Office of Inspector General

Washington Metropolitan Area Transit Authority

Audit of Trapeze Scheduling and Dispatch System

OIG 17-01
December 7, 2016

MEMORANDUM:

FROM: OIG – Helen Lew   */S/*

TO: GMGR – Paul Wiedefeld

SUBJECT: Audit of Trapeze Scheduling and Dispatch System (OIG 17-01)

This Final Audit Report, entitled *Audit of Trapeze Scheduling and Dispatch System*, presents the results of our audit. The objective of the audit was to determine whether the Trapeze Scheduling and Dispatch System is meeting functional, technical, and contract requirements in an efficient and effective manner. Following an Exit Conference on October 3, 2016 and the issuance of a Draft Report, WMATA staff provided written comments. WMATA staff concurred with the overall OIG report.

Please provide information on actions taken or planned on each of the recommendations within 30 days of the date of this report. Actions taken or planned are subject to OIG follow-up.

We appreciate the cooperation extended to us by members of your staff during the audit. If you have any questions or comments about our report, please contact me on (202) 962-███   or Stephen Dingbaum, Assistant Inspector General for Audit, on (202) 962███.

cc: EXEC – J. Requa
     IBOP – J. Kuo
     COUN – P. Lee

Audit of Trapeze Scheduling and Dispatch System

Why We Did This Review

MetroAccess Service (MACS) is a division of WMATA's Department of Access Services (ACCS), and provides the region's complementary paratransit service in accordance with the Americans with Disabilities Act.

MACS manages the fourth highest ridership paratransit system in the nation, and has the daily responsibility of scheduling over 8,000 passenger trips with a fleet of over 675 vehicles. MACS has internal operations that provide oversight for the paratransit program, such as fleet management, financial operations, MetroAccess Operations Control Center (MACS-OCC), service delivery and quality assurance. Trapeze Scheduling and Dispatch System is a commercial off the shelf application suite customized to meet MACS operational and paratransit needs.

The objective of the audit was to determine whether the Trapeze Scheduling and Dispatch System is meeting functional, technical, and contract requirements in an efficient and effective manner.

What We Found

Trapeze is meeting its functional and technical requirements. ACCS management has controls in place to efficiently and effectively administer and manage Trapeze. However, ACCS management has not adequately monitored the contractor's requirements relating to the operation of Trapeze. Specifically, the Office of Inspector General (OIG) found:

- lack of an IT manager for the operations center
- inadequate system maintenance, and
- lack of adherence to data administration requirements

As a result of not monitoring contract requirements, WMATA has potentially overpaid $173,000 for IT management services, ████████████████████████████████, and is using unreliable data to perform daily reconciliation and archiving.

The report makes recommendations to WMATA management to improve ACCS controls in monitoring the contractor, and ensure the Contract Officer Technical Representative (COTR) is accountable for monitoring the contractor's performance requirements. When implemented, these recommendations will strengthen ACCS controls in monitoring contract requirements and performance.

Management Response

ACCS management concurs with the overall findings and recommendations in this report. ACCS management was particularly pleased with the overall results at the beginning of the report, which indicated that Trapeze is meeting its functional and technical requirements, and that ACCS management has controls in place to efficiently and effectively manage Trapeze.

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ABBREVIATIONS AND ACRONYMS

ABBREVIATION	DESCRIPTION
ACCS	Department of Access Services
ACCT	Accounting Office
CTF	Carmen Turner Facility
COTR	Contract Officer Technical Representative
COUN	General Counsel
EXEC	Executive Managing Officer
GMGR	General Manager
IBOP	Internal Business Operations
IT	Information Technology
JGB	Jackson Graham Building
MACS	MetroAccess Service
MACS-OCC	MetroAccess Operations Control Center
MACS IT	MetroAccess Information Technology
MV	MV Transportation, Inc.
MTM	Medical Transportation Management, Inc.
OIG	Office of Inspector General
OS	Operating System
PRMT	Office of Procurement and Materials
WMATA	Washington Metropolitan Area Transit Authority

BACKGROUND

In March 2013, ACCS executed a multiple award contract for operational support to MV Transportation Inc. (MV) and Medical Transportation Management, Inc. (MTM) for MACS. The MTM contract was valued at $13,297,822, and the MV contract was valued at $82,306,329. These contracts are in the third year of a five-year base period.

