September 11, 2023

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 Airport Information Technology Vendor Management.

This memorandum provides a written response for each reportable condition noted in the Auditor’s Report final draft that was sent to us on August 21, 2023. This response complies with Section 20-276 (c) of the Denver Revised Municipal Code (D.R.M.C.).

PUBLIC REPORT AUDIT FINDING
Denver International Airport’s Business Technologies division lacks a robust information technology vendor management program.

RECOMMENDATION 1.1
Document an information technology vendor management strategic plan – Denver International Airport’s Business Technologies division should create and document a strategic plan for information technology vendor management that supports the overall strategic vision at the airport. In developing its vendor management program, Business Technologies should include sufficient detail — and measurable time frames — in its strategic plan for each of the following objectives:

- Having performance indicators to monitor vendors’ contract compliance.
- Securing data and network infrastructure.
- Training airport staff.
- Engaging proactively with vendors and partners.
- Improving how it selects and contracts with critical vendors to save money.
- Monitoring other airport divisions’ compliance with technology plans, budgets, standards, and policies and procedures.

<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>01/02/24</td>
<td>Amphon Hiampane (303) 342-4759</td>
</tr>
</tbody>
</table>
Narrative for Recommendation 1.1
DEN Business Technologies agrees with the recommendation and will document an information technology vendor management strategic plan. The plan will address the objectives identified with this recommendation.

RECOMMENDATION 1.2
Finalize a vendor management policy – As part of implementing the ServiceNow vendor risk management module, Denver International Airport’s Business Technologies division should finalize and approve its draft vendor management policy and ensure it includes details about the organizational structure supporting the airport’s vendor management life cycle, staff resources and roles and responsibilities, and all related activities needed to ensure sufficient governance of information technology vendor management at the airport.

Additionally, Business Technologies should develop and finalize supporting procedures for all vendor management life cycle activities, including but not limited to procedures described in recommendations 1.3, 1.4, 1.5, 1.7, and 1.8 — such as procedures for continuous security and performance monitoring as well as consistent steps to end a relationship with a vendor.

<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>04/01/24</td>
<td>Juan Lucero (303) 342-2083</td>
</tr>
</tbody>
</table>

Narrative for Recommendation 1.2
DEN Business Technologies agrees with the recommendation and will finalize the draft vendor management policy, and upon approval, publish and communicate the policy for all DEN departments to utilize by the date indicated with this recommendation. In addition, procedures will be developed, published, and communicated for vendor management life cycle activities by 07/01/24.
RECOMMENDATION 1.3
Require Business Technologies’ early involvement in technology procurement
– As part of implementing Recommendation 1.2, Denver International Airport’s Business Technologies division should work with airport officials to require the division’s involvement during procurement to ensure initial technical, architectural, security, data protection, and privacy risks are addressed upfront for any technology introduced at the airport.

<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>07/01/24</td>
<td>Chris Larivee (303) 342-4933</td>
</tr>
</tbody>
</table>

Narrative for Recommendation 1.3
DEN Business Technologies agrees with the recommendation and will refine policies and procedures to clarify to airport personnel that all technology procurement requires timely engagement, review, and approval from Business Technologies.

RECOMMENDATION 1.4
Develop a vendor termination process – As part of implementing Recommendation 1.2, Denver International Airport’s Business Technologies division should develop, approve, and document a consistent process for staff to follow when information technology vendors stop working for the airport. This process should include considerations like updating the airport’s vendor inventory list, ensuring vendors return or destroy city data in their possession, and removing vendor accounts from airport systems. Once these procedures are approved, division managers should communicate them to relevant staff.

<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>04/01/24</td>
<td>Amphon Hiampane (303) 342-4759</td>
</tr>
</tbody>
</table>

Narrative for Recommendation 1.4
DEN Business Technologies agrees with the recommendation and will develop, approve, and document a vendor termination process to provide consistent standards to address the objectives identified with this recommendation.
RECOMMENDATION 1.5
Develop security review procedures – As part of implementing Recommendation 1.2, Denver International Airport’s Business Technologies division should develop, implement, and document procedures to ensure staff continuously monitor all airport information technology vendors for risks and security concerns. These procedures should include, at a minimum:

- Ensuring security reviews and risk assessments are done at intake and at regular times thereafter, depending on the criticality to the airport and the risks posed by a vendor's system.
- Detailing requirements for security reviews and risk assessment reports from independent assessors.
- Obtaining a copy of vendors’ risk assessments for vendors managed by the city’s Technology Services agency, so Business Technologies has it for its own records and can document these exceptions.

<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>06/03/24</td>
<td>Chris Larivee (303) 342-4933</td>
</tr>
</tbody>
</table>

Narrative for Recommendation 1.5
DEN Business Technologies agrees with the recommendation and will redesign, implement, and document our vendor security review processes. Successful implementation of this plan is dependent on the completion of the vendor risk management module implementation to appropriately categorize the criticality of the vendor.

