City and County of Denver

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AUDITOR'S LETTER

April 7, 2022

In keeping with generally accepted government auditing standards and Auditor's Office policy, as authorized by city ordinance, the Audit Services Division has a responsibility to monitor and follow up on audit recommendations to ensure city agencies address audit findings through appropriate corrective action and to aid us in planning future audits.

In our follow-up effort for the "Airport Capital Assets" audit report issued in December 2020, we determined Denver International Airport fully implemented seven recommendations, partially implemented seven recommendations, and did not implement the remaining three recommendations it agreed to in the original audit report. Despite the airport's efforts, auditors determined the risks associated with the audit team's initial findings have not been fully mitigated. As a result, the Audit Services Division may revisit these risk areas in future audits to ensure the city takes appropriate corrective action.

The Highlights page in this report provides background and summary information about the original audit and the completed follow-up effort. Following the Highlights page is a detailed implementation status update for each recommendation. We did not update the status of the two recommendations Denver International Airport disagreed with, as the airport presumably would not have taken action toward implementing those. However, we include these recommendations in the status update section as a reference.

I would like to express our sincere appreciation to the personnel at Denver International Airport who assisted us throughout the audit and the follow-up process. For any questions, please feel free to contact me at 720-913-5000.

Denver Auditor's Office

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costs could include both hard and soft costs. The definition of capital assets used in Workday is determined by General Accepted Accounting Principles, Governmental Accounting Standards Board pronouncements, and the City Fiscal Accountability Rules. Maximo is a Computerized Maintenance Management System ("CMMS") used to track maintenance work orders and costs regardless of whether the asset is capitalized for accounting purposes. Maximo often includes non-capitalized assets as well as components of a constructed asset. There is not always a one-to-one relationship between the two systems. One exception is fleet assets. These assets are capitalized within Workday and maintained in Maximo with the prevailing City and County of Denver nomenclature.

For the original report, we wrote the following addendum rebutting the airport's response to both this recommendation and Recommendation 1.12:

> As highlighted in the report, best practices say that for effective monitoring, data should come from reliable internal and external sources and be "reasonably free from error and bias." Having quality information in the organization's information systems supports management's ability to make informed decisions. Likewise, adequate communication is key to effective oversight and ensures objectives are achieved and risks are properly mitigated.
>
> However, in their responses to the audit recommendations, airport officials did not agree with certain recommendations regarding the software systems used to manage airport assets and communication among divisions about assets not recorded in all information systems.
>
> While we agree and acknowledge the two systems are used for different purposes, both track assets and are used to manage the life cycle of airport assets. Maintaining Workday and Maximo as siloed systems ignores the inconsistencies that exist, as uncovered by this audit.
>
> In addition, because the physical locations of capital assets within Workday are vague, the airport's Finance Division must go into Maximo and search for the specific location and/or rely on the department contact who oversees the asset when conducting inventory. If this information was in Workday and updated as inventory is conducted year over year and when new capital assets are acquired, Finance Division staff would not have to take the time to search for the asset, when — as acknowledged by the airport — the asset information in both systems is different.

When we followed up on this recommendation, airport managers said they planned to continue enforcing penalties in alignment with contract terms. But they also said they have discretion on when to assess penalties related to monitoring the two asset maintenance contracts we analyzed during the original audit:

- The contract with Bombardier — which maintains the underground train passengers use to travel between the airport's main terminal and its concourses.
- The contract with Thyssenkrupp — which maintains the airport's elevators, escalators, and moving walkways.

After our follow-up, we concluded the airport did not implement the recommendation because the airport is failing to enforce penalties for noncompliance with contract terms.

We requested a sample of invoices from April 2021 and August 2021 for both the Bombardier and ThyssenKrupp contracts to determine the companies' level of compliance. We reviewed each contract and the contractual penalties associated with each. Our review found the airport documented penalties in the invoices, but airport personnel provided only limited supporting documentation for the penalties.

Although the invoices we reviewed supported the penalties the airport did assess, the airport did not provide us with the original, unedited documentation both it and the contractor used to determine those penalties.

According to the airport, staff members review performance metrics supplied by a contractor to determine their accuracy. Once the airport finalizes the numbers, the contractor submits an invoice for billing. While this may be effective for the airport and for the contractor, it is not comprehensive enough for an independent reviewer to compare the initial metrics with the final ones and ensure each contractor fulfills its contract requirements.