MV manages the service delivery operations at the MACS-OCC using Trapeze.[1] MV provides customer communications support in conjunction with three service delivery contractors. MV is responsible for reservations, dispatch, scheduling, data integrity, and reconciliation. WMATA also provides MV with the necessary Information Technology (IT) hardware and software necessary for administering and maintaining Trapeze, including specialized or specific access for reviewing and reporting of MACS operations data.

MTM is responsible for quality assurance in assessing MV's service delivery performance. MTM is also responsible for reviewing and monitoring MACS-OCC functions, customer complaint resolution process, "No Show" reviews, manifest and trip data reconciliation process, and service delivery performance standards.

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[1] A commercial off the shelf application suite customized to meet MACS operational and paratransit needs. Trapeze supports MACS in effectively scheduling and dispatching trips for eligible riders.

AUDIT OBJECTIVE AND RESULTS

Audit Objective

The objective of the audit was to determine whether the Trapeze Scheduling and Dispatch System is meeting functional, technical and contract requirements in an efficient and effective manner.

Audit Results

Trapeze is meeting its functional and technical requirements. ACCS management has controls in place to efficiently and effectively administer and manage Trapeze. However, ACCS management has not adequately monitored MV's contract requirements relating to the operations of Trapeze. Specifically, OIG found:

- lack of an IT manager for the operations center
- inadequate system maintenance, and
- lack of adherence to data administration requirements

As a result of not monitoring MV's contract requirements, WMATA has potentially overpaid approximately $173,000 for IT management services, ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮ and is using unreliable data to perform daily reconciliation and archiving.

Findings are rated as High,[2] Medium,[3] or Low[4] risk, and require management corrective actions to strengthen internal processes and provide for more effective and efficient operations. The details of the above findings are discussed below.

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[2] High - Exception is material to accomplishing organization objectives. Corrective action by appropriate Senior Management is required. Resolution would help avoid loss of material assets, reputation, critical financial information or ability to comply with critical laws, policies or procedures.

[3] Medium - Exception may be material to accomplishing organization objectives. Corrective action is required and the results are reported to management quarterly. Resolution would help avoid negative impact on the unit's assets, financial information, or ability to comply with important laws, policies, or procedures.

[4] Low - Exception has a minor impact on the accomplishment of organization objectives but may result in inefficient operations. Resolution would help improve controls and avoid inefficient operations within the unit.

FINDINGS AND RECOMMENDATIONS

FINDING 1 – LACK OF AN IT MANAGER FOR THE OPERATIONS CENTER (Risk - Medium)

The IT manager position for the MACS-OCC has been vacant since October 2015. This was caused by ██████████████████████████████ taking no action to correct the situation with MV and hiring a second contractor to perform the same IT functions. As a result, WMATA overpaid an estimated $173,000 for IT manager services.

What Is Required

MV Contract Requirements:

Part V. Section 3 of the contract states MV is responsible for staffing the MACS-OCC with an IT Manager. Part V. Section 3.5 of the contract states the IT Manager manages application servers; enterprise applications; domain/user maintenance; networking components; telecommunications infrastructure; proprietary and nonproprietary applications. The IT Manager's specific responsibilities include Desktop Support for MACS-OCC, Active Directory Maintenance (includes dispatchers, manifest reconcilers, etc.), Trapeze User Maintenance, and Weekly Report creation for Trapeze.

The COTR letter in the contract holds the COTR responsible for monitoring MV's performance during the contract period. Specific responsibilities include:

- Acting as the principal point of contact with MV
- Reviewing and approving all MV's invoices
- Approving and documenting MV's performance

The Office of Procurement and Materials (PRMT) delegated the COTR function to ██ ██████████████████████████ and allowed him to have two alternate COTRs in his absence.

What We Found

MV had difficulty staffing the IT Manager position. Since 2005, MV has hired six different employees for this position. However, the position has remained vacant since October 2015. During which time, the Assistant General/Project Manager has served simultaneously as the acting IT Manager. MV never notified MACS or the COTR of this vacancy. See the timeline below for the history of the MV IT Managers.

