



March 31, 2010

DAVID C. FIELDS, SR.
DISTRICT MANAGER, MID-CAROLINAS CUSTOMER SERVICE DISTRICT

SUBJECT: Audit Report – Continuing Use of Carrier Sequence Barcode Sorter
Machines at Delivery Units (Report Number DR-AR-10-004)

This report presents the results of our self-initiated audit reviewing the use of Carrier Sequence Barcode Sorter (CSBCS) machines (Project Number 09XG026DR000) in the Mid-Carolinas Customer Service District (district). Our objective was to evaluate the business case for continuing to use CSBCS machines located in associate offices¹ in the district. This audit addresses financial and operational risk. See [Appendix A](#) for additional information about this audit.

Conclusion

Although a business case exists for continued use of CSBCS machines in some associate offices in the district, we concluded they can reduce 10 machines. While the district previously reduced the number of CSBCS machines by 11 during the audit, it had not yet fully evaluated moving more letter mail to the delivery barcode sorters (DBCS) in the plants. See [Appendix B](#) for a detailed analysis of this topic.

We estimate the district could reduce mail processing and maintenance workhours, and save more than \$3 million as a result of eliminating 10 CSBCS machines. See [Appendix C](#) for our monetary impact calculation.

We recommend the district manager, Mid-Carolinas Customer Service District:

1. Reduce 10 carrier sequence barcode sorters at selected associate offices as well as the associated workhours.
2. Evaluate mail processing operations on a recurring basis to identify further opportunities for cost savings and greater mail processing efficiencies.

¹ A post office in the service area of a processing and distribution center/facility (P&DC/F) which usually receives all mail classes to and from the facility. Some associate offices have CSBCS machines in their delivery units and process mail.

Management's Comments

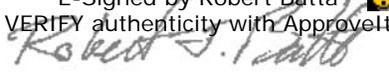
Management agreed with the findings, recommendations, and monetary impact. Management stated that, with reduction in mail volume, they understand that cost-savings measures are necessary to achieve financial success. The Mid-Carolinas district is committed to identifying and capturing savings to ensure the Postal Service continues to meet this challenge. Management stated they would discontinue using the 10 CSBCS machines over the next 90 days, but no later than June 19, 2010. Management also indicated they were in agreement with our analysis that acquiring DBCS stacker bins from other plants could allow them to bring in additional volume from CSBCS sites. In subsequent discussion, management told us they would evaluate mail processing operations on a recurring basis for cost-savings opportunities and greater mail processing efficiencies. See [Appendix F](#) for management's comments in their entirety.

Evaluation of Management's Comments

The U.S. Postal Service Office of Inspector General (OIG) considers management's comments responsive to the recommendations and corrective actions should resolve the issues identified in the report.

The OIG considers recommendation 1 significant; therefore, it requires OIG concurrence before closure. Consequently, the OIG requests written confirmation when corrective action is completed. This recommendation should not be closed in the Postal Service's follow-up tracking system until the OIG provides written confirmation that the recommendation can be closed.

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

E-Signed by Robert Batta 
VERIFY authenticity with ApproveIt


Robert J. Batta
Deputy Assistant Inspector General
for Mission Operations

Attachments

cc: Patrick R. Donahoe
Steven J. Forte
Dean J. Granholm
Jerry D. Lane
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Linda M. Malone
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APPENDIX A: ADDITIONAL INFORMATION

BACKGROUND

The Postal Service primarily uses two types of equipment to sort letter mail into Delivery Point Sequencing (DPS).² The DBCS machines are in P&DC/Fs (plants) and CSBCS machines are in associate offices – both machines essentially perform the same function.

- The DBCS is a multi-level, high-speed barcode sorter located in mail processing facilities designed to process mail in a fully barcoded environment. The machines usually have 190 to 238 bins.³ The DBCS has a throughput capacity of about 39,000 pieces per workhour. The processing facilities also use DIOSS⁴ and Combined Input/Output Sub-System (CIOSS)⁵ machines to sort DPS mail.
- The CSBCS is a small, high-speed barcode sorter designed specifically for decentralized processing in associate offices and typically has 13 to 25 bins. The CSBCS has a throughput capacity of about 19,000 pieces per workhour.

The DBCS by design is more productive than the CSBCS. The DBCS has more stacker units to sort letter mail than the CSBCS and requires less handling or passes⁶ to sort into DPS. Fewer handlings or passes means employees can process more mail in less time. The DBCS takes two handlings or passes⁷ to sort mail into DPS compared to the CSBCS, which takes three to four handlings or passes. See [Appendix E](#) for more information about the DPS mail flow.