Without the original, unedited documentation, an independent reviewer can only trust the summary documents the airport and the contractor developed to support the invoice.

Meanwhile, for both 2020 and 2021, the airport provided us with an incident list related to the Bombardier contract. It specified details such as how long an incident lasted, how long a train was inoperable, and the regular preventive maintenance of the trains based on mileage. The contract has specific requirements for Bombardier to follow regarding each of these metrics.

While Business Technologies may be able to provide general guidance on how to use Maximo, that division's staff members are not responsible for monitoring specific contracts.

The policy also still does not have any language that says airport staff have discretion to enforce penalties for noncompliance.

Meanwhile, we learned the procedure is meant to monitor only the Bombardier contract. The airport has no policy and procedure for monitoring the ThyssenKrupp contract. The airport said no separate procedure exists because the ThyssenKrupp contract has five recurring terms and conditions.

Regardless of whether the terms and conditions are recurring, if a contract administrator leaves the airport, a new employee might find it difficult to learn how to measure compliance, because they will likely be unfamiliar with the contract and the airport's processes. Having a written policy and procedure would give new employees a roadmap to do their jobs and would assure management that the airport follows a consistent process.

While the airport updated its standard operating procedure for the Bombardier contract to include the new central monitoring tool, the airport did not add details on the day-to-day use of Maximo, which was the intent of the recommendation. In addition, the airport has no procedures on how to use Maximo for overseeing the ThyssenKrupp contract.

Therefore, we consider this recommendation only partially implemented.

Recommendation 1.11

COLLECT PRIOR MISSED COLLECTIONS – Denver International Airport's Operations and Maintenance Contract Administration Division should review invoices, contractors' reports, and other necessary documentation and collect contractual penalties not previously assessed.

PARTIALLY IMPLEMENTED

AGENCY ACTION

Original target date for completion: Aug. 14, 2020

In our original audit, we said the airport should review invoices and collect $1,200 for the ThyssenKrupp contract and $950 for the Bombardier contract. During our follow-up, we confirmed the airport collected almost all of the overdue contractual penalties for both contracts.

An invoice shows the airport collected $1,200 from ThyssenKrupp in July 2020.

For the Bombardier contract, the airport said it did not charge penalties the same way as with the other contract. A June 2020 invoice shows the

airport collected $900 of the $950 in late penalties. The airport did not charge the remaining $50, citing its discretion to provide pandemic relief for contractual penalties.

As discussed in the agency's action for Recommendation 1.7, the airport provided cost relief to both Thyssenkrupp and Bombardier during the COVID-19 pandemic, with any relief for performance penalties from March 2020 to December 2020 being "reviewed on a case-by-case basis with the city." The airport's letter to the contractors did not say all performance penalties would be waived, only that they would be reviewed.

The specific $50 penalty the airport did not charge is related to a single station door malfunction. The airport told us it waived all penalties for single-door malfunctions because of construction on the station doors. But the only evidence the airport provided of waiving that charge was an email sent to staff at the beginning of 2022, long after the grace period for pandemic relief.

The contract with Bombardier is clear that a $50 penalty will be charged for any single-door malfunction that lasts more than 3 minutes. Because the airport did not provide a documented and approved policy for not enforcing that penalty, we cannot consider this recommendation fully implemented.

Therefore, we consider this recommendation only partially implemented.

Recommendation 1.12

IMPROVE COMMUNICATION AMONG AIRPORT DIVISIONS – Divisions responsible for managing Denver International Airport's assets — including the Maintenance, Sustainability, and Finance divisions — should develop, document, and implement a method to coordinate and communicate concerns with one another when assets are discovered that are not recorded in an information system. Steps should also be taken to identify and document the reason why such assets were not properly recorded in an information system and to resolve the issue by adjusting procedures.

DISAGREED

AGENCY ACTION

No action was taken to implement this recommendation because the airport disagreed with the recommendation made in our original report.

This was the airport's response to the recommendation when the original report was issued in December 2020:

> *Although communication between the divisions is open regarding assets inventory processes used by the Finance Division, the two information systems mentioned (Workday and Maximo) are used for two different purposes as noted in*

response to Recommendation 1.4.