Timeline of the MV IT Managers
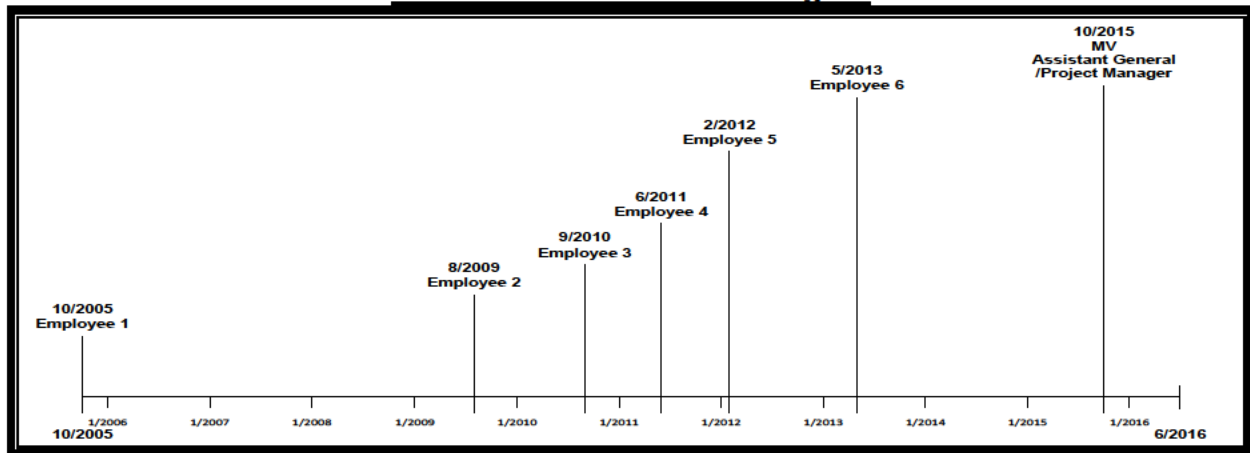
Why This Occurred

We spoke with the COTR in July 2016 about this issue. The COTR initially acknowledged he was partially aware of the situation, and agreed the IT manager does play a critical role in meeting MV's performance standards. Additionally, the COTR agreed there are risks associated with not addressing this issue directly, but felt at the time, MV's overall performance had not been affected.

Subsequently, on August 30, 2016, the COTR issued a deficiency notice to MV about their failure to provide the requisite level of IT support. There is no evidence in the contract files of any communications between COTR and PRMT, to execute a contract modification or cost adjustment to address the staffing deficiency. ▮▮▮▮▮▮

Why This Is Important

The COTR did not adjust the fixed rate to reflect the IT Manager's vacant position. One primary responsibility of the COTR is to review and assess the accuracy of MV's fixed rate and costs to ensure services are being provided as required by the contract before payment is authorized.

MV is paid by the number of calls it handles, multiplied by a fixed rate. In FY 2016, MV's fixed rate was ▮▮▮▮ per call. The IT manager's portion accounted for ▮▮▮▮ of the ▮▮▮▮ per call rate. The COTR and PRMT should have adjusted the fixed rate to ▮▮▮▮. Table 1 shows the payments made to MV under the fixed rate.

Table 1
MV's payments made per the fixed rate to the IT Manager

Months (Note that WMATA's fiscal year starts in July 1 and ends in June 30)	▮▮▮▮ was the fixed rate used to pay the IT Manager in FY 2016
July	$ 14,518.92
August	$ 14,477.40
September	$ 14,694.48
October	$ 15,528.84
November	$ 14,710.08
December	$ 15,071.88
January	$ 13,558.92
February	$ 14,849.76
March	$ 16,174.68
April	$ 15,452.28
May	$ 15,234.24
June	$ 15,320.64
Fiscal Year Total	$ 179,592.12
Total amount with Assistant General/Project manager serving simultaneously as acting IT Manager from October 2015 to June of 2016	$ 135,901.32

WMATA appears to have overpaid MV close to $136,000 from October 2015 to June 2016. Further, ACCS awarded another contract for $123,000[5] in March 2016 to perform IT work not being performed by MV. For the March through June 2016 period covered by this audit, the second contractor was paid $37,000. In total, WMATA has potentially overpaid $173,000 for IT management services.

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[5] The contract period of performance will be one year (800 hours x $154.00 rate) with a four one-year options. The overall contract is valued at $660,913 for five years.

RECOMMENDATIONS:

We recommend that the GM/CEO:

1.   Ensure MV fills the IT Manager position, or modify the contract to assign the IT management responsibility with MACS. (Action: Executive Managing Officer) (Risk - High)

2.   Recover any overpayments made to MV for non-compliance of contract terms. (Action: Executive Managing Officer) (Risk - Medium)

3.   Ensure the COTR is accountable for performing the COTR responsibilities outlined in the contract or delegate/reassign the COTR responsibilities to a person that is able to perform the COTR function. (Action: Executive Managing Officer) (Risk - Medium)

FINDING 2 – INADEQUATE SYSTEM MAINTENANCE (Risk - High)

This was caused by poor ███████ oversight of MV.

