

# AUDIT OF PATCO REVENUE COLLECTION, ACCOUNTING, and CONTROL



**August 30, 2019**



DELAWARE RIVER PORT AUTHORITY  
**OFFICE OF THE  
INSPECTOR GENERAL**

PERFORMED BY:  
DONNA MCCOY, AUDIT CONSULTANT &  
RON MCREYNOLDS, IT AUDITOR &  
DAVID J. AUBREY, INSPECTOR GENERAL

## Contents

A. Objective / Scope / Methodology .....	1
B. Background.....	2
C. Audit Summary .....	3
D. Documentation of Fare Revenue Process.....	5
1. Fare Collections / Operations .....	5
2. PATCO Finance.....	14
3. Systems Management / Information Services .....	19
E. Key Processes, Available Operating Procedures, Associated Risks .....	20
F. Walk-Throughs and Testing .....	20
G. SEPTA Interoperability Agreement .....	22
H. Contracted Services.....	23
I. IT Systems / Resources.....	24
J. PCI DSS (Payment Card Industry Data Security Standard) Compliance .....	25
K. Audit Findings and Recommendations.....	26



August 30, 2019

**DELAWARE RIVER PORT AUTHORITY  
OFFICE OF THE INSPECTOR GENERAL  
AUDIT OF PATCO REVENUE  
COLLECTION, ACCOUNTING, and CONTROL**

---

**A. Objective / Scope / Methodology**

---

The Office of the Inspector General (OIG) conducted an audit of the Port Authority Transit Corporation's (PATCO's) Revenue. The objective of this audit was to obtain a documented understanding of PATCO's revenue process and assure that effective and current procedural guidance and governance is in place addressing key processes, activities, and controls. The scope of this audit focused on PATCO High Speedline-related revenue (processing and reporting of PATCO train fares), and included the following:

- obtaining a documented understanding of the PATCO revenue process (from methods of fare collection / ticketing to financial revenue reporting);
- identifying and documenting all key processes and process activities (i.e. daily, weekly, monthly, quarterly, annually, and "as needed" activities);
- reviewing and confirming available procedures, and recommending procedures where they currently do not exist;
- assessing associated risks and evaluating / recommending controls;
- performing a documented "walk-through" of the key processes / procedures with PATCO Fare Collection Operations management / staff and PATCO Finance area;
- performing compliance testing of processes (as determined upon completion of preliminary planning and previously mentioned "walk-through" procedures).
- obtaining a documented understanding and assessing the control environment of the newly implemented PATCO / SEPTA interoperability processes and PATCO Refund process;
- identifying associated contracted services and assessing compliance and contract management practices;
- confirming the source and evaluating the accuracy of monthly reported PATCO revenue and ridership figures for the Chief Financial Officer's (CFO's) report to the Authority's Finance Committee / Board of Commissioners;
- identifying and documenting interface(s) with various IT systems / resources and assessing associated IT general controls (PATCO, DRPA, and external); and
- ensuring PCI (Payment Card Industry) compliance is regularly tested and documented.

A formal audit entrance meeting was conducted on Thursday, February 14, 2019 at PATCO headquarters to discuss OIG's audit intentions and present initial information / document requests. Fieldwork began on February 25, 2019 and continued through June 28, 2019.

---

## B. Background

---

The PATCO High Speedline, is a rapid transit system which runs between Philadelphia, Pennsylvania, and Camden County, New Jersey. It is operated by the Port Authority Transit Corporation, which is a subsidiary of the Delaware River Port Authority (DRPA).

The PATCO Speedline began operations on February 15, 1969, with the first trip from Lindenwold, New Jersey, to Center City Philadelphia. At that time, the 14.2-mile line carried 21,200 riders per day. Currently, PATCO provides as many as 38,000 rides per day.

PATCO operates 24 hours per day; 7 days per week out of 13 stations. Fares range from \$1.40 to \$3.00, depending on the distance traveled and time of day. Senior citizens and persons with disabilities are charged half of the applicable fare during non-peak service times once they are qualified through PATCO's Reduced-Fare Program (RFP). Each revenue day starts at 2am and runs until 01:59:59am the following day. [REDACTED]

Revenue and ridership data for the years ended December 31, 2018 and 2017 were as follows:



### Ridership:

- 2018: 10,789,374
- 2017: 10,839,059



### Fare Revenue:

- 2018: \$26,215,246
- 2017: \$26,562,482

PATCO uses Cubic Transportation System's proprietary Automated Fare Collection (AFC) software. The NextFare Central System (referred to as NCS) is the suite of software products designed to work as a system and together function as an end-to-end mass public transport and fare collection system. In addition, PATCO contracts with Cubic to provide staffing for the Freedom Center and to provide administrative and maintenance services related to the software.

PATCO also contracts with Brinks Incorporated (Brinks), formerly Dunbar Armored, Inc., to service Ticket Vending Machines and to transport deposits from the PATCO Money Room to the bank daily.

Customers may travel using any one of the following fare media types:

- **Freedom Card:** a stored-value card that riders can load and reload to add value to be used to ride PATCO. Customers can purchase the cards at Ticket Vending Machines (TVMs) in any PATCO station. For regular adult cards, the lowest amount that can be loaded on the first purchase is \$25 (of that, \$20 is added to the Freedom Card and \$5 is charged for the cost of the card). There is no card charge for seniors, persons with disabilities or students. After the initial load, adult fare customers may replenish Freedom Cards at minimum values of \$20. Seniors and persons with disabilities may add smaller values at the Ticket Office Terminals (TOTs) located in the Freedom Customer Service Centers (Freedom Centers). All information regarding each Freedom Card account is stored on a chip in the card. As a result, the card must be physically tapped at a TVM, entrance gate or exit gate in order to update the account. Freedom Cards may be used to pay for transit or to pay for parking in the lots at PATCO stations.
- **T-Card (Transit Benefit Card):** a Freedom Card that is used for transit only. This card is generally used by federal government employees and other riders, whose cards are loaded from an employer-sponsored, prepaid transit benefit account and who are precluded from using their prepaid benefit for anything other than transit. These cards can only be used at fare gates, not at parking gates.
- **Share Card:** Account-based cards issued to PATCO customers in accordance with an interoperability agreement with the Southeastern Pennsylvania Transportation Authority (SEPTA; refer to section G of this report). All customers with a positive balance (greater than \$1.40 on the card) may use their card on PATCO, as well as SEPTA subways, trolleys and buses (excludes travel on Regional Rail lines). Share Cards may also be used for parking at PATCO lots.
- **Single Tickets:** Magnetic stripe paper tickets that can be purchased at the TVMs. Customers can purchase a one-way or round-trip fare that can be used for up to 3 days after purchase.

Riders may use Freedom Cards and Share Cards to:

- Ride PATCO transit: they tap in at the entry station and tap out at the exit station, at which point the fare is determined in accordance with fare schedule for the time of day and distance travelled and the customer's card value is reduced.
- Pay for parking.

### ***Parking***

Parking is available for over 12,000 cars daily at 7 PATCO stations: Lindenwold, Ashland, Woodcrest, Haddonfield, Westmont, Collingswood, and Ferry Ave. Parking at PATCO stations costs \$1 per day for riders. Customers tap their Freedom or Share Cards at the entrance and payment for parking is charged against their balance. There are also meters at Woodcrest, Ashland, Collingwood and Haddonfield. Cash must be used at the parking meters.

---

## **C. Audit Summary**

---

During the course of the audit, OIG conducted numerous interviews, requested documents and conducted walk-throughs and testing. All departments involved with this audit, including PATCO Fare Collections, PATCO Finance, Legal and Information Services were cooperative and responsive to all requests. As a result, OIG was able to accumulate a wealth of information about PATCO Revenue, its internal functions, and its interactions with external parties.

In general, PATCO's revenue operations appear to be designed in a manner which promotes accurate recording and reporting of revenue and limits the risk of waste, loss or misuse of organization assets. Both the Fare Collections and PATCO Finance teams work diligently, despite challenges caused by the Cubic system, to ensure customer satisfaction as well as the completeness and accuracy of ridership and revenue data reported on a monthly and annual basis.

OIG did note some concerns with the operation of some of the control activities, including the following:

- The accuracy of PATCO revenue data is largely dependent on the Cubic Transportation System's suite of products. PATCO has encountered numerous challenges and the Director, Fare Collections, expends a great deal of the department's limited resources addressing the issues encountered as a result of the use of these products. To that extent, PATCO Revenue Systems' Change Management and Incident Management processes need to be formalized and procedurally documented.
- Due to a processing issue resulting from a system change it was determined that over \$25,000 in refunds were due to PATCO customers, which had not been processed by the time the system was corrected. Of the customers identified as being affected by this issue, about 10% have initiated contact with PATCO to obtain a refund. For the remainder, no refunds were initiated. Fare Collection Operations was researching those customers who appear to be due a refund. As of the release of this report no refunds have been issued by PATCO to the remaining customers overcharged as a result of this issue.
- Documentation of the major Standard Operating Procedures that support the accumulation, recording and reporting of revenue should be updated or created as needed to document management's expectations and ensure that critical processes can continue in the absence of the key personnel who perform these functions.
- Access to the Money Room should be limited to those who must be present in order to perform the cash counting function.
- Reconciliations of deferred revenue balances should be performed and documented in a timely manner to ensure that customer account balances reflected in the Cubic system are accurately reflected in the general ledger.
- Policies with respect to the treatment of old/inactive customer accounts should be documented and procedures should be developed, then consistently and regularly applied to ensure the organization's revenue and related liability accounts are accurately reflected in the financial statements.
- An executed Memorandum of Understanding (MOU) was not in place establishing a mutual agreement between SEPTA and PATCO defining how transactions should be processed, recorded, reported, and reconciled since implementation of the Share Card system (September 2018). Note: Subsequent to the completion of our audit field work, the contract between the parties was finalized and executed.
- Areas associated with compliance with Authority Policy #512, "Audit Policy", as it relates to PATCO Revenue Systems, require management's attention, specifically compliance with: 1) the frequency of performance of system penetration testing / system vulnerability scanning, 2) system access management and monitoring, and 3) the development and testing of a documented disaster recovery plan. Compliance with the performance of these procedural requirements, and addressing any issues observed, assist in assuring the Authority's required compliance with PCI DSS standards (Payment Card Industry Data Security Standard).

These findings and others are presented in more detail within the report, along with the associated recommendations and management's responses / corrective actions. The management responses were provided by PATCO General Manager J. Rink and K. Imperatore, Director Fare Collection Operations, as well as CFO J. White and M. Ciechon, Director, PATCO Finance.

---

## **D. Documentation of Fare Revenue Process**

---

To obtain an understanding of the fare collection process, OIG interviewed various members of the Fare Collection Operations, PATCO Finance, DRPA Finance, and Information Services (IS) Departments. OIG requested and reviewed all Standard Operating Procedures (SOPs) provided, reviewed all relevant contracts currently in place, and performed walk-throughs and/or testing of certain key processes. As a result, it was noted that PATCO Revenue internal control activities can generally be classified as follows:

1. Fare Collections/Operations:
  - a. Basic Transaction Processing
  - b. Ticket Vending Machine (TVM) Servicing
  - c. Cash Counting (Money Room procedures with respect to cash from TVMs, TOTs and Parking Meters)
  - d. Refund Transactions
2. PATCO Finance
  - a. Reconciliation and Recording of Cash Transactions
  - b. Reconciliation and Recording of Credit Card Transactions
  - c. Revenue Recognition and Reconciliation
  - d. Deferred Revenue Reconciliation
  - e. Reporting
3. Systems Management / Information Services
  - a. Change Management
  - b. Incident Management
  - c. User Access Management
  - d. Disaster Recovery Plan

Each of these processes is summarized below, including a brief description of the processes and key controls put in place by Fare Collections and PATCO Finance to ensure the integrity of the fare collection process. [REDACTED]

[REDACTED]. The flowcharts, and accompanying narratives, have been provided to the General Manager, PATCO, the Chief Financial Officer (CFO), the Assistant General Manager, PATCO, the Director, PATCO Finance, and the Director, Fare Collections, for future reference, update, and maintenance.

