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BEFORE THE

POSTAL RATE COMMISSION

WASHINGTON DC 20268-0001

POSTAL RATE AND FEE CHANGES **Docket No. R2005-1**

PURSUANT TO PUBLIC LAW 108-18

DIRECT TESTIMONY

OF

MARC D. McCRERY

ON BEHALF OF THE

UNITED STATES POSTAL SERVICE

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Direct Testimony

of

Marc D. McCrery

Autobiographical Sketch

My name is Marc McCrery. I have been the Manager, Operational Requirements within Operations Planning since April 2004. My office serves as the focal point for operations planning related to operational impacts of rate and mail preparation issues. We interface with pricing, finance, mailing standards, and customers to evaluate and implement various internal and external rate and mail preparation changes. Specific responsibilities include assisting in the development of mail preparation standards and rate-related changes to ensure compatibility with operational processing, determining operational impacts resulting from rate and mail classification cases, and preparing the field for the expected changes before implementation.

I joined the Postal Service in 1990 as an Industrial Engineer Trainee. My first assignment was to work at the Des Moines, IA Processing and Distribution Facility with the purpose of learning mail processing operations. A large portion of this period was spent supervising automation on Tour 1. This was followed by supervisory responsibilities at a delivery station in Des Moines, IA, followed by project work in the Engineering Technical Unit in Des Moines. My second year of training was spent in Harrisburg, PA working in the ETU primarily supporting the plant on staffing, scheduling, and quality projects.

Upon leaving the training program in late 1992, I moved to USPS Headquarters as a member of the Facility Activation group, with responsibilities to activate new, large mail processing facilities throughout the country. From that office, I moved to Bulk Mail Center Operations and then to Processing and Distribution Center Operations. During these assignments, I visited dozens of mail processing plants and every Bulk Mail Center within the network. In 1996, I joined the staff of my current office, Operational Requirements and Integration. My responsibilities included developing enhancements to mail preparation requirements

and support work on the proposals, testimony, interrogatories, and implementation activities for the R97-1, R2000-1, and R2001-1 rate cases. In 2003, I was promoted to the Manager, Business Mailer Support within Marketing, and then again in 2004 to the Manager, Operational Requirements and Integration. I also had a temporary assignment lasting 3 ½ months in 2004 as the Plant Manager of the Burlington, VT Processing and Distribution Facility.

I have a Bachelor of Science Degree in Industrial Engineering from the University of Wisconsin – Madison.

I. Purpose of Testimony

The purpose of my testimony is to provide operational support for various elements of the Postal Service's proposals. In Chapter Two, Processing Operations, I provide an overview of the Postal Service's processing operations for the current environment, the test year, and beyond. I specifically address:

1. Basic processes by shape;
2. Types and capabilities of equipment;
3. Equipment deployments and processing changes planned through the test year and beyond;

In Chapter Three, Volume and Workhours in Mail Processing, I discuss the relation between long term (e.g. quarter-to-quarter) volume changes and the resulting workhour changes in support of Dr. Bozzo's (USPS-T-12) calculation of volume variabilities.

Finally, I will be sponsoring Sections 1A and 2A of USPS-LR-K-49, Explanation of Cost Reductions, Other Programs, and Corporate Wide Activities which is a Category 2 Library Reference and details the programs and initiatives that we expect will produce operational savings through the test year. I have used pieces of information within this library reference during the development of my testimony.

II. Processing Operations

In this part of my testimony, I provide an overview of our processing operations, with a focus on the equipment and methods used to process mail in today's environment, changes that are scheduled in the near term, and changes that are being investigated that could impact processing operations further in the future. Since we process letters, flats, and parcels as distinct mailstreams, each one is discussed separately.

A. Letter and Card Mail Processing

1. Preparation

Letter mail preparation operations first require that letters and cards are sorted into three separations: barcoded, non-barcoded machinable, and nonmachinable (manual) to the greatest extent possible. Whether volumes are presented in trays, bundles (such as metered mail), or as single pieces (such as collection mail), these separations are necessary for subsequent piece distribution to read an existing barcode, to resolve and print a barcode, or to sort the letters or cards manually.

The operation where collection mail is prepared is often referred to as "010,"[1] and encompasses the culling, facing, and sorting of mail by shape and indicium. This operation is where letters, flats, and parcels are separated for subsequent handling. Bundles and trays of metered letters are forwarded directly to sortation equipment, while stamped mail is first faced and canceled. Hampers of single-piece collection mail are dumped into the dual-pass rough cull feed system for the Advanced Facer Canceller System (AFCS) described further in the following section. This machine culls out non-letter sized pieces (over 6 1/8 inches tall, over ¼ inch thick, and/or over 11 ½ inches long). It faces letters based on the location of the stamp, meter, or Facing Identification Mark (FIM)[2], and cancels the stamp.

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[1] "010" refers to MODS operations 010-013 and 020-022 for volume and workhour reporting.

[2] FIM is the series of vertical bars to the left of the postage area such as on courtesy reply (FIM A) and business reply (FIM C) mail indicating the letter is barcoded.

The volume arrival profile of collection mail into the 010 operation is dependent upon mail arrivals from stations, branches, associate offices, and collection runs. Due to varied distances and demographics, the arrival profile varies by facility, and may vary by day depending on volume, weather, or time of the week or month. The status of the outgoing mail preparation operation dictates whether the subsequent operations will meet the operating plan's clearance times (the time processing must be completed), since none of the outgoing operations can be finalized until the 010 operation is clear of all mail volume.

Letter mail is also received from sources other than collections. The Business Mail Entry Unit (BMEU) supplies mail at origin. At destination, the primary sources are presorted mail from mailers and mail sorted by origin postal facilities. At destination, letters are again separated into barcoded, non-barcoded machinable, and manual mail flows for subsequent processing.

2. Equipment

Letter processing operations are geared towards barcoding and/or sorting as much letter volume through automated operations as possible, with the ultimate goal of processing letters into Delivery Point Sequence (DPS)[3] or, to a lesser extent, to the carrier route level. Letter sorting equipment sorts into bins that subsequently have to be manually swept into letter trays. Therefore, processing may commence without first setting up all of the trays.[4]

- The Advanced Facer Canceller System (AFCS) - The AFCS faces, cancels, and separates letters and cards into Optical Character Reader (OCR) readable (or enriched), prebarcoded with FIMs A and C, "all other" (e.g. script), and rejects. AFCSs have received the Input Sub System (ISS) modification to capture images for the Remote Bar Coding System (see RBCS below). AFCS image lift has reduced the pressure on the outgoing OCR operation, thereby easing the constraints on the outgoing processing window and allowing incoming

[3] DPS provides letters to the carrier in walk sequence of the route, thereby eliminating the need for the carrier to case letters in walk sequence in the office.
[4] This affects the time required to change a scheme and differs from the FSMs, which sort directly into trays that must be set up each scheme change.

processing to start earlier. The AFCS can lift images of script and OCR-readable pieces. National policy currently directs AFCS operations to lift only images of script mail. Enriched/OCR-readable pieces are sent to the MLOCR (see below) since fewer images end up going to the Remote Encoding Center (REC) for keying than if the images were captured at the AFCS. Throughput of the 1,086 AFCSs is approximately 32,000 pieces per hour and the staffing index is one mailhandler per machine.

