

Docket No. R2006-1

USPS-LR-L-62

**Volumes, Characteristics, and Costs of Processing Undeliverable-As-
Addressed Mail
TY 2008**

Preface

This is a Category 2 library reference sponsored by witness Cutting (USPS-T-26). This library reference documents the development of test-year volume, characteristics, and costs of processing Undeliverable-As-Addressed mail (UAA) mail. This library reference relies on UAA volume and cost inputs as developed in USPS-LR-L-61 and USPS-LR-L-116 which are also sponsored by witness Cutting. It also relies on test-year CRA rollforward worksheets from witness Waterbury (USPS-T-10) as developed in USPS-LR-L-7; test-year RPW volumes from witness Thress (USPS-T-7) as developed in USPS-LR-L-66; test-year piggyback factors from witness Smith (USPS-T-13) as developed in USPS-LR-L-52 and USPS-LR-L-53; test-year productive hourly wage rates from witness Loutsch (USPS-T-6) as developed in USPS-LR-L-50; and test-year mail processing costs for First-Class Mail letters from witness Abdirahman (USPS-T-22) as developed in USPS-LR-L-48. Witness Page (USPS-T-23) uses some of the cost and volume results of this analysis in making final adjustments to the rollforward model. Witness Mitchum (USPS-T-40) uses some of the costs and volume results of this analysis in developing prices for Address Correction Service notices and for determining prices for forwarding service of Standard Mail.

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1.0 INTRODUCTION

1.1 Purpose

This library reference documents the development of test-year volume, characteristics, and costs of processing Undeliverable-As-Addressed mail (UAA) mail. This is a Category 2 library reference sponsored by witness Cutting (USPS-T-26).

This library reference relies on the UAA volume and cost inputs developed in USPS-LR-L-61 and USPS-LR-L-116 which are also sponsored by witness Cutting. This library reference also relies on other witnesses' library references in this docket. The following sources are used:

- USPS-LR-L-7 (Waterbury) for test-year CRA rollforward worksheets
- USPS-LR-L-66 (Thress) for test-year volumes
- USPS-LR-L-52 (Smith) for test-year mail cost segment piggyback factors
- USPS-LR-L-53 (Smith) for test-year mail processing cost pool piggyback factors
- USPS-LR-L-50 (Loutsch) for test-year productive hourly wage rates
- USPS-LR-L-48 (Abdirahman) for test-year mail processing costs for First-Class Mail letters

1.2 Background

In August, 2004, Christensen Associates completed a national survey of the amount of UAA mail in the Postal Service's processing system. UAA mail is mail that cannot be delivered to the address specified on the mail piece and must be forwarded, returned to sender, or properly treated as waste or dead mail as authorized for the class of mail and ancillary service endorsement on the mail piece. The study that resulted from the survey provided comprehensive information on the volumes, characteristics, and costs of UAA mail and on addressing deficiencies by rate category and applicable mail processing categories. The study was benchmarked to Fiscal Year 2004 (FY 04). The volumes and costs of that study are developed in USPS-LR-L-61.

Starting in September of 2004, the Postal Service began deploying the first phase of the Postal Automated Redirection System (PARS). The objective of PARS is to improve the way that the Postal Service processes automated UAA letter mail and some types of Postal Service forms and notices. Because only a small fraction of the PARS deployment was completed by the end of FY 04, the Christensen Associates study developed costs in an environment in which no

PARS components were included. Since PARS deployment did not effectively begin until FY 05, this framework—the so-called pre-PARS environment—represents the last actual “snapshot” of the UAA processing system before the advent of PARS.

In USPS-LR-L-116, the UAA cost framework is reconfigured to include the operational components of PARS. All cost values continue to be benchmarked to FY 04 levels. In this environment, it is assumed that PARS is fully deployed. In addition, it is assumed that PARS has no impact on the quantity of UAA mail, but only on the way in which that mail is handled. Hence, this PARS environment is a hypothetical estimation of the UAA cost structure in FY 04 dollars based on known FY 04 UAA volumes.

