costs.

In our sample of four invoices, three contract changes included payments for the bond cost, totaling $1,030. However, the airport paid for each without obtaining an invoice. The airport paid for bond costs in May 2021 and paid for additional bond costs in December 2021 — all of which were several months after the airport’s meeting in March 2021 to address issues with bond costs.

By not obtaining the invoices to support the actual cost of each bond, the airport potentially overpaid for these costs.

The Airport Infrastructure Management Division lacks steps in its invoice review procedures to ensure staff obtain all invoices for bond costs before payment is made.

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LINE-ITEM UPDATES – The city’s general contract conditions require contractors to submit updated line-items to reflect all new change orders 15 days before submitting the invoice that includes the change order. But we found two instances in which the project team failed to do this. Staff said it was not aware of the requirement to obtain an updated list of line-items.

Failure to obtain an updated list of line-items could prevent the airport from ensuring contractors bill only for adjustments to the contract using the amounts approved in each change order.

PAYMENT INFORMATION – After the airport approves a contractor’s final invoice, the contractor submits a request for payment in Textura. Each request for payment should include an invoice cover sheet detailing payment information such as the original contract budget, the updated budget to reflect all adjustments to the original project cost, the current invoice amount, and the amount left to be paid. The airport’s Unifier system tracks this same information in the record details for each invoice.

We assessed the accuracy of the payment information by comparing it with invoice backup documentation, and we found inaccuracies in each of the four invoices we looked at.

As shown in Figure 8 on the next page, the invoices contained inaccuracies between the adjusted contract amount, the approved change order amount, and the amount left to be paid. For example, in the March 2021 invoice, the project team did not ensure Interstate Highway Construction updated the adjusted contract amount after the scope reduction. This led to a difference of around $56 million recorded across two airport software systems and the backup documentation.

While these inaccuracies did not affect the amount the airport paid Interstate Highway Construction in each invoice, errors with the invoice cover sheet could impact the project team’s budget tracking. Inaccuracies could also potentially lead to issues with payment amounts in the future.

The project team’s invoice procedures include a workflow and checklist to ensure an invoice is accurate. The checklist includes steps to verify the contract budget and change orders. However, it does not include explicit steps to ensure the invoice cover sheet matches both Unifier’s record details and the invoice backup documentation.

FIGURE 8. Inaccuracies in Payment Information across Textura, Unifier, and Invoice Backup Documentation

Source: Graphic designed by Auditor’s Office staff using information from the airport’s project management system, Unifier, and the contractor payment system, Textura.

Federal standards say management should obtain relevant data to achieve objectives and should ensure the data is accurate.24

The Airport Infrastructure Management Division should update its policies and procedures for lump-sum invoices to ensure they are complete and accurate before the airport approves them. At a minimum, the policies and procedures should include:

- Steps to ensure issues with the percentage of work completed are fully resolved and documented.
- A checklist to ensure all required documents are included such as all backup support for bond payments and project schedules.
- Steps to ensure all checks performed by staff on the percentage of work completed are formalized in the procedures.
- Steps to ensure the progress payment totals on the schedule of values match both the information recorded in Unifier and the information included on a contractor’s invoice and certification of payment.
- Steps to ensure compliance with the city’s policy for general contract conditions to receive an updated schedule of values prior to each invoice submission.

**AGENCY RESPONSE:** AGREE, IMPLEMENTATION DATE – DEC. 14, 2022
SEE PAGES 44-45 FOR THE AGENCY’S FULL RESPONSE TO OUR RECOMMENDATIONS.

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**The Airport Infrastructure Management Division Did Not Ensure All Subcontractors Were Vetted and Paid**

The contract and the city's general contract conditions outline four requirements to ensure the contractor's subcontractors are qualified and paid:

1. The contractor must provide the airport with letters from each subcontractor performing work confirming receipt of payment.²⁵
   The contract conditions allow the airport to satisfy this requirement by ensuring, at a minimum, the contractor’s invoice lists the subcontractors who performed work during the pay period and the dollar amount owed for that work.²⁶

2. The contractor must enter all subcontractor payment information for every invoice period into B2G — the city’s subcontractor tracking system.

3. Airport personnel must provide written acceptance of each subcontractor before working on the contract. Reasons for denying

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²⁵ The letters are referred to as “partial claim releases” or “waivers of claim” and provide a check on the contractor to ensure it pays each subcontractor the correct amount owed.

a subcontractor include a recent default on a prior contract, safety violations, or a lack of qualifications.\textsuperscript{27}

4. The contractor must provide documentation verifying it reviewed each subcontractor’s qualifications.\textsuperscript{28}

We found the airport did not fully comply with each requirement listed above. By failing to meet the requirements, the airport did not ensure the subcontractors were properly qualified and were paid by Interstate Highway Construction.

