



City of Phoenix

**Mission Statement**

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

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**Project Number**

1250061

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

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**Aviation Department  
Contract Audit – Alstom Transport USA Inc.**

**January 22, 2025**

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***Report Highlights***

**Contract Payments**

*Annual payments and price escalation calculations complied with the contract.*

**Facility Maintenance**

*Alstom had adequate controls to ensure that facilities were maintained per the contract.*

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## **Executive Summary**

### **Purpose**

We evaluated Aviation Department's (Aviation) monitoring of Alstom Transport USA Inc. (Alstom) to ensure compliance with the PHX Sky Train (Sky Train) Operations and Maintenance contract.

### **Background**

The City of Phoenix (City) contracted with Alstom to operate and maintain the Sky Train service. The contract began on April 1, 2013, and was extended until March 30, 2023. Amendment 7 extended the term of the contract for ten additional years. The amendment includes an annual payment schedule with an escalation amount to account for inflation. In addition to operating and maintaining the Sky Train, Alstom is responsible for the care of the facilities it uses in the performance of its work on the Sky Train. In Fiscal Year 2024 (FY24), the City paid Alstom a total of \$26,696,579 for Sky Train operations and maintenance.

### **Results in Brief**

#### **Annual payments and price escalation calculations complied with the contract.**

We confirmed the accuracy of payments made during FY24. We found the escalation rates for years one and two were calculated accurately. The escalations exceeded the 5% per year threshold dictated by the contract; however, contract amendments were obtained to document the increased escalations.

#### **Alstom had adequate controls to ensure that facilities were maintained per the contract.**

We tested select preventative maintenance work orders for FY24. Alstom ensures compliance with maintenance requirements by using a computer tracking system and participating in weekly status meetings with Aviation staff. Aviation staff also periodically perform site inspections. For most maintenance tasks included in the contract, we found documentation in the tracking system that the tasks had been performed. We confirmed that work orders were properly signed off and reviewed. In addition, we verified that maintenance frequencies matched contract requirements.

# **1 – Contract Payments**

## **Background**

The City contracted with Alstom to operate and maintain the Sky Train service. The contract began on April 1, 2013, and Amendment 7 extended the term of the contract through 2033. The amendment also modified the agreed services to allow for the increase in operations and maintenance associated with the extension of the Sky Train to the Rental Car Center (Stage 2). In addition, the amendment included an annual payment schedule with an annual escalation amount to account for inflation.

In FY24, the City paid Alstom a total of \$26,696,579 for Sky Train operations and maintenance. Stage 2 of the Sky Train started in February 2023 and the initial monthly rate per the contract was \$2,044,377. The contract allows for an economic price adjustment each year. The monthly rate is adjusted every April. In April 2023, the monthly rate was increased to \$2,200,359. In April 2024, Alstom submitted a price escalation calculation for year 2 to a monthly rate of \$2,319,054.

### **Monthly Sky Train Payments**

<b>Period</b>	<b>Monthly Amount</b>	<b>% Increase</b>
Feb '23 and March '23 (initial)	\$2,044,377	n/a
April '23 to March '24	\$2,200,359	7.63%
April '24 to March '25	\$2,319,054	5.39%

**FY24 payments totaled nearly \$27M for operations and maintenance.**

We tested the accuracy of FY24 monthly payments and reviewed the price escalation calculations.

## **Results**

### **Annual payments made to Alstom complied with the contract terms.**

Payments for FY24 were properly made according to contract requirements. For February 2024, the payment was appropriately reduced by \$63,810 due to liquidated damages as Alstom did not meet the availability percentage contract requirement and there was an excessive downtime event. We recalculated the liquidated damages amount and noted that it was properly calculated according to contract requirements.

**Escalation amounts for years one and two were calculated accurately and contract amendments were obtained for the increased escalations.**

The contract states that the price is to be adjusted for inflation at the beginning of each contract year. The price escalation is to be calculated from changes in the U.S. Bureau of Labor Statistics (labor index, and parts and material index). In addition, the contract indicates that in the event the escalation is more than 5% percent per contract year, Aviation and Alstom would negotiate to revise the 5% percent ceiling, or reduce the scope of work, or both.

For years one and two escalation calculations, we verified that the correct indices were used, and that the future rates were calculated accurately. We recalculated the percent changes in the rates and compared our figures to those provided by Alstom. We noted that the cumulative amount of the escalation calculations was greater than 5%, and Aviation staff obtained contract amendments to support the increased escalations for both years.

**Recommendation**

None

## **2 – Maintenance and Other Contract Provisions**

### **Background**

#### Maintenance Duties

The contract requires Alstom to maintain the Sky Train system, associated facilities, and all its subsystems. It describes different types of maintenance such as routine, scheduled, and non-scheduled. The systems to be maintained include:

- Vehicles and all on-board equipment
- Power distribution equipment
- Command, Control and Communications Fixed Facilities and Equipment
- Guideway structures and equipment
- Station equipment
- Maintenance and Storage Facility (M&SF) and equipment
- Operations and maintenance road vehicles

The contract also requires that Alstom provide janitorial services for all parts of the guideway, the M&SF facility, administrative offices, and system equipment rooms. Each asset and area have a job plan with frequencies assigned to each task (daily, weekly, quarterly, etc.). The job plan is entered into Alstom's work order system, Service Execution System (SES), which generates a work order. As part of the monthly invoice packet, each work order that was performed for the month is sent to Aviation staff for review.

