OFFICE OF INSPECTOR GENERAL
UNITED STATES POSTAL SERVICE

Readiness for Package Growth – Processing Capacity

Audit Report

Report Number
NO-AR-14-002-DR

January 21, 2014

OFFICE OF INSPECTOR GENERAL
UNITED STATES POSTAL SERVICE

Highlights

To meet anticipated package growth, the Postal Service must improve machine throughput by properly staffing machines and adjusting the mail arrival schedule.

Background

Strong consumer demand for goods purchased over the Internet has driven growth in package volume in an otherwise declining mail market. In calendar year 2010 total online sales increased 12.6 percent from the prior year. Online retail sales in the U.S. are expected to grow to $278.9 billion by 2015. This growing package segment provides the U.S. Postal Service an opportunity to help counter the reduction in First-Class Mail® volume and the flattening of Standard Mail® volume. In its 2012 *Five-Year Business Plan*, the Postal Service projects that volume, which was 3.5 billion packages in fiscal year 2012, will grow by 5 to 6 percent per year through 2017.

The Postal Service, through its Delivering Results, Innovation, Value, and Efficiency initiative, is working to establish a package processing and delivery network that supports this package growth. Customer expectations for packages are rising through demand for free shipping and increased tracking and visibility capabilities.

This report is one of a series of U.S. Postal Service Office of Inspector General products that addresses the Postal Service's readiness for growth in the package business. Our objective was to assess the Postal Service's package processing capacity to meet anticipated volume increases.

What The OIG Found

The Postal Service has sufficient machine capacity to process all non-peak period package volume. It can process an average of about 29 million packages daily, which is more than sufficient to process the 24 million packages it receives. During the December peak period, the Postal Service augments its machine capacity with manual processing. The Postal Service does this to avoid having excess machine capacity and its associated costs for the other 11 months of the year. But, to meet anticipated package growth, the Postal Service could improve machine throughput by properly staffing machines and adjusting the mail arrival schedule.

What The OIG Recommended

We recommended the vice president, Network Operations, ensure package processing equipment is adequately staffed, standardize package processing operations where feasible, and adjust mail arrival schedules as necessary.

Transmittal Letter

January 21, 2014

MEMORANDUM FOR: DAVID E. WILLIAMS, JR.
VICE PRESIDENT, NETWORK OPERATIONS

E-Signed by Robert Batta
VERIFY authenticity with e-Sign

Robert J. Batta

FROM: Robert J. Batta
Deputy Assistant Inspector General for Mission Operations

SUBJECT: Audit Report – Readiness for Package Growth –
Processing Capacity (Report Number NO-AR-14-002)

This report presents the results of our audit of Readiness for Package Growth – Processing Capacity (Project Number 13XG036NO000).

We appreciate the cooperation and courtesies provided by your staff. If you have any questions or need additional information, please contact James L. Ballard, director, Network Processing and Transportation, or me at 703-248-2100.

