City of Phoenix

Mission Statement

To improve the quality of life in Phoenix through efficient delivery of outstanding public services.

Aviation Department
Fleet Maintenance

June 14, 2024

Report Highlights

Fleet Maintenance

Some vehicles and equipment were overdue for preventative maintenance. Fleet identified assets preventative maintenance as due or overdue; however, were assets were not brought into the shop for service.

Fleet Assets and Parts Inventory

Aviation Fleet controls are adequate to ensure that vehicle and equipment inventory is accurately recorded, and properly safeguarded.

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Project Number

1240023

This report can be made available in alternate format upon request.

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Executive Summary

Purpose

Our purpose was to determine that the Aviation Department managed, maintained, and inventoried the fleet according to City and department policy.

Background

Aviation Department's Facilities and Services Division, Fleet Maintenance Section (Fleet) is responsible for the maintenance of Aviation Department (Aviation) vehicles and equipment. The Fleet Maintenance Section consists of one service center located at Phoenix Sky Harbor International Airport (PHX) Facilities and Services. Additionally, one Heavy Equipment Mobile Repair Tech services the Goodyear Airport (GYR) and the Deer Valley Airport (DVT). Onsite maintenance and repairs include preventative maintenance inspections, oil change and lube services, tire replacements, transmission repairs, and heavy-duty equipment repairs. The service center and its employees are certified through the Arizona Department of Environmental Quality (ADEQ) to inspect the fleet for emissions compliance.

Staff use the Faster system to manage vehicle inventory, parts inventory, repair, and preventative maintenance work orders. The Fuel Master system is used to manage and monitor the fuel island and vehicle usage.

Fleet standards are outlined in Administrative Regulation (A.R.) 6.11 – *Fleet Standards and Utilization*. This regulation establishes standards for the acquisition, marking, utilization, and maintenance of City vehicles and other fleet equipment requirements. Motor Vehicle standards are outlined in A.R. 2.95 – *Motor Vehicle Authorization and Operation*. The standards define the proper operation of city vehicles, staff responsibilities, and requirements. Additionally, the Facilities and Services Supplies warehouse follows A.R. 5.131 – *Inventories of Consumable Materials.*

Annual fleet expenditures are approximately $11.3 million per year, which includes vehicle replacement and new vehicles of $4.7 million per year.

Results in Brief

Aviation Fleet staff actively identified when preventative maintenance was due or overdue; however, some assets were not brought into the shop for service.

We reviewed a sample of 20 assets to ensure that service records matched service intervals. Three of the assets were significantly overdue for preventative maintenance service. While Fleet had some best practices in place, there was no documented policy for escalation of overdue vehicles and timely preventative maintenance. Failure to maintain vehicles and equipment according to prescribed service intervals can lead to increased costs, premature wear, and complete failure.

Aviation Fleet controls were adequate to ensure that vehicle and equipment inventory was accurately recorded, and properly safeguarded.

We selected a sample of 40 items from the Faster inventory report and performed an inspection of each item. We ensured that the asset tag number, make, model, serial number, and license plate (when applicable) were accurate. No exceptions were noted.

The Aviation parts inventory in SAP agreed to our sample.

To determine whether inventory was accurately recorded, we selected a sample of 10 items from the SAP inventory report and 10 items from the warehouse shelves. We counted inventory items in the warehouse and compared them to the SAP inventory report. We found the 20 warehouse item counts matched the SAP inventory report without exception.