**The Airport Did Not Comply with Requirements to Approve Subcontractors**

We requested documentation from airport personnel to check compliance with the subcontractor approval requirements. As mentioned, the city’s contract conditions require the airport to provide written approval of each subcontractor and obtain documentation from the contractor confirming a review of each subcontractor’s qualifications.

The airport provided a list of subcontractors enrolled in the airport’s insurance and safety program, a list of the approved subcontractors working on the design portion of the project, and an email from Interstate Highway Construction listing the subcontractors used on the project.

However, this documentation does not fulfill the requirements. Specifically, it does not document the airport’s written approval of all subcontractors prior to their work on the contract, nor does it document the contractor’s verification of the subcontractors’ qualifications.

Airport personnel explained the complete list of subcontractors is usually included as part of the contract in “design-bid-build” projects, which serves as written acceptance of all subcontractors used on the project. In contrast, the complete list of subcontractors used on “design-build” projects is unknown when the contract is executed. Personnel said they reviewed the list of subcontractors provided in the contractor’s email and did not have any concerns. Personnel also said the insurance program enrollment provides a check on the subcontractors’ compliance with safety requirements.

We compared the list of subcontractors included in the documentation provided by the airport with the list of subcontractors that received payments for work. Of the subcontractors that received payments from Interstate Highway Construction, we found 31 were not included on the contractor’s email list and 22 were not included on the list of subcontractors enrolled in the insurance program.

According to the Institute of Internal Auditors’ construction auditing guide, contractors should select their subcontractors based on two key criteria:

1. Whether they have the appropriate skills necessary to perform the work.
2. Whether they have the financial capacity to complete the project.29

Following the city’s general contract requirements allows the airport to ensure the contractor has selected the best subcontractors to perform the work.

**The Airport Did Not Ensure All Subcontractor Payments Were Recorded**

City ordinance requires construction contracts to include a participation goal to enhance the use of women and minority-owned construction businesses.30 The Peña Boulevard contract included a participation goal of 25% for the design work and 15% for the construction work. Additionally, city ordinance requires contractors to pay their subcontractors within seven days of receiving payment from the city.31

The city’s Division of Small Business Opportunity uses the subcontract payment information in B2G to monitor compliance with these requirements. According to division procedures, staff check the date of payment and payment amount in B2G with the information on the contractor’s invoice. Staff are also supposed to check the payment dates to ensure contractors pay their subcontractors within seven days, as required.

We selected a sample of eight subcontractors to test the accuracy of the payment information recorded in the city’s B2G system. We compared this payment information with Interstate Highway Construction’s payment receipts. As shown in Figure 9 on the next page, the contractor’s payment receipts did not match the information it entered B2G, which led to the following differences:

- The total payments made to three subcontractors recorded in B2G did not match the payment receipts. For one subcontractor, the total paid was about $390,000 more in B2G than the amount listed on the contractor’s payment receipts.
- The number of payments and payment dates did not match for each subcontractor tested. As shown in Figure 9, Interstate Highway Construction did not enter each individual payment made to its subcontractors at the time of payment. For example, the contractor’s payment receipts showed 98 payments to one of its subcontractors, but the contractor recorded only 19 payments in B2G.

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**FIGURE 9. Differences Between B2G Subcontractor Payments entered by Interstate Highway Construction (IHC) Versus Its Own Payment Receipts**

<table>
<thead>
<tr>
<th>Subcontractor</th>
<th>Payments recorded by Interstate Highway Construction (IHC)</th>
<th>Total Recorded Payments</th>
<th>Total Payment Amounts</th>
<th>Difference in payment amounts Between IHC and B2G</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Subcontractor letters &amp; Payments in B2G</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IHC</td>
<td></td>
<td>16</td>
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<tr>
<td>IHC</td>
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<td>27</td>
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<tr>
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<td>IHC</td>
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<td>19</td>
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**Source:** Auditor's Office analysis of subcontractor payments using information from the city's B2G report and Interstate Highway Construction.

According to the contract, Interstate Highway Construction must use Textura to ensure both the subcontractor letters and its monthly invoices contain the amounts owed and paid to each subcontractor. However, we found the contractor required only one of the subcontractors to submit letters confirming receipt of payment. In addition, the same subcontractor was the only one included on the contractor's invoices.
Airport personnel explained the use of Textura is up to the contractor. However, this response conflicts with the contract. Furthermore, the airport paid the contractor about $49,000 for the use of Textura throughout the contract. Therefore, by not ensuring the contractor complied with all subcontractor payment requirements, the airport potentially overpaid for the use of Textura.