Attachment

cc: Corporate Audit and Response Management

Table of Contents

Findings

To meet anticipated growth, the Postal Service must improve machine throughput and increase run times.
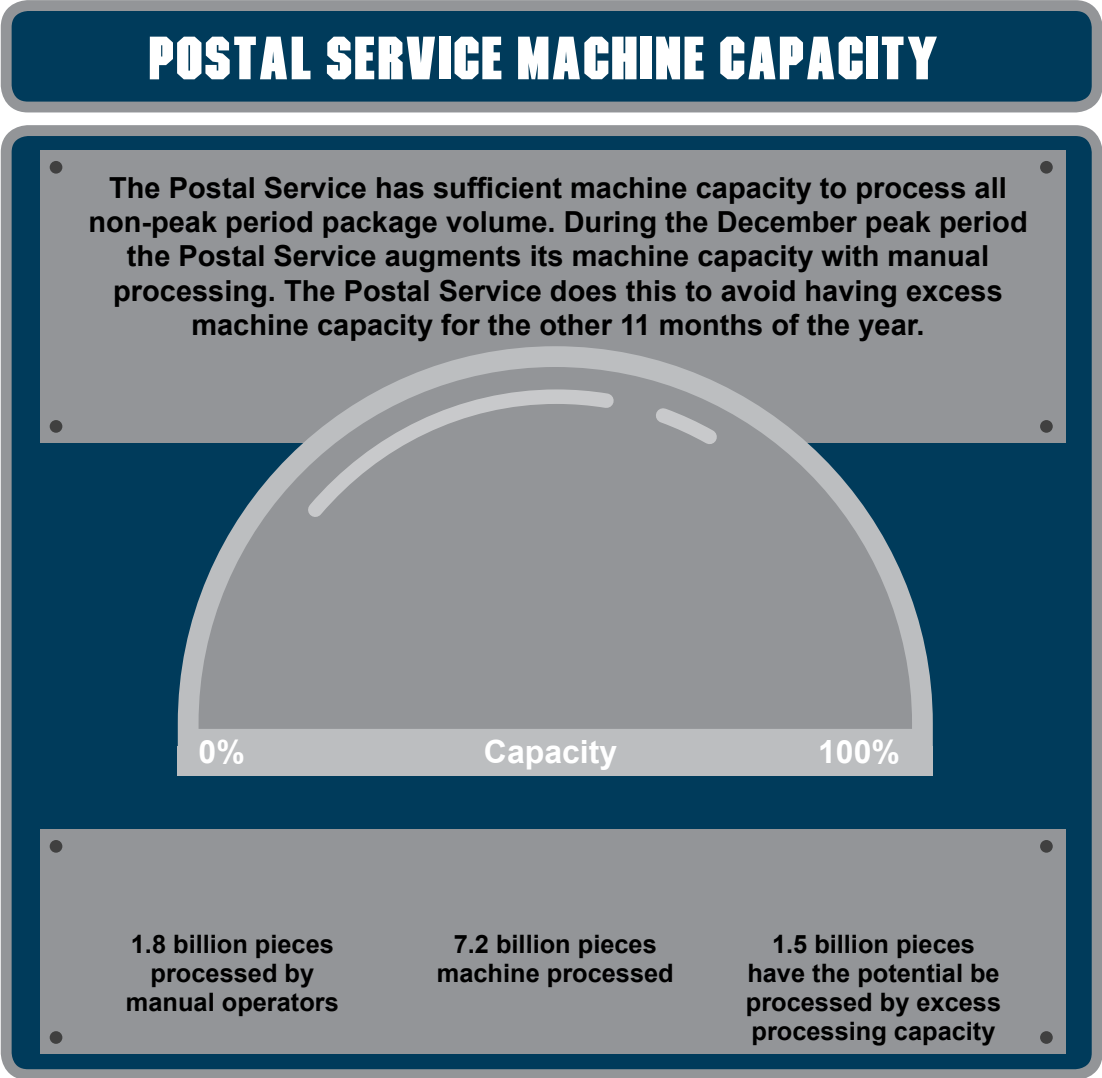
Introduction

This report presents the results of our self-initiated audit of Readiness for Package Growth – Package Capacity (Project Number 13XG036NO000). This report is one of a series of U.S. Postal Service Office of Inspector General (OIG) products that addresses the U.S. Postal Service's readiness for growth in the package business. Our objective was to assess the Postal Service's package processing capacity to meet anticipated volume increases. See Appendix A for additional information about this audit.

Conclusion

The Postal Service has sufficient machine capacity to process all non-peak period package volume.[1] It has the machine capacity to process about 29 million packages daily, which is more than sufficient to process the 24 million packages it receives daily. However, to meet anticipated package growth, the Postal Service must improve machine throughput and increase run times.

(Hover over the circles below for more information)

POSTAL SERVICE MACHINE CAPACITY

The Postal Service has sufficient machine capacity to process all non-peak period package volume. During the December peak period the Postal Service augments its machine capacity with manual processing. The Postal Service does this to avoid having excess machine capacity for the other 11 months of the year.

