



OFFICE OF INSPECTOR GENERAL

UNITED STATES POSTAL SERVICE

Package Delivery Scanning - Nationwide

Audit Report

Report Number
DR-AR-18-001

October 27, 2017



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AFFIX CUSTOMS DECLARATION.

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Highlights

Background

The U.S. Postal Service is committed to providing customers with real-time visibility and control of their mail and package delivery services. The Postal Service's goal is to scan all barcoded mailpieces (flats, letters, and packages) that enter the mailstream and track those items with additional scans up to the point of delivery. Scanning accuracy is critically important to the success of real-time visibility.

The Postal Service's scanned package volume increased from 3.5 billion in fiscal year (FY) 2015 to 4.3 billion in FY 2016 – an increase of 22 percent. From July 1 through December 31, 2016, the Postal Service scanned over 2 billion packages sent to over 136 million delivery locations on over 227,092 routes throughout the country.

The Postal Service measures package delivery service performance from the point of acceptance through first delivery attempt. When a carrier attempts to deliver a package at the delivery location, it gets a stop-the-clock scan, indicating the Postal Service has completed its commitment to deliver or attempt to deliver the package.

Carriers use a handheld Mobile Delivery Device (MDD) to scan and transmit package tracking data. MDDs use a cellular network and Global Positioning System (GPS) technology to obtain real-time delivery tracking and location information. If an MDD is not available, carriers can use the predecessor,

Intelligent Mail® Device (IMD). However, the IMD does not provide GPS data or real-time delivery tracking information.

Carriers use an MDD to perform stop-the-clock scans for packages at the actual delivery location in order for customers to receive accurate package tracking notifications in real-time. These stop-the-clock scans performed at any location other than the designated delivery location (excluding caller service, vacation holds, post office box deliveries, undeliverable as addressed, and business closed) are considered improper. Delivery unit management use several Product Tracking and Reporting System daily reports for managing scanning status and performance for their unit, including the Start-of-Day, End-of-Day, and Scan Data Integrity reports.

This audit was self-initiated based on our data analytics indicating an increasing number of questionable or improper delivery scans occurring at delivery units and about 1.4 million customer complaints in FY 2017 related to delivery.

Our objective was to assess the package delivery scanning process in city delivery operations.

What the OIG Found

Opportunities exist to improve the Postal Service's package scanning processes in delivery operations to minimize improper delivery scans. Of the 2 billion scans for the period July 1 through December 31, 2016, we identified 25.5 million scans



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that occurred between 7 p.m. and when the carrier clocked out for delivery the following morning. We used GPS location data to further analyze these 25.5 million scans and found that, of these, 15.3 million (60 percent) were performed at a location outside of the delivery unit, therefore we did not identify them as improper. However, about 1.9 million scans (7 percent) were improper stop-the-clock scans that occurred at delivery units instead of at the delivery location.

An additional 8.3 million of the 25.5 million delivery scans (33 percent) had no corresponding location data. For these 8.3 million scans, carriers used MDDs for 2.3 million of the scans and IMDs for 6 million of the scans. While the IMDs do not provide GPS data, we estimate the lack of location data for a majority of the 2.3 million MDD scans was due to GPS signal obstruction. Therefore, it was not possible to determine if the 8.3 million scans were proper or improper.

These scans occurred because:

- Delivery unit personnel did not always follow proper scanning procedures.
- Employees sometimes experienced technical limitations with the MDDs, including delayed transmissions and signal obstruction.
- Management's oversight tool, the Scan Data Integrity report,

does not identify all improper scan events such as those that can occur at the delivery unit.

Lastly, we identified 105 million scans (5 percent of the total number of scans in the period reviewed) performed using [REDACTED]

This occurred because the scanners [REDACTED]. Management has taken or initiated corrective actions to address these issues; therefore, we will not make recommendations in these areas.

Customers rely on accurate data to track their packages in real-time and receive notification of an expected delivery window. By improving scanning operations, the Postal Service can improve delivery performance and reduce customer delivery complaints, while meeting the goal of providing customers with real-time visibility over their mail.



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What the OIG Recommended

We recommended management:

- Continue to reinforce the importance of adhering to package scanning guidelines and policies.
- Develop a process that will allow carriers to scan multiple packages to a single delivery address to provide accurate delivery information to customers.
- Review results of the Delivery Partners Program for colleges and universities and the USPS Partner Mobile Application Pilot and consider implementing any best practices for drop houses.
- Develop an MDD warning message/alert to deter scans at delivery units.
- Create a reason code for manual entry of stop-the-clock scans; and
- Update the Scan Data Integrity report to track improper scans performed at delivery units.

Transmittal Letter



OFFICE OF INSPECTOR GENERAL
UNITED STATES POSTAL SERVICE

October 27, 2017

MEMORANDUM FOR: KEVIN L. MCADAMS
VICE PRESIDENT, DELIVERY OPERATIONS

ISAAC S. CRONKHITE
VICE PRESIDENT, ENTERPRISE ANALYTICS

MICHAEL J. AMATO
VICE PRESIDENT, ENGINEERING AND SYSTEMS

E-Signed by Janet Sorensen
VERIFY authenticity with eSign Desktop

A handwritten signature in black ink, appearing to read "Janet M. Sorensen".

FROM: Janet M. Sorensen
Deputy Assistant Inspector General
for Retail, Delivery, & Marketing

SUBJECT: Audit Report – Package Delivery Scanning –
Nationwide (Report Number DR-AR-18-001)

This report presents the results of our audit of the Package Delivery Scanning –
Nationwide (Project Number 17RG014DR000).

We appreciate the cooperation and courtesies provided by your staff. If you have any
questions or need additional information, please contact Rita F. Oliver, Director, Delivery,
or me at 703-248-2100.

Attachment

cc: Corporate Audit and Response Management

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Findings

From July 1 through December 31, 2016, carriers scanned over 2 billion packages. During this period, we found 1.9 million packages were improperly scanned and an additional 8.3 million delivery scans had no corresponding location data to determine if the scans were improper.

Introduction

This report presents the results of our self-initiated audit of U.S. Postal Service Package Delivery Scanning – Nationwide (Project Number 17RG014DR000). Our objective was to assess the package delivery scanning process in city delivery operations. See [Appendix A](#) for additional information about this audit.

This audit was based on our data analytics indicating an increasing number of questionable or improper delivery scans – scans that occurred at the delivery unit rather than at the delivery location – and about 1.4 million customer complaints from July 1 through December 31, 2016. Stop-the-clock scans performed at any location other than the delivery location are considered improper.¹

The Postal Service’s scanned package volume increased from 3.5 billion in fiscal year (FY) 2015 to 4.3 billion in FY 2016 – an increase of 22 percent. From July 1 through December 31, 2016, the Postal Service scanned over 2 billion packages delivered to over 136 million delivery locations on over 227,092 routes throughout the country.

The Postal Service scans packages from acceptance through delivery and records scanning data in the Product Tracking and Reporting (PTR) system² (see [Appendix B](#)). Carriers use a Mobile Delivery Device (MDD)³ to scan packages during delivery. If an MDD is not available, carriers can use the predecessor, Intelligent Mail® Device (IMD). However, the IMD does not provide Global Positioning System (GPS) data or real-time delivery tracking information. Scanned data updates the Postal Service’s tracking information, which allows customers to track packages. The Postal Service also uses the scan data for its internal management reports such as the Start of Day, End-of-Day (EOD), and Scan Data Integrity⁴ reports (see [Appendix C](#)).

Summary

Opportunities exist to improve the Postal Service’s package scanning processes in delivery operations to minimize improper delivery scans.