Initially, the DPS strategy relied exclusively on centralized processing at mail processing centers using the DBCS, but as mail volumes were projected to increase, the Postal Service purchased over 3,700 CSBCS machines in the early to mid-1990s to accommodate decentralized processing in associate offices. Headquarters Operations Technical and Systems Integration Support personnel began an initiative during fiscal year (FY) 2009 to reduce the number of CSBCS machines nationwide because of declining mail volumes. Specifically, First-Class Mail® volume decreased to 177 billion pieces in FY 2009 from 202 billion pieces (or nearly 13 percent) the previous fiscal year. The Postal Service is estimating that, without significant changes, it will lose \$7.8 billion in FY 2010 based on delivering 11 billion fewer pieces of mail.

As part of the initiative, area and district personnel have been encouraged to look for opportunities to reduce the number of CSBCS machines in use, especially at associate

² The process of sorting barcoded mail into the carrier's walk sequence to eliminate manual sorting before beginning street delivery.

³ A bin(s) on automated equipment that collects mail after it is processed.

⁴ A DBCS with expanded use of an Input/Output System.

⁵ A letter sorting machine that is specifically designed to be used in the Postal Automated Redirection System and is capable of both image input and result output functions.

⁶ Mail is processed to a finer sortation by using each address's delivery sequence number.

⁷ During the first pass, Operation 918, mail is sorted in carrier route sequence on a DBCS. During the second pass, Operation 919, mail is processed to a finer sortation.

post offices within 50 miles of a P&DC/F. The Mid-Carolinas District currently has 121 CSBCS machines, which is the most of all districts nationwide.

See Table 1 for the distribution of CSBCS machines in the Mid-Carolinas District and their associated processing sites.

Table 1. Number of CSBCS Machines

Processing Site	Number of CSBCS Machines ⁸
Charlotte P&DC	71
Fayetteville P&DC	22
Asheville P&DF	20
Kinston P&DF	8
Total	121

Source: Mid-Carolinas District and Headquarters Operations

The district discontinued using 11 CSBCS machines during August 2009 based on a request from the Capital Metro Area. The reduction of the 11 CSBCS machines was estimated to save 10,833 delivery, maintenance, and mail processing workhours annually. No additional workhour costs were attributed to the P&DC/Fs from this additional mail volume.

OBJECTIVE, SCOPE, AND METHODOLOGY

Our objective was to evaluate the business case for continuing to use CSBCS machines located in associate offices within the district. Our audit scope covered operations during the period October 1, 2008, through October 31, 2009.

Specifically we:

- Reviewed and analyzed Web End-of-Run Maintenance Activity Reporting and eFlash workhours data.
- Observed mail processing operations on Tours 1 and 3 at the Charlotte and Fayetteville P&DCs.
- Reviewed applicable documentation, policies, and procedures such as:
 - Decision Analysis Report for the CSBCS.
 - Title 39, U.S.C., Part III, Chapter 20.
 - *Run Plan Generator Users Guide*.
 - *DPS Tool Manual*.

⁸ We listed the associated plant; however, CSBCS machines are located in associate post offices.

- Carrier Sequence Barcode Sorter Equipment Excessing Policy, MMO-030-07, April 10, 2007
- Analyzed average daily volumes during October 2009.
- Reviewed operational data for DPS (machine availability, throughputs, and clearance times).
- Reviewed DBCS/DIOSS/CIOSS capacity for additional volume opportunities.
- Held meetings with district and plant personnel to obtain information and reviewed DPS data and the DPS Tool with plant, district, and headquarters staff.

We conducted this performance audit from July 2009 through March 2010 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 officials on December 11, 2009, January 27, 2010, and February 9, 2010, and included their comments where appropriate. We relied on data supplied by the processing plants and obtained from Postal Service database systems, but did not directly audit the systems. However, we performed a limited data integrity review to support our data reliance and checked for accuracy with Postal Service managers.

PRIOR AUDIT COVERAGE

The OIG has issued one report related to our objective.