0%   Capacity   100%

1.8 billion pieces processed by manual operators

7.2 billion pieces machine processed

1.5 billion pieces have the potential be processed by excess processing capacity

Strong consumer demand for goods purchased over the Internet has driven growth in package volume. From fiscal years (FYs) 2010 through 2012, Postal Service package volume increased by 445 million pieces, or 14.6 percent. This rate of growth is greater than Federal Express (FedEx) or United Parcel Service (UPS) of America, Inc. which experienced volume growth of 10.5 and 4.5 percent, respectively, during reporting years 2010 through 2012.[2] Similarly, Postal Service package revenue increased by $1.44 billion, or 14.2 percent, during this same period.[3] In its 2012 *Five-Year Business Plan*, the Postal Service projects volume, which was 3.5 billion packages in FY 2012, will grow by 5 to 6 percent per year through 2017.
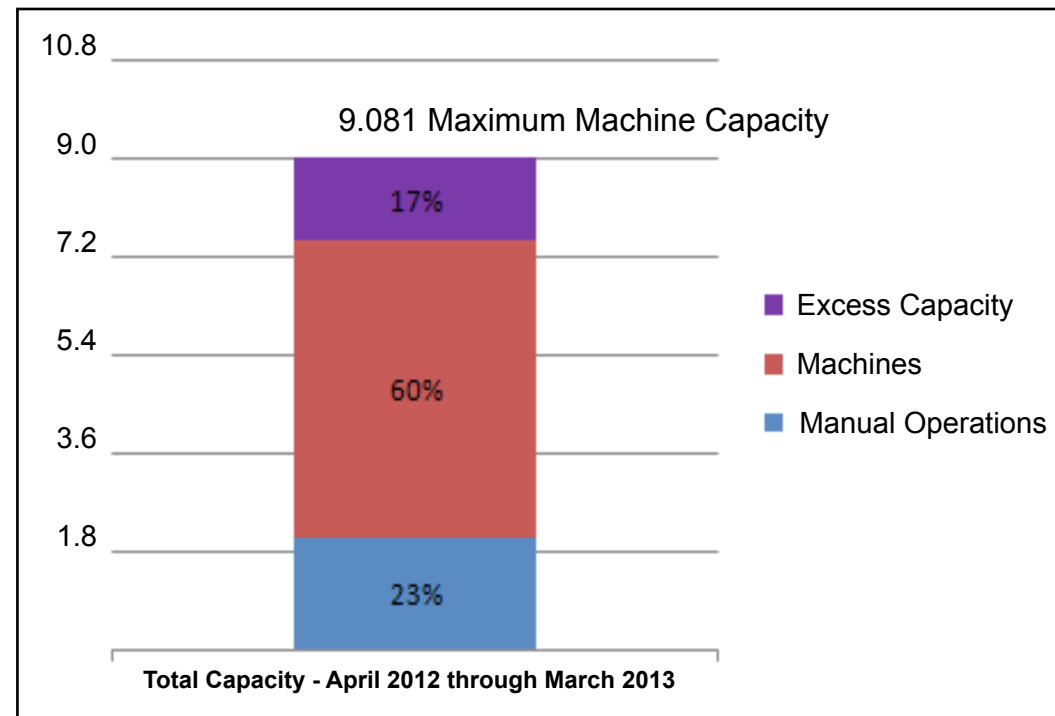
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1   During the December peak period, the Postal Service augments its machine capacity with manual processing. The Postal Service does this to avoid having excess machine capacity for the other 11 months of the year.

2   The Postal Service's reporting year ends September 30, FedEx's reporting year ends May 31, and UPS's reporting year ends December 31.

3   According to the Postal Service's FY 2012 *Annual Report*, total shipping and package services (package volume) increased from $10.156 billion in FY 2010 to $11.596 billion, or 14.2 percent, in FY 2012; and increased from 3.057 billion pieces in FY 2010 to 3.502 billion pieces, or 14.6 percent, in FY 2012.

Existing Processing Capacity

Our analysis shows the Postal Service has sufficient capacity to accommodate current package volume on its existing automated equipment.[4]

We analyzed package processing from April 2012 through March 2013 and determined there was about 17 percent excess capacity[5] available to process increased package volume[6] (see Figure 1). The 17 percent excess equates to about 1.5 billion packages.