### **1. Fare Collections/Operations**

#### ***a. Basic Transaction Processing***

Customers may perform Freedom Card transactions using one of the 55 active TVMs at the stations, TOTs at the Freedom Centers, or online at [www.ridepatco.org](http://www.ridepatco.org). PATCO accepts cash

and transit checks<sup>1</sup>, as well as Mastercard, VISA and American Express credit cards for payment. If customers are buying or loading regular adult fares in the Freedom Centers, transactions must be processed using the TVMs, with a few exceptions (See **TOTs** section below).

Freedom Centers are located at Broadway Station in Camden and at Woodcrest Station. Cubic Transportation Systems, Inc., manages the customer service centers, which are open during the following hours of operation:

- Broadway: Monday through Friday 7am-7pm
- Woodcrest: Tuesday (10am-2pm) and Thursday (2pm-6pm)

For Freedom Card and ticket users, all information regarding the customer's activity and remaining balance is stored on the chip in the card/ticket. For Share Cards, which are account-based, activity is stored in the network database. At the entry gate, customers either "tap in" (in the case of a card, which customers tap against a panel in the entry gate) or insert their ticket. When the customer exits, they "tap out" or insert the card at the exit gate. The fare for the trip is calculated based on the entry and exit points as well as the time of day (peak or non-peak hours). The customer's card or ticket balance is updated to reflect the transaction. If the ticket balance has been used, or if no other rides are allowed using the ticket, the ticket will be held in the exit gate to minimize waste in the stations.

When funds are added to Freedom Cards, T-Cards and Share Cards, PATCO posts the balance to the Deferred Revenue account in the general ledger. This establishes a liability for the value of the card, which PATCO earns as the customer uses the balance. PATCO recognizes revenue each time the card is used to ride transit or pay for parking, reducing the deferred revenue balance and increasing revenue for the same amount.

(Control activities with respect to TVMs will be described later in this section.)

### **TOTs**

The following transactions can be completed using the TOTs:

- Cash or credit card transactions for senior citizens in amounts less than \$20<sup>2</sup> (for load or purchase of a Freedom Card)
- Freedom Card purchases or reloads using Transit Checks for all customers
- Transactions in any amount for Share Card<sup>3</sup>
- Issuance of replacement cards

Each morning, Customer Service Representatives (CSRs) are assigned numbered money bags containing a beginning "bank" to make change. They are counted out each evening by two CSRs to verify that the beginning "bank" amount is in the bag (the CSR to whom the bag was assigned and a witness). In addition, the CSRs count the money in their bags (what remains after the original bank has been restored), including cash and transit checks. Two people

---

<sup>1</sup> Transit checks are issued to customers by their employer or an intermediary on behalf of the employer (or they may be issued directly to PATCO) to pay transit costs from a transit benefit account.

<sup>2</sup> Senior Citizens pay one-half of the off-peak fare for transactions. As a result, it could take a significant period of time to use the \$20 minimum balances required when using TVMs if the senior travels infrequently.

<sup>3</sup> The systems that tracks Freedom Cards (which are processed through NCS) and Share Cards (which are processed through ABP) are separate. TVMs cannot currently be used to process ABP transactions.

must verify each money bag before it is sent to the Money Room. After funds have been verified the following morning by the Freedom Center Manager, the Freedom Center Manager then sends an email containing the deposit totals to the Director, Fare Collections, the Passenger Services Manager, the Money Room Supervisor, the Lead CSR, and PATCO Finance, with the deposit totals for the day based on funds collected the prior day. The Passenger Services Manager verifies that the funds match the amounts expected per NCS prior to having the bags picked up. The bags are then picked up by a Money Room employee and delivered to the Money Room, where the cash is counted again to confirm accuracy.

### ***Freedom Card Replacements***

If a customer reports a lost or stolen card, the card can be replaced either in person or by mail. When customers call the Freedom Center for replacement cards, they have the option to have it sent to them or pick it up at one of the Freedom Centers. If the customer comes to the Freedom Center, the Customer Service Representative (CSR) replaces the card and transfers the balance from the old card if the customer provides identification or provides a passcode verifying they are the account owner (if they call, they must answer a security question selected when the card was activated). The CSR then manually enters the amount to be transferred to the new card. Once the balance is transferred, the Freedom Center Manager runs a report in NCS, which shows the old card number, new card number, and amount transferred. The Freedom Center Manager verifies that the transferred balance is accurate. If the card was used in the interim, the CSR may access the new card to adjust the balance for activity occurring on the old card before the transfer.

### ***Adjustments***

Only the Freedom Center Manager and the Lead Customer Service Representative have access to make adjustments to customer accounts. Adjustments are usually recorded for erroneous transactions. For example, an adjustment may be needed to credit the customer's account for accidental double-taps or parking if the customer entered a full lot but was charged. Adjustments can also be made to deduct funds from a card. For example, if a ride was facilitated (the CSR unlocked the gate to let the passenger through) due to a faulty card, the CSR would charge the card the customer attempted to use.

### ***Mail Order***

PATCO may receive transit checks by mail order. Customers may use envelopes provided in the station to mail transit checks or bring them to the Freedom Centers. The value is added to the customer's account by CSRs. The loads are added as pending loads and remain pending until the next time the customer uses their card. The mail order funds are included in the Freedom Center's daily deposit total (which is emailed to PATCO Finance at the end of each day) and entered in the deposit ticket to be sent to the bank. The checks and the deposit ticket are sent to the Money Room for verification. Once verified by the Money Room, the funds are deposited, and a copy of the deposit ticket is forwarded to PATCO Finance.

PATCO Finance runs a "directed loads report" to verify that the funds are posted to the customer's account accurately. In addition, PATCO Finance receives a daily statement from the bank and uses it to verify that the amounts deposited agree with the deposit amount from the deposit ticket and the Freedom Center's daily deposit totals.

### ***Autoload Transactions***

Customers may choose the Autoload feature to add value to a card after it gets below a threshold established by the customer. Once the Autoload feature is triggered, NCS adds value to the card and alerts the “Collection Manager function” (Collection Manager) to process a credit card transaction for the amount of the charge. Collection Manager runs every 12 hours (10am and 10pm). Each day the Freedom Center Manager scans the transactions processed in the Collection Manager run for any transactions that were declined. If a card is declined, the CSR cancels the autoload function on the account, reverses the value added to the Freedom Card and communicates the actions to the customer.

### ***Negative Balances***

When a customer taps their Freedom Card to enter, the card must have a positive balance for the customer to gain access to the train. If the customer enters with a positive balance, but does not have sufficient value on the card to pay the fare when they tap at exit, there are TVMs inside the gates, which the customer is instructed to use to add value to the card so that the full fare can be collected prior to exit.

There are instances when a card can have a negative balance. For example, as noted previously, some customers use the autoload feature to reload their card when it goes below a designated threshold. The autoload amount is added to the customer’s card before the credit card transaction is processed. If the credit card transaction is rejected after the value has been added, but the customer has already used with a portion of the autoload balance, the card balance can go below zero once the autoload value has been reversed. This can be corrected the next time the customer adds value to the card. If the customer does not add value to the card again, the negative balance remains.

### ***Old Outstanding Balances***

Freedom Cards expire after 10 years; any remaining card balances are owned by the purchasers. If the customer has registered his/her card (provided information that can be used to identify and contact them), PATCO may take affirmative steps to contact the customer and have the balance transferred to a new card. If a card has not been registered, there is no way for PATCO to know to whom the balance belongs.

### ***Fare Evasion***

On rare occasions, customers may try to avoid paying fares by piggybacking (entering immediately behind a paying passenger before the fare gate closes), jumping over, or entering under the fare gates. Station Supervisors and Security Officers are positioned at various points of entry to monitor passenger activity. Station Supervisors are not required to confront passengers who evade fares; however, if they see fare evasion being committed, they may request security on-site to monitor activity for a specified location and time period.

### ***Key Controls:***

- Most transactions must be performed at the TVMs, which reduces the volume of manual transactions at risk for human error and ensures the completeness and accuracy of recorded transactions to the extent possible.
- TOT transactions are reconciled daily and verified by the Freedom Center Manager.

- Only the Freedom Center Manager and the Lead Customer Service Representative have access to record manual adjustments to customer accounts.

[Redacted text block containing multiple paragraphs of obscured content]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]

---

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

***c. Cash Counting***

Each day, Revenue Collectors count the cash delivered by Brinks the previous day. There must be two Revenue Collectors in the room along with the Money Room Supervisor at all times that cash is out. Revenue Collectors perform their counts by first keying in the hopper barcode number from they are counting. They do not know to which TVM each hopper was assigned, which ensures a “blind” count (the count is performed without knowing the TVM to which the hopper was assigned or the expected result). This minimizes opportunities for counts to be manipulated. The Revenue Collectors then empties the contents of the hopper into the coin counter. The same process is performed for bills. Bills and coins are run through the counters. The cash is tallied by the counters and bill sorters and the amount uploaded automatically into NCS. The Money Room Supervisor runs a “75 Report”, which shows expected values for bills and coins for each TVM serviced the previous day compared to the actual count for the day. If there is a difference between the expected amount and the actual amount, the cash is counted a second time for verification. The Money Room Supervisor performs a three-way match of the Accountancy Ticket from the TVM, the 75 Report, and the actual cash counted. If there is a small difference between the amount counted and the expected amount, the Money Room Supervisor calculates the amount using an adding machine and attaches the adding machine tape to the documents forwarded to PATCO Finance. If there is a discrepancy of \$10 or greater, the Passenger Services Manager will have the funds recounted to ensure that all cash is accounted for within the Money Room (NOTE: The \$10 threshold is not set by policy but is a general guideline).

Once all bags have been counted, deposits totaling the amounts counted for each TVM are made up of the bills that were collected from TVMs and a small amount of change. Deposits are stored in tamper-proof bags in the safe until the next day, when Brinks picks up the deposits and transports them to the bank.



Coins are recycled to refill the coin hoppers that will be used in subsequent days. Coins that are not needed for the following day's hoppers are bagged in accordance with amounts needed to fill a hopper. Additional coins (those in quantities less than needed to make a full hopper) are bagged, tagged (indicating the amount contained in the bag) and stored in the vault.

The following are accumulated for each TVM to be forwarded to PATCO Finance for reconciliation:

- adding machine tape showing the difference between the beginning and ending TVM amounts, the difference between the two (which is equal to the amount of the deposit), and any variance between actual cash and expected cash;
- the beginning and ending Accountancy Tickets; and,
- the yellow copy of the deposit ticket (the original is sent to the bank with the deposit).

### ***Deposits***

Once all bills and coins are counted, a deposit ticket is prepared for each TVM and bills and coins are placed in pre-numbered, tamper-proof deposit bags (one for bills and one for coins). The bags are then placed in canvas bags, which are locked with a tamper-proof tie, and placed in a safe overnight for deposit the next morning. The following morning, Brinks picks up the cash and deposit tickets for transport to the bank when they pick up the hoppers and billboxes for servicing that day's TVMs. A copy of each deposit ticket is sent from the Money Room Supervisor to PATCO Finance.

### ***Exchanges***

When the Money Room is low on "Susies" and/or nickels, they contact TD Bank to provide these coins. The day after the Passenger Services Manager makes the call to TD Bank, Brinks picks up the coins (which are disbursed in increments of \$4,000 for "Susies" and \$400 for nickels). These amounts are accounted for by the Passenger Services Manager as "Due to TD Bank" in the Station Fund until the funds are repaid to the bank.

### ***Verification***

The vault remains open while deposits are being counted. Once counting has been completed, the Passenger Services Manager and the Money Room Supervisor perform a physical count the entire safe and vault to ensure that all funds are accounted for and agreed with the Station Fund balance. In the absence of either the Money Room Supervisor or the Passenger Services Manager, a Station Supervisor assists with the count. Once the funds have been counted, the safe and vault are closed and locked and remain so until the following morning. Every morning, two supervisors must count the safe together to ensure all funds are accounted for before the day begins.