Report Title	Report Number	Final Report Date	Monetary Impact	Report Results
<i>Efficiency of Carrier Sequence Barcode Sorters</i>	NO-AR-06-005	8/2/2006	\$3.7 million	Further opportunities to use the DBCS to process mail exist in the Seattle District at the North Bend and Blaine Area Offices and the South Sound Delivery Distribution Center. Processing mail on the DBCS rather than the CSBCS would reduce mail processing and maintenance hours, increase processing efficiency, and improve use of the DBCS. We estimate using existing and anticipated DBCS capacity would save 10,521 workhours. Management agreed with the recommendations.

APPENDIX B: DETAILED ANALYSIS

CSBCS Machine Reduction

The district discontinued using 11 CSBCS machines at associate offices during the audit. However, we concluded a business case exists to eliminate an additional 10 of the remaining 121 machines in associate offices.

The OIG's analysis showed the district could process up to 122,651 more pieces of letter mail in the P&DC/Fs rather than on CSBCS machines. Moving this mail to the plants would eliminate the need for the CSBCS machines in certain associate offices (see Table 2).

Table 2: Estimated Number of CSBCS Machines Discontinued

Processing and Distribution Center/Facility (P&DC/F)	Average Daily First Pass Volume ⁹ October 2009	Number of ZIP Codes Processed on DBCS Machines October 2009	Estimated Potential Total Letter Mail Volume ¹⁰ First Pass	Potential Number of ZIP Codes to be Processed on DBCS Machines	Estimated Potential Additional Volume First Pass	Estimated Number of CSBCS Machines Discontinued
Charlotte P&DC ¹¹	1,490,860	94	1,531,30	95	40,970	3
Fayetteville P&DC	780,005	48	808,274	50	28,269	3
Asheville P&DF ¹²	342,509	31	376,970	35	34,461	2
Kinston P&DF	306,352	16	325,303	17	18,951	2
Totals	2,919,726	189	3,042,377	197	122,651	10

We considered the following factors in our analysis to allow for adding mail volume without making changes to the P&DC/Fs' Tour 1 workhours or mail processing time deadlines. We found the following:

1. Maximizing DBCS machine capacity
 - The Charlotte P&DC had available time to process additional mail on five of 25 DBCS machines.
 - The Fayetteville P&DC had available time to process additional mail on four of 14 DBCS machines.

⁹ The average daily volume shown in the chart is for the first pass, Operation 918, on the DBCS machines. In each case, we also ensured there was sufficient capacity to process the second pass, Operation 919, and meet clearance times.

¹⁰ The potential volume is for first pass. We also ensured there was capacity to process the second pass.

¹¹ We used a 9 percent higher volume in analyzing the Charlotte P&DC because during January 2010 the P&DC has been processing higher DPS volumes of available mail, including some delayed mail. It is not clear how long these higher volumes might last and we wanted to take into account this condition.

¹² The first pass for some DPS mail is always processed before Tour 1 and not included in the total. In addition, some other DPS mail is also sometimes processed before the start of Tour 1.

- The Asheville P&DF had available time to process additional mail on three of seven DBCS machines.
 - The Kinston P&DF had available time to process additional mail on one of six DBCS machines.
2. Changing sort plans to maximize machine capacity. Combining ZIP Codes where feasible creates longer sort plans, which maximize machine capacity.
 3. Changing DPS Processing Time
 - The district could process more mail at the P&DC/Fs if they changed operations and began DPS processing before Tour 1. We found the first pass, Operation 918, did not begin until Tour 1 commenced, and did not always start at the beginning of the tour.

In addition, acquiring DBCS stacker bins (or even entire DBCS machines) from other plants could allow P&DC/Fs to more easily bring in additional mail volume processed on existing CSBCS machines. See [Appendix D](#) for more information about our analysis.

Considering these conditions, the district could reduce associated mail processing and maintenance costs in delivery units. We estimate the district could save more than \$3 million in funds put to better use¹³ by reducing mail processing positions and maintenance workhours and costs.

¹³ Funds the Postal Service could use more efficiently by implementing recommended actions.

APPENDIX C: MONETARY IMPACT

We estimated the monetary impact of \$3,011,956 in funds put to better use by discontinuing the use of 10 CSBCS machines at selected associate offices in the Mid-Carolinas District. This amount included an estimated cost savings of \$2,618,488 from reducing mail processing clerk positions over 10 years and \$393,468 in reduction of delivery mail processing workhours and maintenance costs over 2 years¹⁴ (see Table 3).