Out of the 2 billion scans for the period July 1 through December 31, 2016, we identified 25.5 million scans that occurred between 7 p.m. and when the carrier clocked out for delivery the following morning.⁵ We used GPS location data to further analyze these 25.5 million scans and found that 15.3 million scans (60 percent) were performed at a location outside of the delivery unit, therefore we did not identify them as improper. However, about 1.9 million scans (7 percent) were improper stop-the-clock scans that occurred at delivery units rather than the delivery location (see [Appendix D](#)).

An additional 8.3 million of the 25.5 million delivery scans (33 percent) had no corresponding location data. Carriers used MDDs for 2.3 million of the 8.3 million scans and IMDs for 6 million of the scans. While IMDs do not provide GPS data, we estimate the lack of location data for a majority of the 2.3 million MDD scans was due to GPS signal obstruction; therefore, it was not possible to determine if the 8.3 million scans were proper or improper.

¹ *Delivery and Retail Standardization*, Tab 3, Section 5, *Scanning Reference Guide*, pg.13., and *Service Talk – Where is My Package (WIMP) and Accurate Scanning*, February 2017.

² A system that receives and stores all tracking scan data, from acceptance to delivery, and is used by employees and customers for shipment tracking information.

³ A wireless handheld device that scans barcodes for package tracking. MDD scans and GPS data are transmitted to the PTR system for customers to track package information in real time.

⁴ The Postal Service’s scan data integrity report currently identifies several events as potential improper scans; however not all improper scan events such as those scanned at the delivery unit are identified on the report.

⁵ We excluded delivery time on the street from our universe as well as events anticipated as occurring at the delivery unit such as caller service, vacation holds, post office box deliveries, undeliverable as addressed, and business closed. We also excluded 50,179 Delivery Exception – Local Weather Delay scans as improper scans.

These scans occurred because:

- Delivery unit personnel did not always follow scanning procedures.
- Employees sometimes experienced technical limitations with the MDDs, including delayed transmissions and signal obstruction.
- Management's oversight tool, the Scan Data Integrity report, does not identify all improper scan events such as those that can occur at the delivery unit.

Lastly, we identified 105 million scans (5 percent of the total number of scans in the period reviewed) performed using [REDACTED] the handheld scanners, which made it difficult to determine who scanned the packages. This occurred because the scanners [REDACTED]. Management has taken or initiated corrective action to address these issues,⁶ therefore, we will not make recommendations in these areas.

Customers rely on accurate data to track their packages in real-time and receive notification of an expected delivery window. By improving scanning operations, the Postal Service can improve delivery performance and reduce customer delivery complaints, while meeting the Postal Service's goal of providing customers with real-time visibility over their mail.

Delivery Package Scanning

Opportunities exist to improve the Postal Service's package scanning processes in delivery operations to minimize improper delivery scans. Postal Service Standard Operating Procedures (SOP) require carriers to document package delivery⁷ by performing a stop-the-clock scan for packages at the location where the carrier delivered or attempted to deliver the package.

Our analysis of 25.5 million package scans and nationwide GPS data showed about 15.3 million of the stop-the-clock scans (60 percent) were performed at a location other than the delivery unit, therefore we did not question the validity of these scans. However, 1.9 million scans (7 percent) were improper stop-the-clock scan events that occurred at the delivery unit. Of the 1.9 million scans, about 800,000 occurred between 12:01 a.m. and within 10 minutes of the carrier leaving the delivery unit; the remaining 1.1 million scans completed at the delivery units were performed between 7 p.m. and 12:00 a.m., after the carriers returned from street delivery.

Further, an additional 8.3 million packages with delivery scans (33 percent) had no corresponding location data; therefore, it was not possible to determine if the scans were proper or improper (see [Figure 1](#)). Specifically, carriers used MDDs to scan 2.3 million packages and IMDs to scan 6 million packages. Our analysis of the data showed carriers performed these scans between 12:01 a.m. and 8 a.m., within 10 minutes of the Out for Delivery scan, or between 7 p.m. and 12 a.m. However, we could not determine where the scan occurred because no GPS coordinates were associated with these scans.

When MDDs were not available for carriers to use during delivery, unit management allowed carriers to continue using IMDs while delivering on their routes. Employees used IMDs when MDDs were not available for stop-the-clock scans on 6 million packages. Consequently, no GPS coordinates were available to identify where the scan occurred; stop-the-clock scan data was only available when the carrier returned to the delivery unit at the end of the day.

⁶ Corrective action refers to MDD updates. The Postal Service began replacing the aging IMDs carriers used on their daily routes with MDDs in 2013.

⁷ *Delivery and Retail Standardization*, Tab 3, Section 5.

Delivery unit personnel did not always have a process in place for scanning multiple package deliveries to a single delivery address to provide customers with accurate delivery information.

Figure 1 – Opportunities to Improve the Postal Service’s Package Delivery System

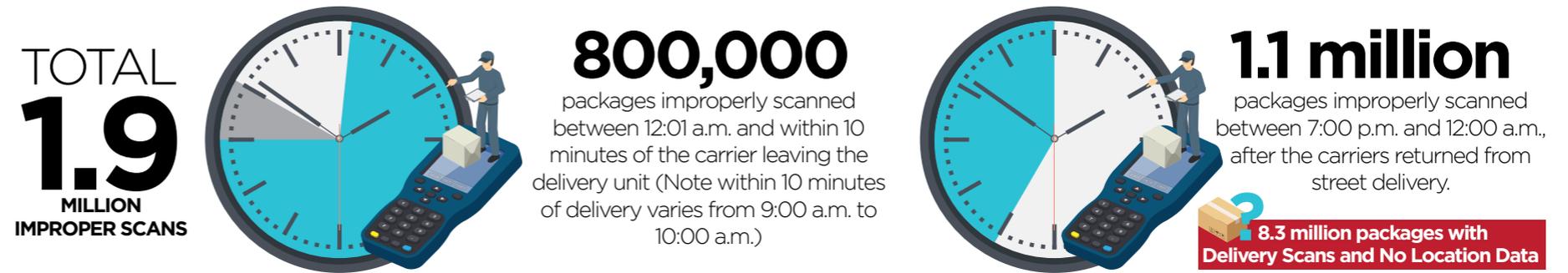


Table 1. Stop-the-Clock Scans in Unknown Locations

Scan Category	MDDs Without GPS Coordinates	IMDs	TOTAL
After 7 p.m.	925,478	1,296,300	2,221,778
Before Out for Delivery	1,181,198	4,241,842	5,423,040
Within 10 Minutes of Out for Delivery	200,677	545,822	746,499
Total	2,307,353	6,083,964	8,391,317

Source: PTR.

The improper scans occurred because delivery unit personnel did not always follow scanning procedures at the delivery units and employees sometimes experienced technical challenges with the MDDs. In addition, management’s oversight tool, the Scan Data Integrity Report, does not identify all improper scan events, such as those that can occur at delivery units.

Customers rely on accurate data to track their packages in real-time and receive an expected delivery window. By improving scanning operations, the Postal Service can improve delivery performance and reduce customer delivery complaints, while meeting the Postal Service’s goal of providing customers with real-time visibility over their mail.

Improper Scanning Procedures

Carriers did not always follow prescribed scanning procedures for scanning packages at the point of delivery, delivering to drop houses, and supervisors did not properly enter package delay information to indicate the customer’s packages were delayed. In addition, carriers did not properly enter manual scans when MDDs malfunctioned and delivery unit employees improperly scanned packages in an effort to clear the EOD report.

