
CITY OF SAN ANTONIO
OFFICE OF THE CITY AUDITOR



Audit of Aviation Facilities Maintenance

Project No. AU20-004

May 27, 2021

Kevin W. Barthold, CPA, CIA, CISA
City Auditor

Executive Summary

As part of our annual Audit Plan approved by City Council, we conducted an audit of the Aviation Department, specifically facilities maintenance. The audit objectives, conclusions, and recommendations follow:

Determine if Aviation facilities maintenance is operating effectively and managed efficiently including work orders, inventory, and purchases.

Overall, Aviation facilities maintenance operations require improvements. While we did find that purchasing and receiving processes are adequate, there are opportunities to strengthen controls to ensure the effective and efficient management of work orders and inventory.

Aviation lacks comprehensive policies and procedures for facilities maintenance activities to include parts inventory management. Additionally, NetFacilities has not been fully implemented across divisions. As a result, we could not determine if preventative maintenance is being completed. There is a lack of controls to ensure the accuracy of inventory in the system and the review for obsolete inventory. Also, there were insufficient procedures to ensure documentation of quotes are retained and a lack of review to ensure staff licenses are current. Finally, there was a lack of controls to ensure appropriate user access of the NetFacilities system.

We made recommendations to address the internal control processes. Aviation Management agreed with the audit findings and has developed positive action plans to address them. Management's verbatim response is in Appendix B on page 9.

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Background

The City of San Antonio's Aviation Department (Aviation) helps support air travel at both the San Antonio International Airport and the Stinson Municipal Airport. Aviation services are provided through an enterprise fund supported through tenant fees, user fees, and commercial revenue. Part of Aviation's responsibilities includes facilities maintenance which includes keeping structures and infrastructure in proper operating condition through routine maintenance and repairs.

The Facilities Maintenance division (facilities maintenance) provides upkeep for systems including HVAC, electricity, plumbing, fire safety, and general maintenance. Maintenance and repairs are completed through a combination of in-house staff, job order contracts, and maintenance contracts.

In addition, facilities maintenance utilizes an inventory warehouse to manage parts usage. An inventory of stocked parts is maintained, and special requests can be made for repairs.

Aviation recently began using a work order system called NetFacilities to track work order status, update progress, and report completion of tasks. NetFacilities is a comprehensive maintenance system which allows for issues to be reported, work orders created, maintenance schedules to be maintained, and inventory management.

Technicians can request parts for maintenance through NetFacilities, where they are subsequently assigned to a work order. Currently, the inventory warehouse staff are utilizing NetFacilities along with their prior inventory system Aviation Information System (AVIS) to track inventory. They have approximately \$670 thousand in inventory.

Audit Scope and Methodology

The audit scope was October 1, 2019 through December 31, 2020.

To establish our testing criteria, we reviewed relevant administrative directives, facilities maintenance contracts, job order contracts, and municipal code chapter 3 – Airports. Additionally, we interviewed department personnel including facilities maintenance management and staff to review processes and identify controls related to work orders, inventory management, and purchasing.

As part of our testing procedures we reviewed a sample of work orders for maintenance and repairs for completion and timeliness. In addition, we performed a physical inventory at San Antonio International Airport for parts, and reviewed procedures for the transfer from the AVIS information system to NetFacilities. In addition, we reviewed purchasing documents to confirm accurate payments were made. Finally, we reviewed to confirm technician licenses were valid and current and user access to NetFacilities was appropriate.

We assessed internal controls relevant to the audit objective. This included a review of relevant administrative directives, policies and procedures, and discussions with relevant staff. We determined that significant internal control components and principles include the following:

Control Environment

- Commitment to Competence (Training, experience, etc.)

Risk Assessment

- Risk Identification and Analysis (consideration of all levels of the organization, internal and external factors, significance and likelihood of risks, inherent and residual risk evaluation, fraud risks, etc.)

Control Activities

- Authorizations and approvals
- Segregation of duties
- Verifications
- Physical controls
- Reconciliations
- Supervisory Controls

Information and Communication (information, including objectives and responsibilities for internal control, necessary to support the functioning of internal control)

- Quality of Information (accessibility, correctness, timeliness, protected, retention, sufficiency, validity, verifiability, currency/frequency)

Monitoring

- Ongoing Monitoring (management inspects documentation that the reconciliations were performed, reviews trends, etc.)

- Separate Evaluations (periodic evaluations of training and performance of duties, etc.)

We relied on computer-processed data in the Aviation Information System (AVIS) and NetFacilities to validate the completion of maintenance, documentation of parts inventories, and transfer of data between the two systems. Our reliance was based on performing direct tests on the data and we performed a limited evaluation of data reliability. Our direct testing included user access testing, physical inventory testing, and comparison of inventory data between the two systems. We do not believe that the absence of testing general and application controls in full had an effect on the results of our audit.

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.