### ***Parking Meters***

Parking meters are located at the following PATCO stations: Ashland, Westmont, Haddonfield, and Collingswood. The parking meters are off-line (not connected to NCS). As a result, there is no system for verifying how much cash is expected in each of the meters. Cash is collected weekly by Brinks and brought to the Money Room to be counted. All procedures with respect to counting and recording parking meter revenues are performed by the Money Room Supervisor. The amount counted is recorded in the "Deposit Report" in NCS and a deposit slip is prepared to be picked up by Brinks with the funds the following

day. The “Deposit Report” is available for access by PATCO Finance for reconciliation to the bank statement, when it is received. The Money Room Supervisor records the deposits for each location in a “Cash Control” spreadsheet and an “Offline Currency” spreadsheet. The “Offline Currency” spreadsheet is maintained in the Money Room to keep a record of the funds deposited in the event that there are questions. The “Cash Control” is sent to PATCO Finance to record the amount of parking related funds deposited.

***Key Controls:***

- There must be more than one person in the room at all times that cash is out.
- Cameras are present in the Money Room to record activity.
- Blind counts of TVM funds are performed, reducing the risk of manipulation of cash counts.
- A three-way match is performed comparing cash per the Accountancy Ticket, the 75 Report and the amount counted to ensure accuracy.
- Deposits are stored in tamper-proof bags in the safe until it is picked up by Brinks.
- The Money Room Supervisor and the Passenger Services Manager perform a physical count of cash at the beginning and end of each shift ensure that all funds are accounted for.
- Access to keys to the safe and vault is limited.
- Access to the Money Room from outside of the station can only be granted by someone inside the room.
- The door leading to the Money Room from inside the station can only be accessed by authorized personnel.
- Physical access to cash from parking meters is limited.
- DRPA maintains Commercial Crime policy, which includes coverage for Employee Dishonesty, Forgery, and Computer Fraud.

***d. Refund Transactions***

Refund requests are generally initiated by customers using one or more of the following means:

- Station Fund Requests (envelops maintained in the stations, which customers complete and submit to PATCO for reimbursement; the envelops may be dropped in boxes located in the stations or in a postal service mailbox);
- calls to the Freedom Center;
- emails to the Freedom Center;
- contact with the social media group (which generally refers the customer to the Freedom Center for resolution); and / or,
- disputes filed with the customer’s credit card company

Upon contact from the customer, a Customer Service Representative (CSR) researches the issue to determine whether the customer is due a refund. Requests are also referred to PATCO Finance, which is tasked with approving refund transactions, for further research prior to processing. If it is determined that a refund is due, the refund is processed in accordance with PATCO Finance’s Standard Operating Procedures, which state that refunds must be issued by check if they are greater than or equal to \$10, and in cash if less than \$10.

### ***Credit Card Refunds***

NCS shows a history of credit card transactions, which can be accessed using the ticket/Freedom Card number or the last 4 digits of the credit card used to charge the transaction. Fare Collections is able to view all activity affecting a particular Freedom Card, Share Card, or ticket (if the ticket is purchased using a credit card) to determine whether a refund is due to the customer. Fare Collections verifies with PATCO Finance that the funds have been received in Merchant Connect (the site used to access information about credit card transactions processed on behalf of PATCO). In the past, Fare Collections has relied upon PATCO Finance to confirm whether funds have been received for credit card transactions; however, Fare Collections can also access Merchant Connect to review this information. The site can be used to determine which transactions were processed and whether a chargeback (a dispute initiated by the credit card company on behalf of the customer) has been initiated against the transaction, and whether the matter has been resolved.

### ***Cash Refunds***

Due to the nature of cash transactions, the customer must make contact using one of the available avenues for reporting such transactions. The CSR obtains information from the customer (or the information is completed using the available envelopes in the station), such as the TVM, the date, time and amount of the transaction. Claims generally require some degree of investigation. When the TVM on which the customer reported the issue is serviced, if a cash overage is reported, the customer will be issued a refund for the amount claimed in accordance with PATCO Finance's Standard Operating Procedures (SOPs). OIG noted claims under \$10 may be issued without additional research. If a determination is made that a customer is due a refund, a refund request is sent to the PATCO Finance Department, where the refund is paid either by check (amounts \$10 or greater) or by cash (less than \$10). Cash is mailed to the customer using contact information provided by the customer.

### ***Key Controls:***

- A daily reconciliation is performed to ensure the credit card transactions for which PATCO has received payment correspond to credit card charges in CPA.
- Refund transactions are researched prior to issuance.

## **2. PATCO Finance**

### ***a. Reconciliation and Recording of Cash Transactions***

After the funds have been counted in the Money Room, the Passenger Services Manager prepares the "Cash Control" and "Station Fund" reports daily and forwards them to PATCO Finance. The "Cash Control" details that amount of the deposit that will be submitted for the day counted. The "Station Fund" details the amount of cash on hand for which the Money Room is responsible.

On a daily basis, PATCO Finance runs a detailed transaction history of cash sales for the specified period, which is used by the Senior Accountant to calculate the amount of cash transactions recorded for the following periods for each TVM:

1. The previous day (ending at 2:00 AM the morning the report is run). This information is used to prepare the daily journal entry to record revenue (ticket sales) and deferred revenue (Freedom Card loads) for the day in the "Cash Spreadsheet".
2. The period since the TVM was last serviced (if the TVM was serviced the day before). This is compared to the amount of funds deposited per the deposit slip and to the Accountancy Tickets for each TVM.

For the machines serviced, the expected receipts are compared to the actual deposits to verify that all funds earned since the machines were last serviced have been deposited in the bank. Small variances (less than \$20) are adjusted for in the daily journal entry. Larger variances require additional procedures to ensure the amount reported is accurate. PATCO Finance also receives a daily statement from TD Bank showing activity for the previous day. Activity in the daily statements is compared to the deposit tickets and the Cash Control. The amount of cash counted each day is posted to a cash holding account in the general ledger by one of the Senior Accountants in PATCO Finance. Another Senior Accountant is responsible for transferring the funds from the holding account to the cash account upon confirmation from the bank that the funds were received.

**Key Control:**

- A daily reconciliation is performed to ensure that cash deposits are reasonable in comparison to expected cash per the Cubic system.

**b. Reconciliation and Recording of Credit Card Transactions**

A customer may initiate a credit card transaction by either swiping a credit card at a TVM, entering the information for an online transaction, or presenting it for payment to a Customer Service Representative at a Freedom Center TOT. The Cubic Payment Application (CPA) processes TVM and online transactions and submits them to Elavon (PATCO's credit card service provider). Information with respect to transactions processed by Elavon on PATCO's behalf can be accessed by Fare Collections and PATCO Finance using Elavon's Merchant Connect portal.

The Senior Accountant in PATCO Finance downloads data from:

- Merchant Connect contains a merchant ID 5; 10 credit card digits: first 6 and last 4; the transaction amount and the authorization code (among other information).
- NextFare (NCS): the WS180 report also indicates the equipment on which the transaction took place (TVM, TOT, or web), the last 4 digits of the credit card number, the amount of the transaction and the authorization code (among other information).

These two reports are compared to determine that there is cash received from Elavon for each transaction processed by CPA. The last four digits and the authorization code are combined to create a unique identifier for each transaction.

---

<sup>5</sup> Each TOT and TVM has its own merchant ID; TVMs also show a Store number (which is blank for the TOTs); 8881=web purchases and Freedom Card autoloads; TOTs (customer service portable terminals) merchant number ends in 6840.

When discrepancies are noted:

- if a transaction is processed by CPA (the Cubic software used to process transactions and store transaction data in the NextFare system), but not yet listed in the Merchant Connect report, PATCO Finance will verify that this is due to timing differences; and,
- if a transaction is in the Merchant Connect report, but not does correspond to a valid transaction in NCS, it is flagged as a potential refund transaction (NOTE: this is due to the system issue discussed in the *Refund Transactions* section of this report). Fare Collections has the ability to reverse credit card transactions that appear to have been processed erroneously and not reversed automatically without customer contact. As of this writing, Fare Collections had drafted an SOP for performing credit card refund transactions in the system.

TOT transactions do not appear on the WS180 report because they are not processed using the CPA system; however, they do appear in the Merchant Connect Reports. The Freedom Center Manager reports the credit card transactions from these devices in the daily deposit, which is summarized in an email to PATCO Finance and Fare Collections. In order to reconcile these transactions, PATCO Finance sorts transactions processed each day by device. POI (Point of Interaction) devices (as noted in the Merchant Connect report) are the TOTs. Transactions in this category are compared to sales per the email received from the Freedom Center. Once new TOTs are received (PATCO has received 2 of the 5 ordered from Cubic), the transactions will be processed through CPA and the transactions will appear on the WS180 report.

**Key Control:**

- A daily reconciliation is performed to ensure the credit card transactions for which PATCO has received payment correspond to credit card charges in CPA.

**c. Revenue Recognition and Reconciliation**

On a daily basis, an Accounting Clerk prepares a Cash Spreadsheet to recognize revenue (based on Freedom Card usage), deferred revenue (unused balances on Freedom Card purchases/loads during the day), and cash receipts (cash counted by the Money Room). A journal entry is then prepared to recognize revenue in the amount of funds earned on a daily basis.

On a monthly basis, PATCO Finance performs a revenue reconciliation. The WS100 (revenue) and the WA140 (Cash) Reports are generated from Cubic for the month, along with other supporting schedules.

1. The cash amounts per the WA140, which have been reconciled to the bank statement on a daily basis, are filtered to determine the amount of cash ticket sales (which should be charged directly to revenue). Cash ticket sales per the WA140 are compared to cash ticket sales posted to SAP.
2. Debit/credit card ticket sales per the WS100 are compared to debit/credit card ticket sales per SAP.
3. Revenue, which is recorded on a daily basis in the system based on usage of deferred revenue balances, is filtered into the following revenue categories for reconciliation at the end of each month:

- Freedom Card Transit;
- Freedom Card Reduced-Fare Transit;
- Freedom Card Parking;
- Share Card Transit;
- Reduced-Fare Share Card and,
- Share Card Parking.

Each of these categories is compared to the amounts posted in SAP. Small variances are sometimes noted due to the timing of the posting of batched of transactions. Larger variances are investigated. Once variances have been investigated and deemed reasonable (or deemed to require adjustment), the Fare Collection Analyst prepares a journal entry to record the differences to ensure that revenue reflects the amount earned during the period. The entry is reviewed and posted by the Senior Accountant.

After the journal entry is recorded, the Senior Accountant again compares SAP revenue to revenue per the WS100 report to ensure that the entry was posted correctly.

**Key Control:**

- Cash receipts and revenue are reconciled monthly to ensure the accuracy of reported revenue in the accounting system.

**d. Deferred Revenue Reconciliation**

In principle, deferred revenue reported in the general ledger (SAP) should equal the customer account balances for Freedom Cards, Share Cards, and T-Cards per NCS.

In order to reconcile deferred revenue, the ending Deferred Revenue general ledger balance is compared to the combined total of the following:

- CR111, Stored Value Liability Details Report: this report provides the total of all customer balances through the end of the period being reconciled; and,
- WA200, Directed Autoloads Currently Pending Report: this report provides any autoloads that have been received by PATCO, but not yet posted to a customer's account. The primary reason, per the Senior Accountant in PATCO Finance, is that customers' employers may have posted transit benefits to their account. However, if the account has maxed out (the maximum balances on Freedom Cards and Share Cards are \$655 and \$999, respectively), no additional funds can post. As a result, no additional funds can be added to the account and the funds remain pending until they can post. These funds remain pending until they customer's balance goes low enough to post all of the pending load.

**Key Control:**

- A reconciliation of deferred revenue balances reported in the general and customer balances is performed and documented at least quarterly.