Figure 1. Machineable Package Processing Capacity and Volume — April 2012 to March 2013 (in billions)
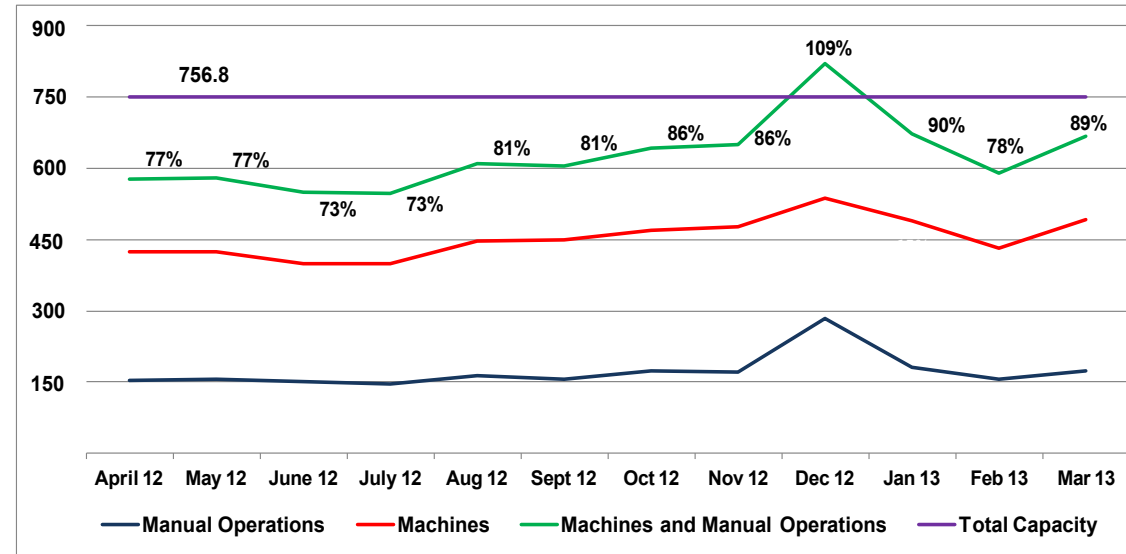

Source: Management Operating Data System (MODS).

A month-to-month analysis found sufficient capacity on existing machinery to process all package volume every month except December. The Postal Service supplements with manual processing to accommodate the additional package volume it receives in December (see Figure 2).

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4 We used the following automated package processing equipment in our capacity calculations: Automated Package Processing System (APPS), Automated Parcel and Bundle Sorter (APBS), Small Parcel and Bundle Sorter (SPBS), High-Speed Induction Unit (HSIU), and Singulated Scan Induction Unit (SSIU).
5 Excess capacity is calculated by dividing the machines and manual operations used during the review period by total capacity. Excess capacity is 7.568 billion divided by 9.081 billion, or 17 percent.
6 Our analysis does not take into account current mail arrival profiles or standard operating windows for processing to ensure service standards are met.

**Figure 2. Machineable Package Processing Capacity and Volume —
April 2012 Through March 2013 (in millions)**

Source: MODS.

Excess capacity exists because the Postal Service has more machine capacity than package volume (see Appendix B).

Maximize Capacity

To meet anticipated volume increases, the Postal Service must maximize its package processing capacity through improved machine throughput and increased machine run times.

Machine Throughput

The Postal Service can maximize capacity by increasing machine throughput. From April 2012 through March 2013, the Postal Service did not achieve established throughput goals on package processing equipment. Actual machine throughput was from 7 to 37 percent less than planned on all types of mail processing equipment (MPE) (see Table 1).

Table 1. Processing Machines Throughput — April 2012 Through March 2013

Processing Machine	Number of Machines	Actual Throughput	Throughput Goals	Difference
APBS[1]	210	3,677	4,050	-9%
APPS – Single	17	4,597	4,950	-7%
APPS – Dual	57	7,651	8,703	-12%
HSIU and SSIU	65	2,851	4,500	-37%

Source: Mail and Image Reporting System (MIRS) and the Postal Service.