Specifically:

- **Multiple Package Deliveries to a Single Delivery Address:** Delivery unit personnel did not always have a process in place for scanning multiple package deliveries to a single delivery address to provide customers with accurate delivery information. Current policy mandates the use of firm sheets⁸ for customers receiving six or more packages requiring signature at a single

⁸ A firm sheet is a list of packages for delivery to one address documented with a single barcode. Firm sheets are used to link packages sent to one address on a single form

address. Carriers at five of the 12 delivery units we visited, scanned these multiple package deliveries as “delivered” in the delivery unit or when loading their vehicles. For example, one site we visited had 4,088 scans performed at the delivery unit. We found that 2,383 (58 percent) of these scans were done for one customer.

- **Drop Houses:** Carriers scanned packages destined for drop houses at the delivery unit instead of at the delivery location as required by Postal Service policy. Drop houses are large apartment complexes where building management receives packages from delivery relay drivers and accepts responsibility for sorting and distributing packages to their residents. Carriers scanned packages at the delivery unit to ensure all packages prepared for drop houses received a stop-the-clock scan in an effort to avoid delivery scan failures on the EOD report.

The Postal Service is piloting its Delivery Partners Program for Colleges and Universities and USPS Partner Mobile Application. As of January 2017, there are 23 colleges and universities participating in the pilot. This pilot requires the delivery unit to create a firm sheet with a unique standard format using the PASS, DSS, IMD, or MDD to create the unique barcode. This unique barcode is scanned “Tendered to Agent for Final Delivery” when the packages are delivered to the college or university. The delivery partners (colleges and universities) use the USPS Partner Mobile Application to scan the packages with a smartphone camera and manage packages, firm sheets, and reports. This may be a potential solution and good business practice for large apartment complexes where mail is distributed to the residents.

- **Delivery Delays:** Delivery unit supervisors at six of the 12 delivery units did not enter the “Delivery Delay” scan into an IMD to notify customers of package delays when carriers returned to the office with packages. Carriers inadvertently missed delivering packages during street delivery primarily for two reasons: (1) incorrect package sortation and (2) safety concerns. Delivery unit supervisors stated that they were either not aware of the “Delivery Delay” scan or could not use the delivery delay scan because district officials in one district believe using the delivery delay scan would encourage carriers not to scan and deliver packages daily. Our review identified that delivery unit personnel typically scanned the barcoded package or keyed in the package’s barcode with a stop-the-clock scan such as “Blocked Receptacle” or “No Authorized Recipient” scan to clear the EOD report and to reduce or avoid complaints from customers (see [Table 2](#)).

In November 2015, the Postal Service released a new software download, version 3.17, which included the new “delivery delay” scan. This scan, available only to supervisors via the IMD, provides accurate information to the customer, but will not stop-the-clock on the Postal Service delivery commitment. A subsequent MDD software version 6.1 effective July 3, 2017 changed the delivery delay scan name to “Return to Post Office Not Attempted” and made the scan available to carriers on the street. This new scan event will inform the customer their package is not going to be delivered, attempted, or returned to sender, but the Postal Service plans to reattempt the next business day.

- **Manual Input Mode:** Carriers at the 12 delivery units did not always follow procedures by using the MDD manual input mode for scans that could not be performed due to MDD malfunction during street delivery. Instead, carriers commonly took photos of the delivery barcode tracking number with their personal cell phones and upon their return to the office used the street operation mode on the MDD to scan the barcode from the photos or key in the barcode tracking number to avoid scanning performance failures. Our review of 12 delivery units identified 38,132 package scans performed after carriers returned from street delivery, where they generally used the “Delivered” stop-the-clock scan event using the MDDs street mode instead of using the manual input mode because the packages were already delivered (see [Table 2](#)).

The MDDs did not have an alert to notify Postal Service employees and supervisors when a scan attempt is made using a street delivery scan event at a location other than the delivery point.

Table 2. After 7 p.m. Scans Performed at the 12 Delivery Units Visited

Stop-The-Clock Scan Event	Scanned	Keyed	Total
Delivered	9,992	6,564	16,556
No Authorized Recipient Available	69	10	79
No Secure Location Available	11,411	3,417	14,828
Receptacle Blocked	5,386	893	6,279
Receptacle Full/Item Oversized	156	1	157
Refused	25		25
Total	27,039	10,885	37,924

Source: PTR.

The manual input mode on the MDD⁹ is used when the MDD becomes inoperable during street delivery. The manual input mode allows delivery unit personnel to input the barcode tracking number and the correct time of delivery to provide scanning accuracy for both customers and postal management. The street operation mode only records the current time the package barcode tracking number was scanned or keyed. Using the street mode after hours to scan or key in barcode tracking numbers for packages delivered on the route will provide inaccurate delivery time and scan location information to both customers and postal management. Delivery unit personnel stated they were not aware of the manual input mode process on the MDD or stated they did not use the manual input mode because it was an automatic scan failure on the scanning performance measurement report. According to Postal Service officials, this report considers manual entries as failures, which can impact the unit's National Performance Assessment (NPA)¹⁰ score.

- **EOD Report:** Carriers and supervisors at seven of the 12 delivery units did not always use the EOD report appropriately. Specifically, carriers and supervisors at seven delivery units entered stop-the-clock scans for packages that were listed on the EOD report, even though they had not been delivered. Postal Service guidance states that the EOD report is a tool for identifying all packages sent out for delivery each day that have not received a stop-the-clock scan. This report is for information only and should not be used to enter new or missed scans or rescan tracking information. We referred instances of employee misconduct to the Office of Investigations, as appropriate. In a subsequent discussion with Postal Service Management on September 18, 2017, the EOD report has been suspended, therefore, we will not make a recommendation on this issue.

Mobile Delivery Device Technical Issues

We noted several technical issues with the MDDs that warrant attention, including the lack of an alert or prompt for improper scans, the inability to enter a reason code for a manual scan, delayed transmissions, and GPS signal obstruction.

- **Alert for Improper Scans:** The MDDs did not have an alert to notify Postal Service employees and supervisors when a scan attempt is made using a street delivery scan event at a location other than the delivery point. Effective May 8, 2017, delivery operations implemented the MDD 6.0 update nationwide. This release included a warning message update when carriers applied a "Business Closed" stop-the-clock scan event at residential locations. A similar feature is a good business practice to warn delivery personnel performing street delivery scanning events at locations other than the delivery point to reduce improper scans.

⁹ Delivery unit personnel will use operable MDDs at the delivery unit to manually enter a barcode when their MDD malfunctions during street delivery.

¹⁰ The NPA is a national report card system that measures a unit's actual corporate and unit performance against standardized, pre-defined, weighted indicators.