**e. Reporting**

**Internal Reporting**

Once revenue journal entries have been recorded and reflect activity reported from the fare collection system, several reports are generated:

- PATCO Ridership and Revenue. This report is prepared by PATCO Finance, who obtains ridership data from Transit Services and revenue data from SAP. This report is a summary report showing topside data for the current month and YTD. It is provided to the CFO, who uses it to prepare the Key Performance Indicators reported to the Board of Commissioners.
- Key Performance Indicators. Once the PATCO Ridership and Revenue report is finalized, it is sent to a Financial Analyst at DRPA to prepare the Key Performance Indicators used by the CFO in his report to the Board of Commissioners. Budget information in this report and Budgeted/Actual Income report is presented on a seasonal basis.
- Analysis of Budgeted/Actual Income & Departmental Expenses. The report, prepared by PATCO Finance, is a comparison of actual revenue and expense data (current month and year-to-date) compared to seasonal budget data for the corresponding period. It is sent to the PATCO General Manager to be included in the GM's report to the Board of Commissioners.

### ***External Reporting***

PATCO is subject to the following external reporting requirements:

- Financial Statements are prepared on an annual basis and audited by an independent and external accounting firm (currently Bowman & Company). PATCO posts transactions and generates a trial balance for the auditors. Once the audit is completed, since PATCO is wholly owned by DRPA, the financial results of both entities are consolidated in the annual report.
- Governors' Report. Due annually 90 days after year-end, this report requires that DRPA report on the following:
  - Activities and Accomplishments;
  - Receipts and Disbursements;
  - Assets and Liabilities;
  - Schedule of Bonds;
  - List of contracts exceeding \$100,000;
  - Business or strategic plan; and,
  - Five-year capital plan.

This report shows combined financial information for both entities. Only ridership data is reported for PATCO separately.

- Federal Financial Reports (FFRs). FFRs are due quarterly 30 days after each quarter end for each open federal grant. Income requirements for FFRs, include reporting on Federal grant income earned based on expenditures and program income earned on assets purchased with federal grants (if the grants are still open).
- National Transit Database (NTD) reports. NTD reports are due annually with monthly reporting requirements. The DRPA Finance Director reports revenue for PATCO. The information used to report revenue is obtained from SAP.

### ***Key Control:***

- PATCO generates internal and external reports from the Automated Fare Collection System and SAP after completion of the closing process to ensure that revenue is reported completely and accurately.

### 3. Systems Management / Information Services

a. **Change Management**

The PATCO revenue systems' change management process is an informal, undocumented procedure, single sourced (one person with the knowledge to make changes) through the Director, Fare Collections, and heavily reliant on the vendor, Cubic Transportation Systems (Cubic), with assistance from the Information Services Administrator. When a major change is needed, the Director, Fare Collections, requests Cubic to make the changes to the software or hardware, Cubic makes the changes and generally provides a "System Test Software Certification Report" to the Director, Fare Collections. Software changes are then uploaded to the PATCO test environment for PATCO Fare Collections and Information Services to test. Information Services' testing does not include any software code testing. Once testing is completed and the software is deemed acceptable by the Director, Fare Collections, the software is promoted to the production version in the production environment by the Information Services Administrator. This process is not formally documented, and it does not include a procedure for creating a test plan and documenting testing.

b. **Incident Management**

The PATCO revenue systems' incident management process is an informal, undocumented procedure, single sourced through the Director, Fare Collections, and heavily reliant on the vendor Cubic Transportation Systems with assistance from the Information Services Administrator. When an issue is detected with the revenue systems by PATCO employees, the Director, Fare Collections, is contacted and, depending on the time of day, the Director attempts to contact the Information Services Administrator or Cubic to fix the software, hardware or network issue. If it is determined that a software fix is needed by Cubic, the changes are made and then uploaded to the PATCO test environment for PATCO Revenue and Information Services to test. Information Services' testing does not include any software code testing. Once testing is completed and the software is deemed acceptable by the Director, Fare Collections, the software is promoted to the production version by the Information Services Administrator. This process is not formally documented, and it does not include a procedure for creating a test plan and documenting testing and does not include any issue management documentation through the DRPA help desk.

c. **User Access Management**

The PATCO revenue systems' user access management process is an informal, undocumented procedure single sourced through the Director, Fare Collections, with assistance from the Information Services Administrator. The Director approves all access to the revenue systems' users and the changes to the systems' users is facilitated by the Information Services Administrator. Currently, there is no process to review user access on a regular basis. There is no process for requiring employees, or their supervisors, to report when the employee leaves the department or PATCO. There is no process for segregation of duties based on employee roles. There is no process in place for defining effective and consistent password requirements across PATCO revenue systems.

d. ***Disaster Recovery Plan***

The PATCO revenue systems do not have a disaster recovery plan. The systems are backed up and the backups are located at the same location that houses the primary production system. The back-up location is the same site as the main server, One Port Center. The PATCO revenue systems do not have a business continuity plan to continue operations manually in the event of a long system outage.

---

## **E. Key Processes, Available Operating Procedures, Associated Risks**

---

As noted in the previous section of this report, certain key processes employed by PATCO's Fare Collections and Finance Departments to properly accumulate, record, and report ridership and revenue data were identified. These processes were broken into sub-processes, which are activities that support each of the key processes. OIG obtained copies of the Standard Operating Procedures, where they existed, for each of the key processes and sub-processes, reviewed the documents and provided recommendations for revisions where they were deemed necessary. In addition, OIG recommended the documentation of SOPs where documented procedures were deemed necessary but were not present. [REDACTED]

---

## **F. Walk-Throughs and Testing**

---

OIG performed walk-throughs and/or testing on each of the following key processes noted above:

- Cash Reconciliation;
- Credit Card Reconciliation;
- Deferred Revenue Reconciliation;
- Refund Processing;
- Revenue Recognition;
- Monthly Closing Process; and,
- Reporting.

The following summarizes the results of procedures performed in each of the areas identified above. Observations are discussed in the findings and recommendations section of this report.

### **1. Cash Reconciliation**

OIG tested the period from October 1, 2018 through March 31, 2019. The goal of the test was to determine whether controls in place are designed to, and operating in a manner which, ensure accuracy and the protection of cash from fraud, waste, and abuse.

OIG performed procedures to test Money Room procedures, such as:

- verifying the mathematical accuracy of key documents;
- agreeing the cash counted to the applicable the Cash Control and deposit tickets; and,
- performing reconciliations of the Station Fund balances to underlying documentation.

OIG also performed procedures to test PATCO Finance controls, such as:

- verifying the mathematical accuracy of key documents;
- reviewing the reconciliation of Cubic balances to cash counted;
- agreeing cash deposits to journal entries to record cash receipts; and,
- inquiring about procedures performed to follow up on noted variances.

Observations are noted in the *Findings and Recommendations section* of this report.

## **2. Credit Card Reconciliation**

OIG performed a walk-through of the credit card reconciliation process, which is performed on a daily basis to ensure that all credit card activity is properly reflected in revenue. The purpose of the walk-through was to obtain an understanding of the procedures performed to identify and resolve credit transaction variances between NCS and the credit card processor (Elavon). In addition to the walk-through, OIG obtained a sample of credit card reconciliations performed, agreed the data to supporting documentation, and noted whether variances were identified, investigated and resolved in a timely manner.

Observations are noted in the *Findings and Recommendations section* of this report.

## **3. Deferred Revenue Reconciliation**

OIG obtained a copy of the deferred revenue reconciliation performed by PATCO Finance as of the beginning of the audit (December 2017) and agreed the data used to complete the reconciliation to supporting documentation. In May 2019, OIG received a copy of the reconciliation performed as of December 31, 2018.

Observations are noted in the *Findings and Recommendations section* of this report.

## **4. Refund Processing**

OIG selected a sample of refunds issued and agreed them to supporting documentation noting whether they were adequately documented and approved. All refund transactions reviewed were supported with adequate documentation and were properly approved.

## **5. Revenue Recognition**

OIG selected one day and agreed each element of the daily entry to the applicable supporting reports from Cubic noting that all transactions were entered accurately. OIG noted that PATCO Finance does not have documented Standard Operating Procedures for ensuring that revenue transactions are properly recorded.

## **6. Monthly Closing Process**

OIG observed procedures performed to reconcile revenue per NCS to the general ledger (SAP) for January 2019. No exceptions were noted. OIG noted that PATCO Finance does not have documented Standard Operating Procedures for the month-end revenue-reconciliation process.

## **7. Reporting**

OIG requested copies of the Key Performance Indicators and PATCO General Manager Report to the Board of Commissioners and agreed them to supporting documents in Cubic and SAP. No

exceptions were noted. OIG noted that PATCO Finance does not have documented Standard Operating Procedures for the month-end reporting process.

---

## **G. SEPTA Interoperability Agreement**

---

In order to foster smooth intercity transfers between transit agencies, PATCO and SEPTA have established an agreement allowing riders to seamlessly transfer from PATCO to SEPTA. In the early years of this arrangement, riders purchased transfers from PATCO, which they used to travel on SEPTA. In September 2018, to make the transfer more convenient for riders, PATCO began to offer the Freedom Share Card (described above) to allow customers to use electronic fare media to make the transfers. Share Cards are programmed to allow riders to enter and exit both PATCO and SEPTA gates. Fares collected by PATCO on behalf of SEPTA will be paid periodically based on passenger usage. OIG noted that there is currently no Memorandum of Understanding (MOU) establishing a mutual agreement between SEPTA and PATCO about how transactions should be processed, recorded, reported, and reconciled since implementation of the Share Card system. The contract between the parties has yet to be finalized as of the time that this report was written. The following outlines how the process has been operating on a daily basis since the Share Card system was implemented in September 2018.

Customers must have a balance greater than \$1.40 on their card to be able to transfer from PATCO to SEPTA (and vice versa). Each evening, PATCO transmits a “Positive List” file ( a list of Share Cards that meet the minimum balance requirements as of the time of transmittal) to SEPTA. SEPTA retrieves the file and loads it onto their system so that their devices can recognize the cards that should be accepted when presented for payment on the allowable SEPTA transportation modes. If a card is not on the “Positive List”, it will be rejected for SEPTA rides the following day.

When a customer boards a SEPTA mode, the transaction is transmitted to SEPTA’s back office. Each morning, SEPTA should upload a transaction file which contains details of all SEPTA riders using Share Cards for the preceding day. The file is uploaded into NCS and a charge is posted to the customer’s account for the value of the ride (\$2 per transaction).

As of the time this report was written, only one invoice had been submitted by SEPTA since the inception of the Share Card system to collect payment from PATCO for rides taken on SEPTA using the Share Card. Since the document did not contain sufficient information to verify its accuracy, the invoice has not been paid to date.

OIG noted a number of challenges encountered since the implementation of the Share Card system, including the following:

- SEPTA does not consistently upload transaction files in a timely manner;
- the files SEPTA sends are sometimes not usable and requires follow up to resolve file issues;
- the Share Card system was erroneously adding value to customer accounts due to a looping error in the Cubic program;
- Cubic programmed the system such that transaction files submitted by SEPTA must be uploaded in sequential order. If a file is uploaded out of order, the file will update the production database containing customers’ account balances, but not the online data store,

which updates the underlying reports generated from the system. As a result, reports do not reflect all activity posted to customer accounts;

- Cubic originally programmed the system so that transactions greater than 24 hours old would be labeled “stale” and, therefore, would not be posted against customer accounts. Cubic resolved the matter in April 2019, by changing the programmed settings without testing. As a result, the following day, customers experienced difficulty travelling when posting the accumulated transactions caused the customers’ accounts to be overdrawn. They also experienced challenges the day after on SEPTA as the negative balance on their account pushed them off the Positive List; and,
- when the transactions referred to above were posted, some customer accounts were charged twice for some of their activity. PATCO later issued credits to the customers whose accounts were charged twice.

---

## H. Contracted Services

---

OIG noted contracts with two external entities, which play a key role in PATCO’s ongoing operations and control activities. These contracts are with Cubic Transportation Systems and Brinks Armored, Inc. In addition, OIG noted one short-term contract with New Jersey Transit (NJT) that, while not material to the revenue operations of PATCO, did provide some insights that should be taken into account for future contracts of its nature.