In this study, the PARS 04 environment from USPS-LR-L-116 is used as a point of reference from which to project the test-year (TY) UAA processing system. This is accomplished by rolling volume and cost inputs forward from FY 04 to TY 08 levels. Since full deployment is assumed, there is no need to approximate the level of PARS participation when moving from FY 04 to TY 08. This is an important point. A key motivation for not using FY 05 as the rollforward reference point is the desire to avoid the need to approximate the level of PARS participation in FY 05—a so-called partial-PARS environment. Since the study is national in scope, with no underlying regional or local detail, a partial-PARS environment would require the use of ad hoc adjustment factors to approximate which portion of UAA volumes would flow through partially deployed PARS components and which portion would not. These issues are avoided by using the full-deployment PARS FY 04 environment as the rollforward reference point.

2.0 UAA VOLUMES

Refer to the electronic workbook ***PARS08 VolTabs_v.xls*** in Appendix A (L62AppendixA\PARS08\Tables) of the attached CD for all tables referenced in this section.

2.1 Rollforward Inputs

To forecast the growth in UAA volumes between FY 04 and TY 08, projected test-year RPW growth rates (before rates) are used as calculated in USPS-LR-L-66. These represent an estimation of the demographic effects on UAA volumes. Based on these growth rates, UAA volumes increase about 9.1 percent between FY 04 and TY 08. This is greater than the overall RPW growth rate of 4.8 percent because the UAA volume mix tends toward higher-growth categories such as automation First-Class Mail and Standard Mail.

RPW-based growth rates are offset with projected reductions in UAA volumes due to ongoing initiatives overseen by the National Customer Service Center (NCSC) in Memphis, Tennessee. All together, such initiatives reduce total UAA volumes by 6.1 percent between FY 04 and TY 08. After incorporating these reductions, the total growth in UAA volume is 3.6 percent which represents an average yearly growth rate of 0.9 percent.

2.2 Volume Results

Table 2.1 reports TY 08 UAA volumes by class and location. As indicated in the bottom right-hand corner of the table, overall UAA volume grows to 10.075 billion. Tables 2.2 and 2.3 report volumes by rate category and shape, respectively. To see the FY 04 levels of UAA volumes, refer to Section 2 of USPS-LR-L-61.

3.0 PARS 08 BASELINE COST MODEL

Refer to the electronic workbook *PARS08 BaseTabs_v.xls* in Appendix A (L62AppendixA\PARS08\Tables) of the attached CD for all tables referenced in this section.

3.1 The PARS Environment

For UAA mail, PARS only affects machinable letters. Non-machinable letters and all flats and parcels continue to be processed based on the methods described in USPS-LR-L-61. The *PARS 08 Baseline Cost Model* specified in this section develops costs for all shapes of mail. Where necessary, it separates machinable letters from non-machinable letters in order to account for those processing components affected by PARS.

The *PARS 08 Baseline Cost Model* measures the cost of the entire volume profile of UAA mail, irrespective of class and rate category. In this sense, it measures the cost of the system-average volume profile. Once the detailed unit costs of the baseline model are established, the costs of any class and rate category are measured by simply “pushing” volumes through the baseline model, where pieces “pick up” the baseline costs that are specific to their characteristics and the services associated with their class and rate category. Consequently, by fixing the unit costs of the baseline model, the overall cost of any class and rate category is driven entirely by the mix of volume over different characteristics such as shape, ancillary service endorsement, and age of the change-of-address order (COA). Costs specific to class and rate category are developed in Section 4.