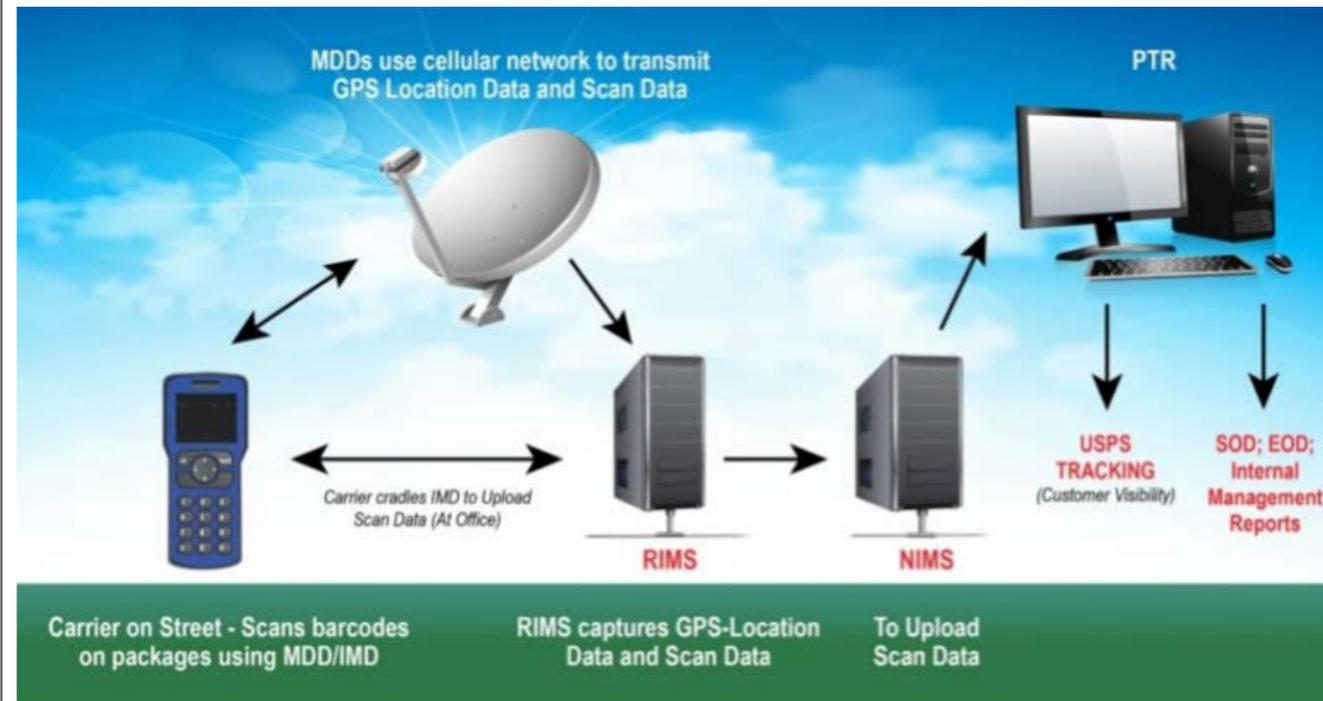
- **Reason Code for In-Office Manual Input Mode.** The MDD does not offer a reason code when entering manual mode when the device is inoperable. Developing a reason code for the MDD manual input mode would be a good business practice to identify the reason for the manual input. Furthermore, incorporating reason codes in the current Manual Entries report to track the type of MDD malfunctions requiring manual input scans will allow delivery unit management and delivery operations to monitor MDD malfunctions and how they impact scan performance.
- **Delayed Stop-the-Clock Scan Transmissions.** Stop-the-clock scans performed on carrier routes did not always transmit to the PTR system after carriers completed their routes and packages showed “out for delivery” status on the EOD report. The stop-the-clock scan data did not post timely due to:
 - Regional Intelligent Mail Server (RIMS) network connectivity issues.
 - MDD device conditions such as battery life, screen freezing, and the laser beam not working in the rain.
 - Delivery scans stored in devices not always uploading to RIMS.
 - Weak wireless signal strength.

Delivery managers at six of the 12 delivery units we visited stated they frequently experienced stop-the-clock scan transmission delays from the MDDs to Postal Service systems, which caused packages to appear as “not delivered” on the EOD report and contributed to improper scans performed after 7 p.m. MDDs communicate to Postal Service systems using a cellular network to upload geo-location and package delivery scan data. The goal is notification within 5-6 minutes (see [Figure 2](#)).

Interference can cause untimely or incomplete reporting, leading to unavailable or unreliable EOD reporting and package tracking data. Previous U.S. Postal Service Office of Inspector General (OIG) reports¹¹ identified factors such as RIMS network connectivity issues and MDD device conditions that cause a delay in posting MDD scans to PTR; therefore, we will not make a recommendation on this issue.

¹¹ *Mobile Delivery Device Program* (Report Number CP-AR-17-008, dated April 28, 2017).

Figure 2. Delayed Stop-the-Clock Scan Transmissions



Source: OIG analysis based on the RIMS User Guide and discussions with Postal Service Engineering personnel.

- GPS Signal Obstruction:** Our review also identified MDDs that did not record GPS coordinates (location) for stop-the-clock scans in 2.3 million instances due to GPS signal obstruction. MDDs can experience unavoidable and intermittent GPS signal obstruction during street delivery. This blocks the ability of MDDs to provide the location of the stop-the-clock scan of the carrier. Tall buildings, trees, tunnels, mountains, clothing, and the human body can cause GPS signal obstruction. GPS devices typically need to receive signals from at least seven or eight satellites to calculate locations within 10 meters (see Figure 3).

Figure 3. Unavoidable GPS Signal Obstruction



Source: OIG graphic.

Delivery unit personnel scanned 105 million packages using [REDACTED] in their handheld scanners.

With fewer satellites contributing, the amount of uncertainty and inaccuracy increases, resulting in less precise location estimates or no location coordinates at all. Missing GPS coordinates do not allow delivery unit managers to monitor and track street operations for these stop-the-clock scans.

Management Oversight Tool

The Postal Service’s scan data integrity report currently identifies several events as potential improper scans; however not all improper scan events such as those scanned at the delivery unit are identified on the report. These include stop-the-clock events performed before 8 a.m. and after 4 p.m., scans by the same device for more than two packages, and scans across three routes at the same time. Identifying scans performed at the delivery unit requires the use of polygons¹² to outline GPS coordinates for a delivery unit. The Postal Service is currently using polygons to determine when a carrier leaves the facility to cover their route, which is the “out for delivery” scan. Expanding the use of this polygon data to identify scans performed at the delivery unit, other than the “out for delivery” scan, would allow Postal Service management to identify and correct improper scans and improve the accuracy of scan data provided to customers.

[REDACTED]
 Delivery unit personnel scanned 105 million packages (5 percent of the total number of scans in the period reviewed) using [REDACTED] in their handheld scanners (see Table 3). Employees using the scanners for scanning packages or other items must scan or enter their employee ID number or badge number into the device to accurately identify the employee using the scanner.

Table 3. Number of Packages [REDACTED]

User Role	Total [REDACTED]
City Carrier	35,319,998
Clerk	34,166,824
Rural Carrier	13,387,555
Supervisor	7,307,339
CDS/HCR Carrier	6,870,840
Postmaster	3,937,050
Unknown	2,465,898
Administrative	594,790
Manager	554,896
Mail Handler	542,814
Total	105,148,004

Source: PTR, July 1 through December 2016.

¹² A polygon is referred to as a geographical footprint of an individual delivery unit.

[REDACTED] occurred because:

- [REDACTED] During our entrance conference, delivery operation officials stated they were aware of this problem and were in the process of developing a resolution. In a subsequent interview, Southern Area officials provided information that showed delivery operations implemented an MDD beta test for [REDACTED] route ID, and Zip Code validation on June 19, 2017, and a national MDD code update on July 3, 2017. This MDD update only allows [REDACTED]. Based on this update, we will not make a recommendation on input controls for the MDDs.
- [REDACTED]. The Postal Service is aware of this issue and is in the process of updating the [REDACTED]. The updates to this system will allow delivery unit managers to [REDACTED]. This will provide accurate employee and contractor ID numbers in scanning systems. Therefore, we will not make a recommendation on MDDs accepting [REDACTED].

Recommendations

We recommend management continue to reinforce the importance of adhering to package scanning guidelines and policies, develop a process to perform one scan for multiple packages, review partners programs, and develop a MDD warning message/alert.