1   The APBS is an expansion of the SPBS with two overhead cameras and a barcode and/or optical character recognition.

Opportunities for improving machine throughput include:

■ Ensuring MPE is adequately staffed. At six of the seven facilities we visited that had at least one APPS machine, there were an insufficient number of cullers or loaders on the APPS machines for optimal operation. As a result, machine throughput suffered because the machine jammed or packages rotated around the machine multiple times before being sorted.

■ Standardizing package processing across the network. We observed that processing plants differed in terms of equipment, floor layout, and dock locations at the locations we visited. Some processing and distribution centers (P&DCs) have APPS machines while others do not (see Table 2). Many smaller facilities do not have automated package processing equipment and rely solely on manual processing. Standardizing package processing operations, where possible, can improve machine throughput, increase capacity, and accommodate additional volume.

Table 2. Package Processing Equipment and Workload at Sites Visited from April 1, 2012 Through March 30, 2013

Plant	Number of APPS Machines	APPS Workload	Number of SPBS/ APBS Machines	SPBS/ APBS Workload	Number of HSIUs and SSIUs	HSIU and SSIU Workload
Los Angeles Network Distribution Center (NDC)	-	-	2	16,503,696	4	71,969,774
Los Angeles P&DC	2	48,930,642	1	19,861,389	-	-
Los Angeles International Service Center (ISC)	-	-	3	42,141,977	1	7,723,857
Denver NDC	1	23,536,867	-	-	3	47,769,253
Denver P&DC	-	-	-	-	-	-
Denver Mail Processing Annex	1	27,197,144	-	-	-	-
Chicago Metro Surface Hub	3	77,329,724	1	7,605,029	-	-
Chicago NDC	1	30,126,126	1	23,737,669	2	23,066,449
South Suburban P&DC	-	-	-	-	-	-
Chicago ISC	1	13,984,403	3	24,433,836	-	-
North Texas P&DC	1	31,430,545	2	20,759,121	-	-

Source: Machine Numbers per Web End-of-Run period March 31, 2012 through March 29, 2013, and Business Process Improvement Report Workload from the Variance Programs Toolbox.

Machine Run Time

Package processing capacity could also be improved by increasing run time on both the APPS and APBS machines. Between April 2012 and March 2013, these machines' average run times were between 11 and 14 hours per day versus a run time goal of 17 hours per day (see Table 3).

Table 3. Processing Machine Run Times — April 2012 Through March 2013

Processing Machine	Number of Machines	Actual Daily Run Time Hours Average	Planned Daily Run Time Hours Average	Differences From Planned Daily Run Time
APBS	210	11.28	17	-34%
APPS – Single	17	14.29	17	-16%
APPS – Dual	57	14.26	17	-16%
HSIU and SSIU	65	17.93	17	5%

Source: MIRS and Postal Service.

Ensuring mail is available at the start of the scheduled machine operating window can improve machine run times. At one facility, an APPS operation was scheduled to start at 6 p.m., but mail did not arrive until 7:30 p.m., delaying the start of the operation. Late arriving mail shortens run times and can cause bottlenecks and mail delays at critical times during the operating window (see Figure 3).

Figure 3. Priority Mail Bottleneck

Source: OIG photograph taken at the Denver Mail Processing Annex on June 25, 2013.

Increasing machine run times will maximize existing capacity, provide an opportunity to move some manually processed mail to the machines, and address anticipated growth in package volumes.

The Postal Service can make the most of the opportunities projected package volume growth presents by optimizing its processing capabilities. It also has a legal obligation to do so. Under 39, U.S.C., Part III, Chapter 20:

> The Postal Service shall promote modern and efficient operations and should not expend any funds, engaging in any practice, or entering into any agreement or contract, other than an agreement or contract under Chapter 12 of this title, which restricts using new equipment or devices which may reduce the cost or improve the quality of postal services, except where such restriction is necessary to ensure safe and healthful employment conditions.

Recommendations

We recommended the Postal Service ensure package processing equipment is adequately staffed, standardize package processing operations where feasible, and adjust mail arrival schedules as necessary.