The *PARS 08 Baseline Cost Model* divides all the procedures associated with UAA mail into seven distinct modules:

- The Route Module
- The Nixie Module
- The CFS Module
- The Mail Processing and Transportation Module
- The Postage Due Module
- The CIOSS Module
- The REC Module

To update this environment to the test year, the following cost inputs are used:

- USPS-LR-L-7 (Waterbury) for test-year CRA roll forward worksheets
- USPS-LR-L-52 (Smith) for test-year mail cost segment piggyback factors
- USPS-LR-L-53 (Smith) for test-year mail processing cost pool piggyback factors
- USPS-LR-L-50 (Loutsch) for test-year productive hourly wage rates
- USPS-LR-L-48 (Abdirahman) for test-year mail processing costs for First-Class Mail letters

3.2 PARS Overview

PARS is designed to automate the tasks of redirecting UAA machinable letter mail and processing some types of Postal Service forms and notices. PARS automates the following processes:

- machinable letter mail identified as UAA because of a move
- machinable letter mail identified as returned to sender for reasons other than a move
- change-of-address forms
- address change notices

In Section 3.2.1 and 3.2.2 below, the main components of these processes are described.

3.2.1 Letter Mail Redirection

A key feature of PARS is the ability to intercept letter mail in a live mail processing environment. Before PARS, all Postal Service automation equipment worked with only one major database: the computerized ZIP+4 directory which contains all delivery addresses in the United States. With PARS, selected types of letter automation equipment¹ work with a second major database: a computerized file of all COA orders currently active within the United States. Automated letter sorting machines that have this PARS upgrade compare the destination address and the name of the addressee on each letter with the contents of the COA database. When a COA match is found, the sorter captures the mail piece and sends it to a bin separated from other letters. This type of mail is called “intercepted” mail or INT mail.

¹ For example, Advanced Facer Cancellor System (AFCS), Multi-Line Optical Character Reader – Input Subsystem (MLOCR-ISS), Delivery Barcode Sorter (DBCS), Delivery Barcode Sorter – Output Subsystem (DBCS-OSS), and DBCS Input Output Subsystem (DIOSS).

Automated matching is accomplished with the Advanced Forwarding Reader (AFR), a special-purpose computer housed in processing centers and facilities. (Throughout this study, processing centers and facilities are generically referred to as “plants.”) Using the captured mail piece’s image, the AFR locates and processes the address elements and mail class markings needed for UAA analysis, plus any endorsement markings that may be on the mail piece. The AFR attempts to determine the exact disposition (forwarded, returned, or wasted) of each UAA mail piece, and to assemble a complete set of data elements needed to generate a yellow redirection label for the mail piece. In cases where the AFR cannot successfully process the captured UAA image, the mail piece image is transmitted to a Remote Encoding Center (REC) where data conversion operators look at portions of the image on a terminal’s screen to complete the resolution tasks.

Automation equipment does not intercept all eligible mail pieces. The AFR uses a set of strict matching rules to avoid intercepting non-UAA mail. This means that some legitimate, move-related UAA mail is not intercepted. The UAA letters that are not intercepted flow to the route of the destination address printed on the mail piece. From there, carriers or other Postal personnel manually identify the mail pieces as being UAA and redirect them back to the plant. This type of mail is called “carrier-identified forwards” or CIF mail.

UAA letters due to reasons other than a move are not eligible for interception. These mail pieces are manually identified as UAA by carriers and other Postal personnel at the route of the destination address. Those mail pieces that are determined to be returned to sender (due to class, markings, and age of COA) are redirected back to the plant for additional processing. This type of mail is called “carrier-identified returns” or CIR mail.²

INT, CIF, and CIR mail flow to a centralized operation called the Combined Input/Output Subsystem (CIOSS) which is housed in plants. The CIOSS is an automation machine similar to the DBCS Input Output Subsystem (DIOSS) but with the addition of a labeling component capable of high-speed generation and application of yellow labels onto mail pieces. Letters processed on the CIOSS are forwarded to the customer’s new address, returned to the sender, or treated as waste, depending upon instructions that may be on the mail piece and Postal regulations.

For some of the INT mail portion of the CIOSS workload, an upstream automation machine (which may be in the CIOSS’s plant or in another plant) has already captured an electronic image that satisfies PARS requirements. When

² Postal Service operations personnel generally refer to this mail as “RTS” mail.