### 1. *Cubic Transportation Systems*

In addition to contracts to install, upgrade and reprogram its Automated Fare Collection software as needed, PATCO has two ongoing contracts with Cubic Transportation Systems:

- ***System Support.*** This contract is to provide troubleshooting as software issues arise requiring Cubic’s assistance. The challenge with this contract since the upgrade in May 2018, has been in differentiating between services covered by the contract and support that should be provided related to the system upgrade.
- ***Freedom Center Staffing.*** In accordance with the current contract for these services, executed in March 2017, Cubic agreed to provide all professional, technical and other services, and all labor, equipment and supplies necessary to manage and staff the Freedom Customer Service Center. In this contract, Cubic certified that it would provide trained and qualified staff, who would be full-time employees of Cubic (or identified Subcontractors). The cost of the contract for the current year (the third of three years covered by the contract) is \$305,290. During the audit, it was noted that two of the Freedom Center staff (the Freedom Center Manager and the Lead Customer Service Representative) are full-time employees of Cubic. The remainder of the Freedom Center staff are hired through a temporary services agency, paid by Cubic. These employees must be vetted and accepted by PATCO in order to work at the Freedom Center.

### 2. *Brinks Incorporated (formerly Dunbar Armored, Inc.)*

PATCO has two separate contracts with Brinks Inc.:

- ***TVM Servicing.*** This contract includes retrieving hoppers and bill boxes from the Money Room, servicing the designated machines, and transporting hoppers and bill boxes back to the Money Room.

- ***Deposit Transport.*** PATCO is included in the contract between DRPA and Brinks for deposit transport services at the Authority’s toll bridges. Brinks also retrieves PATCO train fare deposits and transports them to the bank every business day.

**3. New Jersey Transit**

On September 14, 2018, PATCO entered into a Cross-Honoring arrangement with New Jersey Transit (NJT) to provide transit services for displaced NJT customers. NJT began the installation and testing of a Positive Train System on its rail line to Atlantic City, resulting in a portion of NJT’s rail line being closed. While a portion of NJT’s Atlantic City route was down, PATCO agreed to provide service to NJT customers who opt to ride PATCO for the portion of the NJT line that was unavailable due to construction. NJT customers boarded PATCO trains at one of three stations: Lindenwold or Broadway Station in New Jersey, or 8th & Market Street Station in Philadelphia. The agreed-upon fares for travel were based on the station where the customer boarded:

Lindenwold	\$3.00
Broadway	\$1.40
8 <sup>th</sup> & Market <sup>6</sup>	75% charged \$3.00 25% charged \$1.40

NJT Transit Ambassadors at each of the stations counted the number of NJT passengers boarding PATCO trains and provided the manual counts to PATCO on a monthly basis. PATCO used the information to prepare invoices, which were submitted for payment by NJT. The NJT construction was completed on May 12, 2019 and, therefore, the contract has ended.

---

**I. IT Systems / Resources**

---

PATCO uses Cubic Transportation System’s proprietary Automated Fare Collection (AFC) software. The NextFare Central System (referred to as NCS), is the overall system for managing Freedom Card customer accounts and master file information. NCS is the suite of software products designed to work as a system and together function as an end-to-end mass public fare transport fare collection system. It consists of a network of computing devices which manage fare collection processes. The application/ database server is the repository for all the data generated by the Automated Fare Collection (AFC) devices, including Ticket Vending Machines (TVMs), Ticket Office Terminals (TOTs), fare gates, parking gates and the PATCO website. This includes detailed transaction information. Any transactions from TVMs, TOTs, gates and the website are recorded in the NCS production database. The data is stored in an Oracle database and is accessed by the NCS software and report servers. The application server provides a Graphical User Interface (GUI) to update and download various configuration data to the AFC devices. It processes device data and manifests. The application also processes transaction data during the end of day processing and makes the aggregated data available in reports. The software is hosted on a server located in One Port Center, which is backed up by a redundant server. Cubic controls all code. As updates are made, they are tested in Cubic’s PATCO testing model in San Diego, which is designed to simulate PATCO

---

<sup>6</sup> Since there is no way of knowing to which station Philadelphia passengers are travelling, a portion is allocated to each of the other two stations based on the assumptions that passengers will generally leave the train at the station at which they boarded. Prior activity has indicated that 75% of riders board at Lindenwold and 25% board at Broadway.

operations. Once tested, changes are tested in the test lab at PATCO, which also simulates PATCO operations. The DRPA System Administrator is responsible for publishing the software in the production environment once testing is complete. There are several applications which interface with NCS to process transactions in the AFC system:

- Account Based Processing (ABP) application: PATCO's most recently installed application. This was put into production in September 2018 to manage the integration of the SEPTA interoperability agreement (discussed later in this document) into PATCO's AFC system (using the Share Card). The ABP module collects activity from devices, calculating the fare to be charged to customers' accounts. ABP interfaces with CPA when an automatic load is triggered in the system or, when the account goes into collection, to begin charging for individual trips. The ABP application feeds data into the data warehouse for report usage.
- Cubic Payment Application (CPA): connected to NCS to process bank transactions and manage payment information on credit and debit transactions (communicates with banks, stores needed data and purges data not needed to process transactions).
- Cubic Parking Management System (CPMS): tracks parking capacity in the parking lots at PATCO stations. Customers use the Freedom Cards at the entrance of the lot to gain access. At exit, they roll over treadles for an exit count. CPMS uses this information to track and post parking availability in the lots.
- SAP Edge: reporting software used to generate pre-programmed reports and customized reports from NCS. PATCO previously used Hummingbird for report generation. The Hummingbird reports are currently run in parallel with SAP Edge to ensure that the information generated is consistent.
- AFCMS: the Automated Fare Collection Monitoring System is used by Fare Collections and Center Tower to detect, and determine the nature of, alarms at the devices and gates if processes are interrupted or not functioning as expected. The DRPA System Administrator, the Director, Fare Collections and the Acting Manager of Fare Maintenance have access to the alarms. Some alarms can also be seen by the Manager of Passenger Services.

There are other systems used to process and record PATCO revenue transactions:

- Merchant Connect: web application provided by Elavon, PATCO's acquirer for credit/debit transactions. CPA sends all credit/debit data to Elavon by way of the CPA bank adapter for authorization and settlement of transactions.
- SAP: the Enterprise Resource Planning (ERP) System used by DRPA (and therefore PATCO) to process, record and report financial information. There is no interface between AFC systems and SAP. Revenue data generated from NCS is entered manually in SAP.

---

## **J. PCI DSS (Payment Card Industry Data Security Standard) Compliance**

---

PCI (Payment Card Industry) data security standards compliance is mandated for all credit card processors to ensure that controls are in place to protect credit card data. The standards require that an annual self-assessment questionnaire be completed by a Quality Security Assessor (QSA). In addition, the standards require an Approved Scan Vendor (ASV) do a network scan on a quarterly basis and report vulnerabilities. Penetration testing is required to be performed at least annually

and anytime there is a significant infrastructure or application upgrade or modification. The Director, Fare Collections, is responsible for this process being completed. The current QSA and ASV is a vendor called AccessIT.

---

## **K. Audit Findings and Recommendations**

---

This section of the report outlines findings noted during the course of the audit. Findings could represent either: a) control weaknesses that could impact the accuracy, completeness or valuation of financial statement information reported for PATCO revenue or could have an adverse impact on the organization's operations, or b) opportunities for improvement of a control that is generally operating effectively, but for which the design should be strengthened to minimize opportunities for fraud, waste, abuse or error. Findings are presented in the order of the audit program step to which they apply.

---

### **Documentation of Fare Revenue Process**

---

#### **Audit Finding 1:**

The Passenger Services Manager, the Money Room Supervisor, Revenue Collectors and all Station Supervisors have access to the Money Room. The Station Supervisors are granted access to the room because of the limited space at the station. The Money Room appears to have the only available space where Station Supervisors can access computers and store supplies needed to carry out their daily activities. The Station Supervisors' unlimited access, combined with the general practice of keeping the vault and safe open during the cash count, which may contain more than \$60,000 in cash on any given day, creates a risk related to the access to cash. While there are compensating controls that limit the extent of any loss, physical access to liquid assets (i.e. cash) should be limited to the extent feasible.

#### **Audit Recommendation 1:**

The Director, Fare Collections, should implement policies and procedures that limit access to the Money Room, particularly as it relates to the Station Supervisors and specifically during hours when physical access to cash is possible.

#### **Management Response 1 (PATCO/Fare Collections):**

Agree. Fare Collections will implement a procedure whereby all Passenger Services personnel not involved in the days count are barred from Money Room until count complete and safes locked for day. Implementation: 8/1/2019.

#### **Audit Finding 2:**

There are limited controls in place with respect to cash collected from parking meters. OIG noted the following with regard to parking meter revenue:

- In accordance with Fare Collection Operations' Passenger Services Manual, all procedures with respect to counting and recording deposits for parking meter revenues are performed by the Money Room Supervisor.
- No analysis is performed to estimate expected revenue and/or periodically review parking meter revenue trends to determine whether parking meter revenue is reasonable based on expected usage.

Parking meters are cash-only machines that are maintained off-line. This means that there is no mechanism imbedded in the machine that provides an expected amount of cash to which to compare actual cash counted. Though the amount of cash collected from parking meters is immaterial in relation to other revenues, approximately \$50,000 per year, the lack of adequate controls in the Money Room combined with the absence of any analysis of expected revenue does not adequately minimize the risk of loss for these cash assets.

**Audit Recommendation 2:**

The Director, Fare Collections should consider adding a system-based mechanism for centralized collection of parking meter revenue. Replacing the meters with a technology-based solution that records transactions and provides expected values with which to compare actual values will assist in reducing the risk of loss.

In the absence of a system-based solution, analyses of expected revenue based on normal usage statistics should be performed periodically to ensure that reported parking revenue is reasonable and that observed anomalies / discrepancies are identified and investigated in a timely manner.

**Management Response 2 (PATCO/Fare Collections):**

Agree. Fare Collections will develop analysis procedure for weekly review of parking meter revenue. Long term plan is to replace all coin meters with Kiosks that have secure bill vaults and credit/debit options. Due to increased operating costs, CEO asked for comprehensive Parking plan before agreeing to Kiosk/increased parking fees in 2019 capital budget. Comprehensive plan will take research and eventual buy-in by executive staff. Expected Completion of Parking Plan: June 2020. Expected Implementation: (1) short term analysis procedure: 9/1/2019 and (2) Kiosk w/bill vault: 2021-2023.

**Audit Finding 3:**

PATCO Finance's Standard Operating Procedures state that refunds in amounts less than \$10 must be issued in cash. As a result, once the refunds have been approved for distribution, cash in the amount of the refund is placed in an envelope and mailed to the customer. While the amount of the claims is nominal (approximately \$1,500 in 2018), distribution of these transactions in this manner has the inherent risk associated with physical access to liquid assets (cash), both within PATCO and once the funds have been released and are handled by persons outside of the organization.

**Audit Recommendation 3:**

PATCO Finance should consider, to the extent feasible, alternatives to issuing cash refunds by mail that reduce the risk of loss. Alternatives may include a credit to the customer's account, a magnetic ticket for a future ride or a check for the balance due.

**Management Response 3 (PATCO Finance):**

We agree. In order to reduce the risk of loss, it was decided that we should reduce the threshold for cash refunds from \$10 to \$5. Going forward, valid cash refunds above \$5 will be issued by check. In conjunction with the PATCO GM and Director, Fare Collection, we will continue to explore other alternatives, where feasible, to reduce the risk of issuing cash refunds while balancing our focus on providing excellent customer service. No one at PATCO can recall a customer complaint that cash sent through the mail was not received.