We recommend the vice president, Network Operations:

1. Ensure package processing equipment is adequately staffed.

2. Standardize package processing operations where feasible.

3. Adjust mail arrival schedules where possible to increase the amount of mail available at the beginning of machine runs.

Management's Comments

Management agreed with all the recommendations in the report. In response to recommendation 1, management is working to ensure an adequate complement is in place by June 2014 to maximize equipment. Regarding recommendation 2, equipment will be deployed and operations standardized where space and market demands permit with a target date of March 2014. For recommendation 3, plant schedules will be adjusted to ensure mail arrival coincides with the beginning of machine runs by June 2014. See Appendix C for management's comments, in their entirety.

Evaluation of Management's Comments

The OIG considers management's comments responsive to the recommendations in the report.

Appendices

Click on the appendix title to the right to navigate to the section content.

Background

Total online sales increased 12.6 percent in calendar year 2010 from the prior year — to $176.2 billion — and online retail sales in the U.S. are expected to grow to $278.9 billion by 2015. The growing package segment provides the Postal Service an opportunity to counter the reduction in First-Class Mail® volume and the flattening of Standard Mail® volume.

Through the Delivering Results, Innovation, Value, and Efficiency (DRIVE)[7] initiative, the Postal Service's goal is to establish a package processing and delivery network that supports package growth and delivery expectations. Customer expectations for the package business are rising through demands for free shipping and increased tracking and visibility capabilities. Current Postal Service initiatives to increase package business include Package Intercept[8] and Day Certain Delivery.[9]

Postal Service package services are broken into the following categories:

Express Mail   The fastest service, with a money back guarantee and overnight delivery to most U.S. addresses.

Priority Mail Express   An expedited service for shipping any mailable matter, subject to certain standards, such as size and weight limits.

First-Class Packages   The First-Class Mail marking that is used on the face of a package to indicate the service level to be provided and, when combined with other price-specific markings, to show the product or price category claimed.

Parcel Select Mail   An economical ground delivery service used by large private industry shippers that rely on the reach of the Postal Service because it delivers to every home and business in the nation.

Parcel Return   A dedicated return service for businesses that generate 500,000 or more returns a year.

Service Mail   Parcel Return Service is a workshare program to pass on savings to high volume shippers.

Package Services   Primarily used for shipping merchandise and includes Postal Service Tracking and/or Delivery Confirmation at no additional charge. Package Services do not include free forwarding and return, but mailers can use ancillary service endorsements to tell the Postal Service how to treat undeliverable mail.

The Postal Service uses manual and automated methods to process its packages within mail processing facilities. The Postal Service's mail processing facilities use APPS, APBS, and HSIUs and/or SSIUs to process most packages.

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7 DRIVE is a management process used to improve business strategy development and execution. The goal of DRIVE Initiative 43 is to "Build a World-Class Package Platform."
8 Package Intercept enables customers to redirect a shipment before final delivery.
9 Day Certain Delivery allows customers to have their packages delivered on a specific day.

Objective, Scope, and Methodology

Our objective was to assess the Postal Service's package processing capacity to meet anticipated volume increases.

To meet our objective, we analyzed package volume, workhours, and productivity from April 2012 through March 2013. We used total pieces handled (TPH) and non-add TPH volumes in our analysis. We also reviewed policies and procedures regarding package processing and visited 11 mail processing facilities, where we observed and interviewed plant managers.

We relied on computer-processed data maintained by Postal Service operational systems, which include MODS, MIRS, and the Enterprise Data Warehouse. We did not test the validity of controls over these systems. However, we assessed the reliability and verified the accuracy of the data by confirming our results with Postal Service managers and other data sources. We also relied on prior OIG reviews of Postal Service systems. We determined that the data were sufficiently reliable for the purposes of this report.