PARS computation is completed, batches of INT mail are fed into the CIOSS, a yellow label with appropriate text is applied, and the labeled mail is sorted into the CIOSS's bins.

For the portion of the CIOSS workload coming from delivery units (CIF and CIR mail), no electronic image of the mail is available for pre-CIOSS PARS computational work. This mail is passed through the CIOSS twice. The first pass captures an electronic image of the face of each letter. These images are resolved via the AFR and REC site. During the second pass, a yellow label with appropriate text is applied, and the labeled mail is sorted into the CIOSS's bins.

A portion of INT mail run on the CIOSS is not entitled to be forwarded or returned (i.e., unendorsed Standard Mail and Bound Printed Matter). Postal regulations specify that these pieces are treated as waste. The CIOSS identifies these pieces and consolidates them in a separate waste operation. Clerks riffle through this mail to verify that it is waste.

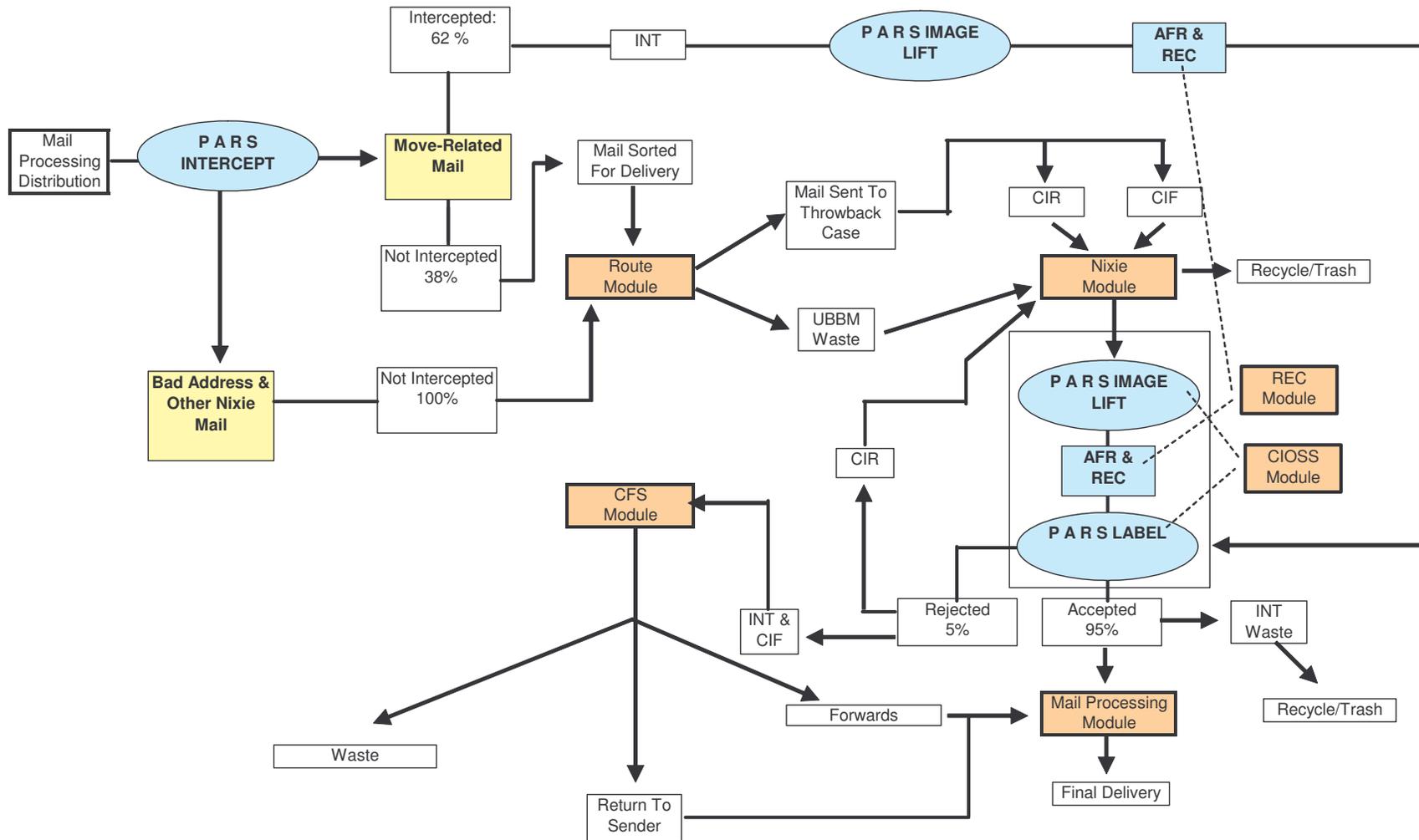
Special handling procedures are required for some letters processed on the CIOSS. The REC site may determine that some letters must be rescanned for additional information³ or must have the reverse side scanned to identify the return address. CIR mail where the reason for redirection has been lost but the human-readable endorsement acronym is still visible on the mail piece may also require special handling. Finally, some letters may be identified on the CIOSS as lacking a sufficient ID tag clear zone. These letters are sent to the Letter Mail Labeling Machine (LMLM) for special treatment.