Department Responses to Recommendations

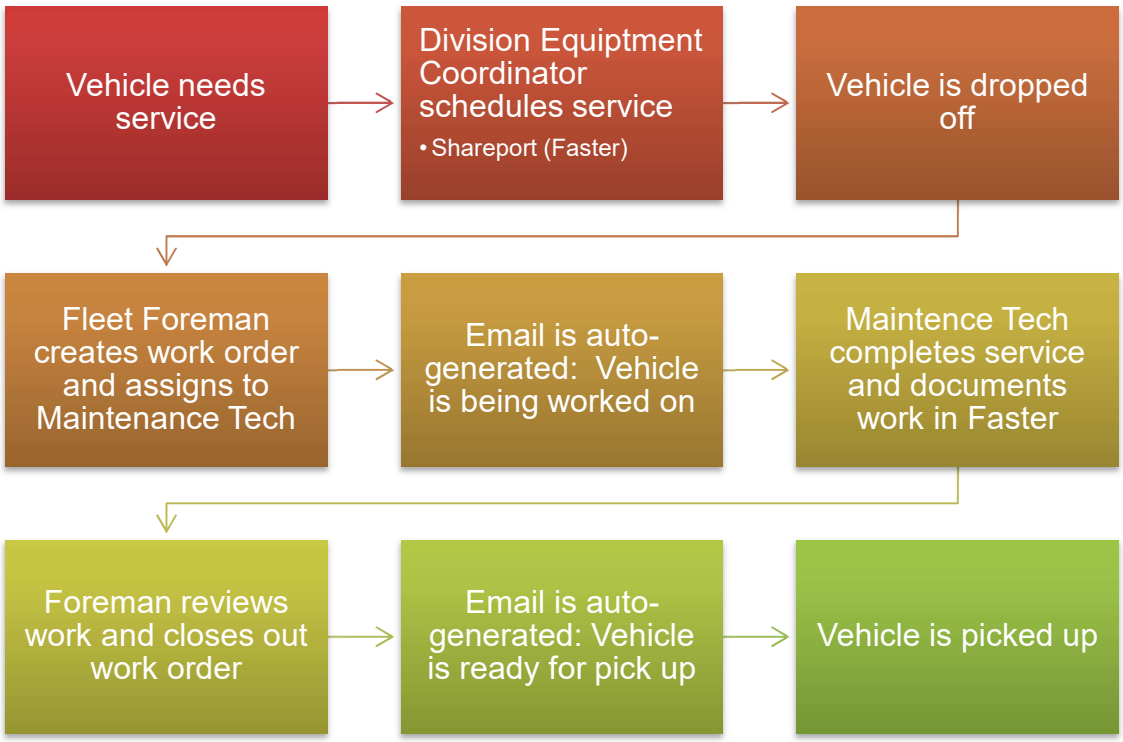
Rec. # 1.1: Formalize the escalation process and establish a policy to ensure preventative maintenance services are completed timely.	
***Response*:** The Aviation Facilities and Services Fleet Section will create and submit for approval a comprehensive Standard Operating Procedure (SOP) outlining the importance of routine maintenance for city-owned vehicles and equipment and establish a standardized process for preventative maintenance notifications and compliance within specific time frames. The SOP will include a notification escalation process based on when the vehicles and equipment have exceeded their scheduled maintenance. This formal notification will include Equipment Coordinators, Supervisors, Section Heads, Superintendents, and Deputy Directors. Establishing an SOP will reduce premature wear, increase asset availability, decrease downtime, and ensure operational efficiency and safety.	***Target Date*:** 12/4/2024
Explanation, Target Date > 90 Days: Additional time is necessary given complexity of SOP process.	

1 – Fleet Maintenance

Background

Aviation's Fleet Maintenance Section (Fleet) is responsible for maintaining aviation-based City owned vehicles and equipment. This includes but is not limited to, light, medium, and heavy-duty vehicles, aviation-specific vehicles, and equipment. Overall, most of the preventative maintenance and repairs are conducted at Aviation's Facilities and Services Fleet Shop. In addition to repairing vehicles, the service center and its technicians are certified through the Arizona Department of Environmental Quality (ADEQ) to inspect the fleet for emissions compliance.