We recommend the Vice President, Delivery Operations:

1. Continue to reinforce to delivery unit personnel the importance of adhering to package scanning guidelines and policies
2. Develop a process that will allow carriers to perform one scan for multiple packages to a single delivery address to provide accurate delivery information to customers.
3. Review the results of the Delivery Partners Program for Colleges and Universities and the USPS Partner Mobile Application Pilot and consider implementing any best practices for drop houses.

We recommend the Vice Presidents, Delivery Operations and Engineering, coordinate to:

4. Develop a Mobile Delivery Device warning message/alert to deter carriers from applying street delivery scan events at delivery units.

We recommend the Vice Presidents, Delivery Operations, Engineering, and Enterprise Analytics, coordinate to:

5. Create a reason code for stop-the-clock scans entered using the manual input mode for the Mobile Delivery Device (MDD) and include this data on the Manual Entries report to track MDD malfunctions by reason codes.

We also recommend the Vice Presidents, Delivery Operations and Enterprise Analytics, coordinate to:

6. Update the Scan Data Integrity report to identify improper scans performed at delivery units.

Management's Comments

Management agreed with recommendations 1 and 3, partially agreed with recommendations 4 and 6, and disagreed with recommendations 2 and 5, and the report's methodology.

Regarding the disagreement with the report methodology, management stated our report did not consider legitimate reasons why scanning events may occur in the delivery office. Management also stated that the report failed to take into account scanning for caller and firm service addresses, vacation holds, addresses with change of address on file, and items addressed to businesses or other entities that may be closed as legitimate scans that would occur at a delivery office. In addition, management stated our report failed to identify the particular issue that results from a carrier scanning event occurring within 10 minutes of an Out for Delivery event, which could transpire during the course of a carrier's loading process.

Management also disagreed with the OIG using 25 million scans as the universe of scans versus the total scan universe of 2 billion. Furthermore, management stated the Postal Service performed approximately 35.5 million scans per day at their delivery units in August 2017 and the scans reviewed in the audit represent 0.03 percent of all scans performed.

In response to recommendation 1, management agreed with continuing to reinforce the importance of adhering to package scanning guidelines and policies. Management will continue to: Provide training for all new delivery employees; communicate with the field regarding scanning performance, best practices, and the importance of accurate scanning; and communicate all

IMD/MDD enhancements and updates to the field. Additionally, management will continue to reinforce that scanning is a critical component of the customer service experience as well as an ongoing expectation of the employees. The expected completion date is October 31, 2017.

In response to recommendation 2, management disagreed with the recommendation to develop a process that will allow carriers to perform one scan for multiple packages to a single delivery address to provide accurate delivery information to customers. Management stated a solution already exists. Specifically, delivering employees have the ability of effecting delivery by way of Postal Service (PS) Form 3883, Firm Delivery Receipt.

In response to recommendation 3, management agreed to review the results of the Delivery Partners Program for Colleges and Universities and the USPS Partner Mobile Application Pilot and consider implementing any best practices for drop houses. Management stated they are committed to developing more effective solutions related to transferring custody to “drop houses,” and will continue to work toward achieving the same. The expected completion date is March 31, 2018.

In response to recommendation 4, management partially agreed to develop a Mobile Delivery Device warning message/alert to deter carriers from applying street delivery scan events at delivery units. Management stated they are committed to developing capabilities to better refine the identification of proper in-office scans as compared to required street scans. The expected completion date is July 31, 2018.

In response to recommendation 5, management disagreed with creating a reason code for stop-the-clock scans entered using the manual input mode for the MDD. Management stated there is no evidence that creating reason codes for manual input would yield any benefit, especially when compared with the associated effort and cost to do so. However, the Postal Service will continue to monitor manual scans as a percentage of overall scans.

In response to recommendation 6, management partially agreed with updating the Scan Data Integrity report to identify improper scans performed at delivery units. Management stated they will work to update and enhance visualizations and available tools to increase visibility and accuracy as it relates to the customer experience. The expected completion date is September 30, 2018.

See [Appendix E](#) for management’s comments in their entirety.

Evaluation of Management’s Comments

The OIG considers management’s comments responsive to recommendations 1, 3, 4, and 6 and unresponsive to recommendations 2 and 5 in the report.

Regarding management’s disagreement with the methodology, as noted in the report, we excluded scans that a carrier could normally perform at a delivery unit from our review. The methodology states, “We excluded delivery time on the street from our universe as well as events anticipated as occurring at the delivery unit such as caller service, vacation holds, post office box deliveries, undeliverable as addressed, and business closed. We also excluded 50,179 Delivery Exception – Local Weather Delay scans as improper scans.” We identify and define the stop-the-clock scans we questioned, which are stop-the-clock scan events that should have occurred during street delivery but were performed, according to USPS’ GPS data, at delivery units. We conducted site visits nationwide to take full consideration of the number of mitigating factors and circumstances that can occur in individual delivery units. Some of these factors were identified as causes for improper scans in the audit report.

In addition, of the 2 billion packages for the period July 1 through December 31, 2016, our universe consisted of 25.5 million scans that occurred between 7 p.m. and when the carrier clocked out for delivery the following morning. We used GPS data to further analyze the 25.5 million scans and found that, of these, 15.3 million (60 percent) were performed at a location outside of the delivery unit, therefore we did not identify them as improper. However, about 1.9 million scans (7 percent) were improper stop-the-clock scans that occurred at delivery units instead of at the delivery location as required by Postal Service policy. Our report outlines this methodology and the universe of scans reviewed.

Regarding management's disagreement with recommendation 2, we agree the use of PS form 3883 is a potential solution, but noted during our audit work delivery unit personnel are not required to, and did not always set up, firm sheets for customers receiving six or more packages at a single address that did not require a signature. As such, action is needed to either require the use of a firm sheet or develop an alternate solution to allow carriers to scan multiple packages for one address. We consider management's comments unresponsive and view the disagreement as unresolved until we coordinate a resolution with management.

Regarding the partial agreement with recommendation 4 to develop an MDD warning message/alert, management did not specify what they did not agree with regarding this recommendation. However, management did state that they are committed to developing capabilities to better refine the identification of proper in-office scans as compared to required street scans. As such, we consider management's comments responsive to this recommendation.

Regarding the disagreement with recommendation 5, management stated there is no evidence that creating reason codes for manual input would yield any benefit, especially when compared with the associated effort and cost to do so. While we recognize there is a cost associated with technology enhancements, we continue to believe that additional reason codes would provide the Postal Service with valuable insight regarding manual scans. In addition, current policy to use the manual input mode when the MDD is inoperable excludes manual scans from a unit's scan performance measurement and impacts the National Performance Assessment. Finally, the Postal Service did not provide support to show the cost of such technology enhancements outweighed the benefits. We consider management's comments unresponsive and view the disagreement as unresolved until we coordinate a resolution with management.

Regarding management's partial agreement with recommendation 6 to update the Scan Data Integrity report, management did not specify what they did not agree with regarding this recommendation. However, they did state they will work to update and enhance visualizations and available tools to increase visibility and accuracy as it relates to the customer experience. As such, we consider management's comments responsive to this recommendation.

Recommendations 1, 3, 4, and 6 require OIG concurrence before closure. The OIG requests written confirmation when corrective actions are completed. All recommendations should not be closed in the Postal Service's follow-up tracking system until the OIG provides written confirmation that the recommendations can be closed.