Improvements are planned for all AFCS machines and will include a doubles detector, a cancellation upgrade and an OCR upgrade. The doubles detector will recognize double feeds as they occur and create a more efficient rehandling process. The inkjet canceller (IJC) will automate the AFCS cancellation process that is performed in a mechanized manner today, eliminating the daily manual effort required to update the AFCS machine's cancellation date stamp. The OCR upgrade makes the machine capable of identifying the 5-digit destination ZIP Code of each letter it processes.

Recently, 358 AFCSs were retrofitted with OCRs as part of the Video Facing Modification program and are receiving a software upgrade, while the remaining 728 AFCSs will be upgraded with the same primary processor and OCR software, which began in January, 2005. All 1,086 AFCS machines will be networked into a second processor, the RCR (see RBCS).

- Multiline Optical Character Reader (MLOCR) - Non-barcoded machinable letters are fed through MLOCRs to obtain a postal applied barcode. A total of 875 MLOCRs have been deployed. Previous enhancements have improved the overall encode rate of the MLOCR and reduced the amount of mail that obtains a barcode through Remote Bar Coding. Throughput of an MLOCR is approximately 29,000 pieces per hour.[5] It has a staffing index of two clerks, one feeding and the other sweeping its 60 stackers. Since MLOCRs currently are experiencing end of life parts issues, it has been determined that replacement of

[5] Throughput is entirely distinct from productivity. Throughput is the number of pieces that can be fed through the machine during one machine run hour. Productivity is the total pieces finalized (pieces fed minus rejects) divided by the total workhours used (includes setup, sweep, jam clearance time, etc.).

74 percent of MLOCRs with the more efficient DIOSS-EC machines (see below) is necessary.

- Remote Bar Coding System (RBCS) - RBCS has three distinct components: the Input Sub System (ISS), the Image Processing Sub System (IPSS), and the Output Sub System (OSS). The ISS consists of a retrofitted MLOCR (MLOCR-ISS), retrofitted Advanced Facer Canceller System (AFCS-ISS), and/or retrofitted DBCS (DIOSS) and is used to "lift images" of non-barcoded unreadable machinable letters. A fluorescent ID tag is sprayed on the back of all mailpieces and an electronic image of the mailpiece not resolved by the MLOCR is forwarded to the IPSS. The IPSS is the computer system, which controls the image flows, contains the barcode result information, and communicates with the Remote Encoding Center's (REC) system. While in the IPSS, the image may be resolved through the use of a Remote Computer Reader (RCR)[6]. If not resolved, it will be forwarded on to a REC where an operator keys the address information into a computer. Once the address is resolved to the depth of sort required (5, 9 or 11-digits), the mailpiece is fed back through the OSS. The OSS is a retrofitted Mail Processing Barcode Sorter (MPBCS-OSS), DBCS (DBCS-OSS), or DIOSS where the fluorescent ID tag is read and the barcode information is accessed from the IPSS to apply the barcode to the piece. RBCS is fully deployed to over 330 plants. In FY 2004, the total REC volume was approximately 4.6 billion images[7]. As of March 2005, there were 17 RECs, a reduction of eight since March 2001. By July 2005, two additional REC sites will be closed.

  Delivery Bar Code Sorter (DBCS) - This machine is used for processing letters already barcoded either by the OCR, RBCS, or our customers. DBCSs come in multiple configurations; most machines have between 190 and 220 sortation

[6] RCR is an off-line optical character recognition device that is part of RBCS. It uses advanced recognition techniques and is currently able to resolve 72.5 percent of the letter mail images introduced to it for processing.

[7] The RECs also receive images from the PARS, AFSM 100, and APPS image lift systems (see respective sections further in the testimony). Also, RBCS system will be enhanced in the future with a Universal Coding System (UCS) replacing the IPSS that will better manage the images and allow keying stations to resolve images from all sources.

bins. Due to the greater number of sort stackers compared to the MPBCS (see below), the DBCS is used for outgoing processing, incoming primary sortation, and Delivery Point Sequencing (DPS). The DBCS deployment is complete with over 5,100 sorters currently operational. Throughput is approximately 37,000 pieces per hour and the staffing index is two clerks. Currently, 94 machines have been modified with expanded capabilities (DBCS-EC), which allow the machine to process letters with a wider range of mail characteristics. One hundred twenty-three DBCS machines and 94 DBCS-EC machines are expected to be converted to DIOSS-EC machines (see below) in the near future.
Also, approximately 50 machines have been retrofitted to function as low cost MLOCRs, but without advance resolution or image lift capabilities and are in the process of removal.
As the automation workhorse, some DBCSs have undergone other changes to better fit specific processing needs. Currently 1,632 additional stacker modules are being added to some machines at 216 postal processing facilities to accommodate the growth in delivery points and volume for DPS. The new stackers will provide the capability to process more mail in DPS order, thereby reducing the number of handlings required to sort letter mail to its final destination. In addition, new Wide Field Of View (WFOV) cameras have replaced the aging Wide Area Bar Code Readers (WABCRs) to provide improvements to current reader acceptance rates, reduce operations disruptions due to unsupportable WABCR equipment, support Information Platform initiatives, and facilitate deployment of new letter mail sorting technologies.

- DIOSS - The DIOSS is a combination of DBCS/OCR/ISS/OSS technology in one machine. One of the main advantages of DIOSS is that it provides all capabilities in a small footprint with up to 300 sorting bins, depending on the DBCS configuration. The DIOSS can be operated in DBCS mode for the processing of a barcoded mail stream or OCR/ISS mode for a predominately non-barcoded mail stream. Currently there are 215 DIOSS machines deployed in the field. Throughput is approximately 37,000 pieces per hour while operating in the DBCS/OSS modes and 32,000 pieces per hour operating in the OCR/ISS

operation modes. The different throughputs are the result of a variable speed motor that slows the machine in the OCR/ISS mode to allow for the additional time for address look-up. The staffing index is two clerks.

- DIOSS-EC – The ultimate DBCS retrofit available is the DIOSS-EC (DBCS Input/Output Subsystem – Expanded Capability). This machine has expanded capabilities that allow processing of a wider range (e.g., thicker, stiffer pieces) of mail characteristics than is handled by a DBCS today. The Postal Service plans to purchase 395 new DIOSS-EC machines and deployment is expected to begin in January 2006. Together with the 217 converted DBCS machines, this purchase brings the total number of DIOSS-EC machines to 612. The staffing index is two clerks.
- Carrier Sequence Bar Code Sorter (CSBCS) - This machine is located in delivery units and is used for Delivery Point Sequencing. The CSBCS sequences barcoded letters and cards already sorted by carrier route into delivery sequence order in three passes. Letters are processed for one to six carrier route(s) at a time because the number of stackers (17, 21 or 25) supports a limited number of delivery points and volume. There are approximately 3,500 CSBCSs at approximately 1,000 sites with no additional deployments planned. Throughput is approximately 19,000 pieces per hour with a staffing index of one.
- Mail Processing Bar Code Sorter (MPBCS) - This machine is a generation prior to the DBCSs. It has 96 bins, and is used primarily for outgoing primary, incoming primary, and incoming secondary carrier-route processing with OSS modifications. There are 626 MPBCSs in use in the field. Throughput is approximately 35,000 pieces per hour. Staffing is two clerks.
- ID Code Sortation (ICS) - The ICS system, installed on all types of BCS equipment, allows sortation using the ID tag as well as the POSTNET barcode. The system provides a redundant opportunity for sorting a mailpiece. If the barcode becomes unreadable for any reason, the BCS will look for an ID tag. If an ID tag exists, it will look up the unique tag number (every mailpiece in the national system is unique for each month) in the national database for the barcode information associated with the mailpiece. The BCS will then sort the

mailpiece to the correct stacker based on the destination information from the database. The ICS eliminates the need to LMLM (see below) letters with unreadable POSTNET barcodes.