See page 4 to read our addendum, which applied to both this recommendation and Recommendation 1.4.

| **Recommendation 1.13** | **DEVELOP AND DOCUMENT COMMUNICATION METHOD FOR PROCEDURES** – Denver International Airport's Finance Division should develop and document proper procedures to let airport divisions know about how to properly transfer and dispose of assets. |

PARTIALLY IMPLEMENTED

AGENCY ACTION

Original target date for completion: March 1, 2021

In line with recommendations 1.1 and 1.2, the airport's Finance Division updated its policies and procedures for properly transferring and disposing of assets.

While the airport made these documents readily available for airport staff to use and reference, the airport has not finalized training and communication efforts to ensure staff are properly instructed on these processes. Airport management said these should be rolled out in late March or early April of 2022.

As part of these efforts, the Finance Division plans to:

- Present a training.
- Send notifications through the airport's internal weekly newsletter.
- Post on its internal communication channels.
- Send specific emails to asset custodians.

Because the training will not be mandatory, the airport should confirm that asset custodians and other staff responsible for handling capital assets have received proper instructions so the airport can better comply with the updated policies and procedures.

Although the airport has made progress toward finalizing its training and communication efforts, it has yet to roll them out to airport personnel. Therefore, we consider this recommendation only partially implemented.

Recommendation 2.1

IMPROVE DATA INTEGRITY IN MAXIMO – Denver International Airport's Sustainability and Maintenance divisions should develop, document, and implement procedures to address data integrity issues in Maximo.

PARTIALLY IMPLEMENTED

AGENCY ACTION

Original target date for completion: March 31, 2021

The airport is making progress toward ensuring data integrity, but the job is incomplete.

Airport officials said they document asset discovery, identification, and onboarding requests through policies and procedures as well as service requests in Maximo, the airport's computerized maintenance management system.

We reviewed the policies and procedures to determine whether they sufficiently address the data integrity issues in Maximo, as called for in the recommendation. Our work revealed two issues:

- **THE PROCEDURE TO ADD ASSETS IN MAXIMO LACKS SUFFICIENT DETAIL –** The procedure to add assets in Maximo provides step-by-step directions and was last revised in June 2021. We found it provides instructions on the minimum required data that airport staff should put in Maximo, as well as instructions for maintenance planners to review and approve each asset's data.

  However, the procedure does not provide detailed instructions for what reviewers should look for when reviewing and approving an asset in Maximo, as well as how they should verify the accuracy of the data. According to airport officials, maintenance planners verify the accuracy of the data and ensure the staff member who entered an asset also established a work plan for the asset in the system.

  Although airport managers know what reviewers should look for, a new maintenance planner may not without an accurate and complete policy and procedure.

- **TWO OTHER PROCEDURES WERE LAST UPDATED IN 2019, A YEAR BEFORE THE ORIGINAL AUDIT PUBLISHED –** Airport personnel provided us with two procedures to show how they implemented this

recommendation — but the airport last revised both policies in November 2019, over a year before the original audit was published in December 2020.

The procedures relate to importing asset location information across systems and tagging, entering, and reviewing assets. Both procedures provide little detail on the steps airport staff should take in Maximo to complete tasks.

The airport also provided another procedure that provides step-by-step directions for managers and supervisors to remove an asset from service in Maximo. The airport revised the procedure in June 2021, which is three months after the airport said it would implement this recommendation.

As part of assessing implementation, we reviewed examples of asset service requests entered in Maximo, as well as a complete list of 2021 service requests. We found several service requests with incomplete data fields in the spreadsheet. For example, 59.5% of the service requests did not have an asset number and 45.5% had no location for the asset.

Airport officials said they cannot determine how many assets are missing from Maximo. They told us during the original audit that, in 2020, the airport's Asset Management section identified over 850 assets that were not in Maximo.

Although the airport cannot determine how many assets remain unaccounted for, officials said they are trying to fix this problem by having both airport staff and contractors tag assets that are not already tagged. They do this during ongoing projects and preventive maintenance work to make sure all assets are added to Maximo.

The airport uses an electronic asset data-capture system through Maximo for new assets installed as part of airport construction projects. The airport also assesses assets' physical condition once every five years, and those walk-throughs also identify assets not already tagged.

Lastly, we reviewed a list of the assets scheduled to receive preventive maintenance. This list had schedules for preventive maintenance — but no actual dates of when the maintenance would be done.