**Audit Finding 4:**

OIG noted the following regarding deferred revenue balances:

1. PATCO Fare Collections does not appear to have any policies or procedures in place for following up on pending transactions. Pending loads occur when a customer's card has reached its maximum capacity and the system is not able to load funds received by PATCO for the account. This sometimes occurs when customers are not using their transit balances at the same rate that their employer is funding their account. Some pending balances were noted which date back as far as 2014. If there is no follow-up with the customer or, in the case of transit benefits, the customer's employer, to get the funds sent back or to discontinue sending funds, the funds received by PATCO may remain in the pending loads balances indefinitely. In addition, as time passes, the ability to resolve the matters becomes more complicated.
2. PATCO Fare Collections does not appear to have a documented policy with respect to how unregistered and unclaimed Freedom Cards should be handled. If card balances are not registered (the customer has not provided any information which can be used to contact PATCO to claim balances), PATCO does not have a means with which to contact the customer to claim the balance. In the absence of contact information, PATCO may be entitled to recognize the unclaimed balances as revenue at some point. Where customers have registered cards, PATCO should have procedures in place to ensure customers have the opportunity to claim those balances. In early interactions with customers when Freedom Cards were introduced, PATCO assured customers that Freedom Card balances would be available to them forever; however, in 2014, PATCO appears to have adopted a position that expired Freedom Cards that had been inactive for 3 years or more should be claimed as revenue for PATCO. At that time, PATCO recognized revenue for approximately \$380,000 of deferred revenue balances. Therefore, there appears to be a disparity between PATCO's stated position and their actual practices related to customer balances.
3. PATCO Fare Collections does not appear to have a policy and procedures for managing expired/expiring cards. When cards expire, the cards are no longer usable, but the customer maintains ownership of the value. In the past, PATCO has made an effort to contact registered card holders whose balances were expiring to inform them of their options. This practice is not performed on a regular basis and there are no Standard Operating Procedures governing how this customer outreach should be performed.

**Audit Recommendation 4:**

PATCO Fare Collections should adopt clear policies for how deferred revenue balances should be handled and communicate the policies internally, as well as to PATCO customers. In addition, PATCO should consistently apply those policies by monitoring old outstanding or expiring balances, and applying consistent treatment for resolving the transfer or distribution of outstanding balances.

**Management Response 4 (PATCO/Fare Collections):**

(1) Agree. PATCO Fare Collection will develop policies to limit the pending loads allowed for cards at maximum value. New policy will be communicated to customers, employers and 3<sup>rd</sup> party benefit providers. Expected completion: 2<sup>nd</sup> Quarter 2020.

(2) Agree: PATCO Fare Collection will research outstanding pending loads on unregistered cards and work with PATCO Finance on resolving outstanding balances. Expected Completion: 2021. Process is manual and time consuming. A lot of research will be needed for each outstanding load.

(3) Agree. PATCO Fare Collections will develop SOPs for expiring cards. Please note: PATCO Fare Collections has a program for expiring REGISTERED cards. Letters explaining the card is expiring, options for card replacement are mailed to the address on record. Letters are sent 60 days before expiration.

---

**Key Processes, Available Operating Procedures, Associated Risks**

---

**Audit Finding 5:**

The OIG identified a number of key processes associated with the processing of PATCO revenue (**Exhibit 3**), noting that documented Standard Operating Procedures (SOPs) do not appear to exist for the following key PATCO Finance processes:

1. reconciling cash received in TVMs to expected balances and recording cash receipts in the general ledger,
2. reconciling cash received at TOTs to expected balances and recording cash receipts in the general ledger,
3. assessing the reasonableness of cash received from parking meters,
4. preparing the reconciliation funds received for credit card transactions to credit card transactions in the Cubic system and following up on variances noted in the process
5. recognizing revenue (preparation of the daily cash spreadsheet),
6. preparing the deferred revenue reconciliation,
7. reconciling expected revenue to actual revenue for contracted services (such as SEPTA and New Jersey Transit),
8. communicating with Fare Collections any variances or data anomalies noted that might indicate system concerns,
9. preparing month-end closing entries related to revenue, and
10. preparing monthly reports.

**Audit Recommendation 5:**

PATCO Finance should ensure that all key processes are documented in Standard Operating Procedures (SOP) that are used for the purpose of ensuring consistency and continuity of operations for those critical functions.

**Management Response 5 (PATCO Finance):**

Some SOP's exist for these processes, for cash receipts comparison to Fare Collection system reports for example, but they have not been updated since upgraded Cubic software and a new suite of reports was implemented in May 2018. We agree that these SOP's should be updated, or created if not already available, and have a target date of end Q1 2020, in time for the annual financial audit.

**Audit Finding 6:**

The OIG identified a number of key processes associated with the processing of PATCO revenue (**Exhibit 3**), noting that documented Standard Operating Procedures (SOPs) do not appear to exist for the following key PATCO Fare Collections processes:

1. Money Room procedures, such as filling hoppers; servicing TVMs; preparing TVM Servicing Requests; counting the vault and safe; preparing the Station Fund and Cash Control; preparing deposit tickets and accounting for exchanges.
2. Customer Service Center procedures, such as recording account adjustments and reconciling daily transactions.
3. Fare Collections procedures for:
  - a. Following up on and resolving pending balances in a timely manner,

- b. contacting customers regarding balances on expired/expiring Freedom Cards,
  - c. determining when negative balances should be written off, and
  - d. communicating system issues to PATCO Finance, which may have an impact on transactions processed and expected activity.
4. Fare Collections manual for the scheduled repair and maintenance of equipment.

In addition, the OIG noted that an SOP which documented the procedures to be followed by Fare Collections when processing refund transactions against a customer's credit were in progress but had not been finalized as of the time this report was written.

**Audit Recommendation 6:**

PATCO Fare Collections should ensure that all key processes are documented in Standard Operating procedures that are used for the purpose of ensuring consistency and continuity of operations for those critical functions.

**Management Response 6 (PATCO/Fare Collections):**

Agree. The GM has reached out for temporary help in documenting Standard Operating Procedures for the Fare Collections Department. Expected Completion: goal is end of 1<sup>st</sup> quarter 2020.

---

**Walk-Throughs and Testing**

---

OIG performed walk-throughs and/or testing on each of the following key processes noted above:

- Cash Reconciliation;
- Credit Card Reconciliation;
- Deferred Revenue Reconciliation;
- Refund Processing;
- Revenue Recognition;
- Monthly Closing Process; and,
- Reporting.

Our audit procedures performed were outlined in the body of the report. The following represents the observations noted as a result of procedures performed.

**Audit Finding 7:**

Cash Reconciliation Observations related to Fare Collections' activities:

1. *Approximately half of all deposits tested showed discrepancies between the "Accountancy Tickets" generated at the TVMs and the reports generated from NCS showing cash collections for the same period.* When TVMs are serviced, Accountancy Tickets are generated, which show the cash balance in the machine. The difference between the ending cash balance and the beginning cash balance is calculated to determine the amount of cash that makes up the day's deposit. A cash report (WA140) is also generated by Finance for the period since the last time the machine was serviced to the current. In 50% of the transactions tested, the amounts did not agree. The variances noted were not material (generally within 1% in dollar value). However, since these reports are generated from the same system, they are expected to produce the same results more than half the time or there should be an explanation of why they would be expected not to agree. If they don't, system integrity could be questioned. However, it is not known what causes these differences and there was no evidence that the question of why these amounts would be different was addressed with Cubic.

2. *Record retention in the Money Room does not appear to adhere to organization record retention requirements.* When custody of the hoppers used to service TVMs is transferred to Brinks, the Brinks representative is required to sign-off on the bar code sheet accepting the hoppers with the corresponding barcode numbers. The logs should be maintained as a record of the day's servicing transactions. The Money Room Supervisor was unable to locate 3 of the 10 barcode logs requested for testing. In addition, in response to a request for one of the documents needed for testing, the Money Room Supervisor indicated that the file was not available to him as he was away on the day it was prepared. Documents should be maintained in a centralized location where they are accessible to Money Room personnel as needed.
3. *OIG noted the following with regard to the daily Station Fund spreadsheet to account for cash in the Money Room:*
  - a. The document did not accurately reflect the amount in the Working Fund. There was an immaterial variance (\$276) between what is actually in the room versus what is reported in the Working Fund. This resulted from an issue with the Cubic system, which occurred in September 2018, causing the report to vary from the actual funds in the room and remain that way for several months. Fare Collections has indicated that this matter has been corrected as of the time this report was written.
  - b. The document was not structured in a manner that provides information about the presence of a shortage or overage in the Money Room balance, which would allow management to monitor variances in the balance.
  - c. The document was not signed off by the individuals who prepare the document and perform the daily safe and vault counts.

**Audit Recommendation 7:**

OIG recommends that the Director, Fare Collections, performs the following regarding observations resulting from cash reconciliation testing:

1. Follow up with Cubic to determine why there is a high percentage of discrepancies between expected cash per the Accountancy Reports and the WA140 reports for the same period.
2. Ensure, with assistance from the Passenger Services Manager, that all necessary documents are maintained and stored in a manner that ensures accessibility to key personnel, as needed.
3. Work with PATCO Finance to determine a reporting format for the Station Fund that reports necessary information, such as the amount of any variances noted, and that highlights and explains the reasons for any variances between actual cash values and expected cash values. **(NOTE: The Director, Fare Collections, has indicated that the Station Fund has been updated since the completion of testing. OIG has not reviewed the updated format.)**

**Management Response 7 (PATCO/Fare Collections):**

1. Agree. Investigation of discrepancies opened with Cubic. Expected Completion: January 2020.
2. Agree. Storage process will be changed for the Money Room reports. Reports will be documented on master list and Passenger Service Manager will audit and assure that reports are in file. Any discrepancy will be documented. Expected Completion: March 2020.
3. Agree. PATCO Fare Collection will work with PATCO Finance on the Station Fund reports to assure necessary information is reported on form. Expected Completion: December 2019.

**Audit Finding 8:**

Cash Reconciliation Observations related to PATCO Finance activities:

1. *No evidence was noted of follow-up procedures performed by Finance to determine the reason for variances between expected cash and actual cash.* OIG inquired about the procedures for follow-up of variances. It was noted that Finance practice, per the Senior Accountant, should include an investigation of variances based on the following parameters:
  - a. Variances greater than \$20 require a mathematical accuracy check;
  - b. Variances greater than \$50 require investigation to determine whether there is a TVM maintenance issue, if a refund request is pending, or if there is an explanation for the variance.

Of the 99 transactions tested, 73 variances were noted. Of those, 16 were greater than \$20, including one variance of \$90. However, no evidence was noted of procedures performed in accordance with the parameters noted above.

2. *No evidence was noted that the cash clearing account had been reconciled since 2017.* When PATCO Finance records cash, the funds are recorded in a clearing account on the balance sheet, showing that they are in-transit. When cash is received, the funds are backed out of the clearing account and recorded in the cash account. Since cash is generally posted to the bank account one day after deposit, the clearing account should consist only of the funds in transit at the end of each day. The OIG reviewed activity and the ending balance in the cash clearing account noting that the balance appeared to have unreconciled transactions from earlier in the year. In addition, there did not appear to be any evidence that the account had been reconciled recently.

**Audit Recommendation 8:**

OIG recommends the following regarding observations resulting from cash reconciliation testing:

1. The Director, PATCO Finance, should document procedures performed to resolve or explain cash variances noted in the reconciliation process.
2. The Director, PATCO Finance, should ensure that the cash clearing account is reconciled periodically in order to verify that all cash transactions are properly recorded in cash and removed from the clearing account.

**Management Response 8 (PATCO Finance):**

1. Variances are researched and when the causes or discrepancies are identified, adjusting entries are recorded, or communicated to Fare Collections and the money room for validation or correction. These entries are reviewed by our external auditors in the annual financial audit. We agree that these procedures should be documented in an SOP and have a target date of end Q1 2020.
2. Cash clearing is performed periodically and on a regular basis, and our external financial audits have confirmed that appropriate procedures are maintained and followed regularly with the cash, associated clearing accounts and any adjusting journal entries. We are working to acquire better system tools with SAP, and with TD Bank, to create greater efficiencies with our cash clearing activities. The fragmentation of change transactions with TD bank and Dunbar into many smaller entries makes the SAP clearing process particularly challenging. We anticipate some enhanced tools will be implemented as of 7/1/20 when S4/Hana is fully implemented.