Audit Results and Recommendations

A. Purchasing & Receiving

Purchasing procedures are adequate. We reviewed a sample of 25 maintenance activities and confirmed all 25 payments for services were in line with contract prices and rates. In addition, we reviewed a sample of 25 purchases and confirmed they were approved and appropriately received.

Recommendations

None.

B. Scheduled Maintenance

We could not determine if scheduled maintenance is being completed at the San Antonio International Airport and Stinson Municipal Airport (Stinson). Of the 47 assets sampled, 31 did not have sufficient documentation of maintenance completed. Aviation's practices require documentation of maintenance activities and work order completion.

Comprehensive policies and procedures governing the procedures and documentation of maintenance do not exist. Aviation migrated to a new platform, NetFacilities, for documenting maintenance activities which changed the way in which maintenance activities are tracked and documented. With the implementation of NetFacilities, an asset-based system was put in place with preventative maintenance schedules built into the system. Previously, the AVIS inventory system was not asset-based. However, documentation of prior maintenance activities has not been maintained.

In addition, Stinson Airport does not have processes in place to adequately document maintenance activities. Stinson airport has not fully transitioned to NetFacilities and documentation of maintenance activities is informal.

Without comprehensive policies and procedures, staff lack clear guidance, particularly during a significant transition, which can result in inconsistencies in how maintenance is documented. In addition, management cannot be assured that all aviation facilities systems have received all necessary maintenance, which could potentially result in early retirement of assets and unnecessary financial burdens for replacement.

Recommendation

The Director of Aviation develop comprehensive policies and procedures for facilities maintenance activities. In addition, ensure that a maintenance schedule is implemented, and activities are fully documented, Finally, fully transition Stinson Airport to NetFacilities.

C. Inventory

Controls over the inventory management process need improvement. Aviation have no policies and procedures governing the inventory management process. As a result, we identified issues related to physical inventory counts, excess and obsolete inventory, and inaccuracies in the NetFacilities transition.

C.1 Physical Inventory

Physical inventory was not accurate. We performed an inventory of parts at the San Antonio International Airport. Of the 50 parts sampled, 7 did not match the AVIS inventory quantity.

Per city-wide administrative directive 8.12, departments are required to perform an inventory at least annually.

Aviation lacks written procedures for conducting physical inventories. Staff errors resulted in inaccurate documentation of inventory levels in AVIS. Inaccurate inventory can result in poor inventory management and increases the risk of loss or misappropriation.

C.2 Excess/Obsolete Inventory

Aviation staff have identified excessive and/or obsolete parts inventory. Staff are working with a contractor to establish a process to identify and remove excess/obsolete inventory and prevent future accumulation.

Excess/obsolete inventory should be controlled to maximize physical space and minimize excess costs.

Procedures had not previously been established for identifying obsolete/excess inventory. Excess and obsolete inventory leads to excess costs and consumes valuable inventory space.

C.3 NetFacilities Values

AVIS inventory does not match NetFacilities. We identified 66 discrepancies between parts inventory values in AVIS and NetFacilities. The facilities maintenance parts room staff are currently utilizing both AVIS and NetFacilities for parts inventory. The parts room was transitioned to NetFacilities. However, they identified issues which prevented them from fully transitioning.

Significant system issues include:

1. Inability to view location data in NetFacilities inventory reports, disrupting the physical inventory process, due to being unable to obtain a report of the quantity of inventory in a specific location.
2. Inability to receive items in multiple locations, which affects the inventory quantity in those locations.
3. Inventory value calculation has been changed. The system updates the entire stock to the value of the most recently purchased item and discards previous unit values.

Stock room staff have been working to manually update NetFacilities to correct the location issues. However, manual correction is not timely and complicates correction as inventory values are constantly changing. In addition, running two systems simultaneously increases the risk of errors in both systems, is an ineffective use of staff time, and increases the risk of loss or misappropriation.

Recommendation

The Director of Aviation should develop policies and procedures over the parts inventory management process. In addition,

- Review physical inventory procedures and improve controls to ensure accurate counts are made and input into the inventory system
- Continue working with the vendor to identify and sell/dispose of excess and obsolete inventory and establish controls to periodically review inventory for obsolescence and excess.
- Establish a plan to resolve system issues, implement, and monitor to ensure issues have been resolved
- Complete transition from AVIS for parts inventory and fully implement NetFacilities

D. Quotes

We were unable to determine if payments to contractors for repairs were accurate for 7 of the 27 repairs sampled due to insufficient documentation. Aviation was unable to provide quotes for 7 repairs completed and paid for. COSA Procurement Policies and Procedures require a quote for services.

Aviation did not maintain documentation supporting the cost of work completed by contractors. Without documentation, staff cannot confirm prices paid or resolve potential issues that may exist.

Recommendation

The Director of Aviation should establish controls to ensure quotes are kept on file.