Meanwhile, airport personnel said failure to obtain subcontractors’ receipts of payments does not pose any legal liability to the city. Instead, the purpose of the letters is to provide assurance contractors pay their subcontractors. We confirmed this understanding with staff from the airport legal services section.

Legal services staff also explained the city’s Department of Transportation & Infrastructure decided to waive the subcontractor letter requirement for all its projects. Personnel said a waiver was not in place for the contract and that the authority to provide one lies with airport management.

Compounding this issue, airport personnel and staff at the city’s Division of Small Business Opportunity do not have any formal coordination to ensure a contractor submits all required subcontractor payment information. Formal communication at the beginning of each project could ensure both project management and the contractor comply with subcontractor payment requirements and provide all information the division needs to perform its monitoring.

By not ensuring the contractor reported all subcontractor payment information, staff at the city’s Division of Small Business Opportunity could not accurately track compliance with city ordinance requirements. Specifically, the inaccurate payment information prevented staff from verifying the contractor paid its subcontractors on time. Further, staff could not accurately monitor compliance with the contractor’s participation goals for women and minority-owned construction businesses.

1.9 RECOMMENDATION

The Airport Infrastructure Management Division should develop and implement a process to ensure compliance on Design-Build contracts with the following requirements in the city’s policy for general contract conditions:

- Documentation of written acceptance for all subcontractors used on the project.
- Documentation from contractor certifying subcontractor qualifications.

AGENCY RESPONSE: AGREE, IMPLEMENTATION DATE – AUG. 17, 2022
SEE PAGE 45 FOR THE AGENCY’S FULL RESPONSE TO OUR RECOMMENDATIONS.
1.10 RECOMMENDATION Develop Procedures for Subcontractor Payments

The Airport Infrastructure Management Division should develop and implement procedures to ensure subcontractors’ payment information is recorded in the contractor’s payment applications at the time of each invoice period. These procedures should also include steps to coordinate with the Division of Small Business Opportunity at the beginning of the project to ensure all information required to track compliance with city rules for subcontractor payments will be included on each payment application.

AGENCY RESPONSE: AGREE, IMPLEMENTATION DATE – AUG. 17, 2022
SEE PAGE 46 FOR THE AGENCY’S FULL RESPONSE TO OUR RECOMMENDATIONS.

1.11 RECOMMENDATION Conduct Trainings

The Airport Infrastructure Management Division should develop and conduct training with project management staff on the applicable subcontractor payment requirements prior to the start of each project to ensure the contractor follows subcontractor payment requirements.

AGENCY RESPONSE: AGREE, IMPLEMENTATION DATE – AUG. 17, 2022
SEE PAGES 46-47 FOR THE AGENCY’S FULL RESPONSE TO OUR RECOMMENDATIONS.

1.12 RECOMMENDATION Evaluate Need for Waivers

The Airport Infrastructure Management Division should work with the City Attorney’s Office airport legal services section to evaluate and document whether partial liens should be required, and if the costs outweigh the benefits, the airport should waive this specific requirement for its projects.

AGENCY RESPONSE: AGREE, IMPLEMENTATION DATE – AUG. 17, 2022
SEE PAGE 47 FOR THE AGENCY’S FULL RESPONSE TO OUR RECOMMENDATIONS.

The Airport Lacks a Process to Choose the Best Project Delivery Method

Project delivery defines the roles, responsibilities, and contractual relationship between the project owner, designer, and builder. The airport chose a design-build delivery method for this contract because it is appropriate for projects with multiple phases and projects without fully defined scopes of work. Airport personnel also claimed this delivery method is both more time- and cost-efficient than other types of delivery methods.
Airport personnel told us they followed guidance from the Colorado Department of Transportation to determine their project delivery method. The guidance includes a matrix for evaluating relevant factors and determining which project delivery method is most suitable for a project. Several factors include the project schedule, the level of complexity, and project cost.

Likewise, federal guidance outlines a structured approach for selecting and documenting a construction project's delivery method, which includes prioritizing unique project goals and developing a risk allocation matrix to understand the project owner's risks under competing delivery methods.

However, the airport could not provide documentation of its analysis to justify the selection of a design-build method. Additionally, the airport lacks a formal process to ensure a risk-based approach is both performed and documented.

Establishing a procedure to ensure an analysis is conducted and documented decreases the risk that the city selects an inappropriate delivery method for a project. Selecting the wrong method could lead to increased project costs or may increase the chance of project delays.