**Audit Finding 9:**

Credit Card Reconciliation Observation:

1. *No documentation was noted indicating the resolution of variances.* When the daily credit card reconciliation is performed, variances generally fall into one of the following categories:
  - a. Transactions recorded in CPA (Cubic Payment Application), but not recorded in Merchant Connect (used by Elavon to download transaction history): these transactions are generally related to timing differences. PATCO Finance generally reviews the previous day's transactions in Merchant Connect to determine whether the variance was due to timing.
  - b. Transactions recorded in Merchant Connect, but not recorded in CPA: PATCO Finance also checks these transactions to determine if they were related to timing. If they are not timing variances, they require follow-up to determine whether they should be refunded to the customer.

OIG noted both types of transactions during the period tested.; however, no documented evidence was noted of any follow-up procedures performed to determine the resolution of variances.

**Audit Recommendation 9:**

PATCO Finance should document the resolution of variances noted during the process of reconciling credit card transactions.

**Management Response 9 (PATCO Finance):**

We regularly reconcile and identify any variances between Merchant Connect and CPA. Our initiative in this regard resulted in the identification of audit finding 12. We agree to develop an SOP to document how we identify and resolve variances between Merchant Connect and CPA by quarter end Q1 2020.

**Audit Finding 10:**

Deferred Revenue Reconciliation observation related to PATCO Finance activities:

As of April 2019, upon OIG's request for the latest deferred revenue reconciliation, Finance provided the December 2017 reconciliation. In May 2019, when PATCO Finance shared the schedule they prepared to reconcile 2018 Deferred Revenue balances, it was noted that the Automated Fare Collection system did not adequately support the deferred revenue balance as of December 31, 2018. As a result, PATCO Finance did not have sufficient information to fully prepare or complete a reconciliation of the deferred revenue balances as of December 31, 2018.

**Audit Recommendation 10:**

PATCO Finance should ensure that a documented reconciliation of deferred revenue balances is performed regularly (monthly or quarterly is recommended) and timely. Timely preparation of the reconciliations will help to ensure that any issues affecting those balances are discovered and resolved in a timely manner.

**Management Response 10 (PATCO Finance):**

Comparison of the balance of Regular Freedom Cards in CR111 report, Unrestricted ABP cards in CR211, Transit Only Benefit Value Purse in report CR213, and the WA200 Pending Loads report is completed monthly. PATCO Finance discovered the imbalance between the pending loads files discussed in Audit Finding 11 through our analysis of these balances and reports. However, we rely on Cubic to provide better tools, for example a list of all pending loads across all card accounts, including Share cards, in order to better monitor deferred revenue balances.

We will assist Fare Collection, as described in audit finding 11 response below, in their effort to develop appropriate policies and procedures for recognition or write-off of any negative deferred revenue balances, and we will continue to reconcile deferred revenue balances with the tools we have on a monthly basis.

**Audit Finding 11:**

Deferred Revenue Reconciliation Observations related to Fare Collections activities:

1. *The reconciliation prepared as of December 31, 2018 is not adequately supported.* In May 2018, PATCO underwent an upgrade of the Automated Fare Collection system. At that time, several changes were made which impacted the ability to reconcile deferred revenue:
  - a. Over \$300K of pending loads (funds received from customers and/or their employers to add value to their accounts), a component of the deferred revenue reconciliation, were labeled as “expired” and, therefore, were not included in the Pending Loads report in the Cubic system.
  - b. The report that was used in past years to detail pending loads was no longer available and its replacement does not accurately reflect pending loads as of the reconciliation date.
  - c. As a result, PATCO Finance did not have sufficient information to prepare an accurate reconciliation of deferred revenue balances as of December 31, 2018.
2. *OIG noted some pending balances, which dated back as far as 2014 and are not likely to be posted to active accounts.* As of December 31, 2018, the difference between customer account balances and the deferred revenue balance in the general ledger was approximately \$728K). Of that amount, it is believed that Cubic expired approximately \$400K due to the age of the transaction. However, these balances remain on the general ledger and may be associated with registered accounts, which means that PATCO should attempt to return these balances to their source, if possible.
3. *Some of the pending load balances noted were negative transactions (reversal actions totaling approximately \$38K), which should be written off if they are not expected to be recovered by PATCO.*

**Audit Recommendation 11:**

OIG recommends that the Director, Fare Collections, perform the following:

1. Follow up with Cubic to ensure that reports of card balances and pending loads provide sufficient information for PATCO Finance to reconcile deferred revenue balances.
2. Develop policies and procedures for following up on pending balances in a timely manner to ensure that they do not continue to increase deferred revenue for accounts that are either not active or can't receive them.
3. Develop policies and procedures for writing off negative balances that are deemed to be unrecoverable.

**Management Response 11 (PATCO/Fare Collections):**

1. Agree. Cubic has provided file of pending loads which were expired (closed out or delivered) between 5/28/2018 and 6/7/2018. This time period contains old loads which were expired by Cubic for migration and loads picked up by customers. PATCO Finance has the expired load file from start of migration. Comparison of files will show the transactions expired during migration.
2. Agree. PATCO Fare Collection will develop and implement policies for outstanding (aged) pending loads. Expected Implementation: June 2020.
3. Agree. PATCO Fare Collection agrees negative balances should be written off. PATCO Fare Collection will work with PATCO Finance on writing off negative card/account balances.

**Audit Finding 12:**

**Refund Processing Observation:**

One issue noted during the audit period regarding credit card refunds was the result of a system change that impacted the system's ability to reverse incomplete transactions. For example, if a customer attempted to purchase a Freedom Card and swiped their credit card to complete the purchase and the TVM did not dispense a Freedom Card, the transaction is an incomplete transaction. The system was previously programmed to reverse the credit card transaction so that the customer's credit card did not get charged; however, between September 17, 2018 and March 12, 2019 (when an adapter was installed to correct the issue) the reversals did not process automatically. The issue was discovered during a reconciliation of transactions received from the credit card processor (Elavon) to transactions processed by the Cubic Payment Application (CPA) software. Any transactions that did not match up were flagged so that a refund may be issued.

During our audit it was determined that over \$25,000 in refunds were due to customers, which had not been processed, by the time the system was fixed. It has been PATCO's practice to not issue refunds unless a customer contacts the agency to request one. According to the Director, PATCO Finance, about 10% of the customers identified have initiated contact with PATCO to obtain a refund. For the remainder, no refunds were initiated. Since NCS has functionality that allows for a refund to be issued to the customer's credit card account, OIG recommended that Fare Collections update its SOPs to allow for transactions to be reversed in the system once the transactions have been researched and approved for refund by the Director, Fare Collections. On March 28, 2019, the Director, Fare Collections, drafted a new SOP, providing guidance for Fare Collections to issue credit card refunds to customers after adequate due diligence has been performed verifying that customers were overcharged. As of the release of this report no refunds have been issued by PATCO to customers overcharged as a result of this issue.

**Audit Recommendation 12:**

The Director, Fare Collections, should take all necessary actions to ensure that customer accounts are refunded for overcharges resulting from this issue.

**Management Response 12 (PATCO/Fare Collections):**

Agree. Fare Collection is waiting for a file from Finance listing all cash/check refunds issued due to the bank adapter issue (Cubic provided file of transactions which sale was not reversed after product was not vended). Fare Collection will not refund credit card transactions via CPA until Finance can confirm refund was not issued in another manner. Expected Implementation: 4<sup>th</sup> Quarter 2019.

**Audit Finding 13:**

There has been no reconciliation of balances reported by SEPTA in their invoice to activity registered in PATCO's system since implementation in September 2018. Upon implementation of the ABP system, it was agreed that SEPTA would provide monthly transactions reports detailing transactions for which Share Cards were used on all SEPTA modes. In November 2018, SEPTA provided a summary of transactions for the period covering late September 2018 through early November 2018. No detailed list of transactions was provided. No additional reports of activity have been provided to PATCO since that time. As a result, PATCO has not had sufficient information to perform a reconciliation of transactions or pay amounts due to SEPTA since inception of the ABP system.

**Audit Recommendation 13:**

Once the MOU between PATCO and SEPTA is finalized, the Director, PATCO Finance, should request and obtain detailed transaction data from SEPTA so that an accurate liability can be determined, and ultimately paid, for amounts due.

**Management Response 13 (PATCO Finance):**

SEPTA has not provided monthly invoices because the MOU does not indicate that SEPTA would or should invoice PATCO. See MOU. Detailed SEPTA transactions are sent on a daily basis in order to deduct appropriate fares from Share card accounts balances. This is a daily process, rather than a monthly procedure since the balances must be adjusted in a timely manner to identify accounts with sufficient balances for transit on PATCO and SEPTA.

An accurate liability was recorded for each month since the SEPTA transit capability was added to Freedom Cards (Freedom Share Cards) using Cubic transaction information from the daily SEPTA file. These were available at the time of period close. Recently Cubic completed the development of a more comprehensive report that allows us to more efficiently and accurately record our SEPTA Payable. Subsequent to the development of this enhancement, PATCO Finance recorded immaterial adjustments to the original payable entries since Share card inception.

Summary monthly reports were sent to SEPTA following execution of the MOU in July 2019. Fare Collection are currently researching discrepancies noted by SEPTA with Cubic. When these discrepancies are fully researched and any adjustments are agreed with SEPTA, PATCO will pay SEPTA as soon as possible.

---

**Contracted Services**

---

**Audit Finding 14:**

*PATCO does not currently require Cubic to provide a report on Service Organization Controls.* The Automated Fare Collections software used as the basis for processing, accumulating, recording and reporting revenue data at PATCO is purchased from Cubic. Cubic maintains and updates the code of the software as needed and uploads software to PATCO's server. OIG noted the following with respect to the software provided by Cubic:

- Cubic is providing a SAAS (Software as a Service) product to PATCO.
- They provide the software, its development, and troubleshooting services from an environment that is external to PATCO's system.

- Cubic also provides teller machines with coding installed.

Based on the factors noted above and the following system issues that have been encountered with respect to Cubic's system, PATCO Fare Collections should obtain some level of assurance that Cubic's internal control processes related to its software are designed to ensure that the software is functioning as expected, that no unauthorized changes are being performed, and the security processes allow for the protection of PATCO's fare revenue data, among other things, are in place.

System concerns noted during the audit period:

1. In September 2018, the ABP accounts began to go into a loop, constantly attempting to reverse certain transactions. When a customer enters at a PATCO station, the entry gate registers the entry. If no exit is registered within two hours after entry, the system assigns the entry location as the exit location and charges the customer the maximum fare (\$3). The lack of a registered exit may be the result of a loss of communications at the exit point during the period the customer is travelling. The AFC system continues to accumulate entrance and exit data at the gates even when communications are interrupted. Once communication is re-established, the exit data is loaded in the system. In those instances, the system should reverse the original transaction (the one that assigned the exit gate and defaulted to a \$3 charge) and recalculate the actual fare based on the actual exit point. However, in this case, the original transaction was not getting reversed just once. The system instead entered a loop which continued to reverse the original transaction, adding value back to the card multiple times. Some customer account balances exceeded \$1,000 before detection. The Director, Fare Collections, observed that these transactions appeared to have been triggered when a Freedom Card rider that was assigned an exit point boarded a SEPTA vehicle before the PATCO exit was recorded. In order to ensure that such transactions are detected in a timely manner, the Freedom Center Manager now scans customer account balances to determine their reasonableness. On April 6, 2019, Cubic installed an adapter that corrected the issue. There have been no new instances noted since that time.
2. Since installation of the ABP system, PATCO has encountered other issues related to ABP accounts:
  - a. The system was programmed to label transactions greater than 24-hours old as "stale". Therefore, if SEPTA transactions were not posted in a timely manner, they did not get posted to customer accounts. Once this matter was discovered, Cubic reprogrammed the software without testing, causing over 8,000 transactions to post at one time, leading some customer balances to go negative and creating a disturbance the day after the change was made.
  - b. Approximately 5,600 SEPTA transactions that were not posted in order of occurrence were not updating the reports generated from the system even though the customer account balances were being updated. This caused a variance of approximately \$11,200 between actual customer balances and reports that were generated from the system that were intended to reflect customer balances. This matter was later resolved.
  - c. Approximately 1,500 ABP transactions were double-charged due to a system issue. The issue was corrected in April 2019 and 1,455 of the customers were later refunded (totaling \$2,910 in refunds). The remainder could not be refunded for various reasons, primarily because accounts had been terminated before refunds could be issued.
3. In September / October 2018, the process of automatically cancelling the credit card charges associated with incomplete transactions ceased functioning. As a result, customers' credit cards were charged for incomplete transactions. It was determined that the issue was caused by the absence of an adapter needed to ensure that incomplete transactions were reversed. The

adapter was installed on Monday, March 11, 2019. There have been no new instances noted since that time.