What Is Required

MV Contract Requirements:

Part V. Section 3.5 of the contract requires MV to manage the application servers; enterprise applications; domain/user maintenance; networking components; telecommunications infrastructure; proprietary and nonproprietary applications; and desktop support. ██.

What We Found

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Table 2

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Why This Occurred

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From our initial meeting with the COTR in July of 2016, he stated he was partially aware of the situation. ██ ██████████. He said he and the Director of MACS (alternate COTR) closely monitor those requirements. The COTR meets with the MACS Director monthly to review these requirements. ██ ██ The COTR felt at the time that MV's overall performance metrics were not affected.

In July 2016, the Director of MACS believed MV was ████████████████████████ ██ ████ ███ ████████████████████████████████

In August 2016, the COTR issued ████████████████████████████ ██ ██

Why This Is Important

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RECOMMENDATION:

We recommend that the GM/CEO:

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   ██ (Action: Executive Managing Officer) (Risk – High)

FINDING 3 – LACK OF ADHERENCE TO DATA ADMINSTRATION REQUIREMENTS (Risk - Medium)

MV had not adhered to data administration requirements, due in part to inadequate monitoring by the COTR. As a result, ACCS increases the risk of using unreliable data for reconciliation, archiving and billing.

What Is Required

MV Contract Requirements:

Part III and V. Sections 8 and 12 of contract states that for the purpose of data integrity and accuracy in billing, MV is required to perform a 100 percent daily reconciliation and archiving of completed trip data generated within Trapeze.

Part III. Section 12 of contract also states that WMATA has substantial data administration and reporting requirements, and MV shall submit reports that are accurate and timely. WMATA may require ad hoc reports from time to time and these will be provided by the contractor.

What We Found

MV has not adhered to data administration requirements. The October 2015, Exception Report, showed MV had not cleared data errors or exceptions as required by the contract. Addressing these errors is critical to data integrity and the reconciliation process. Table 3 below shows 72 of the 666 errors in October that should have been cleared and archived by MV.

Table 3

Issue	Number of Errors	Definition of Exception
Incorrect time format	26	*Usually indicates a time that is greater than 30:00 (06:00 the next day). Should never remain following archive.*
Missing first pick up odometer reading	23	*Odometer reading when vehicle arrived at first pick up. Critical for Revenue and Deadhead mile calculation.*
Missing last drop off odometer reading	23	*Odometer reading when vehicle departed last drop off. Critical for Revenue and Deadhead mile calculation.*
	72 Total	

MV provided us with their data reconciliation and archiving processes. Within their process MV generates exception (error) reports from Spider[7] to check for data quality and integrity. We requested a sample exception report from October of 2015. We chose the month of October because the IT Manager was vacant, and the IT Manager role is critical in data administration and reporting. MV initially stated they had cleared October's exceptions so the archived report should have had no exceptions. However, our analysis showed that exceptions had not been cleared as of September 2016.

Why This Occurred

The COTR had not routinely monitored MV's data administration requirements. During the course of the audit, the Director of MACS (alternate COTR) conducted an analysis of MV's data administration for June 2016, and found deficiencies. In August 2016, the COTR sent a deficiency notice to MV. On September 12, 2016, the Contracting Officer followed-up on the deficiency notice with a $75,000 liquidated damage claim due to data integrity, archiving, and reconciliation errors. However, this was only for June 2016. Potentially, similar errors could still exist and should be reviewed from October 2015 to present.

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[7] Spider is the report tool/software used to generate customized Trapeze report used by MV, MTM , and MACS

Why This Is Important

Not adhering to data administration requirements, increases the risk of using unreliable data to perform daily reconciliation and archiving.