We conducted this performance audit from May 2013 through January 2014 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 November 18, 2013, and included their comments where appropriate.
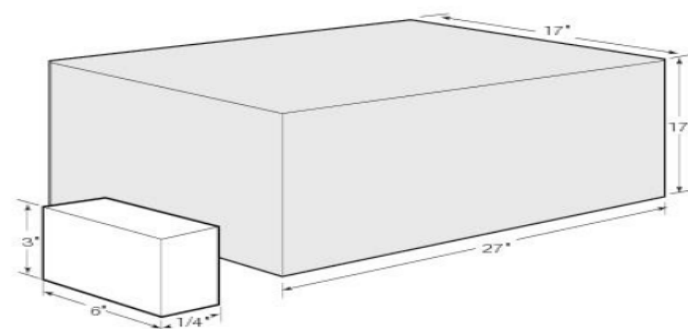
Prior Audit Coverage

Report Title	Report Number	Final Report Date	Monetary Impact (in millions)
Readiness for Package Growth - Delivery Operations	DR-MA-14-001	12/11/2013	$0

Report Results: The Postal Service's Delivery Operations organization has successfully managed package growth from a mail volume and workhour standpoint. However, opportunities exist to improve readiness by implementing dynamic routing and modifying package compartments on cluster box units. Improving the retention of city carrier assistants, using parcel data, and establishing a vehicle shelving system will further bolster package readiness. Meeting these challenges will help the Postal Service manage growth and improve its competitiveness in the package business to better meet customers' needs. Management agreed with the findings and recommendations. Management noted that these issues were discussed during meetings with the OIG and corrective actions are being developed by the program offices.

Click-N-Ship for Business	DP-AR-13-005	4/29/2013	$7

Report Results: The Postal Service did not implement sufficient controls to protect revenue associated with the Click-N-Ship for Business application. Specifically, business customers can print Click-N-Ship for Business mailing labels without paying for postage, affix them to packages, and enter them into the mailstream with little risk of detection by Postal Service personnel or systems. We recommended management disable the ability to print Click-N-Ship for Business mailing labels without purchasing the required postage. Management agreed with the intent of the recommendation and will work toward addressing the issues raised in this report, as well as those expressed by its customers.

Package Delivery Growth	MS-AR-12-003	5/4/2012	$467 revenue increase

Report Results: The Postal Service's strategies for growing its package business have helped it keep pace with competitors in growing domestic and international package markets. Although the strategies are sound, their effectiveness has been impacted by lack of a strategic decision-making process for evaluating new sales opportunities, sales tracking system shortcomings, and chronic sales staff vacancies. The Postal Service can grow its package business by stabilizing sales staffing levels and adding new products. We estimate it could increase revenue by $217 million in FY 2012 and by $340 million in FY 2013. This would be in addition to the $90 million in added revenue it did not capture in FY 2011 because of Sales staffing shortages. We estimate the Postal Service could realize $122 million of new revenue for each additional percentage point of market share gained in its key lightweight segment. We recommended the Postal Service establish a strategic decision-making process for evaluating new sales opportunities, enhance the Customer First! System, reassess sales staffing levels, continue to pursue legislative change that will allow it to ship beer and wine, and evaluate offering prepayment of customs duties and taxes and a local delivery product. Management agreed with our findings and recommendations and set forth its plans for corrective actions. Management disagreed with the monetary impact in a subsequent correspondence stating that, even with a reduced sales force, it has been able to increase sales by focusing on higher value sales and sales execution.

Appendix B: Package Processing Machine Descriptions and Restrictions

The Postal Service processed about 3.5 billion packages in FY 2012, including package shipments for the military. A machineable package is any piece that is not a letter or a flat and has specific characteristics as discussed below:

Minimum and maximum machineable package dimensions can vary based on the processing machine as shown below (see Figure 4).

Figure 4. Machineable Package Dimensions

Source: Domestic Mail Manual (DMM).

- A description of size and weight constraints for the processing machines we reviewed (see Table 4).