Vehicle Service Process

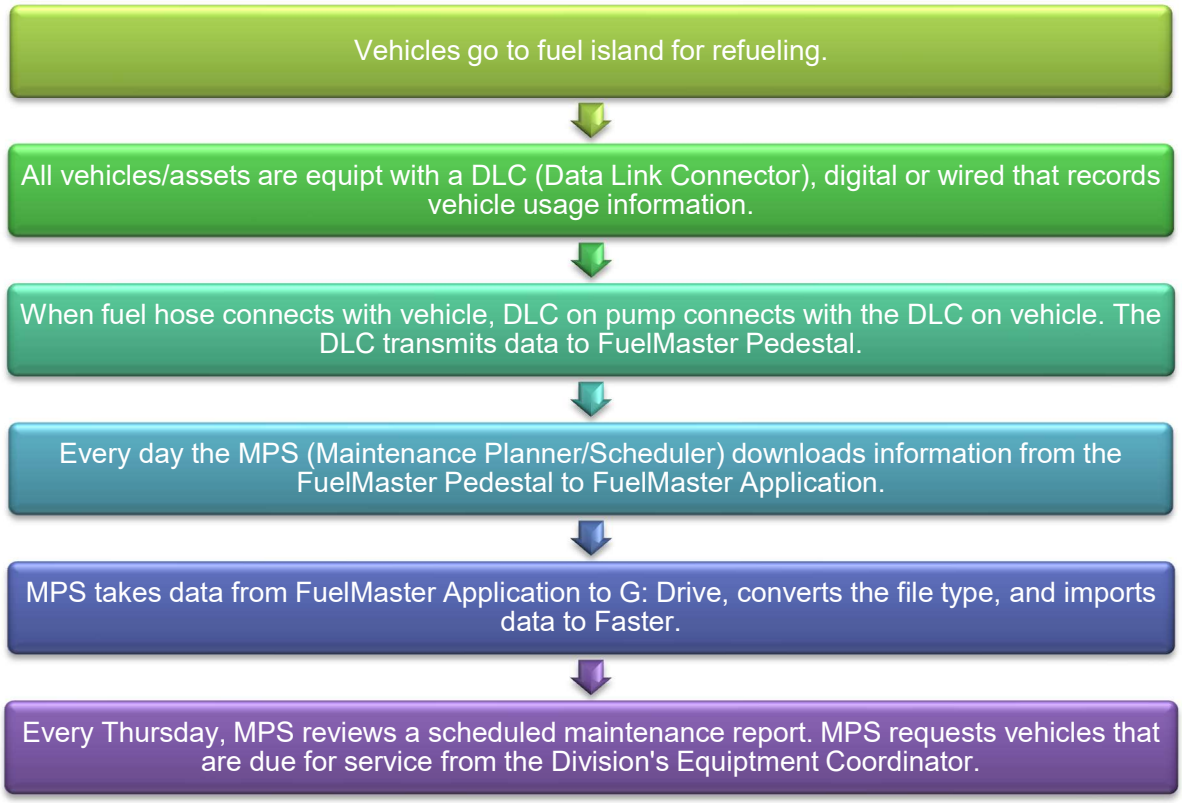


Preventative maintenance and repair appointments can be scheduled online. Communication is provided through email for confirmation and updates.

Staff use the Faster Asset Solutions (Faster) application to track maintenance of City-owned vehicles and equipment. Faster is also used to process internal maintenance work orders that include labor and parts. The vehicle fleet is equipped with Fuel Master data link connectors. When a vehicle is fueled, vehicle data is uploaded to the Fuel Master system. Each morning the collected data is downloaded from Fuel Master and uploaded into the Faster system.

We selected a sample of vehicles to determine if Aviation kept comprehensive fleet records and if vehicles followed prescribed preventative maintenance service intervals.

Vehicle Data Collection



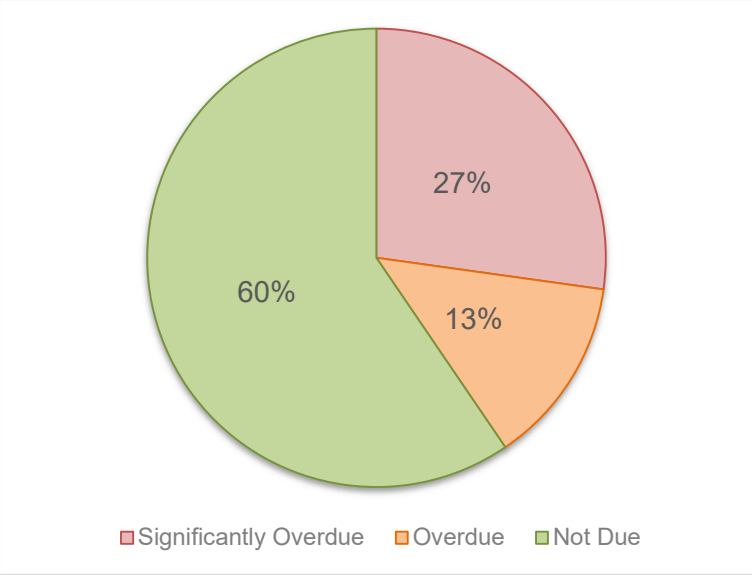
Vehicle usage and warning lights are tracked through FuelMaster. Data is uploaded and input into Faster, and weekly reports are run.

Results

Fleet staff actively identified when preventative maintenance was due or overdue; however, some assets were not brought into the shop for service.

To determine if vehicles and equipment service records agreed to the service intervals, we reviewed a sample of 20 assets. For those assets, we reviewed the four most recent service records and prescribed preventative maintenance service intervals. Three of the 20 assets were significantly overdue for a preventative maintenance service. Significantly overdue is defined by Fleet as overdue by more than 100 hours or 30 days. Of the significantly overdue tested assets, one is from the Airfield Maintenance section and two are from Police.

Preventative Maintenance as of April 22, 2024



Out of the 820 assets, 223 are significantly overdue, 109 are overdue and 488 are not due for preventative maintenance.