RECOMMENDATIONS:

We recommend that the GM/CEO:

5. Ensure the COTR monitor MV's data administration and processes to determine whether MV is meeting data quality and integrity requirements. (Action: Executive Managing Officer) (Risk – Medium)

6. Review all of data used for trip reconciliation from October 2015 to present to identify if any other errors exist, and assess MV for additional liquidated damages if necessary. (Action: Executive Managing Officer) (Risk – Medium)

CONSOLIDATED LIST OF RECOMMENDATIONS

1. Ensure MV fills the IT Manager position, or modify the contract to assign the IT management responsibility with MACS. (Action: Executive Managing Officer) (Risk - High)

2. Recover any overpayments made to MV for non-compliance of contract terms. (Action: Executive Managing Officer) (Risk - Medium)

3. Ensure the COTR is accountable for performing the COTR responsibilities outlined in the contract or delegate/reassign the COTR responsibilities to a person that is able to perform the COTR function. (Action: Executive Managing Officer) (Risk - Medium)

4. Ensure all system maintenance is performed, documented, and reviewed by MACS IT. (Action: Executive Managing Officer) (Risk – High)

5. Ensure the COTR monitor MV's data administration and processes to determine whether MV is meeting data quality and integrity requirements. (Action: Executive Managing Officer) (Risk – Medium)

6. Review all of data used for trip reconciliation from October 2015 to present to identify if any other errors exist, and assess MV for additional liquidated damages if necessary. (Action: Executive Managing Officer) (Risk – Medium)

SUMMARY OF MANAGEMENT RESPONSES

ACCS management concurs with the overall findings and recommendations in this report. ACCS management was particularly pleased with the overall results at the beginning of the report, which indicated that Trapeze is meeting its functional and technical requirements, and that ACCS management has controls in place to efficiently and effectively manage Trapeze.

OBJECTIVE, SCOPE, AND METHODOLOGY

OBJECTIVE
The objective of the audit was to determine whether the Trapeze Scheduling and Dispatch System is meeting functional, technical and contract requirements in an efficient and effective manner.

SCOPE
The scope of this audit was to analyze scheduling and dispatching trip data captured in Trapeze from CY 2015. We also reviewed MV's invoices paid in FY 2016.

METHODOLOGY
We obtained and reviewed invoices paid to MV in FY 2016 from WMATA's Accounting Office (ACCT). We interviewed ACCS/MACS management, personnel, and two contractors; we have reviewed applicable policies, procedures, and processes for existence and implementation; and reviewed both MV and MTM contracts awarded by PRMT related to ACCS, MACS, and Trapeze.

We have incorporated The Institute of Internal Auditor's (IIA) Global Technology Audit Guide (GTAG) entitled "Auditing Application Controls"; Committee of Sponsoring Organizations (COSO); Control Objectives of Information Technology (COBIT® version 5) standards, principles, and internal control framework in the audit/survey program. We used IDEA, a statistical analysis software, to assess, analyze, and reviewed records extracted from Trapeze.

To assess the reliability of MV's data, we (1) performed electronic testing for obvious errors in accuracy and completeness; (2) reviewed related documentation, including contractor audit/exception reports on data verification; When we found discrepancies (such as non-populated fields or data entry errors), we brought them to MV or MACS's attention and worked with MACS IT staff to correct the discrepancies before conducting our analyses. We determined that the data were sufficiently reliable for the purposes of our report.

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. OIG held Exit Conference on October 3, 2016, to discuss the findings from the audit with management personnel and representatives from ACCS, COUN, IBOP, and PRMT respectively.

M E M O R A N D U M

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SUBJECT: Draft OIG Audit Report 17-01 (Audit of Trapeze Scheduling and Dispatch System), October 2016

DATE: December 5, 2016

FROM: GMGR – Paul J. Wiedefeld ▪

TO: OIG – Helen Lew

SUMMARY

On October 19, 2016, the Office of Inspector General (OIG) issued the subject report titled "Audit of Trapeze Scheduling and Dispatch Systems." Management and technical staff from the Office of MetroAccess Service (MACS) gave full cooperation to the auditors in accomplishing this task, and ACCS management concurs with the overall OIG draft report. We were particularly pleased with the opening statement at the beginning of the OIG report that indicates that Trapeze is meeting its functional and technical requirements and that ACCS management has controls in place to efficiently and effectively manage Trapeze. The deficiencies noted are related to monitoring and oversight, and the management responses to the individual findings and recommendations are detailed below.

FINDINGS AND RECOMMENDATIONS

Finding A – Lack of an IT Manager for the MACS OCC

ACCS concurs that the IT Manager position was not permanently filled for nearly a year. However, the position was occupied by several temporary incumbents whose skill sets were less than expected for the position, but this was meant to be temporary while ongoing recruitment efforts were pursued by the contractor. MACS staff emphasized to the OIG auditors that the Trapeze software designed for paratransit service is completely unique and different from Trapeze software designed for fixed-route service, and that the skill set for the paratransit version is extremely difficult to find.