RECOMMENDATION 1.6
Develop an information technology vendor management training plan – Denver International Airport’s Business Technologies division should develop a training plan to ensure staff with roles and responsibilities related to information technology vendor management life cycle activities are aware and informed of how the governance process is structured and how it should operate.

<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>01/02/24</td>
<td>Amphon Hiampane (303) 342-4759</td>
</tr>
</tbody>
</table>

Narrative for Recommendation 1.6
DEN Business Technologies agrees with the recommendation and will develop an information technology vendor management training plan. Development of the training plan will be conducted during the remediation of Recommendation 1.1 and will ensure
appropriate staff receive and understand their roles and responsibilities with information technology vendor management life cycle activities.

### RECOMMENDATION 1.7

**Ensure complete and accurate information in ServiceNow** – Denver International Airport’s Business Technologies division should continue to implement an automated single system of record for vendor management — such as the ServiceNow vendor risk management module — to monitor all vendor management life cycle activities and ensure the airport’s information technology vendor inventory list is complete and accurate.

Furthermore, as part of implementing Recommendation 1.2, Business Technologies should develop a process, policy, and procedures to ensure data stored in this system of record remains complete and accurate.

<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>04/01/24</td>
<td>Amphon Hiampane (303) 342-4759</td>
</tr>
</tbody>
</table>

**Narrative for Recommendation 1.7**

DEN Business Technologies agrees with the recommendation and will continue efforts to complete the implementation of vendor risk management in ServiceNow. The technology implementation is estimated to be completed by 01/02/23.

Business Technologies is adopting a phased plan to implementing risk management for vendors. During this process Business Technologies will prioritize the completeness, and accuracy of vendor data for the vendors providing services to DEN that are categorized as “Critical”, followed by vendors managed by Business Technologies that provide services categorized as “High” by 04/01/24.

The priority for ensuring completeness and accuracy for vendor services provided to other DEN divisions and Business Technologies vendors providing services categorized as “Medium” and “Low” will be determined after those efforts conclude.

In addition, the phased plan will develop policy, procedure, and process as necessary to ensure that vendor information is updated to ensure completeness and accuracy of data.
RECOMMENDATION 1.8
Define and monitor service-level objectives – As part of implementing Recommendation 1.2, Denver International Airport’s Business Technologies division should:

- Ensure all technology contracts contain service-level agreements and specific service-level objectives for vendors to meet and that these service-level objectives are relevant, enforceable, and measurable.
- Refine and supplement procedures to ensure airport staff comprehensively and continuously monitor all technology vendors and verify that these vendors are meeting contract terms — including the requirements of their service-level agreements and objectives.
- Define and implement a process to seek restitution when vendors do not fulfill their agreed-upon service-level objectives, in accordance with their contracts.
- Include detailed information about service-level objectives in ServiceNow to support staff’s comprehensive and continuous monitoring.

<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>07/01/24</td>
<td>Amy Carroll (303) 342-2017</td>
</tr>
</tbody>
</table>

Narrative for Recommendation 1.8
DEN Business Technologies agrees with the recommendation and will create and publish service-level agreement and objective standards. Further, we will work with DEN Legal to incorporate these standard service-level agreements and service-level objectives into technology contracts.

Procedures will also be developed, and appropriate staff will be trained on monitoring vendors to address the objectives identified with this recommendation.

In addition, we will consider options for a tool, like ServiceNow, to assist staff with monitoring service-level objectives.
**RECOMMENDATION 1.9**

*Update policy and procedures for vendor incidents* – Denver International Airport’s Business Technologies division should revise its major incident management policy and any associated procedures to require staff to document lessons learned after each major incident to help prevent future events and to hold vendors accountable to service-level objectives agreed to in their service-level agreements. These lessons learned should be documented in ServiceNow, given it is the airport’s system of record for information technology.

<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>01/02/24</td>
<td>Amphon Hiampane (303) 342-4759</td>
</tr>
</tbody>
</table>

**Narrative for Recommendation 1.9**

DEN Business Technologies agrees with the recommendation and will update the policy and procedures for vendor incidents. These updates will include the Business Technologies Major Incident Management process documents, which will include additional requirements when documenting lessons learned in the post incident report in ServiceNow.

Please contact Amphon Hiampane at (303) 342-4759 with any questions pertaining to this response.

Sincerely,

Juan Lucero  
Senior Vice President and CIO  
DEN Business Technologies  
Division

cc: Valerie Walling, CPA, Deputy Auditor  
Dawn Wiseman, CRMA, Audit Director  
Nicholas Jimroglou, CISA, CDPSE, Information Systems Audit Lead