E. Licenses

Aviation facilities management does not have an adequate process to ensure technician licenses are valid and current. We tested records for all 19 technicians to confirm that required licenses are valid and current. Of the 19, 1 technician had an expired HVAC license. Technicians require licenses such as electrician, air conditioning and refrigeration, or plumbing, depending upon their position.

Aviation does not have a process in place to periodically monitor staff licenses to ensure requirements are met and licenses are valid. Without an adequate process, technicians may perform work that they are no longer licensed to perform.

Recommendation

The Director of Aviation should establish periodic monitoring to ensure staff licenses are valid.

F. User Access

User access is inadequate for NetFacilities. We found 21 separated COSA employees had access to NetFacilities. Per administrative directive 7.8d, departments are responsible for appropriate access controls.

The Facilities Maintenance Division had not established a user access review process for NetFacilities after its implementation. Without an appropriate user access review, unauthorized individuals could access and make changes to the system.

Recommendation

The Director of Aviation should establish a user access review process for NetFacilities.

Appendix A – Staff Acknowledgement

Baltazar Vargas, CIA, CFE, Audit Manager
Nastasha Leach, CIA, CGAP, CRMA, Auditor in Charge
Sophia Konstantinidis, Auditor

Appendix B – Management Response



CITY OF SAN ANTONIO

SAN ANTONIO TEXAS 78283-3966

April 27, 2021

Kevin W. Barthold, CPA, CIA, CISA
 City Auditor
 San Antonio, Texas

RE: Management's Corrective Action Plan for the Audit of Aviation Facilities Maintenance

Aviation has reviewed the audit report and has developed the Corrective Action Plans below corresponding to report recommendations.

Recommendation					
#	Description	Audit Report Page	Accept, Decline	Responsible Person's Name/Title	Completion Date
1	<p>Scheduled Maintenance</p> <ul style="list-style-type: none"> Develop comprehensive policies and procedures Ensure a maintenance schedule is implemented and maintenance is fully documented Fully transition Stinson Municipal Airport to NetFacilities 	4	Accept	<p>Larry Bigelow/Interim Facility Manager</p> <p>Morris Martin/Stinson Airport Manager</p>	<ul style="list-style-type: none"> 8/1/21 6/30/21 10/1/21
	<p>Action plan:</p> <ul style="list-style-type: none"> Comprehensive policies and procedures are currently being developed governing the procedures and documentation of maintenance being performed. Facilities is working with our consultant to fill any gaps from the original batch upload to NetFacilities of assets and preventative maintenance schedules to ensure all maintenance is fully documented. Stinson will be fully transitioned to NetFacilities on or before October 1, 2021. 				

Recommendation					
#	Description	Audit Report Page	Accept, Decline	Responsible Person's Name/Title	Completion Date
2	<p>Inventory</p> <ul style="list-style-type: none"> Develop policies and procedures over the parts inventory management process Review physical inventory procedures and improve controls to ensure accurate counts are made and input into the inventory system Continue working with vendor to identify and sell/dispose of excess and obsolete inventory and establish controls to periodically review for obsolescence and excess Establish a plan to resolve, implement, and monitor that system issues have been resolved Complete transition from AVIS for parts inventory and fully implement NetFacilities 	5	Accept	Larry Bigelow/Interim Facility Manager	<ul style="list-style-type: none"> 8/1/21 8/1/21 7/1/21 7/15/21 8/15/21
<p>Action plan:</p> <ul style="list-style-type: none"> Parts policies, procedures, and controls are being developed, in conjunction with a review of the physical inventory procedures. Excess and obsolete inventory controls will be established to periodically review obsolescence and to monitor system issues. Transition from AVIS to NetFacilities will be completed. 					
3	<p>Quotes</p> <p>Establish controls to ensure quotes are kept on file</p>	6	Accept	Larry Bigelow/Interim Facility Manager	Completed <ul style="list-style-type: none"> 4/15/21
<p>Action plan: Controls have been established.</p>					
4	<p>Licenses</p> <p>Establish periodic monitoring to ensure staff licenses are valid</p>	7	Accept	Larry Bigelow/Interim Facility Manager	Completed <ul style="list-style-type: none"> 1/16/21

Recommendation					
#	Description	Audit Report Page	Accept, Decline	Responsible Person's Name/Title	Completion Date
<p>Action plan: Licenses will be reviewed twice a year in July and January to ensure technician's licenses are current and valid.</p>					
5	<p>User Access Establish a user access review process for NetFacilities</p>	7	Accept	Larry Bigelow/Interim Facility Manager	Completed • 3/30/21
<p>Action plan: Policy has been developed to review access quarterly on October 1st, January 1st, April 1st, and July 1st.</p>					

We are committed to addressing the recommendations in the audit report and the plan of actions presented above.

Sincerely,



 Jesus Saenz, Jr. IAP
 Director of Airports

4/28/21

 Date



 Jeff Coyle
 Assistant City Manager
 City Manager's Office

5/10/21

 Date