Appendices

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Appendix A: Additional Information

Background

The Postal Service’s goal is to scan every mailpiece with a barcode (flats, letters, and packages) upon entry in to the mailstream and to track those items with additional scans up to the point of delivery. With the increased package volume, it aims to achieve 100 percent visibility and provide world-class package delivery services. The Postal Service offers several updates on the status of mail delivery to achieve world-class visibility (see Table 4).

Table 4. Scanning Events from Package Acceptance to Delivery

Scan Event	Type and Description	Visible to Customer
1. Acceptance	Handheld or Point-of-Service Scan on Mailpiece by Clerk or Carrier (pick up)	Yes
2. Depart Post Office	System-Generated Scan	Yes
3. Arrive at Origin Sort Facility	Work In Progress To Make Visible	No
4. Processed Through Origin	Machine or Handheld Active or Passive Scan of Mailpiece	Yes
5. Depart Origin Sort Facility	System-Generated Scan	Yes
6. Transportation (Arrive, En-Route, Depart)	Work in Progress To Make Visible	No
7. Arrive at Destination Sort Facility	Handheld Scan of Mail Containers	Yes
8. Processed Through Destination Sort Facility	Machine or Handheld Scan of Mailpiece	Yes
9. Depart Destination Sort Facility	System-Generated Scan of Mail Container	Yes
10. Arrive at Post Office	Handheld Scan of Mailpiece by Clerk	Yes
11. Sorting Complete	System-Generated Scan Event	Yes
12. Out for Delivery	System-Generated Scan Event	Yes
13. Delivered	Handheld Scan of Mailpiece by Carrier at delivery location.	Yes

Packages receive a stop-the-clock scan when a carrier attempts delivery. Service performance is generally measured as the time between “Acceptance” and the first “stop-the-clock” scan event on a mailpiece. A “stop-the-clock” event indicates that the Postal Service has completed its commitment as it applies to the service measurement on a mailpiece (see Table 5).

Table 5. Stop-the-Clock Scans Commonly Used in Delivery Operations

Scan Event	Description
1	Delivered
2	Attempt Delivery/Notice Left
4	Refused
53	Notice Left - Receptacle Blocked
54	Notice Left - Receptacle Full/Item Oversized
55	Notice Left - No Secure Location Available
56	Notice Left - No Authorized Recipient Available
57	Weather Delay ¹⁴

Source: OIG analysis of Postal Service Stop-the-Clock Event Matrix.

Carriers perform the stop-the-clock scan for packages at the point of delivery using the handheld MDD. MDDs use a cellular network to provide customers with real-time delivery product tracking information. The package delivery scan data is transmitted to RIMS and forwarded to the NIM. The NIM reformats the data and forwards them to the PTR system, which provides package tracking data to the EOD report and to customers (see [Figure 2](#)).

The MDD is intended to support multiple requirements, such as Sunday delivery and dynamic routing, report scan data faster, and allow for future software enhancements. The investment in MDDs is part of a larger effort to establish a delivery network that supports volume growth, meets delivery expectations, and improves the customer experience by documenting activity as it occurs.

Objective, Scope, and Methodology

Our objective was to assess the package delivery scanning process in city delivery operations. To accomplish this we:

- Reviewed and analyzed package tracking data from July 1 through December 31, 2016, nationwide. Our universe included 25 million delivery scans that occurred between 12:01 a.m. until the carrier clocked out for delivery and 7 p.m.-12 a.m. These scans are a portion of the 2 billion scans that occurred from July 1 – December 31, 2016. We excluded delivery time on the street from our universe as well as events anticipated as occurring at the delivery unit such as caller service, vacation holds, post office box deliveries, undeliverable as addressed, and business closed. We also excluded 50,179 Delivery Exception – Local Weather Delay scans as improper scans (see [Appendix D](#)).
- We considered several stop-the-clock options available to carriers in our review:
 - Delivered. Item is delivered to the customer.
 - Notice Left. Item cannot be delivered to the addressee after the carrier made an attempt to deliver this item.
 - Receptacle Full/Item Oversized. Substituted for the attempted scan when a signature waiver has been requested, but the item will not fit in the mailbox and it cannot be left in a secure location.

¹³ Formerly Hazardous Materials Stop-the-Clock Event Code (as of January 2017).

- No Secure Location Available. Substituted for an attempted scan when the item will not fit in the mail receptacle. The carrier is authorized to leave the item in a secure location; however, no safe or secure location is available.
 - No Authorized Recipient Available. Substituted for an attempted scan of an item requiring a signature and no authorized recipient or recipient of acceptable age is available to sign for the item.
 - Delivery Exception – Local Weather Delay. Item could not be attempted and/or delivered due to local weather conditions. This stop-the-clock scan event was formerly a Hazardous Material, which substituted for an attempted scan of an item that could not be safely delivered by a postal employee due to hazardous/unsafe delivery conditions. As of January 2017, stop-the-clock scan was changed to Delivery Exception – Local Weather Delay and is considered an acceptable scan even at the delivery unit.
- Obtained and reviewed documentation and application policies and procedures related to the delivery scanning process.
 - Obtained, analyzed, and reviewed city delivery operations data such as package scanning data, Geographic Information System Data for package scanning at delivery units, MDD inventory, and customer complaints.
 - We judgmentally selected 12 delivery units from each Postal Service area with the highest, medium, and lowest number of delivery scans performed before carriers left the office and after carriers returned from their delivery routes.
 - Observed city delivery operations at the following 12 judgmentally selected delivery units (see Table 6).

Table 6. Selected Delivery Units

Area	District	Delivery Unit	State
Capital Metro	Atlanta	McDonough Post Office	GA
Capital Metro	Atlanta	Sprayberry Post Office	GA
Eastern	Philadelphia Metro	North Philadelphia Station	PA
Eastern	Philadelphia Metro	Roxborough Station	PA
Great Lakes	Detroit	Ypsilanti Post Office	MI
Northeast	Triboro	East New York Station	NY
Northeast	New York	Gracie Station	NY
Pacific	Bay-Valley	John Sanchez Carrier Annex	CA
Pacific	San Francisco	Townsend Carrier Annex	CA
Pacific	Bay-Valley	Walnut Creek Post Office	CA
Southern	Alabama	Meadowbrook Post Office	AL
Western	Colorado/Wyoming	Castlerock Post Office	CO

Source: PTR.

- We interviewed Postal Service headquarters, area, district, and delivery unit personnel to discuss package delivery scanning.