### 1.13 RECOMMENDATION

**Develop and Implement a Delivery Method Selection Process**

The Airport Infrastructure Management Division should develop and implement policies and procedures that document the decision-making process for selecting a project’s delivery method in alignment with leading practices, such as the Colorado Department of Transportation's Design-Build manual.

**AGENCY RESPONSE:** AGREE, IMPLEMENTATION DATE – DEC. 14, 2022

SEE PAGES 47-48 FOR THE AGENCY’S FULL RESPONSE TO OUR RECOMMENDATIONS.

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**PRIOR AUDIT REPORT**

In the Denver Auditor’s Office’s “Construction Manager/General Contractor Delivery Method” report published in September 2021, we found the Department of Transportation & Infrastructure also lacked a formal policy to ensure a risk-based approach to select the project delivery method. The department agreed with the office’s recommendation to formalize this process.

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May 4, 2022
Auditor Timothy M. O’Brien, CPA
Office of the Auditor
City and County of Denver
201 West Colfax Avenue, Dept. 705
Denver, Colorado 80202

Dear Mr. O’Brien,

The Office of the Auditor has conducted a performance audit of Peña Boulevard Improvements Construction Contract.

This memorandum provides a written response for each reportable condition noted in the Auditor’s Report final draft that was sent to us on April 25, 2022. This response complies with Section 20-276 (c) of the Denver Revised Municipal Code (D.R.M.C.).

AUDIT FINDING 1
Denver International Airport Needs Better Oversight of the Peña Boulevard Improvements Construction Projects to Ensure the Best Value for the City

RECOMMENDATION 1.1
The Airport Infrastructure Management Division should establish a formal mechanism to impose monetary penalties on contractors that fail to meet required submission deadlines.

<table>
<thead>
<tr>
<th>Agree or Disagree with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of specific point of contact for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>08/17/2022 – 90 Days</td>
<td>Berit Ortwein P: 303-342-4568</td>
</tr>
</tbody>
</table>

Narrative for Recommendation 1.1
DEN agrees with Recommendation that monetary or other penalties assessed to the Contractor for late submissions should be considered but determined on a project-by-project basis. For large/complex projects it may add value to ensure schedule, cost, and operational impacts are minimized. However, for routine DEN Projects it may not be beneficial, adding additional complexities and cost. For instance, DEN would not recommend penalizing minority, disadvantaged, or small businesses performing work for the first time as a Prime Contractor.
DENVER INTERNATIONAL AIRPORT  
8500 Peña Blvd. | Denver, Colorado 80249-6340 | (303) 342-2000  

RECOMMENDATION 1.2  
The Airport Infrastructure Management Division should formally review project  
management plans and other procedures during its post-project lessons learned  
meetings to ensure the plans include procedures that reflect actual practice.

<table>
<thead>
<tr>
<th>Agree or Disagree with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of specific point of contact for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>07/18/2022 – 60 Days</td>
<td>Michael Cloud P: 303-342-4457</td>
</tr>
</tbody>
</table>

Narrative for Recommendation 1.2  
DEN agrees with this Recommendation. The Project Management Plan referenced in the Audit Report was an  
internal Peña Project Management Team (PMT) working document and not a Contract Document. DEN agrees  
to discuss and include in the Lessons Learned Closeout process. The PMP was not intended or used for  
requirements management assurance of IHC or DEN meeting contract obligations, but rather a guiding  
document that establishes goals, roles, and responsibilities for implementation of the project. The PMP  
changes will be formally reviewed and finalized in lessons learned document for the Pena Improvements –  
Phase I project, including final Tollgate presentation to DEN leadership.

RECOMMENDATION 1.3  
The Airport Infrastructure Management Division should update its policies and  
procedures to formally establish review times and deadlines for contract changes and  
contractor requests for information.

<table>
<thead>
<tr>
<th>Agree or Disagree with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of specific point of contact for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>08/17/2022 – 90 days</td>
<td>Berit Ortwein P: 303-342-4568</td>
</tr>
</tbody>
</table>

Narrative for Recommendation 1.3  
DEN agrees with this Recommendation that review times for contractual change documents and contractor  
requests for information should be clearly defined in the Project Documents unless otherwise stated in the  
Contract General Conditions (Yellow Book), which would take precedence.
RECOMMENDATION 1.4
The Airport Infrastructure Management Division should design and implement a workflow in Unifier dedicated to tracking and documenting all required documents to monitor the noncompliance reports it issues to contractors.

<table>
<thead>
<tr>
<th>Agree or Disagree with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of specific point of contact for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>12/14/2022 – 210 Days</td>
<td>Berit Ortwein P: 303-342-4568</td>
</tr>
</tbody>
</table>

Narrative for Recommendation 1.4
DEN agrees with this Recommendation with this process improvement but requests additional time for implementation as it requires consultation with Oracle for development of their Unifier product, design, implementation, testing, and training to deploy to all Project Managers and Contract Administrators.