The report states that MACS management was unaware of the combination of contractor personnel that were performing IT-related functions while the aforementioned recruitment efforts continued. OIG asserts that MACS should extract the entire annual salary (and additional <u>unrelated</u> IT consulting expenses) from the contractor because a single, fully qualified individual had not been identified.

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On a positive note, the added focus on these issues by the OIG auditors did prompt ACCS to escalate the issue with the contractor, and we did issue correspondence requiring an immediate remedy. The results have been positive.

Recommendations from Finding A

1. *Ensure MV fills the IT Manager position, or modify the contract to assign the IT management responsibility with MACS.*

   As of the issuance of this memo, the IT Manager position has been satisfactorily filled by MV. With the Authority's current budget situation and depleted staff resources, it is not within our capability nor in our business interests to move these responsibilities in-house.

2. *Recover any overpayments made to MV for non-compliance with contract terms.*

   ACCS does not find that there have been any overpayments. Although the IT Manager position was not filled with an approved candidate for a lengthy period of time, MV provided contingency personnel and made a good faith effort to identify a permanent candidate. It should be noted that we did assess $75,000 in liquidated damages for a reconciliation error which we believe might have been identified if the position had been filled, and we believe that this sufficiently recovers any monies owed to the Authority in this matter.

3. *Ensure the COTR is accountable for performing the COTR responsibilities outlined in the contract or delegate/reassign the COTR responsibilities to a person that is able to perform the COTR function.*

   The COTRs have conveyed specific guidance to MV on their obligations under the contract to provide IT support to the Authority. ACCS concedes that the COTR should have escalated the issue sooner. In view of the technical expectations of the COTR that have been articulated in this audit, PRMT has been requested to designate the MACS Director as the primary COTR, effective November 1, 2016.

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Finding B – Inadequate System Maintenance

While ACCS concedes that MV failed to promptly fill the IT Manager position and perform some of its contractually required IT functions during the time audited, the report goes on to imply that ███████████████████████████████████ ███████████████████████████████████████ However, MACS technical staff advised the auditors that MV performed user administration while the MACS team performed ████████████████████████ It should also be noted that these ███████████████████████████████████The ███ ███ ███ by WMATA IT; however; ████████████████████████ ███████████ The report also fails to capture a number of IT challenges that have been caused by ongoing issues that MACS has to address directly with the software vendor.

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Recommendation from Finding B

4. *Ensure all system maintenance is performed, documented, and reviewed by MACS IT.*

   A complete review of outstanding system maintenance activities was performed during the course of the audit by the MACS IT team which in turn issued correspondence to MV requiring immediate resolution. We have ██ ████████████████ On an ongoing basis, MACS IT will review a newly established weekly log on which MV will document performance of all of its required maintenance activities. Further consultation with the WMATA IT department has also taken place, and we intend to execute a service level agreement (SLA) with the IT Department to delineate responsibilities between IT, MACS, and Trapeze.[†] The SLA will be consistent with the terms and conditions of WMATA's Trapeze software maintenance agreement.

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Finding C – Lack of Adherence to Data Administration Requirements

Recommendations from Finding C

5. *Ensure the COTR monitors MV's data administration and processes to determine whether MV is meeting data quality and integrity requirements.*

   The audit seems to interpret the initial data reconciliation performed by MV to be the entirety of our data administration process. As MACS staff advised the auditors, MACS has an extensive, multi-part data administration process that includes a separate contractor (Quality Assurance) that conducts a comprehensive review of all operating data in great detail based on industry-approved monitoring protocols that were produced during the settlement of a class-action lawsuit eight years ago. MACS IT and the MACS QA contractor will augment their proactive system monitoring to detect potential data integrity issues in advance of the reconciliation process.

6. *Review all of data used for trip reconciliation from October 2015 to present to identify if any other errors exist, and assess MV for additional liquidated damages if necessary.*

   The data in question was reviewed and no other errors were identified.

TO REPORT FRAUD, WASTE, OR ABUSE

Please Contact:

Email: wmata-oig-hotline@verizon.net

Telephone: 1-888-234-2374

Address: WMATA
                 Office of Inspector General
                 Hotline Program
                 600 5th Street, NW, Suite 3A
                 Washington, DC 20001