We reviewed a dashboard that shows the percentage of preventive maintenance completed, in progress, and deferred. The dashboard showed about 75% of the work orders were complete, or closed, in 2021. The remaining 25% were still in progress or deferred. The airport said the delays in completing the preventive maintenance in 2021 were because of competing priorities and a lack of available staff and parts.

Airport officials said they manage an estimated 27,000 assets. With such a large portfolio and the number of walk-throughs and visual inspections necessary — while also coping with understaffing — they are challenged in capturing an accurate asset inventory.

Nonetheless, based on the information we reviewed, we consider this recommendation only partially implemented.

| Recommendation 2.2 | **DETERMINE STAFFING NEEDS** – Denver International Airport's Sustainability and Maintenance divisions should determine the adequate staffing levels they need for preventive maintenance program activities — including discovering and entering assets in Maximo, scheduling preventive maintenance, and addressing the backlog of preventive maintenance work orders. |

❌

NOT IMPLEMENTED

AGENCY ACTION

Original target date for completion: July 1, 2021, for fleet, facilities, and maintenance administration assets; Sept. 1, 2021, for field maintenance

Officials said this recommendation is still in progress, because the airport's Sustainability and Maintenance divisions have not conducted an analysis to determine the adequate staffing levels needed for preventive maintenance activities.

Airport officials said they cannot determine adequate staffing levels until they make more progress in developing a preventive maintenance program. This includes developing formal policies and procedures for the program by creating standards related to performance metrics and preventive maintenance schedules for each type of asset group.

So far, the airport has completed its evaluation for the automated perimeter security gates, as we will discuss in the airport's implementation of Recommendation 2.4. However, airport management said the time-consuming process of going through all asset categories will take three to five years.

Meanwhile, airport officials said the city has completed two trades classification studies, which the divisions have used to reclassify positions and raise the pay of over 70% of their employees to help with retention. This study was not a staffing analysis — but because the airport said a lack of staff was a concern in developing a preventive maintenance program, the city's trades classification studies could help the airport with retaining and recruiting qualified and knowledgeable staff.

Nonetheless, because the divisions cannot determine the adequate staffing levels they need until the airport makes progress on its overall preventive maintenance program, we consider this recommendation not implemented.

Recommendation 2.3

DEFINE PREVENTIVE MAINTENANCE BUDGET CRITERIA – Denver International Airport's Maintenance Division should define the criteria for preventive maintenance budgeting, to include actual work requirements such as staffing, materials, equipment, and other significant costs. This information will help the airport quantify the resources it needs to ensure preventive maintenance is performed consistently and in a timely manner.

❌

NOT IMPLEMENTED

AGENCY ACTION

Original target date for completion: July 1, 2021, for fleet, facilities, and maintenance administration assets; Sept. 1, 2021, for field maintenance

The airport's Maintenance Division has not yet defined the criteria for a preventive maintenance budget as we recommended. Airport staff members said this recommendation was in progress, but they provided no supporting documentation for us to verify that.

Similar to the airport's efforts to implement Recommendation 2.2: To determine the criteria for a preventive maintenance budget, the Maintenance Division must evaluate each asset category — which includes developing and implementing policies and procedures for routine preventive maintenance activities. And the airport must do this before it can complete a staffing analysis or determine budget needs.

If the Maintenance Division focused on only critical assets, the airport said it could complete the evaluation within a year. But to comprehensively assess every asset category is expected to take about three to five years.

Because the division cannot determine the budget criteria it needs until the airport makes more progress on the overall preventive maintenance program, we consider this recommendation not implemented.

Recommendation 2.4

DEVELOP A COMPREHENSIVE PREVENTIVE MAINTENANCE PROGRAM – Denver International Airport's Sustainability and Maintenance divisions should develop a comprehensive preventive maintenance program for facility assets and address the recommendations in the 2017 "Asset Management Observations and Gap Assessment Report." As processes are finalized, the divisions should also use the analyses performed from Recommendation 2.3 to help determine adequate resources and budgeting necessary to implement an effective preventive maintenance program. Results should be documented and shared with airport officials to ensure proper funding is considered during budget activities.

AGENCY ACTION

Original target date for completion: July 1, 2021

The airport's Sustainability and Maintenance divisions are developing a comprehensive preventive maintenance program for facility assets. Airport personnel have been working to clean up discrepancies of assets by moving data to proper locations based on organizational structure. This involves moving assets, employees, and financial data.