RECOMMENDATION 1.5
The Airport Infrastructure Management Division should design and implement a workflow in Unifier dedicated to tracking contract-change approvals that affect a project’s contingency fund.

<table>
<thead>
<tr>
<th>Agree or Disagree with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of specific point of contact for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree</td>
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<td>N/A</td>
</tr>
</tbody>
</table>

Narrative for Recommendation 1.5
DEN currently utilizes the cost sheet in Unifier which contains the contingency and a process to track contingency draw down. The Cost Management PM Guide was published in September 2021, and it defines the workflow and outlines how contingency is monitored throughout the project life cycle. The Pena Boulevard Project was set up in Unifier in 2017 when this functionality was not available to the Program Management Team (PMT), and they needed to implement an interim solution. Projects that are active after January 1, 2022, must use the contingency tracking functionality in Unifier in accordance with the Cost Management PM Guide.
RECOMMENDATION 1.6
The Airport Infrastructure Management Division should develop policies and procedures for providing cost estimate services in design-build contracts to ensure:

- A contractor’s labor and equipment estimates are reasonable before the airport approves a contract change.
- “Not-to-exceed” amounts are supported by documentation.

<table>
<thead>
<tr>
<th>Agree or Disagree with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of specific point of contact for implementation</th>
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<tr>
<td>Agree</td>
<td>08/17/2022 – 90 Days</td>
<td>Berit Ortwein P: 303-342-4568</td>
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</table>

Narrative for Recommendation 1.6
DEN agrees with the Recommendations, but proposes an alternate solution.

The AIM Dev PMO is updating the Estimating PM Guide at this time to make it more current. DEN will include estimating requirements for contracts that do not follow the Design – Bid – Build methodology. However, developing independent estimates for each Contractor Change Request or Change Order is financially burdensome for AIM Development, as it would require extensive time and cost to process the contract change. DEN proposes to establish thresholds for cost, risks etc. to determine which CCRs or Change Orders may need independent estimates to support negotiations.

DEN proposes that Airport Infrastructure Management staff will be required to determine Rough Order Magnitude or conceptual cost estimates for documenting the Not-to-Exceed amount for Change Directives, which they may use current unit pricing, professional opinion for the level of effort, or historical pricing from past projects to establish a baseline estimated cost. This proposed solution is in lieu of providing a full cost estimate that would require extensive time and cost to generate, which contradicts the intent of the General Contract Conditions for issuance of a Change Directive.

These recommended solutions will be reflected in the updated Estimating PM Guide.

RECOMMENDATION 1.7
The Airport Infrastructure Management Division should update its policies and procedures related to reviewing and approving contract changes to ensure all changes are fully supported by documentation before the airport makes payments toward the change.
The updated procedures should, at a minimum, include steps to ensure all related information — such as email review notes, or verbal discussions — are documented and included in the contract-change workflow in Unifier as well as steps to ensure all invoices are provided and reviewed before the airport makes payments toward those changes.

<table>
<thead>
<tr>
<th>Agree or Disagree with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of specific point of contact for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Narrative for Recommendation 1.7**

AIM Development published a new Contract Administration Guide in Feb 2022. Based on those processes and procedures, going forward the CAs will collate a record of negotiations for each Change Order which will be attached in Unifier as back-up documentation. This includes meeting minutes, emails, forms, letters, and other appropriate documentation. Verbal agreements will need to be documented in writing.

**RECOMMENDATION 1.8**

The Airport Infrastructure Management Division should update its policies and procedures for lump-sum invoices to ensure they are complete and accurate before the airport approves them. At a minimum, the policies and procedures should include:

- Steps to ensure issues with the percentage of work completed are fully resolved and documented.
- A checklist to ensure all required documents are included such as all backup support for bond payments and project schedules.
- Steps to ensure all checks performed by staff on the percentage of work completed are formalized in the procedures.
- Steps to ensure the progress payment totals on the schedule of values match both the information recorded in Unifier and the information included on a contractor’s invoice and certification of payment.
- Steps to ensure compliance with the city’s policy for general contract conditions to receive an updated schedule of values prior to each invoice submission.
Narrative for Recommendation 1.8
AIM Development has committed to providing an updated Invoicing Guide for the department to document the invoicing process, requirements, safeguards and progress assessments as well as providing additional training to all staff in a separate audit that was carried out internally. We propose the same response for the Pena Boulevard Improvements Construction Contract Audit to be consistent in our approach. The Invoicing Guide will include provisions for all types of contracts and financial agreements as recommended above. DEN requests additional time as it requires development, design, implementation, testing, and training to deploy to all Project Managers and Contract Administrators.