Table 3: Total Monetary Impact

Processing Center or Facility (P&DC/F)	Associated Office	Miles from P&DC/F	Number of CSBCS Machines Reduced	Workhours Saved from Processing on DBCS Machines in P&DCs/Fs	10-Year Projection (reducing FTEs)	2-Year Projection on Reducing Maintenance Workhours (not FTEs)	2-Year Projection of Maintenance Cost Savings	Estimated Total Savings
Charlotte	Idewild	13	3	4,198	\$1,411,290	\$55,683	\$27,526	\$1,494,499
Fayetteville	Clinton	34	3	2,947	585,487	95,491	34,157	715,135
Asheville	Canton	13	2	2,582	621,711	53,210	11,442	686,363
Kinston	Havelock	55	2	1,321	0	105,383	10,576	115,959
Totals			10	11,048	\$2,618,488	\$309,767	\$83,701	\$3,011,956

- We calculated funds put to better use of Full-Time Equivalent (FTE) over 10 years using the FY 2010 clerk level 6 fully loaded labor rate with an escalation factor of 0.013.
- The reduction of FTE mail processing clerk positions used a cash flow analysis based on clerk complement and clerk attritions from Web Enterprise Information System for FYs 2005-2009. We used this to determine how many clerks are estimated to leave in future years.
- We used the discount rate of .035 based on the Postal Service’s Decision Analysis Report Factors (cost of borrowing rate).
- We calculated funds put to better use for reducing clerk mail handling hours not equivalent to a FTE using the clerk level 6 overtime rate for FY 2010 with an escalation factor of 0.013
- We used maintenance costs for FY 2009 for the 2-year projection.

¹⁴ We used a 10 year projection for savings associated with reduction in FTE positions. The 2-year projection involved maintenance hours and did not include a reduction in FTE positions.

APPENDIX D: OIG ANALYSIS OF DBCS ADDITIONAL CAPACITY

We used two methods to analyze whether capacity exists to process letter mail more efficiently on DBCS machines rather than CSBCS machines within certain districts' operational windows.¹⁵

1. Method 1: Mail volume and ZIP Codes in the sortation plan¹⁶ run on each type of machine (DBCS, DIOSS, CIOSS). To identify whether any additional capacity exists, we considered throughputs, machine available time, turn time, and clearance times.
2. Method 2: The DPS Tool¹⁷ analyzes bin space, merging of boxes, possible deliveries, ZIP combinations and special carriers in addition to machine availability, throughputs,¹⁸ and clearance¹⁹ times within operational considerations. The DPS Tool attempts to create the maximum capacity for each DBCS machine. A baseline scenario was created for each processing site for the ZIP Codes they process. We then determined whether additional letter volume could be processed at the plant on DBCS machines within the current operational window.

Both methods in our analysis of additional volume opportunities at the P&DC/Fs included the following:

- A review of the average daily letter mail volume during October 2009 and volume processed during January 2010. If volumes decline during FY 2010 and beyond, additional opportunities for capacity at the plant could be considered.
- We obtained machine availability times, throughputs, mandatory ZIP Code combinations, and clearance times from management at the P&DC/Fs. The agreed upon first pass throughputs of the P&DC/Fs for the DPS Tool ranged from 25,085 to 28,500. The target throughput goal for the Capital Metro Area for Operation 918, first pass DPS processing is 29,500. Increasing the throughputs of processing would provide additional volume opportunity.
- For additional CSBCS letter volume transferred into a P&DC/F from associate offices, the time spent sorting the mail into Carrier Route Sequence (Operation 896) is no longer needed, which can make at least one of the DBCS machines available earlier for processing the first pass, Operation 918.

¹⁵ Time mail must be processed to meet service standards.

¹⁶ The combination of ZIP Codes currently processed together on a particular DBCS, DIOSS or CIOSS.

¹⁷ The Postal Service developed an analytical tool to assist in the development of DPS sort schemes for letter mail processing at the plants. We did not validate its assumptions and formulas.