4. On October 30 (into October 31), 2018, one of PATCO's servers went down, causing intermittent system connectivity issues. As a result, a number of transactions were not completed successfully and, as a result of the issue described in audit item #2 above, the incomplete transactions were not reversed. This caused an increase in refund activity on that date.
5. In February 2019, a second instance was noted in which a large volume of refund activity occurred due to intermittent or slow connectivity.
6. Once per month, some of the gates were opening without warning. This issue appeared to have coincided with the system's virus scan. As of May 31, 2019, new gate software to fix issue was being tested by Cubic. PATCO expects installation in the PATCO test lab in mid-June and installation in the production environment by the end of June.
7. In May 2018, when the system upgrade was installed, Cubic expired some of the older pending loads that were in the system (approximately \$350,000). These transactions are not reflected in the reports detailing customer account balances or pending loads. As a result, PATCO Finance has not been able to accurately reconcile deferred revenue since the upgrade.
8. PATCO contracted with Cubic to provide five (5) new Ticket Office Terminals (TOTs). The new TOTs would allow for credit card transactions to be processed using the CPA system, which is currently not the case. To date, Cubic has provided only two (2) of the TOTs committed to in their contract.

Assurance regarding a service organization's internal policies and procedures is usually provided in the form of a report on Service Organization Controls (SOC) prepared by an independent auditor in accordance with Statements of Standards on Attestation Engagements (SSAE) No. 18.

**Audit Recommendation 14:**

OIG recommends that the Director, Fare Collections, obtain an annual SOC report from Cubic to determine the extent to which its internal control processes can be relied upon to accurately record and report PATCO revenue data. In addition, the General Manager, PATCO and the Director, Fare Collections, should establish minimum performance standards for the Cubic contract. They should also determine and implement remediation procedures in the event the performance standards are not met.

**Management Response 14 (PATCO/Fare Collections):**

Agree. Fare Collection requested SOC report from Cubic. Cubic refuses to provide because they do not agree they have a service provider relationship with PATCO. The new Cloud configuration of NCS, expected to be delivered in 2020, will have service relationship and will have SOC report as a requirement in contracts between PATCO and Cubic.

**Audit Finding 15:**

As noted previously, PATCO entered into an agreement with New Jersey Transit to provide service to customers displaced by the NJT construction, which closed down a portion of its rail line going to Atlantic City, New Jersey. This contract included a provision that NJT would dispatch Ambassadors to the applicable PATCO stations to count the NJT customers using PATCO facilities. PATCO had to rely on the manual counts provided by the NJT Ambassadors and had no system in place for verifying the accuracy of reported information. This contract ended prior to the release of this report so there are no recommendations regarding the contract; however, future contracts of this nature should

have a system in place to ensure the accuracy of ridership data without having to rely on an external agency.

**Audit Recommendation 15:**

OIG recommends that PATCO develop a system for independently tracking usage in accordance with contract terms for any future contracted arrangement of this nature. For example, a special fare card could be used to track contract ridership.

**Management Response 15 (PATCO/Fare Collections):**

Agreed. The NJ Transit agreement was emergent in nature and didn't allow sufficient time for PATCO to create special fare card media to be used.

**Audit Finding 16:**

There is currently no Memorandum of Understanding (MOU) establishing a mutual agreement between SEPTA and PATCO about how transactions should be processed, recorded, reported, and reconciled since implementation of the Share Card system.

**Audit Recommendation 16:**

The PATCO General Manager should ensure that the Memorandum of Understanding, which is being negotiated between PATCO and SEPTA, is finalized and implemented as soon as possible to ensure there is an understanding regarding the treatment of revenue transactions between the agencies.

**Management Response 16 (PATCO/Fare Collections):**

Agree. Memorandum of Understanding finalized on July 18, 2019.

---

**IT Systems / Resources**

---

**Audit Finding 17:**

The PATCO Revenue Systems' Change Management and Incident Management processes are undocumented, single sourced (one person with the knowledge to make changes), and lack a testing plan and testing documentation requirements. This lack of process consistency may have contributed to some of the software developmental issues experienced with Cubic's software changes. The current process does not utilize the resources of Information Services' Help Desk and the Help Desk system (Solaris) to communicate and document issues / requests for assistance.

**Audit Recommendation 17:**

OIG recommends that PATCO Fare Collections, with the assistance of Information Services, create a documented Change Management procedure that details the steps needed to document and complete a major change to the revenue systems including requiring a documented test plan, documented testing and detailing at least two sources (2 people with the knowledge to make changes) that can approve changes to the system.

OIG also recommends that PATCO Fare Collections, with the assistance of Information Services, create a documented Incident Management procedure that details the steps needed to report, document and complete an issue related change to the PATCO revenue systems, including requiring a documented test plan, documented testing and detailing at least two sources that can approve changes to the system. The procedure should include reporting issues to the Information Services'

Help Desk (even if also reported directly to IS Administrator or Cubic) to provide a formal record of the service request, status tracking, and completion tracking in Solaris Help Desk system.

**Management Response 17 (PATCO/Fare Collections):**

Agree. Fare Collections will work with IS on creating Change Management procedures with a two-person approval level. Expected Completion: 1st Quarter, 2020.

Agree. Fare Collections will work with IS on creating an Incident Management Procedure to document issues related to changes to the Fare System. Fare Collections Disagrees on reporting issues to the Help Desk for software upgrades/changes. Incident issues related to upgrades and changes in service are kept in a document updatable by both the PATCO, DRPA and the vendor. When the software/system has been released into production and accepted by PATCO, issues are then sent to the helpdesk by the users. Expected Completion: 1<sup>st</sup> Quarter 2020.

**Audit Finding 18:**

The PATCO Revenue System's User Access Management process is not documented and does not conform to IS Audit Policy #512 which states "Access to the Authority's Information Resources will be reviewed on a quarterly basis." The current users in the system include many users that have not accessed the system in more than 120 days. The current users in the system include several non-auditable, generic usernames such as "administrator" or "supervisor". There are many users from Information Services that have access without a business requirement. There are several users that have access across multiple roles without a business requirement or proper segregation of duties. The user password restrictions are not consistent across the revenue systems.

**Audit Recommendation 18:**

OIG recommends that PATCO Fare Collections, with the assistance of the Information Services group create a Revenue System's User Access Management policy that documents the procedure for adding users, approving users, making users inactive, identifying contractors, defining users' data rights according to roles and defining the documented quarterly review process for confirming that only authorized users have access to least privileged types of data. The approval process should document at least two approvers as backup. The password requirements for the revenue systems should be consistent across all revenue platforms and should be at least 8 characters, 1 lower case letter required, 1 upper case letter required, 1 number required, and 1 special character required. The idle time for lockout of the system should be 10 minutes just like the desktop systems. The passwords should expire every 30 days and need renewal. Users that have not used the system for 120 days should be made inactive in the system.

**Management Response 18 (PATCO/Fare Collections):**

Agree. Fare Collections and IS will collaborate on a User Access Management policy and procedure for the Fare Collection System. The Policy and Procedure will include two approvers and include the appropriate password requirements, expiration time and appropriate lockout.

Comment: Currently, access to the Fare Collection environment requires two-factor authentication. The crucial production applications containing customer information require complex passwords and have lockout procedures. Also, the desktop system, running the applications, locks out in 10 minutes of non-use. The audit used an example of a reporting application connected to the Online Data Store (ODS) which does not contain identifiable customer data in their findings. Although we

agree all applications should have the same policy, the payment application data meets data security procedures outlined in the PCI-DSS.

**Audit Finding 19:**

The PATCO Revenue Systems do not have a documented disaster recovery plan per IS Audit Policy #512 (“Annual testing of the Authority’s Disaster Recovery Plan will be performed. A successful execution of the Plan is required for compliance with this policy”). In the event that the server room at One Port Center became unavailable due to mechanical failure, electrical failure, fire, communication failure, natural disaster or any other event, all the data is stored at One Port Center and PATCO would be without an automated system to collect fares and report on revenue.

**Audit Recommendation 19:**

OIG recommends that PATCO with the assistance of the Information Services group create a documented disaster recovery plan that details the processes for providing continuous fare collection and revenue reporting in the event the revenue systems are not available. PATCO should move toward a system/data backup process that is not located at one location. Manual business continuity processes should be incorporated in the disaster recovery plan, as well. The disaster recovery plan should be tested annually per IS Audit policy #512.

**Management Response 19 (PATCO/Fare Collections):**

Agree. PATCO has requested a detailed Disaster Recovery plan/system from the AFC vendor, Cubic. We expect the work to begin in the 1<sup>st</sup> quarter of 2020. The disaster recovery system will be (is) included in the 2020 Capital Project plan.

---

**PCI Compliance Testing**

---

**Audit Finding 20:**

The PATCO Revenue Systems has only had vulnerability scans completed on 10/24/2018 and 5/28/2019 in the last year. This scanning frequency is not in compliance with the PCI DSS standards and the IS Audit Policy #512 which states “Both internal and external vulnerability scans will be performed on a quarterly basis as well as whenever any significant network change has occurred”. “To comply with the Payment Card Industry Data Security Standard, the quarterly external scans will be performed by a scanning vendor approved by the Payment Card Industry Security Standards Council”. There has not been a documented annual penetration test performed per PCI DSS standards and IS Audit policy #512 which states “Network penetration testing will be performed annually as well as whenever any significant network change has occurred. The penetration test shall include both network and application layer testing”. There have been several major changes to the network in the last 12 months, including firewall replacement. PATCO has not changed the cryptographic keys (used to encode and decode credit card data) and PCI DSS standards recommends replacing annually or at the end of the crypto-period. The PATCO Revenue Systems’ vulnerabilities noted in the 10/24/2018 scan have not been resolved in a timely manner.

**Audit Recommendation 20:**

OIG recommends the following to address PCI compliance observations. PATCO Fare Collections, with the assistance of Information Services:

- complete quarterly external and internal scanning of the PATCO revenue systems or when major changes are made to the system, whichever is more frequent;

- complete annual network and application layer penetration testing or when major changes are made to the system whichever is more frequent;
- complete the change of cryptographic keys on an annual basis; and,
- create a documented vulnerability management and security management process to be performed on a regular basis to monitor the PATCO revenue systems and resolve any system vulnerabilities as a result of the scans or preemptive findings, in a timely manner.

**Management Response 20 (PATCO/Fare Collections):**

Agree. (1) Due to contractual issues with the selected bidder, the Qualified Security Assessor was not available to start running the scans until May-June 2019. We expect all scans listed to be completed by August 30, 2019. (2) Cryptographic keys: the upgrade to NCS 7 (completed in May 2018) was needed for the function of using more than one cryptographic key. Before this, the data would need to be decrypted (in the clear) and then encrypted again using the new key. We will plan a date with Cubic for a change in the cryptographic keys. (3). Assistance from OIG requested on more details for vulnerability and security management process required. Expected Completion: (1) 8/30/2019, (2) TBD, and (3) TBD.