### RECOMMENDATION 1.9

The Airport Infrastructure Management Division should develop and implement a process to ensure compliance on Design-Build contracts with the following requirements in the city’s policy for general contract conditions:

- Documentation of written acceptance for all subcontractors used on the project.
- Documentation from contractor certifying subcontractor qualifications.

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>08/17/2022 – 90 Days</td>
<td>Michael Cloud P: 303-342-4457</td>
</tr>
</tbody>
</table>

Narrative for Recommendation 1.9
DEN agrees that this should occur on all contracts. However, DEN currently has a form and process for this recommendation and is referenced in Division 1 Specifications require written acceptance and certification of subcontractor qualifications. DEN will review the current DEN CM-02 form that is referenced in Division 01 – General Requirements Section 013100 -1.4A to ensure accuracy, completeness, and compliance with Section 502.2 of General Contract Conditions and make any necessary changes as applicable.
RECOMMENDATION 1.10
The Airport Infrastructure Management Division should develop and implement procedures to ensure subcontractors’ payment information is recorded in the contractor’s payment applications at the time of each invoice period. These procedures should also include steps to coordinate with the Division of Small Business Opportunity at the beginning of the project to ensure all information required to track compliance with city rules for subcontractor payments will be included on each payment application.

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>08/17/2022 – 90 Days</td>
<td>Berit Ortwein P: 303-342-4568</td>
</tr>
</tbody>
</table>

Narrative for Recommendation 1.10
DEN acknowledges that the Pena Improvements – Phase I contract required all subcontractors to be included in the Textura System. However, IHC had requested to not include all subcontractors in this system, which they had indicated they have separate agreements with various subcontractors to make payments more frequently. This was in part to ensure Small and Minority/Women Owned Business Enterprises (MWBE) were receiving payment prior submitting into Textura and prior the DSBO and Prompt Payment Ordinance requirements of 30 and 35 days respectively. Even though all MWBE subcontractors were not in Textura, IHC manually entered all payment information into the B2G system for the Division of Small Business Office (DSBO) tracking. There were no instances of dispute by any subcontractor regarding payment on this project.

DEN agrees with this Recommendation and will enforce the requirements in accordance with General Contract Conditions 907, RELEASES and CONTRACTORS CERTIFICATION OF PAYMENT. Applications for Payment must be accompanied by completed Partial or Final Claim Release Form, as appropriate, from EACH subcontractor and supplier, AND the Contractor’s Certification of Payment Form. Airport Infrastructure Management Division currently has a CM-19 Contractor Certification Payment Form that is located on the Project Management Office website and will ensure all Project Managers are enforcing the requirement of the General Contract Conditions, section 907.

DEN also agrees to coordinate with the Division of Small Business Office and to ensure they receive a copy of this form through the Pay Application process.

RECOMMENDATION 1.11
The Airport Infrastructure Management Division should develop and conduct training with project management staff on the applicable subcontractor payment requirements.
prior to the start of each project to ensure the contractor follows subcontractor payment requirements.

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>Agree</td>
<td>08/17/2022 – 90 Days</td>
<td>Berit Ortwein</td>
</tr>
</tbody>
</table>

**Narrative for Recommendation 1.11**
DEN agrees with this Recommendation and will conduct training with project management staff.

**RECOMMENDATION 1.12**
The Airport Infrastructure Management Division should work with the City Attorney’s Office airport legal services section to evaluate and document whether partial liens should be required, and if the costs outweigh the benefits, the airport should waive this specific requirement for its projects.

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>08/17/2022 – 90 Days</td>
<td>Michael Cloud 303-342-4457</td>
</tr>
</tbody>
</table>

**Narrative for Recommendation 1.12**
DEN agrees with this Recommendation and will consult with the City Attorney’s office.

**RECOMMENDATION 1.13**
The Airport Infrastructure Management Division should develop and implement policies and procedures that document the decision-making process for selecting a project’s delivery method in alignment with leading practices, such as the Colorado Department of Transportation’s Design-Build manual.

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Agree</td>
<td>12/14/2022 – 210 Days</td>
<td>Michael Cloud</td>
</tr>
</tbody>
</table>
Narrative for Recommendation 1.13
DEN agrees with this Recommendation and is currently evaluating and developing a pyramid selection guide. Additional time is being requested to further evaluate and research procedures from other city, state, local, and federal agencies on best practices for decision-making process for selecting alternative delivery. The additional time will also include development, design, implementation, training, and deployment to all Airport Infrastructure Management staff.