Processing on a CIOSS is the last step in the PARS process for UAA letter mail. From the CIOSS, letter mail carrying yellow labels and new barcodes is transferred to normal Postal Service sorting and transportation activities. INT and CIF letters that are rejected from the CIOSS (due to automation and/or machinability issues) are directed to the Computerized Forwarding System (CFS) unit for manual processing. CIR letters that are rejected from the CIOSS are manually processed at the plant.

This entire PARS redirection process is summarized in Figure 3.1 below. The route, nixie, postage due, and mail processing and transportation modules serve the same basic function as those modules in the pre-PARS environment, although some processing steps are modified as explained in the sections below. The CIOSS and REC modules are unique to the PARS environment and are explained below. The figure provides the anticipated, full-deployment interception and rejection rates.

³ For example, a letter from an MLOCR that does not possess wide field of view (WFOV) capabilities must be rescanned on a CIOSS to allow more information to be seen.

Figure 3.1 -- UAA Machinable Letter Processing, Full-Deployment PARS Environment



3.2.2 Postal Service Address Correction Processing

Besides letter redirection, PARS also impacts the way change-of-address forms and some address correction notices are processed. These changes are outlined in this section.

The following procedures describe how change-of-address orders are processed in a PARS environment:

- COA forms have been redesigned to be scanned and read electronically by OCR engines.
- COA forms are directed to the nearest CFS scanning site where they are electronically processed.⁴ The OCR engines attempt to determine all the elements written on the form. Images that cannot be resolved are sent to a REC site where operators attempt to encode the information manually. Once resolved, the data elements are uploaded to the National Customer Support Center (NCSC) in Memphis, Tennessee where the national COA dataset is updated.
- Specialized 3982 labels that contain specific change-of-address information for each order are printed at CFS units. These labels are sent to the delivery unit where personnel apply them to Form 3982. Fourteen labels fit on one form. If delivery personnel identify an error on a 3982 label, they attach the label to Form 3546, marking the appropriate item that identifies the error. That form is then directed back to the CFS unit where it is scanned and a corrected label is generated.

The following procedures describe how address correction notices are processed in a PARS environment:

- During CLOSS processing, the AFR or personnel at a REC site determine which mail pieces require the generation of an electronic or manual address correction notice.⁵
- An electronic signal is sent to NCSC in Memphis. NCSC provides an electronic ACS notice to those customers who are signed up for this service (ACS is defined in Section 3.9).
- In the case of manual notices, NCSC uses high-capacity printers to generate notices in ZIP Code sequence, loads the notices into banded

⁴ Forms that cannot be electronically processed are manually keyed.