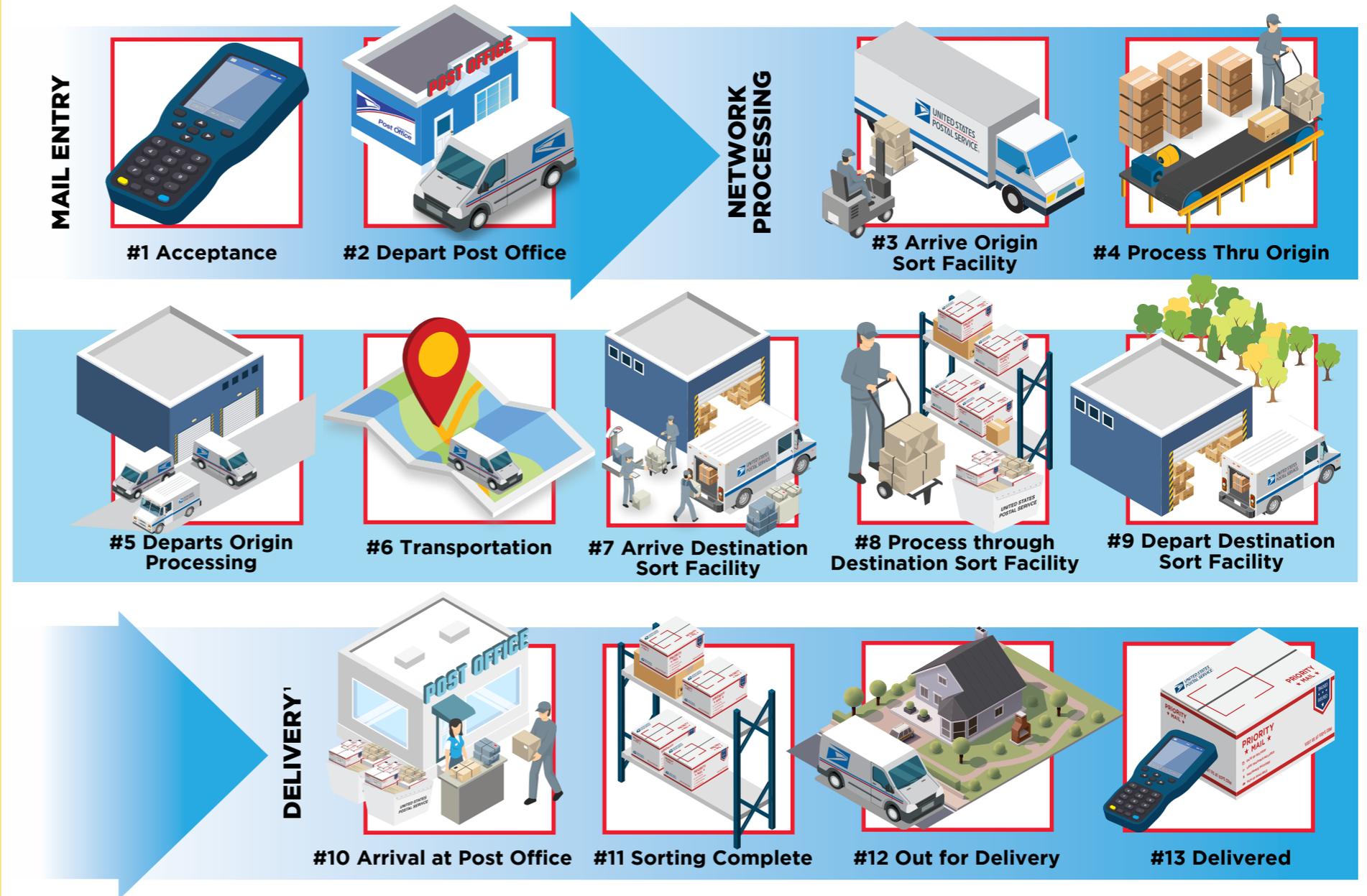
We conducted this performance audit from March through October 2017, in accordance with generally accepted government auditing standards and included such tests of internal controls as we considered necessary under the circumstances. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective. We discussed our observations and conclusions with management on August 14, 2017, and included their comments where appropriate.

We assessed the reliability of PTR system data by performing electronic testing of the parcel tracking ID and interviewing agency officials knowledgeable about this data. We also assessed the reliability of the Enterprise Consumer Care system by reviewing existing information about the system and the system that produced the data. We determined that the data were sufficiently reliable for the purposes of this report.

Prior Audit Coverage

Report Title	Objective	Report Number	Final Report Date	Monetary Impact (in millions)
<i>Package Delivery Scanning: Chicago District</i>	To assess the package scanning process for city delivery operations in the Chicago District	DR-AR-16-003	3/31/2016	\$80,132

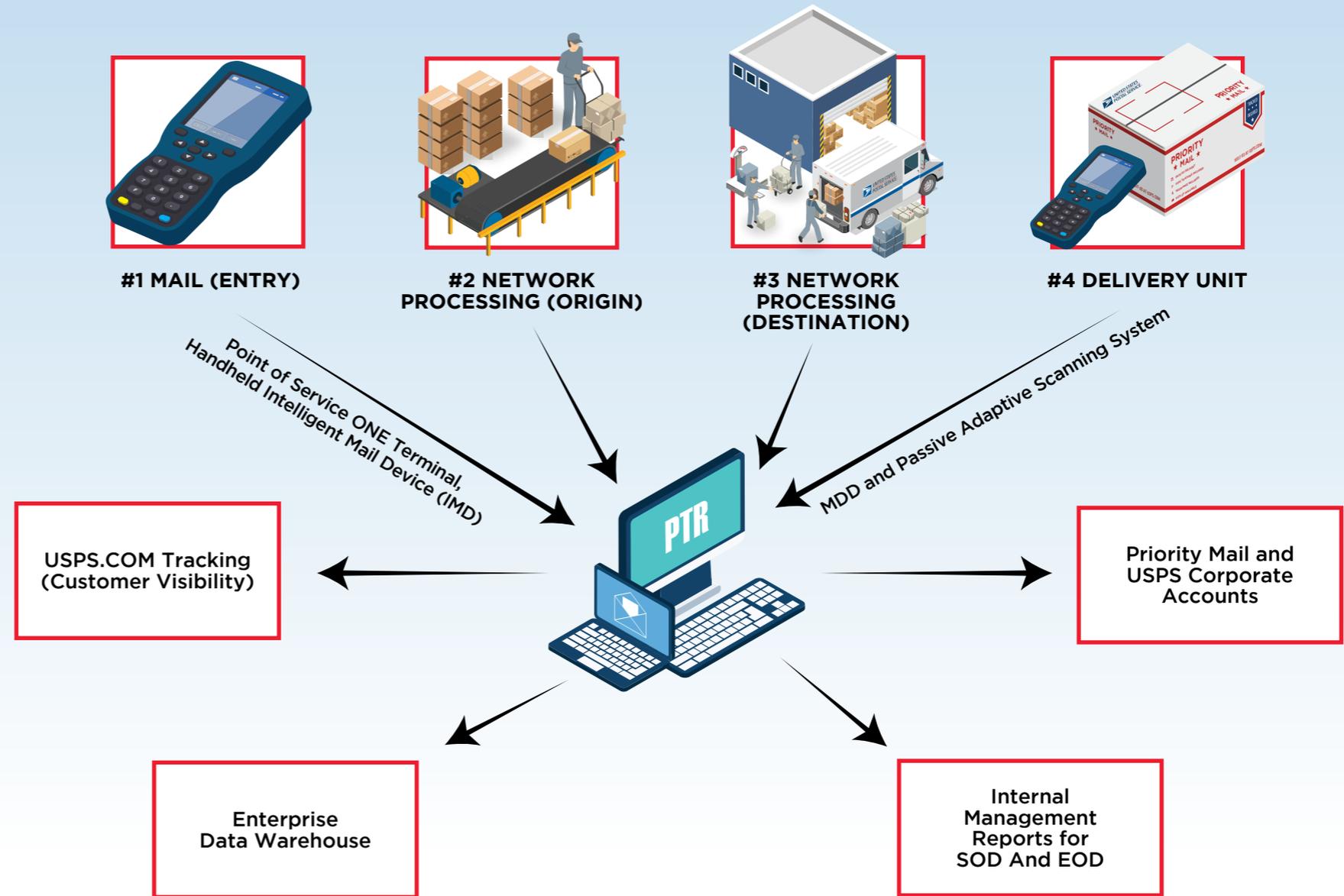
Appendix B: Scanning From Package Acceptance to Delivery



1. Drop Shipments: [REDACTED]

Source: Postal Service analysis.