Please contact Michael Cloud at 303-342-4457 or Berit Ortwein at 303-342-4568 with any questions.

Sincerely,

Phillip A. Washington
Chief Executive Officer

cc: Valerie Walling, CPA, Deputy Auditor
    Dawn Wiseman, CRMA, Audit Director
    Sonia Montano, Audit Manager
    Jim Starling, Chief Construction and Infrastructure Officer
AUDITOR’S ADDENDA

Auditor’s Addendum to Agency Response for Recommendation 1.5

The airport’s response notes projects active after Jan. 1, 2022, must use the contingency tracking functionality in Unifier in accordance with the Cost Management PM Guide. The Peña Boulevard Improvements construction contract started in 2019, so this process was not followed, and the contingency tracking was conducted outside of Unifier.

As we describe on pages 17-18 of the report, we were informed by staff that the tracker is updated manually because Unifier lacks a workflow to track costs within the system. We were not informed during the audit that the tracking functionality in Unifier was available and used for projects as of Jan. 1, 2022, and therefore were unable to verify the workflow in Unifier or the process.

We identified inaccuracies in the manual updates to the contingency tracker. If tracking continues outside Unifier for the remaining phases of the Peña Boulevard Improvements construction contract, the airport should consider developing other controls to ensure accurate tracking.

Auditor’s Addendum to Agency Response for Recommendation 1.7

The airport’s response notes a new Contract Administration Guide was published in February 2022 that outlines appropriate support documentation for invoices would be included in Unifier. Although during the audit we discussed our concerns that all support documentation for the invoice amounts paid to Interstate Highway Construction were not included in Unifier, we were not informed that a new guide was in the process of being developed or implemented. In addition, the response does not specifically include reference to a review process taking place prior to the approval of invoices, which is emphasized in our recommendation.

We are pleased that the airport has taken action to address this concern, but since we were unable to verify this information, we will review the guide and new process during our follow-up activities.
OBJECTIVE

To evaluate whether the Airport Infrastructure Management Division provided adequate oversight of phase 1 of the Peña Boulevard improvements construction contract to ensure the city received the work it paid for, including reviewing the invoice and payment process, the contract-change process, and compliance with subcontractor requirements.

SCOPE

The audit reviewed the Airport Infrastructure Management Division’s oversight of phase 1 of the Peña Boulevard improvements construction contract. The audit focused on three areas of the airport’s oversight: payments to the contractor process, contract-change process, and compliance with subcontractor requirements. We reviewed documentation used to support the airport’s oversight dating from Aug. 1, 2019, through Dec. 31, 2021.

METHODOLOGY

We used several methodologies to gather and analyze information related to our audit objectives. The methodologies included but were not limited to:

- Interviewing the following individuals:
  - Personnel from the Airport Infrastructure Management Division and the airport’s Business Management Services Section.
  - Personnel from the consulting firm Atkins, the third-party team.
  - Personnel from the city’s Division of Small Business Opportunity.
  - Personnel from the City Attorney’s Office airport legal services section.
- Reviewing the following criteria:
  - The Peña Boulevard improvements construction contract for phase 1.
  - The City and County of Denver’s “Standard Specifications for Construction General Contract Conditions.”
  - City Fiscal Accountability Rules.
- City and County of Denver Executive Order No. 8.
- The Airport Infrastructure Management Division’s policies and procedures related to oversight of construction projects.
- The Colorado Department of Transportation’s “Design-Build Manual.”
- The Institute of Internal Auditors Research Foundation’s “Practitioner’s Blueprint to Construction Auditing.”

Reviewing and analyzing the following:
- Interstate Highway Construction Inc. invoices and supporting documentation to determine compliance with contract requirements and leading practices.
- Interstate Highway Construction project schedules and review documentation to determine compliance with contract requirements and leading practices.
- B2G subcontractor payment information to compare with the contractor's payment receipts to subcontractors.
- Submission and review dates for invoices and change orders to determine compliance with contract requirements.
- Change order supporting documentation to determine compliance with contract requirements and leading practices.
- Change order meeting minutes for 2019 through 2021.
- Project contingency tracker maintained by the project management team to assess the accuracy of the information.
- Non-conformance log and non-conformance documentation to evaluate compliance with policies and procedures.
- The contractor’s requests for information.
- The risk register for phase 1 of the Peña Boulevard improvements construction contract.
- Quality assurance and quality control inspection and materials testing documentation to determine compliance with the contract and relevant requirements for highway construction in the State of Colorado.
APPENDICES

Appendix A – Results of Assessing Contract Changes

This appendix details more information on each contract change we tested. We used professional judgment to select a total of 26 contract changes based on the description of the change as well as the cost of each change. Table 3 below and on the next page summarizes the type of contract change, the issue identified, and the change in project time or project cost.