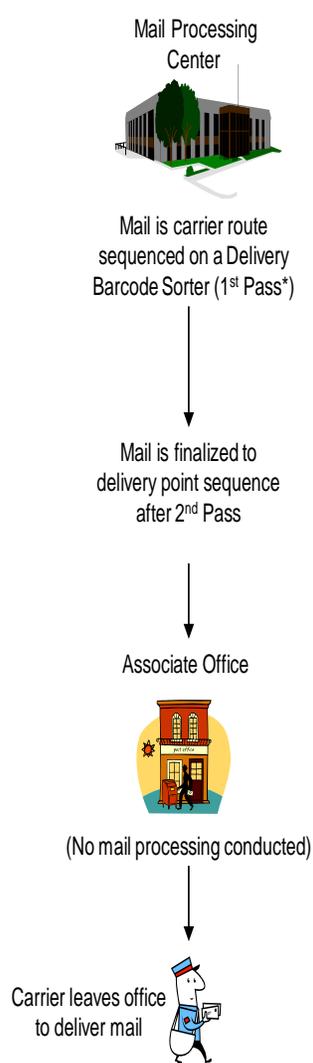
¹⁸ The number of pieces of mail processed per workhour.

¹⁹ The latest time mail is planned to complete processing in order to make the proper planned dispatch or delivery time.

- In addition, when bringing in CSBCS mail volume, dispatch times for ZIP Codes previously processed on CSBCS machines can be moved closer to or at 6 a.m., since time is no longer needed for mail processing at the associate offices.

APPENDIX E: DELIVERY POINT SEQUENCE MAIL FLOW

**DPS Mail Flow
on DBCS**



**DPS Mail Flow
on CSBCS**



APPENDIX F: MANAGEMENT'S COMMENTS

DISTRICT MANAGER/LEAD EXECUTIVE
MID-CAROLINAS DISTRICT



March 18, 2010

TO: LUCINE M. WILLIS
DIRECTOR AUDIT OPERATIONS
OFFICE OF INSPECTOR GENERAL

SUBJECT: Review of Continuing Use of CSBCS Machines at Delivery Units
(Report Number DR-AR-10-DRAFT)

This is in response to your draft audit report of CSBCS utilization in the Mid Carolinas District.

With reduction in mail volume, we understand the necessity of savings essential to achieving financial success. Mid-Carolinas is committed to identifying and capturing savings to ensure the Postal Service continues to meet this challenge.

Prior to this audit which began in July 2009, Mid-Carolinas implemented a plan to discontinue use of 11 CSBCS machines. This plan was completed in August 2009 and was in addition to the loss of a DBCS to the Richmond P&DC.

We are in agreement with the proposed removal of 10 additional CSBCS machines at selected associate offices. Discontinued use of these 10 CSBCS machines will take place over the next 90 days, but no later than June 19. We have begun the process of the appropriate union and employee notifications under our National Bargaining Agreement, as well as sort plan modifications and development.

We are also in agreement with your analysis that acquiring DBCS stacker bins (or even entire DBCS machines) from other plants could allow us to bring in additional volume from CSBCS sites.

We are currently evaluating the realignment of DPS operations in all four facilities to determine the most efficient sort plan packing to minimize disruption to service while achieving the maximum savings. Due to a tight operating window, we have some concerns in meeting the 0600 clearance time for DPS during peak and seasonal volume increases, but are prepared to work through these issues.

We will provide written confirmation as each CSBCS site is eliminated as required in this audit. If you have any questions or need additional information, please contact Dan Davison, Manager In-Plant Support at (704) 393-4566. Thank you for your assistance during this review.

A handwritten signature in black ink, appearing to read "D. Fields".

David C. Fields, Sr.

CC: Area Vice President, Capital Metro Area
Manager Operations Support, Capital Metro Area
Senior Plant Manager, Mid-Carolinas District
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DISTRICT MANAGER/LEAD EXECUTIVE
MID-CAROLINAS DISTRICT



March 26, 2010

TO: LUCINE M. WILLIS
DIRECTOR AUDIT OPERATIONS
OFFICE OF INSPECTOR GENERAL

SUBJECT: Clarification of Review of Continuing Use of CSBCS Machines at Delivery Units
(Report Number DR-AR-10-DRAFT)

This is in further response to your draft audit report of CSBCS utilization in the Mid Carolinas District to clarify agreement with the second recommendation to review operations on a recurring basis.

Mid-Carolinas is indeed in agreement with this recommendation.

Again, we will provide written confirmation as each CSBCS site is eliminated as required in this audit. If you have any questions or need additional information, please contact Dan Davison, Manager In-Plant Support at (704) 393-4566. Thank you for your assistance during this review.

A handwritten signature in black ink, appearing to read "David C. Fields, Sr.", written over a printed name.

CC: Area Vice President, Capital Metro Area
Manager Operations Support, Capital Metro Area
Senior Plant Manager, Mid-Carolinas District
Manager Operations Programs Support, Mid-Carolinas District

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