- Letter Mail Labeling Machine (LMLM) - The LMLM allows more mail to remain in the automated mail stream by providing another opportunity to put a clean, readable, barcode or ID tag on the mailpiece. Mailpieces are also "pre-LMLMed" when machinable, yet too glossy for the barcode and/or ID tag to be applied without smearing. This machine applies a white label to either the front of a letter to provide a barcode clear zone or to the back of the letter for application of a clean, readable fluorescent ID tag. The machine is also used to cover bad barcodes in order to prevent "loop mail" on, for example, return to sender letters. There are 360 LMLMs deployed with an approximate throughput of 20,000 pieces per hour and each is staffed by one clerk.
- Postal Automated Redirection System (PARS) – This program eliminates multiple downstream handlings on machinable Undeliverable-As-Addressed (UAA) letter mail by automating the processing upstream. PARS specifically targets letter mail that requires forwarding, needs to be returned, or contains an incorrect, illegible, or insufficient address. Letter automation equipment is retrofitted with software containing the national change-of-address (COA) database which allows the equipment to intercept a large portion of UAA mail at originating processing facilities as part of the first handling similar to the *Fastforward*[SM] process.[8] The identified UAA mail is discharged into output stackers and their images are sent to an Advanced Forwarding Reader (AFR) which determines the disposition of each UAA mailpiece. If the AFR is unsuccessful in processing the captured image, then the image is transmitted to a remote encoding center (REC) for resolution. Carriers intercept the remainder of the PARS-candidate UAA mail in delivery units and send it to mail processing facilities. Both of these streams are processed on specially modified DBCSs, called a Combined Input/Output Subsystem (CIOSS), which generates and

[8] Refer to DMM 507.3.3 for more information concerning *Fastforward*[SM].

applies the Postal Service's yellow labels for re-directed mail (e.g. return-to-sender, forwarded). The COA notification process also changes under the PARS program. A redesigned Change of Address Order (PS Form 3575) is scanned by an OCR, the data captured, and the information uploaded to the national COA database. The initial phase of the PARS program, Phase I, covered comprehensive implementation in 49 Postal Processing & Distribution Centers (P&DCs), all of the Postal Service's Remote Encoding Centers (RECs), and the delivery units that they serve. Additionally, scanners have been deployed into some Computerized Forwarding System (CFS) units to allow a PARS database with nationwide coverage to be constructed. Some CFS units lost their mechanized letter terminals and were otherwise reconfigured because their automated letter mail workload is being redirected to a nearby processing plant. A new Change-of-Address Research System (COARS) will accompany PARS. This system will enable delivery unit personnel to receive electronic copies of COAs, and to print an updated Changes of Address list. Phase 2 of the PARS program will cover comprehensive implementation for handling letter mail in the remaining Postal Processing & Distribution Centers (P&DCs) and the delivery units they serve. Deployment of Phase 2 is expected to begin in late FY 2006.

3. Manual

Volume that is still left in manual letter operations is primarily composed of pieces that are deemed to be nonmachinable on letter automation due to one of several factors. Any letter-size piece is considered nonmachinable if it meets any of the non-machinable criteria listed in DMM 201.2.0.

These mailpieces are excluded from automated processing for various reasons, but primarily due to the incompatibility with automated processing, which may impede the mail flow or damage the mail or mail processing equipment. Manual letters are considerably more costly to operations (approximately 12.5 times more labor cost per handling) to process than machinable letters. Pieces over 6 1/8 inches in height, ¼ inch thick and/or 11½ inches in length are considered a flat or a parcel.

Rejects from automation also end up in the manual operation. Pieces may have been rejected due to an unreadable barcode and ID tag or due to an insufficient 5- or 9-digit barcode for DPS processing. For example, the street directional (North or South) or suffix (St, Rd, Dr) may be missing, yet is required for coding to the delivery point when duplication exists in the address range. As stackers are swept in automated operations, many of these rejects arrive in manual operations close to the clearance time, which is the completion time necessary to meet dispatches. Manual operations are staffed accordingly to meet service commitments.

4. Automation Update

During FY 2004, the total letter mail volume was approximately 150 billion pieces, of which approximately 94 billion were barcoded through automation discounts, or 63 percent of all letters. Customer applied barcodes comprised almost 72 percent of the total letter mail barcodes. The remaining 28 percent were applied by the Postal Service. Of the postal applied 9 or 11-digit barcodes, 59 percent were applied by the OCR, with the balance resolved remotely.

At the same time, 89 percent of all barcoded letter mail, 77 percent of all letters, and approximately 23,000 zones were sorted in DPS. This includes Enhanced Carrier Route letters, which are often captured at or backhauled to the plant for DPS processing**.** Of the total incoming secondary distribution performed on automation, 89 percent was sorted to DPS, 4 percent to sector/segment, and 7 percent to carrier route. Sector/segment operations require two passes to sort to the ZIP+4 and are usually for a “Firm” or PO Box program for 9-digit unique holdouts.

To further increase the percentage of letter mail in DPS, enhanced address matching techniques are being tested that utilize information from our carriers and commercially available databases to resolve more addresses. This is particularly beneficial when the address is missing crucial elements (e.g. suite number) in parts of the country with a high concentration of apartment buildings and high rises. If this proves successful, it will be expanded across the country.

5. Description of Future Systems Beyond the Test Year

Ongoing improvements in image recognition technology and equipment modifications will continue to be pursued to increase automated volumes. Beyond the various enhancements and new programs (e.g. PARS) previously discussed, there are only limited opportunities to increase efficiencies within letter mail processing operations through the application of proven technologies.

B. Flat Mail Processing

This portion of my testimony is devoted to piece distribution operations where individual flats are processed. The processing of bundles of flats in opening unit operations is covered later in my testimony, under parcels and bundles.

1. Preparation

Depending on the class of mail, flats destined for piece distribution operations can originate from several different operations. First-Class metered or permit flats that are prepared in flat tubs by mailers generally can be sent from the platform or BMEU directly to flats sorting operations. Flats obtained through collection mail that subsequently go through the 010 operation are faced, canceled (if necessary), and containerized before they are sent to flats sorting operations. Flats that originate from opening unit[9] operations must also be "prepped" before they can be inducted into piece distribution operations. Depending on where the prepping is performed, prepping can consist of unloading containers, separating bundles for subsequent operations, removing the packaging material, orienting, and stacking the flats in postal containers or on ledges of distribution equipment. All of the prepping operations are performed manually and are labor-intensive.

Barcoded and non-barcoded flats are "prepped" together in a single operation and are directed to piece distribution operations based on physical characteristics (see Equipment section below), mail class, and presort level. All flats sorting equipment is able to process both barcoded and non-barcoded pieces together in

[9] Opening units are operations within processing facilities where containers of mail are opened and prepared for distribution, or closed and prepared for dispatch.

the same operation. Most of the non-carrier route presort flats receive some level of processing on flats sorting equipment.