During the audit, we identified several best practices that Fleet already had in place. In their weekly preventative maintenance meeting, they had also identified the same three assets were overdue. Fleet provided their weekly reports as well as their email communication that has been sent out to the section in possession of the asset. However, there is not a documented policy for the escalation of overdue vehicles and timely preventative maintenance. Not maintaining vehicles or equipment according to prescribed service intervals may cause premature wear, increased breakdowns, higher repair costs, or complete failure.

Fleet service technicians were trained and certified.

We requested the documentation for specialized equipment training organized by Aviation Safety. Due to the section turnover, documentation was not available. In response to this deficiency, Fleet developed a new system to document training. The Facilities and Services Special Projects Administrator (SPA) has expanded training availability with training from external vendors. Fleet has designated the Mainenance Planner/Scheduler to develop a system to record and monitor training certificates and expirations internally. As such, while this was a control deficiency, Aviation staff have already address the weakness and no recommendation will be given.

Fleet Technicians are certified through ADEQ to perform on-site inspections for emission compliance. Fleet Master Technicians have "Master" certification from the National Institute for Automotive Service Excellence (ASE). We found that all technicians required to have the ASE designation had the certificate on file.

Complete service records are available for fleet vehicles and equipment.

We selected 20 assets to review the availability and completeness of service records. Records were available for the lifespan of the item; the oldest items tested were placed in service in 2002. Service record documentation is essential to follow prescribed preventative maintenance and effective management of the fleet.

Recommendation

1.1 Formalize the escalation process and establish a policy to ensure preventative maintenance services are completed timely.

2 – Fleet Assets and Parts Inventory

Background

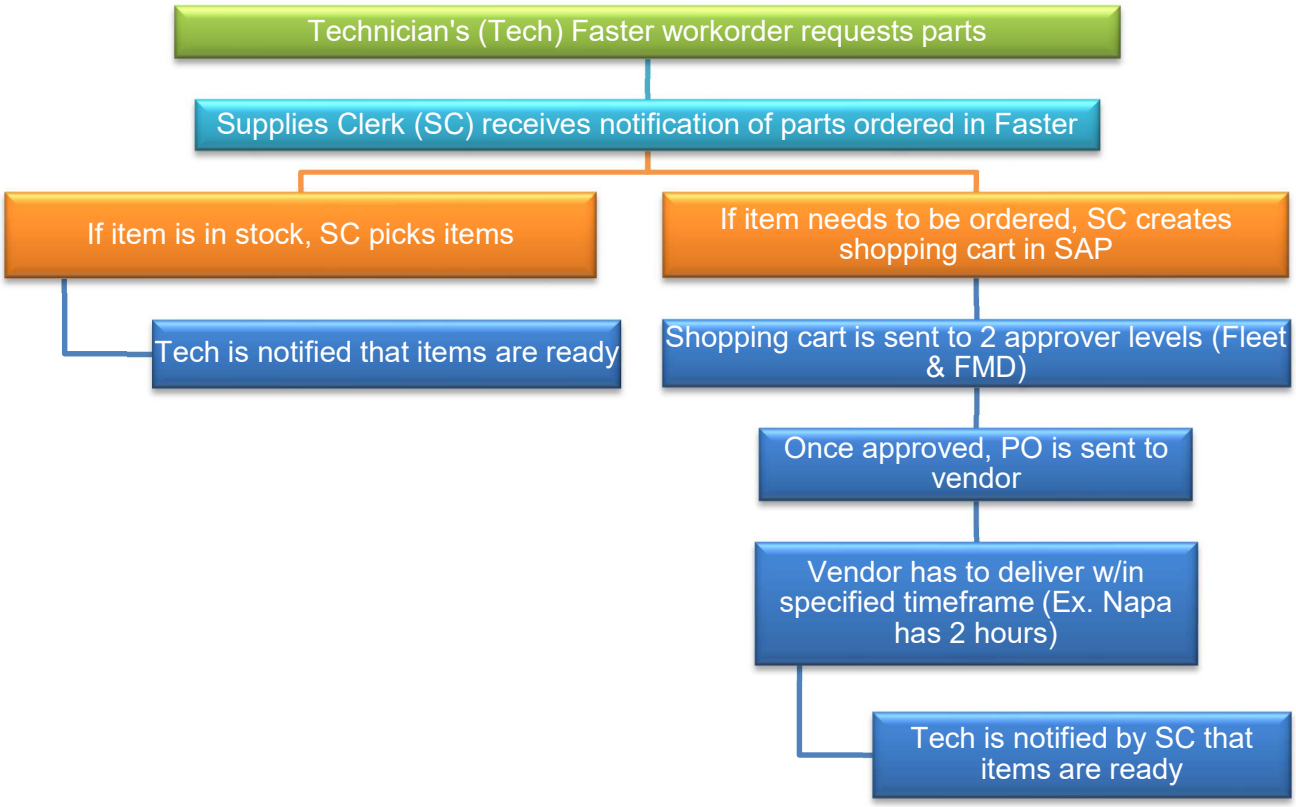
The Aviation fleet is made up of 820 tagged assets, including vehicles and equipment. Staff manage the fleet using Faster Asset Solutions (Faster). During the up-fitting process, the vehicles or equipment are physically tagged with an asset number that has been assigned to the item. This number is recorded in Faster, and a profile is built out for the item to record all history, accidents, required preventive maintenance schedules, and service records.