#### Operational Readiness Training

All Alstom operations and maintenance personnel are required to be tested annually to assure a high level of operational readiness is maintained. The tests are quantified, and the score is recorded in the employee's permanent employment file. Test results are also sent to Aviation staff for review as part of the monthly invoice packet.

We tested preventative maintenance work orders, and we reviewed Alstom's employee training and certifications for compliance with contract requirements.

### **Results**

#### **Overall, maintenance was completed as required by the contract.**

Through discussions with Alstom and Aviation staff, we learned that facility maintenance is monitored in several ways:

- Alstom uses SES to create job plans for each required task. The system automatically generates task due dates (based on established frequencies) and captures completion dates.
- Weekly staff meetings are held between Alstom and Aviation staff to discuss operational and facility issues.
- Aviation staff periodically perform facility site and system inspections.

We tested compliance by ensuring that the job plan frequency requirements were met. Alstom implemented the SES system in June 2024. We reviewed work orders from July 2024 through September 2024 for testing. For this period, there was a total of 6,399 work orders.

### Sky Train System Preventative Maintenance Work Orders

Month	Vehicle	Switch	Other/Janitorial	Total Work Orders
July	1,366	346	456	2,168
August	1,384	321	414	2,119
September	1,331	381	400	2,112
<b>Total</b>	<b>4,081</b>	<b>1,048</b>	<b>1,270</b>	<b>6,399</b>

**Most of the 6,399 work orders for the three-month test period were for vehicle maintenance.**

Alstom had 42 vehicles that require daily, bidaily (every other day), weekly, monthly, semi-annual, and two-year maintenance. Also, the Sky Train system had 63 switches that require Alstom employees to perform weekly and monthly maintenance. Vehicles and switches accounted for 80% of all work orders. We selected a sample of 20 work orders from the vehicle and switches category for testing for each month. We also selected five work orders from the other/janitorial category for testing for each month. In addition, we verified that maintenance frequencies for the months matched the contract requirements.

All 75 work orders were properly signed off and reviewed. We noted that switches received between four to six work orders for the month. However, for one switch, switch

60, SES was not properly generating work orders for the month. For July, the report showed no work orders, in August, there were two work orders and for September, there was one work order.

As the system was implemented in June 2024, Alstom staff explained that there was an issue in the system generating work orders for this switch. Staff stated that they manually generated the work orders for these months and that the work was still completed in the months as required. Alstom provided the additional work orders for each of the three months. However, as they were manually generated, they were not included as part of the monthly invoice and did not show approval by a supervisor.

Alstom stated that the issue was corrected in October 2024. We reviewed the November work order report and noted that the issue was corrected.

**Overall, all but one of the employees reviewed had proper certifications on file and met contract requirements for annual training.**

There are a total of 65 employees that require annual training. This includes 8 operations staff and 57 maintenance staff. We selected a sample of 25 employees (4 operations and 21 maintenance) for testing. Maintenance employees receive annual driver's tests and Lockout and Tagout Tests. Operations employees require annual testing to obtain a Central Control Certificate. We reviewed employee files to verify training and test results to ensure Alstom staff are properly trained to comply with contract requirements.

Maintenance employees – For the employees we reviewed, driver's certificates for 2023 and 2024 were on file and training was received within 12 months. A minimum of 85% is required to pass. We noted that the employees received a score of at least 85%. Lockout and Tagout tests were also on file for 2023 and 2024 and training was received within 12 months. This was a pass/fail test. No exceptions were noted.

Operations employees - We noted Operations employees need a Central Control Certificate each year and had to pass with at least 80%. For three of the four employees, certificates for 2023 and 2024 were on file and training was received within 12 months. However, one employee, completed the required training in 14 months. Alstom stated this was because the employee was certified under the first stage of the contract and then certified when the second stage of the contract began.

**Alstom has a written heat mitigation safety plan as required by Ordinance G-7241.**

City of Phoenix Ordinance G-7241 clarifies the authority and responsibility for monitoring compliance with contractor requirements for the mitigation of heat-related illnesses and injuries. It states that any contractor whose employees perform work in an outdoor environment must use heat safety and mitigation plans to prevent heat-related illnesses and injuries. The contractor must keep on file a written heat safety plan and minimum requirements are to provide for its employees:

- Cool drinking water at no charge.
- Regular and necessary breaks as needed and additional breaks for hydration.

- Effective acclimatation practices.
- Training about heat illness and injury.

We noted that Alstom has training classes on heat safety and a written heat mitigation plan from 2023.

## **Recommendation**

None



## **Scope, Methods, and Standards**

We reviewed the PHX Sky Train Operations and Maintenance contract (#126231) for the period of July 2023 through September 2024, as it relates to payments, facility maintenance and training.

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

- Control Activities
  - Management should demonstrate a commitment to recruit, develop, and retain competent individuals.
- 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:

- Interviewed Aviation and Alstom staff to develop an understanding of their processes.
- Verified monthly payment accuracy based on the contract schedule of payments and the annual escalation.
- Verified accuracy of the escalation amount for year one and two of Amendment seven.
- Tested compliance with maintenance tasks by agreeing tracking system tasks to job plan frequencies.
- Reviewed compliance with Operational Readiness requirements through a review of testing and training records.

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**

We assessed the reliability of Alstom's work order system data by ensuring there were no duplicate work order numbers and that there was supervisory review. 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.