2. Equipment

There currently are two different types of equipment used in the Postal Service to process flats:

- Upgraded Multi-Position Flats Sorting Machine 1000 (UFSM 1000) - This machine is intended to process the vast majority of flats that are nonmachinable on the AFSM 100 (see below). There are 353 machines deployed, and most have three keying stations, one OCR, and one automatic high-speed flat feeder and sorts to 100 sort bins. The machine can be operated in either keying or automatic feed mode or both simultaneously. There is no on-line video coding for OCR rejects nor does it spray a barcode on the mail piece. The throughput is approximately 5,000 pieces per hour in keying mode and 9,000 pieces per hour in automatic feed mode. The Flats Recognition Improvement Program (FRIP) enhances the address recognition technology used on the UFSM 1000, resulting in an improvement in Optical Character Reader acceptance rates and a reduction in error rates. Three FRIP software releases are planned with current deployment in October, 2004, and future deployments in November, 2005, and December, 2006. Presently there are no plans to purchase additional UFSM 1000s.
- Automated Flats Sorting Machine 100 (AFSM 100) - This machine is the workhorse for flats distribution in processing plants. Currently, there are 534 machines in use in the field. The processing and technological capabilities of this machine are vastly superior to those of the UFSM 1000. The machine has three automatic feeders and can sort to 120 bins. It has both BCR and OCR capability, as well as remote video coding[10] for the OCR rejects. Similar to the UFSM 1000, the AFSM does not spray a barcode on the piece. Throughput of

[10] Addresses unreadable by the OCR are resolved at REC keying sites. When the machines were originally deployed, the images were keyed at on-site video terminals, but this responsibility has been shifted to the RECs due to increased keying efficiency.

the AFSM 100 is approximately 17,000 pieces per run hour and the staffing is five employees on the machine.

Unlike letter sorting equipment which sorts to bins, all FSMs sort mail directly into flat trays.

There are a number of current and new programs which will increase productivity on the AFSM 100. The Flats Identification Code Sort (FICS) program adds the capability to place a label and print an Identification (ID) Tag on all non-barcoded flat mail that is processed on the machine. This ID Tag is used to sort the mail in subsequent operations. Similar to the UFSM 1000, the Flat Recognition Improvement Program (FRIP) will also improve the OCR acceptance rate and reduce the error rate on the AFSM 100.

The Flat Remote Encoding System (FRES) program for the AFSM 100 will be used to improve the efficiency of the video encoding operation being performed at Remote Encoding Centers (RECs). It will increase the "pooling" capabilities for flat video coding personnel by providing load balancing of coding requirements at each REC site.

FRES will increase the number of AFSM 100 machines for which each REC keying workstation can process images at any one time, from 10 to 99. As a result, the primary benefit from this program will be a reduction in the number of flat keyers needed as each keying terminal will be able to see images from a much larger number of individual AFSM 100 machines.

In addition to current enhancements to the AFSM 100, there are a number of new programs to increase the efficiency of flat mail processing:

- Automatic Induction Systems for the AFSM 100 - Automatic Induction (AI) Systems will be purchased and added to 210 AFSM 100 machines under this program (206 operational systems plus 4 training systems). The AI System consists of three main components – a flat mail prep system, an Automation Compatible Tray (ACT) transport system and automatic feeders. This program will improve the flat mail preparation operation by relocating the current preparation operation and by replacing the arrangement of flat mail carts and other containers with a state-of-the-art preparation and transport system. The

tray transport system will provide for controlled flow of full ACTs from preparation workstations to AFSM 100 feeding stations. The automatic feeders will remove the front panel of the ACT, slide it forward against the existing stack of flats, and slip the ACT out from under the mail while maintaining forward pressure on the new, larger stack of flats. The flats will be automatically fed into the AFSM 100 feeding module with minimal operator assistance required. This initiative will reduce the clerks needed to feed the machines from three down to one, with two to five mailhandlers needed to prep the mail, a slight increase in the prepping hours. Phase 1 deployment is expected to begin in October 2005 and end in August 2006.

- Automatic Tray Handling Systems (ATHS) for the AFSM 100 -This program will add an Automatic Tray Handling System (ATHS) to 350 operational AFSM 100s and 4 training machines. It will increase the machine's automation capabilities and reduce the labor required to operate the machine. The ATHS will replace the tray take-away conveyors on the original AFSM 100 with more elaborate fixed mechanization. The ATHS will replace the transport belts with powered rollers, add Automatic Tray Destackers (ATDs) and label printer/applicators, and replace the existing 'bin full' paddles with photo sensors to improve the consistency of filled flat trays. Each ATHS will automatically eject full trays onto the transport conveyor and produce a properly labeled empty tray to replace the one just dispatched. When the run is completed, the ATHS will systematically dispatch all of the required trays and label and insert a new set of trays for the next sort plan. Deployment is expected to begin in May 2005. Phase 2 of this program is expected to add ATHS to approximately 50 additional AFSM 100 machines. The ATHS will reduce the AFSM 100 operation staffing requirement from five employees to four by eliminating one sweeper position. It will improve the utilization of flat mail trays by reducing misorientation of mail pieces dropping into the trays and ensuring that trays are more uniformly filled to the optimal level.
- Automatic Flats Tray Lidders (AFTLs) - This program has deployed Automatic Flats Tray Lidders (AFTLs) for use in dispatch operations nationwide. A total of

120 AFTLs has been deployed including 119 operational units and 1 training system. The AFTL is a self-contained mechanized system that will be installed either in-line or as a standalone device. It eliminates the need to manually put lids on flat trays during dispatch operations, significantly reducing labor requirements associated with the current operation. With an AFTL, flats trays ready for dispatch can be fed manually (standalone) or automatically from a tray line (in-line). The AFTL design includes a staging section where at least 400 flats tray lids can be stored. The machine accesses a stack of flats tray lids from the staging section, picks a lid, folds two flaps, and inserts the lid into the tray. The tray is automatically passed onto the next processing operation for banding and/or airline assignment. In-line installations can be fed and swept automatically, and require about 15 minutes of manual labor per hour to restock lids. Deployment was completed in September 2004.

3. Processing/Mailflow

Most flats that require piece distribution are machinable on the AFSM 100, and as a result, field sites flow flats to that machine first. The BCR/OCR reader scans the mailpiece in search of a barcode/address block/ID tag. If a barcode or ID tag is found, the piece is sorted based on the information read by the BCR or stored in an ICS database. If a barcode or ID tag is not found or cannot be read, the OCR looks for the delivery address and the piece is subsequently ID tagged and sorted based on the information returned by the OCR. Flats that contain extraneous information, thereby interfering with OCR address recognition, or addresses that cannot be read by the OCR, have their images keyed on-line, sent to the UFSM 1000, or to manual operations.