In addition, the airport developed a preventive maintenance quality control checklist for supervisors and processes related to enhancing the efficiency of work orders for preventive maintenance.

As discussed in relation to previous recommendations, airport managers said they have been developing asset program documents for the various capital asset categories.

As mentioned in the agency's implementation efforts for Recommendation 2.2, the airport created a document for its automated perimeter security gates and is using that as a template for all other asset categories.

We reviewed that document and found it provides a variety of information — such as a definition for the asset and what performance metrics it manages, any corrective and preventive maintenance, and any deviations from recommended preventive maintenance schedules. Airport management said once each asset category has a similar asset program document, those documents would be combined into a comprehensive preventive maintenance program.

As discussed, however, airport officials said the individual asset program documents need to be done before the airport can assess its staffing and budget needs for overall preventive maintenance. The effort already made with the asset program documents will be used as a template for future progress.

Because of these efforts, we consider this recommendation partially implemented.

Recommendation 2.5

DEVELOP POLICIES AND PROCEDURES FOR ROUTINE MAINTENANCE ACTIVITIES – Denver International Airport's Sustainability and Maintenance divisions should develop, document, and implement policies and procedures for routine maintenance activities for all necessary assets. Policies and procedures should include, but not be limited to, the process of deviating

from operations and maintenance manuals when developing preventive maintenance schedule.

AGENCY ACTION

Original target date for completion: Sept. 1, 2021

While the airport's Sustainability and Maintenance divisions updated their procedures for entering assets in Maximo, the procedures do not specify the process for deviating from recommended preventive maintenance schedules.

As discussed in the agency's action for Recommendation 2.4, the divisions are developing asset program documents for the various capital asset categories. We reviewed a copy of the asset program document for the automated perimeter security gates and noted it includes a section about deviating from the operations and maintenance manuals.

But as previously discussed, airport management said it will take three to five years to go through all assets and create a comprehensive preventive maintenance program.

Meanwhile, the airport has a new process to document preventive maintenance changes the Maintenance Division requests. But we found the data in this report was often incomplete and it did not always include key asset attributes — such as the asset number, location, and types of services that were or need to be done.

Because the divisions are making progress and ensuring asset program documents for the various asset categories will include a section about deviating from the operations and maintenance manuals, we consider this recommendation partially implemented.

Recommendation 2.6

DEFINE A CENTRAL DOCUMENTATION REPOSITORY – Denver International Airport's Sustainability and Maintenance divisions should define a central repository for key asset documentation, such as warranties, and ensure necessary personnel have access.

FULLY IMPLEMENTED

AGENCY ACTION

Original target date for completion: March 31, 2021

The airport's Sustainability and Maintenance divisions defined a central repository — called Unifier — to house key asset documentation, such as

warranties. They also ensured necessary staff, including those who work on warranty-related issues, have access to the platform.

The divisions' policies and procedures outline the process for staff to upload project documents to Unifier once a project is almost done. The Airport Infrastructure Management Division manages all project submittals in Unifier and notifies the Asset Management team when a project is substantially complete, so that warranty documents and operations and maintenance manuals can be found by Asset Management staff who work on warranty issues.

We obtained a list of all capital assets in Maximo that had an active warranty, and we randomly selected 20 out of 467 assets. When we asked for the warranty documentation for these 20 assets, airport staff provided documentation for 17 of them. The remaining three were tied to a project that was still in progress, and airport staff members said the warranty documentation would not be available until the project was done.

We requested these warranty documents to ensure Asset Management personnel could provide them in a timely manner. During the original audit, we were told they had to look through several document repositories and were unable to provide all warranty documentation.

Meanwhile, the divisions' policies and procedures list all staff who should have access to Unifier — such as maintenance planners, project managers, contract administrators, and the Asset Management team. We reviewed a list of all staff with access to Unifier and confirmed the list aligned with those who should have access.

Airport staff members said Unifier administrators review system reports — such as a report of staff's last logins — every three months to detect and remove all inactive accounts.

Because the airport provided all available warranty documentation we requested and because the divisions ensure all necessary staff have access to the repository as outlined in the policies and procedures, we consider this recommendation fully implemented.

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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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.