Table 4. Package Processing Machine Descriptions and Constraints

Machine Type	Machine Description	Package Size and Weight Constraints
APPS	• Designed to automatically sort packages and small packages and rolls to a 3-digit or 5-digit ZIP Code. Flat bundles can be sorted to a 3-digit, 5-digit, or carrier route ZIP Code. • Ranges in size from 12,062 square feet (SF) to 32,101 SF.	Can handle pieces up to a maximum of 22 inches long, 15 inches high, 18 inches wide, and 25 pounds.
APBS	• Designed to extend the operating life of existing SPBS systems and enhance those machines with improved operational capabilities.	Can handle pieces up to a maximum of 15 inches long, 12 inches wide, 12 inches high, and 20 pounds.
SPBS	• Designed to efficiently sort small packages and bundles by mechanizing their sortation.	Can handle pieces up to a maximum of 15 inches long, 12 inches wide, 12 inches high, and 20 pounds.
HSIU and SSIU	• The singulator takes a bulk stream of packages and separates it into single pieces that are delivered to the data collection system for identification. The package travels to a shoe sorter where it is diverted to one of several induction lanes. Most packages are diverted onto HSIUs, which deliver the mail to a sorter for final disposition. • SSIUs separate packages and package mail into a stream of single pieces, read barcode information, and induct single pieces into a facility's existing sorting system for finalization.	Can handle pieces up to a maximum of 27 inches long, 17 inches high, 17 inches wide, and 25 pounds.

Source: APPS and APBS Process and Work Methods Guide, SPBS Sort Program Editor User's Guide, U. S. Postal Service San Antonio Alamo American Postal Workers Union, and DMM.

- Packages weigh over 25 pounds, except Parcel Select and Parcel Return packages, which have a maximum weight of 35 pounds.

- Numerous packages shipped by the Postal Service do not fall within these sizes or weight constraints, and must be manually processed. Other limitations on processing machines also require certain packages to be manually processed. The Postal Service categorizes these items as irregular or outside packages (see Table 5).

Table 5. Examples of Irregular and Outside Packages

Package Type	Examples
Irregulars do not meet the dimensional criteria of a machineable package.	Rolls and tubes up to 26 inches long.
	Merchandise samples that are not individually addressed and are not letter-size or flat-size.
	Unwrapped, paper-wrapped, or sleeve-wrapped articles that are not letter-size or flat-size.
	Articles enclosed in envelopes that are not letter-size, flat-size, or machineable.
Outside exceeds any of the maximum dimensions for a machineable package.	High-density packages (other than books and printed matter) weighing more than 15 pounds and exerting more than 60 pounds per square foot of pressure on the smallest side.
	Cartons containing more than 24 ounces of liquid in one or more glass containers.
	Cans, paints, rolls, and tubes longer than 26 inches.
	Metal-band strapped boxes, metal boxes, and wood boxes.
	Articles not mailed in boxes or other containers.
	Hazardous materials.

Source: DMM.

Appendix C: Management's Comments

UNITED STATES POSTAL SERVICE

December 30, 2013

JUDITH LEONHARDT
DIRECTOR, AUDIT OPERATIONS

SUBJECT: Draft Audit Report – Package Capacity in the Processing Network
(Report Number NO-AR-14-DRAFT)

Thank you for the opportunity to respond to the recommendations contained in the Draft Audit Report – Package Capacity in the Processing Network (Report Number NO-AR-14-DRAFT).

Recommendation 1:
Ensure package processing equipment is adequately staffed.

Management Response/Action Plan:
Management agrees with this recommendation. Management is actively working to ensure the correct complement and bid assignments are in place to maximize our equipment usage.

Target Implementation Date:
June, 2014

Responsible Official:
Manager, Processing Operations

Recommendation 2:
Standardize package processing operations where feasible.

Management Response/Action Plan:
Management agrees with this recommendation. The reallocation of equipment to maximize the use of this capital investment is subject to continual modeling. Where space and market demands permit, equipment will be deployed and operations standardized.

Target Implementation Date:
March, 2014

Responsible Official:
Manager, Processing Operations

Recommendation 3:
Adjust mail arrival schedules where possible to increase the amount of mail available at the beginning of machine runs.

Management Response/Action Plan:
Management agrees with this recommendation. Where possible, plants will be directed to make adjustments in schedules to ensure that the arrival of mail coincides with the beginning of machine runs.

Target Implementation Date:
June, 2014

Responsible Official:
Manager, Processing Operations

This report and management's response do not contain information that may be exempt from disclosure under the FOIA.

David E. Williams

cc: Megan Brennan
    Linda Malone
    Corporate Audit and Response Management

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