The AFSM 100 sort plans often process multiple ZIP Codes concurrently based on the number of sort bins. For example, an incoming primary sort plan can process multiple 3-digit ZIPs within the plant's service area. In recognition of this fact, mailers can now prepare AFSM 100-compatible flat mail pieces from multiple 3-digit ZIP codes into 3-digit scheme bundles in accordance with a new DMM labeling list (L008) in lieu of preparing the pieces in separate 3-digit bundles. This list is similar to the existing list (L007) that allows multiple 5-digit ZIPs to be prepared in

scheme bundles that match the incoming secondary sort plans, thus collapsing pieces into fewer bundles. The L008 labeling list was implemented in January 2005 and becomes required for certain preparation in April 2005. The new scheme will further reduce the bundle sorting and prepping requirements associated with flat mail.

A portion of the flats that are non-machinable on the AFSM 100 are diverted to the UFSM 1000. Although the UFSM 1000 is able to process a wider variety of flats and has reduced the volume processed in manual operations, it is not intended to process parcels. The pieces processed on the UFSM 1000 in today's operating environment have many of the same characteristics as those processed on the AFSM 100s, but the flats can be thicker and/or heavier. In plants with both AFSM 100s and UFSM 1000s, the UFSM 1000s are often utilized as an additional piece of flat sorting equipment, with unique responsibilities in terms of the schemes processed on the machine. UFSM 1000s are migrating to smaller plants that do not have AFSM 100 equipment.

4. Manual

Flats that remain in manual operations at the plant today (other than for incoming secondary processing) are pieces that do not meet the processing specifications for the AFSM 100s or UFSM 1000s, depending on the equipment set at any given facility and the schemes processed on each type of equipment, or are rejects from these machines. Examples of these types of flats include rolls, lightweight pieces, or pieces that are not uniform in thickness. Occasionally, when flats sorting equipment is at full capacity some flat mail must be processed in manual operations in order to ensure that service standards are met.

Very few delivery units have an FSM, so the vast majority of the incoming secondary processing at the delivery units is manual. Very little manual incoming secondary distribution takes place at plants. Within the last five years, this distribution has been decentralized from the plants and moved to the delivery units.

Over the next six months, particular attention will be paid to decreasing processing costs associated with flat mail, particularly Periodicals. The outgoing distribution of flat mail pieces prepared in mixed bundles will be consolidated into

significantly fewer facilities and moved completely to automated processing. Furthermore, this consolidation will allow for the outgoing distribution of bundles prepared in mixed sacks to be processed in a mechanized or automated environment instead of across sack racks. Also, any automation compatible Periodicals volume currently processed in a manual incoming secondary operation will be moved to an automated processing operation to the greatest extent possible when the window exists. Periodicals, particularly weekly and daily publications, are processed in some cases manually in order to not risk service failure.

5. Automation/Mechanization Update

In FY 2004, 58 percent of incoming secondary volume was processed in the plants, and 92 percent of this volume was finalized on automated operations. At the same time, the percent of total flats workload in plants was 81 percent on the AFSM 100, 10 percent on the UFSM 1000, 9 percent in manual sortation. Currently, automated flats are sorted into Delivery Point Sequence in 11,690 zones.

Overall, deployments of the current and future programs to enhance flats processing have resulted and will result in positive improvements for processing operations.

6. Description of Future System Beyond the Test Year

With the deployments of the AFSM 100 and the UFSM 1000 complete, new methods to distribute and deliver flats are being researched and developed to ensure that current methods are continually improved. The value of DPS flats is still being reviewed and explored. While the specifics are yet to be resolved, it is envisioned that the Postal Service may DPS flats with a different type of equipment than what is used today. Originally, the AFSM 100, or a machine similar to it, such as a sequencer, was planned to be used to process and sequence flats. The decision has now been made not to use the AFSM 100 to sort flats in delivery sequence order. This is due to the inability to increase the mail sorting speed and the problems caused by improper mailpiece orientation in flat trays. Of course, flats that are not machinable on a sequencer are unlikely to be included in DPS. Current development efforts may help make the following programs available: Delivery Point Packaging (DPP), a one-pass system of sorting both letters and flats, and the Flats

Sequencing System (FSS), a two-pass system for sorting flats in delivery sequence order.

Two significant changes for mailers are expected if and when the Postal Service moves toward a DPS environment for flats. First, all flats that claim the barcode discount will be required to bear an 11-digit barcode, similar to letters, in order to sort to delivery point. Second, carrier route presorted packages will not have value for DPS zones, with 5-digit presort being the finest sort required, similar to what happened with letters. Emphasis will also be on the machinability and entry level characteristics to maximize the candidate flat volume for DPS. The Postal Service intends to continue working with the mailing industry on these issues, providing ample time for mailers to make any needed changes in the future.

C. Parcels, Bundles, Sacks, and Trays

In this part of my testimony, I provide an overview of operations as they relate to the processing of parcels, bundles, sacks, and trays today and in the test year.

1. Parcel Processing

Standard Mail and Package Services parcels are predominantly processed within the bulk mail network consisting of 21 Bulk Mail Centers (BMCs) and eight Auxiliary Service Facilities (ASFs). Priority Mail and First-Class Mail parcels are predominantly processed in processing and distribution centers and Logistics and Distribution Centers (L&DCs).

a. Equipment

Apart from the recent enhancements described below, machinable parcels have been processed in the BMCs with the same basic equipment for approximately 30 years. ASFs are not similarly equipped. Non-machinable outside parcels (NMOs) are either sorted manually or with the use of mechanized sorting equipment at several BMCs depending on the non-machinability characteristics of the parcel. This equipment ranges from basic rolling conveyors to more elaborate keying and sorting machines. Priority and First-Class Mail parcels are processed either manually or using parcel and bundle sorting equipment.

- The Primary Parcel Sorter Machines (PSM) are fed by mechanized conveyors which feed parcels onto slides. Parcels are then manually separated and inducted into a tilt tray sorter. Parcel barcodes enhance the sortation of machinable parcels and reduce manual keying requirements. If a barcode does not exist on the parcel, the ZIP Code information is read by the operator, manually keyed, and a 5-digit barcode label is applied to the parcel for possible subsequent handlings.
- The Singulate, Scan, Induction Unit (SSIU) – This equipment has been deployed to 19 of 21 BMCs. The SSIUs, two per BMC, improve the singulation process and automate induction of barcoded parcels onto the sortation equipment (i.e., secondary parcel sorter). The device allows parcels to be sent, one at a time, through a dimensioning unit, a weigh-in-motion scale, and through a scanning tunnel that reads the package barcode. Packages are then automatically inducted onto the sorter. This greatly reduces the need for High Speed Induction Units (HSIUs)[11] and the clerks who operate them.

  The Singulate, Scan, Induction Unit (SSIU) Video Code program will further automate parcel processing on the secondary PSMs with increased operational efficiencies. Keying is expected to be accomplished at the RECs. With this added feature, the machines will be able to sort non-barcoded secondary parcels. Deployment is planned to begin in FY 2006.

b. Mailflow

Non-presort or non-dropshipped parcels entered into the mailstream are transported to the origin BMC either directly from retail/delivery units or more commonly consolidated through the plant. The origin BMC sorts the machinable parcels on the primary PSM which sorts parcels to the high-volume 5-digit destinations within the BMC service area as well as to each destination BMC. Parcels for the lower-density destinations within the BMC service area are sorted from the primary PSM directly to the secondary PSM, which sorts parcels to 5-digit destinations for a total of approximately 2,000 separations. The 5-digit containers of

[11] HSIU equipment is still in use at the two BMCs that did not receive SSIUs.

machinable parcels are transported to the delivery units either directly from the BMCs on occasion or, more commonly, transferred through a plant.