Appendix C: Package Scanning Data Reported to Product Tracking and Reporting System



1. Acceptance, Depart Post Office
2. Processed through Origin, Depart Origin Sort Facility
3. Arrive Destination Sort Facility, Processed through Destination Sort Facility, Depart Destination Sort Facility
4. Arrival at Post Office, Sorting Complete, Out for Delivery, Delivered

Source: Postal Service.

Appendix D: Stop-the-Clock Event Codes Included in Improper Scans

A stop-the-clock event indicates that the Postal Service has completed its commitment to deliver or attempt to deliver the package. The table below shows a summary of OIG-identified scans which improperly used stop-the-clock scan codes (see Table 7).

Table 7. Stop-the-Clock Event Codes Included in Improper Scans

Nationwide Scans by Stop-the-Clock Event July - December 2016									
Stop- the- Clock Event Code	Stop the Clock Event	Capital Metro Area	Eastern Area	Great Lakes ¹⁵ Area	Northeast Area	Pacific Area	Southern Area	Western Area	Total
1	Delivered	175,031	140,613	84,570	147,924	340,074	226,365	202,701	1,317,278
2	Notice Left	248	101	22	105	431	433	419	1,759
4	Refused	609	629	348	652	1,773	1,082	872	5,965
53	Receptacle Blocked	6,856	19,304	13,929	23,763	41,698	13,599	10,642	129,791
54	Receptacle Full/Item Oversized	6,088	7,339	2,717	8,163	10,181	9,386	21,651	65,525
55	No Secure Location Available	55,571	44,932	17,310	47,922	57,327	52,658	48,419	324,139
56	No Authorized Recipient Available	1,365	1,147	685	1,507	2,041	2,107	2,284	11,136
Total		248,347	218,448	133,196	234,303	453,769	306,811	310,898	1,855,593

Source: OIG analysis of PTR system, July 1 through December 31, 2016.

¹⁴ We excluded Chicago District scans due to prior work conducted in the area (Package Delivery Scanning: Chicago District, Report Number DR-AR-16-003, dated March 31, 2016).

Appendix E: Management's Comments



October 13, 2017

LORI LAU DILLARD
DIRECTOR, AUDIT OPERATIONS

SUBJECT: Package Delivery Scanning – Nationwide
Report No. DR-AR-17-DRAFT

This transmits management's response to the Office of Inspector General (OIG) Package Delivery Scanning – Nationwide report. Overall, we question the report's methodology and the fact that it does not consider plausible and legitimate explanations why scanning events may occur in the delivery office. Nevertheless, the Postal Service is and will remain committed to providing our customers with exceptional service, which includes real-time visibility and package tracking. In particular, we remain committed to continually improving and enhancing not only our technologies but also our work processes, in order to increase the value of our service to our customers. Various initiatives, such as MDD deployment and enhancements, geospatial capabilities, as well as visibility and diagnostic tools for use by our employees, demonstrate this commitment.

We question the report's methodology. In particular, the OIG ran percentages from the 25 million scans deemed potentially questionable, rather than using the total population of 2 billion scans over the applicable 6-month period. We believe this creates a risk of bias.

The report states "*About 1.9 million scans (7 percent) were improper stop-the-clock scans that occurred at delivery units (within 10 minutes of the carrier leaving) instead of at the delivery location.*" This fails to take into account the fact that carriers are required to sort packages while loading their vehicles, after moving to the street. In doing so, many carriers encounter packages for addresses that may be properly scanned at that time. For instance, scanning may occur at the delivery unit for caller and firm service addresses, vacation holds, addresses with a change of address on file, and items addressed to businesses or other entities that may be closed on the particular date in question. The scanning process for items identified by carriers as undeliverable while in the office or loading their vehicles is expedited by applying the appropriate scan at

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that time. Indeed, it would be counterproductive for the Postal Service to require a carrier to attempt delivery of an item at an address which is known to be closed or unavailable for delivery. Simply put, there are many legitimate reasons and circumstances that explain why stop-the-clock scans may occur at a delivery unit instead of at a delivery point. The report fails to identify the particular problem or issue that arises as a result of a carrier scanning event that occurs within 10 minutes of an Out for Delivery event, which could well transpire during the course of a carrier's loading process.

A secondary concern relates to the report's methodology. The Postal Service performed approximately 35.5 million scans per day at our delivery units alone in the month of August. The scans reviewed in the audit represent 0.03% of all scans performed at delivery units.

The following is management's response to the numbered recommendations contained in the report:

Recommendation #1:

Continue to reinforce the importance of adhering to package scanning guidelines and policies.

Management Response/Action Plan:

We agree with this recommendation. We will continue to conduct the following steps to strengthen and improve our scanning performance:

- a) Provide training for all new delivery employees.
- b) Continue regular communication to the field in regards to scanning performance, best practices, and the importance of accurate scanning.
- c) Communicate to the field all IMD/MDD enhancements and updates.

Additionally, scanning is a critical component of the customer experience, as well as an ongoing expectation of our employees that we will continue to reinforce.

Target Implementation Date:

October 2017

Responsible Official:

Manager, Delivery Strategy & Planning

Recommendation #2:

Develop a process that will allow carriers to perform one scan for multiple packages to a single delivery address to provide accurate delivery information to customers.

Management Response/Action Plan:

We disagree with this recommendation, as a solution already exists. Specifically, delivering employees have the ability of effecting delivery by way of PS Form 3883 (Firm Delivery Receipt).

Recommendation #3:

Review the results of the Delivery Partners Program for Colleges and Universities and the USPS Partner Mobile Application Pilot and consider implementing any best practices for drop houses.

Management Response/Action Plan:

We agree with this recommendation. Specifically, we are committed to developing more effective solutions related to transferring custody to "drop houses," and will continue to work toward achieving the same.

Target Implementation Date:

March 2018

Responsible Official:

Manager, City Delivery

Recommendation #4:

The OIG recommends that the Vice Presidents, Delivery Operations and Engineering coordinate to:

Develop a Mobile Delivery Device warning message/alert to deter carriers from applying street delivery scan events at delivery units.

Management Response/Action Plan:

We agree in part with this recommendation. We are committed to developing capabilities to better refine the identification of proper in-office scans as compared to required street scans.

Target Implementation Date:

July 2018

Responsible Official:

Vice President, Engineering Systems

Recommendation #5:

The OIG recommends that the Vice Presidents, Delivery Operations, Engineering and Enterprise Analytics, coordinate to:
Create a reason code for stop-the-clock scans entered using the manual input mode for the Mobile Delivery Device (MDD) and include this data on the Manual Entries report to track MDD malfunctions by reason codes.

Management Response/Action Plan:

We disagree with this recommendation, specifically to create a reason code for manual input mode stop-the-clock scans for use in tracking Mobile Delivery Device (MDD) malfunctions by reason code. There is no evidence that creating reason codes for manual input would yield any benefit, especially when compared with the associated effort and cost to do so. However, the Postal Service will continue to monitor manual scans as a percentage of overall scans.

Recommendation #6:

The OIG recommends that the Vice Presidents, Delivery Operations and Enterprise Analytics, coordinate to:

Update the Scan Data Integrity report to identify improper scans performed at delivery units.

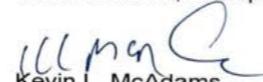
Management Response/Action Plan:

We conditionally agree with this recommendation. Specifically, we will work to update and enhance visualizations and available tools, in order to increase visibility and accuracy as it relates to the customer experience.

Target Implementation Date:

September 2018

Responsible Official:
Vice President, Enterprise Analytics


Kevin L. McAdams
Vice President,
Delivery Operations


Michael J. Amato
Vice President,
Engineering Systems


Isaac S. Cronkhite
Vice President,
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cc: CARM
David E. Williams
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