**TABLE 3. Contract Change Test Results**

<table>
<thead>
<tr>
<th>Contract Change</th>
<th>Issue</th>
<th>Adjustment to Project Cost/Project Time</th>
</tr>
</thead>
</table>
| Two additional traffic speed signs.                           | • The final amount paid was about $6,000 more than the “not-to-exceed” value.  
• The final amount paid was not supported by invoices showing actual costs of labor or materials. | $10,351                                |
| Additional design support from third-party facilitator.       | The amount paid was not supported by invoices or timesheets.           | $3,264                                 |
| Costs for design work prior to termination of the ground transportation building. | The supporting documentation describes the completed design work but does not include invoices or timesheets to support the labor rates and hours paid. | $12,728                                |
| Additional construction work needed for Jackson Gap off ramp. | The additional work increased the quantities of materials and labor costs included in the original contract. However, the documentation did not justify the higher rates included in the change order compared to the original contract or to market rates. | $785,686                               |
| Costs for equipment purchase prior to termination.            | After the scope reduction, the airport paid for equipment the contractor did not need. However, the airport did not remove the city sales tax of $2,260 before the purchase. | $43,635                                |
| Project management support provided prior to termination.     | The backup documentation includes project support from November 2019 through March 2020. However, the backup does not allow the airport to avoid duplicate payment for these costs. | $77,415                                |
| Scope reduction due to impacts of the COVID-19 pandemic.      | • The airport increased costs for labor and materials by $27,586. However, the airport did not document support for the increases.  
• The airport did not ensure the time impact analysis was included to support the change in Unifier.  
• The project team did not document its review of the time impact analysis. | Decrease of $57,534,112 and Decrease of 303 days |

*Source: Auditor’s Office summary based on information provided by the Airport Infrastructure Management Division.*
<table>
<thead>
<tr>
<th>Contract Change</th>
<th>Issue</th>
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</tr>
</thead>
</table>
| Changes to the maintenance of traffic flow.              | • The invoices and timesheets supporting the amount paid were not fully reviewed and approved at the time of payment.  
• The airport paid more than allowed by its internal standard before it finalized the change order. | $56,196                                |
| Addition of new project milestone to complete remaining work. | The airport did not ensure the time impact analysis was included to support the change in Unifier. | Increase of 130 days                   |

*Source: Auditor’s Office summary based on information provided by the Airport Infrastructure Management Division.*
Appendix B – Missing Documentation from Monthly Progress Reports

This appendix provides additional details for our test work related to the monthly progress reports. In our sample of four invoices, we tested whether each monthly progress report contained all the required documentation outlined by the contract. Table 4 lists the contract requirement and our test results: a “O” indicates the documentation was included and an “X” indicates the documentation was missing.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution of problems/issues raised in previous monthly invoices</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Identification of completion deadlines that were achieved or revised</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Discussion of schedule variations from completion deadlines that have slipped or improved</td>
<td>O</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Monthly updated cash flow project tracking</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Work breakdown structure narrative</td>
<td>O</td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>“Draw-down graph”</td>
<td>O</td>
<td>X</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Utilities progress update, including current utility matrix</td>
<td>O</td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>Summary of public information during the period</td>
<td>O</td>
<td>X</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>Three-month look-ahead schedule</td>
<td>O</td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>Critical path project schedule</td>
<td>O</td>
<td>X</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

Source: Auditor’s Office analysis based on comparison between invoice documentation and the Peña Boulevard Improvements Construction contract requirements for phase 1.
Office of the Auditor

The Auditor of the City and County of Denver is independently elected by the residents of Denver. He is responsible for examining and evaluating the operations of city agencies and contractors for the purpose of ensuring the proper and efficient use of city resources. He also provides other audit services and information to City Council, the mayor, and the public to improve all aspects of Denver's government.

The Audit Committee is chaired by the Auditor and consists of seven members. The Audit Committee assists the Auditor in his oversight responsibilities regarding the integrity of the city's finances and operations, including the reliability of the city's financial statements. The Audit Committee is structured in a manner that ensures the independent oversight of city operations, thereby enhancing residents' confidence and avoiding any appearance of a conflict of interest.

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Denver CO, 80202
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We deliver independent, transparent, and professional oversight in order to safeguard and improve the public's investment in the City and County of Denver. Our work is performed on behalf of everyone who cares about the city, including its residents, workers, and decision-makers.