NMO parcels are processed to the 3-digit level in the BMCs for their service area and transferred to the plants. Plants then process the NMOs received from the BMCs to the 5-digit level. This operation is performed manually and requires regular set-up (gathering of rolling stock and placarding containers) and breakdown, virtually regardless of the volume processed.[12]

Parcels presorted to BMC level and dropshipped at the destination BMC are processed on PSMs to the 5-digit level. Many BMCs induct these parcels directly into the secondary PSM based on the preparation of the parcels and BMC configuration. Parcels presorted to 5-digits and drop-shipped at an SCF are cross-docked to delivery units. For the most part, parcels are sorted to carrier route at the delivery unit regardless of class or subclass.

Priority Mail pieces are processed at plants using manual, mechanized, or automated distribution (see SPBS and APPS described below). Within certain regions of the country, the outgoing and incoming processing of Priority Mail is consolidated at a regional distribution facility. These facilities were previously called Priority Mail Processing Center (PMPCs), but are now being converted to Logistics and Distribution Centers (L&DCs). With this conversion, the facilities are taking on additional processing responsibilities and no longer have just one primary responsibility. These facilities will also assume pallet, tray, and bundle sorting responsibilities in addition to Priority Mail (parcel and flat) piece distribution.

2. Bundle Processing

Flat mail bundles that arrive at a mail processing plant in sacks, on pallets, or in flat trays, are often sorted before they are dispatched or opened for piece distribution. When pallets and sacks contain bundles made up to finer sortation levels than the container, a bundle sort is required. This is accomplished in a manual, mechanized, or automated operation. Bundles are usually sorted into rolling containers.

[12] Another example of fixed costs that cause workhours to vary less than volume.

Bundle integrity can have a significant impact on the productivity of any bundle sorting operation. If and when a bundle breaks prematurely, the value of the bundle presort can be partially or completely lost. Also, productivity can suffer when, for example, a mailhandler attempts to capture and repair a ruptured bundle within the bundle sorting operation. Any improvements to bundle integrity either through customer mail preparation, changes in mailing standards, or more rigid mail acceptance procedures will reap significant savings within mail processing.

a. Equipment

- Small Parcel and Bundle Sorter (SPBS) - The SPBS is deployed with four, five, or six induction stations, and requires a staffing of no more than three people per induction station. The SPBS can sort to 100 separations. However, some sites have added either 16 or 32 additional bins to these machines. There are currently 346 machines deployed in the field. The average throughput of the SPBS is between 678 and 945 bundles or small parcels per hour per induction station. The majority of plants and 19 of the 21 BMCs have SPBSs. Many of the SPBS have been modified to include a specially designed feed system which consolidates all the induction lines into a centralized network capable of transferring mail from all types of mail containers and transporting the contents on mechanized conveyors to all the induction/keying consoles. There are currently 272 feed systems deployed in the field. With the SPBS Feed System, a staffing reduction equivalent to 0.5 to 3 people per crew can be realized, depending on the number of induction stations.
- Automated Package Processing Systems – The APPS is the next generation machine for sorting parcels and bundles of mail. Depending on the configuration, a single APPS can replace up to two SPBS machines. The APPS will further automate package processing by providing greater processing capacity through automatic package induction, singulation and address recognition. It utilizes a carousel-type cross belt sorter subsystem capable of processing 9,500 pieces per hour and providing a sustained high-speed throughput.

  Some of the unique features of the APPS include a Feed Subsystem that handles pallet unloaders, All Purpose Container Unloaders, or bulk loads from

standard containers. The Singulation Subsystem de-stacks the packages/bundles into a single file line, aligned in the direction of travel. The Data Collection Subsystem collects detailed information about each package such as package type, size, and weight. Using the state-of-the-art optical character reader/barcode reader (OCR/BCR), the APPS Address Recognition Subsystem, consisting of a multi-sided image capture unit, lifts images of the mail pieces (four-sided imaging) for further processing. Recorded images are presented to the OCR/BCR subsystem to determine the correct destination ZIP Code and the type of package. If unsuccessful, the images are then transmitted to an on-line Video Coding System (VCS) in one of four RECs, where images will be keyed remotely at REC sites.

The APPS program will deploy 76 machines (74 operational + 2 training) designed to replace the older, labor-intensive SPBS in larger offices. At most of the sites receiving an APPS, the SPBS at that site will be redeployed to another location. Each new APPS will be deployed with either one or two feed systems and will have 100, 150, or 200 sort bins. Deployment is underway and is expected to be completed in late calendar year 2005 or early 2006. The Phase 2 potential purchase is expected to be for approximately 20 machines which will be deployed at the conclusion of the Phase 1 deployment.

- Linear Integrated Parcel Sorters (LIPS) - The LIPS machine is not part of a national program and is procured locally. The configuration and performance vary based on the vendor, but the basic design consists of a feed station where mailpieces or bundles are keyed and sent down a rolling conveyor for deposit into rolling containers or pallet boxes.

b. Mailflow

Bundles, or packages of flats, are processed in both BMCs (Standard Mail and Package Services) and mail processing plants (all classes). Mixed-ADC bundles are transported to the origin plant to be opened for piece distribution to the ADC network. BMCs and ADC plants sort bundles primarily to 3-digit and SCF separations. Plants subsequently sort 3-digit and SCF containers for either piece distribution or a bundle sort depending on the presort level of the bundle. Other

separations, in addition to separations based solely on the presort level, may be performed at the plants on bundles for various operational reasons. For example, machinable volumes may be separated from non-machinable volumes.

The SPBS is currently the equipment of choice for these bundle-sorting operations, but soon there will be a greater dependency on APPS equipment. The remaining sortation of bundles is performed with LIPS equipment or in manual operations. Manual distribution involves either dumping the bundles on a conveyor belt and sorting to containers, or sorting the bundles into containers directly from the pallet.

Mechanized and manual bundle distributions require manual labor for operational set-up and breakdown. This involves the collection and placement of containers and placards for set-up. Also, at the time of dispatch, containers are closed and moved to the dock to meet transportation. No matter the volume received during a specific operating window, set-up and breakdown are fairly fixed.[13]

3. Sack Processing

The Postal Service is aggressively exploring options for postal and customer preparation of bundles and parcels in order to reduce the dependency on sacks. One option is to maximize the amount of mail prepared on destination pallets by optimizing the presort rules and adjusting the pallet preparation minimums. Also, options will be investigated that will allow the entry of smaller, local mailings at destination facilities in alternate containers or possibly by unloading the bundles straight into a container (e.g. rolling stock, pallet box) provided by the plant. Finally, non-sack alternatives for the preparation of origin entered sacks will be explored (e.g. tubs, origin mixed pallets). Based on the cost associated with sorting, transporting, and dumping sacks, as well as the impact to the contents (e.g. bundle breakage) any decrease in sack utilization is expected to produce significant benefits.

a. Equipment

- Sack Sorting Machine (SSM) - Sacks are sorted in BMCs on the SSM to the BMC network for origin sacks and, for intra-BMC volume, to the 3-digit/SCF level.

[13] This is one reason why workhours fluctuate less than volume in these operations.