Aviation Supply warehouse staff order various supplies and equipment that are issued to Fleet staff for repairs of equipment or vehicles. When these items are initially received, they are added to Aviation's warehouse inventory in SAP and stored in the locked warehouse located within the Aviation Facilities and Services buildings. Fleet has approximately 270 items that are in stock and placed in inventory. Fleet uses Faster to order items needed for a repair. A Supplies Clerk receives orders from Faster and processes the usage of an item in SAP simultaneously. While inventory levels change daily, the total value recorded in SAP on September 18, 2023, was approximately $80,000.

A.R. 5.131 – *Inventories of Consumable Materials* outlines the policies regarding the control and security of storage locations, transaction processing, the annual inventory of materials, and compliance with performance standards.

We verified fleet parts and inventory were accounted for, controls were in place to safeguard assets, and data in Faster matched assets we observed.

Parts Request Process



Results

Aviation Fleet controls are adequate to ensure that the vehicle and equipment inventory was accurately recorded, and properly safeguarded.

We selected a sample of 40 items from the Faster inventory report and performed an inspection of each item. We ensured that the data in the Faster system agreed to the physical assets. We verified asset tag number, make, model, serial number, and license plate (when applicable) were accurate. No exceptions were noted.

The Aviation parts inventory in SAP agreed to our sample.

To determine whether inventory was accurately recorded, we selected a sample of 10 items from the SAP inventory report and 10 items from the warehouse shelves. We counted inventory items in the warehouse and compared them to the SAP inventory report. We found the 20 warehouse item counts matched the SAP inventory report without exception.

Overall, Aviation had controls in place to perform annual inventory counts for inventory management compliance.

Aviation Facilities and Services Supplies warehouse is required to perform an annual inventory count by June 30 of each year. Variances between system counts and actual

on-hand counts should not exceed 3%. We reviewed the 2023 annual inventory count and verified that it was performed by June 30, as required. The inventory count variance was below the 3% requirement.

Recommendation

None

Scope, Methods, and Standards

Scope

We reviewed the Aviation Department's Fleet Services Division fleet maintenance operations from July 1, 2021 to June 30, 2023.

The internal control components and underlying principles that are significant to the audit objectives are:

- Control Environment
    - Management should evaluate performance and hold individuals accountable for their internal control responsibilities.
- Control Activities
    - Management should design the entity's information system and related control activities to achieve objectives and respond to risks.
    - Management should implement control activities through policies.
- Monitoring Activities
    - Management should establish and operate monitoring activities to monitor the internal control system and evaluate the results.

Methods

We used the following methods to complete this audit:

- We interviewed Fleet Services Section staff
- We verified a sample of on-hand parts inventory matched the SAP inventory
- We confirmed a sample of observed fleet inventory matched the Faster inventory
- We compared Fuel Master and Faster data
- We reviewed ASE Mechanic certifications

Unless otherwise stated in the report, all sampling in this audit was conducted using a judgmental methodology to maximize efficiency based on auditor knowledge of the population being tested. As such, sample results cannot be extrapolated to the entire population and are limited to a discussion of only those items reviewed.

Data Reliability

The reliability of SAP data was previously determined to be reliable through an independent audit review. We assessed the reliability of FuelMaster and Faster data by (1) reviewing existing information about the data and the system that produced them,

and (2) interviewing agency officials knowledgeable about the data. We determined that this data was sufficiently reliable for the purposes of this audit.

Standards

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. Any deficiencies in internal controls deemed to be insignificant to the audit objectives but that warranted the attention of those charged with governance were delivered in a separate memo. We are independent per the generally accepted government auditing requirements for internal auditors.