Keying or automated reading of the barcoded label occurs at the induction station, while the clerk places the sack into a bucket that inducts it onto the tilt tray system. In limited instances, plants utilize mechanized sack sorters to process sacks from the 3-digit/SCF level to incoming primary piece distribution operations and to 5-digit direct containers. Efforts are being made to remove many of the sack sorters in use today due to the low productivity, high maintenance cost, and decrease in sack volume. Most of the sack sorters in plants have already been removed and a number of the BMC sack sorters will be taken out of service over the next six months. As the success of the reduction in sacks effort is realized, additional sack sorters will be decommissioned.

b. Mailflow

Sacks arrive at plants and BMCs from customers and other plants and may be containerized or bedloaded in vehicles. Containers are unloaded with either pallet handling equipment or, if wheeled, with manual labor. Containerized loads are much more efficient for unloading than bedloads. Bedloaded sacks are unloaded manually and, in some cases, the unloading is accomplished with the assistance of mechanized conveyors. Bedloads can maximize transportation cube utilization, yet are labor intensive and time consuming to unload.

Intra-BMC sacks are transported to the plants for opening or, in the case of carrier-route and some 5-digit sacks, further sortation to downstream facilities. Mechanized sack dumping equipment assists with emptying sacks of parcels into the parcel sorter system in the BMCs. Sack sortation is performed in plants, in some cases with mechanized sack sorters, but primarily with manual labor. Sacks are opened in the plants and delivery units with manual labor.

The costs associated with processing sacks is largely unaffected by the number of pieces in the sack. When a customer chooses to optionally prepare a sack with fewer than the minimum number of pieces for that presort level as opposed to consolidating the flats in a higher level sack, additional costs result from the required processing, transporting, and opening of the additional sacks. Customers are often motivated to prepare these sacks for service reasons.

Eliminating these sacks would produce significant savings and should not negatively impact timely delivery.

4. Tray Processing

a. Equipment

- Robotic Tray Handling (2 types) - (1) Pedestal-style robots are designed to move sleeved and strapped letter trays from conveyors to containers. Currently, 85 pedestal-style robots have been deployed. Primary operations for robotics are the dispatch areas in plants and in-bound distribution operations at Airport Mail Centers. (2) One hundred gantry-style robots, which have the capability to handle flat tubs and strapless and sleeveless letter and flat trays, have also been deployed. They have increased processing capacity and higher throughputs than the pedestal-style robot. The gantry robot is essentially an arm that can move along an overhead track distributing mail into 24 separations. Gantry-style robots are predominantly located in plant dispatch areas.
- Low Cost Tray Sorter – LCTS is being deployed to support material handling operations in our plants, Bulk Mail Centers (BMCs), and Air Mail Centers (AMCs). They are being deployed in inbound tray sorting operations and outbound dispatch operations and are allowing us to reduce material handling workhours required for those operations. The machines sort letter trays and flat tubs using roller converyors to runouts (e.g. 3-digit destination), where the trays/tubs are then placed onto pallets or into containers. The cost of LCTS varies depending on configuration and the ability to scan barcodes on tray labels and/or dispatch and routing tags.
- Tray Management System (TMS) - TMS uses tray identification, transport, storage, and process control technologies to automate the movement and staging of trayed letter and flat mail between most mail sortation operations. TMS is assembled from a family of common components that can be easily reconfigured. TMS is currently in use in 28 plants throughout the country. There are no further plans for additional systems at this time.
- Integrated Dispatch & Receipt (IDR) Program - The IDR will automate, streamline, and organize mail dispatch and receipt functions, allowing continuous

flow and minimizing or eliminating manual handling between operations at 229 mail processing facilities. Each IDR will be a unique, site-specific combination of up to 10 different equipment types. Seven of these 10 machines have been successfully deployed in prior efforts while three are new and will be deployed for the first time under this program. A variety of equipment, such as Automatic Tray Sleevers (ATS), Enhanced Airline Assignment (EAA) systems, and Robotic Containerization Systems (RCS), are being deployed under this program. The mix of equipment to be deployed was determined on a site-by-site basis as dictated by each site's dispatch requirements.

The ATS equipment automatically sleeves all letter trays used in Postal operations. The EAA system automatically processes sleeved and strapped letter trays or flat tubs for integration into a facility's tray dispatch line. The RCS is a self-contained module that can be integrated into a site's existing source conveyor system. RCS automatically sorts and loads letter trays and flat tubs into a mail container or onto a pallet for dispatch. Tray systems will also be deployed to connect IDR machines to each other and to mail processing equipment, as appropriate. Receipt and Dispatch Unloaders are being developed which will automate the unloading of trays from mail transport equipment, thus improving the efficiency of platform operations. This program will develop one or two standard machines which will unload trays and tubs from either rolling stock or pallets. The Receipt and Dispatch Unloaders will complement the equipment currently being deployed under the IDR program.

b. Mailflow

Letter trays are no longer sorted in the BMCs using the SSMs due to the low productivity and the impact on the trays associated with this method of sortation (e.g. lost tray labels). Origin trays are sorted to the BMC network and intra-BMC trays are sorted to the 3-digit/SCF level now using either Low-Cost Tray Sorters or other mechanized equipment that in certain cases is also used to sort NMOs. In the plants, trays are sorted manually, with the assistance of the tray handling equipment described above, or by TMS. Trays sorted at origin are either transported to the Airport Mail Center, sorted to the appropriate containers for dispatch to surface

transportation, or flowed to the appropriate piece distribution operation. Destination trays are sorted and flowed to the appropriate piece operation, dispatched to a downstream distribution facility, or dispatched directly to a delivery unit (e.g. CSBCS and manual sites). Mixed ADC/AADC trays are sent to the closest plant consolidation center for piece distribution.

5. Description of Future System Beyond the Test Year

The Postal Service is in the process of evaluating new technologies that have the potential to process a wide range of products at higher throughputs and sort into a large number of separations. This universal sorting technology would have the capability of sorting parcels, from small items up through many of today's NMOs, as well as sacks, trays, tubs, and bundles. The equipment would utilize high-speed induction technology and sophisticated tray sortation that could accommodate the various products at a high rate of speed. This technology would allow the consolidation of parcel sorting and other allied sorting operations into a single operation. The flexibility afforded by this equipment would impact future decisions related to facility processing responsibilities and the overall network.

In the near term, the Postal Service will continue to explore enhancements to existing sorting equipment in the BMCs with the goal of reducing labor and improving equipment reliability.

D. Allied Operations

In addition to the distribution of individual mailpieces as described above, there are operations, termed "Allied Operations", which handle mail in bulk. These include platform, opening units, cancellation, flat mail preparation, and pouching. The automation of distribution operations places a premium on consistency and dependability in the allied operations that provide mail for piece distribution. New support systems for the AFSM 100 are described above and include the Automatic Induction System (AI), Automatic Tray Handling System (ATHS), Automatic Flat Tray Lidders (AFTLs), and the Integrated Dispatch and Routing System (IDR), which also handles letter trays. All of these systems automate a portion of the allied workload and increase the consistency and dependability of these operations. The

return on these new systems can only improve as the characteristics of the mail improve. For example, poorly prepared bundles that disintegrate and cause jams when handled by the new Automated Package Processing System (APPS) cause a much greater loss in productivity compared to manual or mechanized handling. We are studying how to reduce bundle breakage both by improving our specifications for forming bundles and by improving bundle handling. Not only are pallets of bundles more cost-effective to handle than sacks, but there is less damage to bundles on pallets according to an MTAC study (USPS-LR-I-297).

E. The Breakthrough Productivity Initiative (BPI) in Mail Processing

In Fiscal Year 1999, efforts were underway to develop and establish a mechanism that would fairly measure the performance for plant and delivery Operations. From this effort the Breakthrough Productivity Initiative (BPI) was developed and implemented.

BPI for Operations (Mail Processing, Customer Service and Delivery Services) is a tool that is used to measure production efficiency. This is accomplished by collecting data (volume and actual hours) by processing category type, (e.g. automation or manual, office or street delivery).

The Performance Achievement measure is the computed value that corresponds to the production efficiency for a unique operation and is represented as a percent value, 0% to 100%, with 100% representing the highest. The Performance Achievement Percent is computed as follows:

- Total Mail Volume by unique category - Actual
- Total Work Hours by unique category - Actual
- Predefined Target Productivity – Computed yearly based on actual productivity by category
- Earned Hours – Computed value based on Total Mail Volume divided by Predefined Target Productivity
- Opportunity Hours – Computed value based on Total Work Hours minus Earned Hours

Although opportunity hours are calculated for each type of operation, it is unlikely that field initiatives will result in the same percentage reduction in opportunity hours for each type of operation. Since savings estimates are more predictable for larger groups of operations, BPI savings are assumed distributed to each of the following groups in direct proportion to the opportunity hours in each group.

- Letter Distribution such as the Delivery Barcode Sorter (DBCS) and manual letter casing.
- Flats Distribution such as the Advanced Flats Sorting Machine 100 (AFSM 100) and manual flats casing.
- Bulk Mail Centers
- Manual Priority and Parcels
- Other Mechanized operations such as the Small Parcel and Bundle Sorter (SPBS) and the Tray Sorter
- Allied operations such as the Platform and Opening Units.

F. Future Network Considerations

As trends in mail volume alter our mix of products, the Postal Service continues to explore options to modify the processing and transportation networks to realize greater efficiencies and extract savings when and where possible. When considering the necessary nodes within the network and the processing responsibilities of those nodes, this evolutionary process will take into consideration both service commitments and our ability to make the capital commitments. Options include shifting processing responsibilities between facilities when efficiencies can be realized and consolidating operations into a more shape-based processing environment. Much of this depends on the development of facility projects and the procurement of technology that can generate a sufficient return on these investments. Network realignment is an option to achieve current and future BPI savings goals as discussed in Section E above.

III. Volume and Workhours in Mail Processing

The response of mail processing workhours to changes in volume is important for field budgeting. When the volume forecast indicates a change, we expect a less than proportionate impact on mail processing workhours. Precisely how much less depends on the specific operations where the change is expected. In R97-1 Dr. Bradley used mathematical models to estimate the proportionality factor, called "volume variability", for various groups of operations (e.g. DBCS operations) called "cost pools". Beginning in that docket, Operations witnesses have gone to considerable lengths to explain the operational realities that result in volume variabilities well below 100 percent. In R97-1 Mr. Moden explained the Management Operating Data System (MODS), which is the fundamental data system for control of mail processing operations in the Postal system and the source of data for volume variability models. He also explained in general terms why volume variability differs among operations. In the same docket, Mr. Steele described the management incentives and activities that drive staffing to the minimum consistent with good service. Although the incentive systems have been modified several times in the last seven years, the cost reductions and record service levels in recent years demonstrate that the drive to minimize cost while maximizing service has only intensified.

In R2000-1, Ms. Kingsley explained the planning and analysis system that results in the actual staffing levels in each plant. She also showed why the Postal Service prefers centralized distribution. Costs can be minimized by centralizing distribution within the largest delivery area that can be reliably served from a single plant. In R2001-1 she showed how the network of plants, post offices, carrier routes, etc., that must be served by the centralized plant define a major part of the plant's workload by determining the sort schemes that must be run every day. As she observes, even if volume declines, perhaps due to a rate increase, all of the sort schemes must still be run. This results in what she calls the "schemes effect". This effect is, in my judgment, a major reason why workhours commonly vary less than volume, measured quarter-to-quarter, in individual mail processing operations. Ms.

Kingsley used automated sorting operations at two local plants to illustrate her point. At these two plants the sort plan or “scheme” must be changed 129 times each day on the Flat Sorting Machines and 226 times per day on the (Letter) Barcode Sorters. This multitude of sort schemes is required to distribute mail to other postal plants and, most especially, to all the delivery points in the plant’s local service area. If, say, a rate increase caused a 10% volume decline, the sort schemes – and the time needed to set-up and sweep each of them -- would still be required. This demonstrates that, absent other factors, volume variability in an automated distribution operation that involves significant scheme changes must be less than 100 percent.

However, the volume variability in an automated distribution can certainly approach 100% if the time required to change schemes with the machine stopped is minimized. The AFSM 100 flats sorter illustrates this effect. The Standard Operating Procedure (SOP) for the AFSM 100 includes a carefully choreographed procedure for changing sort schemes that begins half-an-hour before the scheme change and results in actual downtime between schemes of less than 9 minutes.

At facilities with both AFSM 100s and UFSM 1000s, the UFSM 1000 is used for both small volume schemes that are not cost-effective to run on the AFSM 100 and as backup for that machine. As backup, the UFSM 1000 processes mail that falls outside of the AFSM 100s processing schedule or physical capabilities. For example, the physical characteristics of many publications require UFSM 1000 processing. Late arrivals and service requirements for many Periodicals ensure that there will be workhours incurred with the machine idle waiting for Periodicals. Significantly lower volume variability is to be expected.

Mechanized and manual distribution operations are also subject to the schemes effect. In addition they are operator paced and suffer from the normal human tendency to slow down when there isn’t much backlog. Because manual operations process automation rejects, they normally provide the last increment of mail needed for a dispatch and must be staffed late in a tour to ensure that the last bit of mail gets to the dock on time. All of these factors combine to produce low volume variability in manual operations.

The size of the material being processed also has an effect. It simply requires more time to handle containers of larger items when changing schemes. Quickly replacing flat tubs in a scheme change on the AFSM 100 is relatively straightforward as flat tubs are light and not especially bulky. Changing out pallet-boxes on the APPS is considerably more time consuming.

Allied operations such as the platform, opening units and pouching are subject to the size problem. In addition, they tend to be gateway and dispatch operations that must move mail into the facility rapidly for processing or out to the dock to meet the dispatch schedule. They must be staffed regardless of whether trucks and mail volume appear as planned. The AFCS is a prime example. To ensure that sorting operations will finish on time, it is essential to start them as early as possible. The AFCS cancellation operation is staffed to get mail cancelled and moved into sorting as early as possible. In the late afternoon, there will usually be times when this operation is staffed but idle for lack of mail as trucks struggle to reach the plant through rush hour traffic or bad weather.

Collectively, the testimonies of Mr. Moden, Mr. Steele and Ms. Kingsley provide an impressively comprehensive description of the aspects of mail processing that are relevant to volume variability. I especially recommend Chapter 3 in Ms. Kingsley R2001-1 testimony, also entitled “Volume and Workhours in Mail Processing”, for both its solid description of fixed time in mail processing and as a capstone for all the Operations testimony that preceded it.