⁵ In terms of manual notices, PARS only isolates mail pieces associated with Form 3547. Mail pieces associated with Form 3579 (Periodicals) are not isolated.

and labeled trays, and directs them into the mail processing stream for delivery.

All calculations for the *PARS08 Baseline Cost Model* are provided in Appendix A.

3.3 Total Cost of UAA Mail

The total cost of the UAA system including the activities associated with the PARS components is reported in Table 3.1. These costs are derived from the *PARS 08 Baseline Cost Model* and expressed in TY 08 dollars. For activities directly associated with UAA mail, costs for mail pieces that pass through PARS components (“PARS pieces”) are separated from all other mail pieces (“non-PARS pieces”). For PARS pieces, notice that there are two additional cost modules listed: CIOSS and REC. These modules estimate the cost of the new processes in the PARS environment. These modules are explained in Section 3.4 below.

As shown on the last row of the table, the total annual cost for processing UAA mail in a PARS environment is \$1.64 billion. Note that no estimate of the cost of administrative and support costs is provided.

By final disposition, the costs for activities directly associated with UAA mail in the PARS environment are as follows:

	Total Cost	Unit Cost
• Forward:	\$326 million	\$0.182
• Return to Sender:	\$727 million	\$0.506
• Wasted:	\$365 million	\$0.053

Compared to the pre-PARS environment, PARS generates savings for forwarded and returned pieces.⁶

Compared to the pre-PARS environment, costs are considerably lower for COA card processing, electronic notice processing, and Form 3547 activities. This is due to the improved processes in the PARS environment. More will be discussed about this below.

⁶ Mail processing savings of wasted mail due to PARS interception of some pieces occurring at the point of origin are not included in this analysis (e.g., outgoing direct and intra-operational handling). Also not included are savings due to disposal of wasted mail occurring at plants, where operations are consolidated, instead of at delivery units. If these savings were included, the cost of wasted mail in the PARS environment would be lower than the comparable cost in the pre-PARS environment.

Costs by disposition are summarized in Tables 3.2 through 3.10. Total costs for each disposition are found in Table 3.2 (forwarded), Table 3.5 (returned), and Table 3.8 (wasted). The detailed costs for those mail pieces that pass through PARS components (“PARS pieces”) are reported in separate tables from the detailed costs for all other mail pieces (“non-PARS pieces”). The costs for PARS pieces are reported in Table 3.3 (forwarded), Table 3.6 (returned), and Table 3.9 (wasted). The costs for non-PARS pieces are reported in Table 3.4 (forwarded), Table 3.7 (returned), and Table 3.10 (wasted).

Tables 3.11 through 3.13 summarize the cost for all address correction activities including COA order processing and manual notice processing. These costs are more fully discussed in Section 3.9 and 3.10 below.

3.4 Costs at the Plant

The CIOSS and REC modules encompass the steps for processing UAA letter mail and COA orders within the plant. These modules are expanded in this section.

3.4.1 CIOSS Module

The CIOSS module calculates the cost of processing UAA machinable letter mail. Such activities are performed by clerks and mail handlers that are assigned to CIOSS operations.⁷ The activities within the CIOSS module are listed below.

Activities associated with INT, CIF, and CIR letters:

- moving mail or equipment into/out of operation
- preparing mail to be run in image-lift or label mode⁸
- feeding mail into the machine
- monitoring machine operation
- clearing machine jams
- sweeping bins
- verifying/riffling waste mail (INT and CIF mail only)

⁷ Management Operating Data System (MODS) image-lift operations 091, 093, and 097; label operations 092, 098, and 099; special-handling operations 094, 095, and 096.

⁸ Some INT mail pieces have their images lifted and processed by upstream PARS-enabled machines such as the AFCS and MLOCR. These mail pieces arrive at the CIOSS ready for label mode. INT mail pieces intercepted on DBCS machines, however, do not have their images lifted. These pieces, along with all CIF and CIR mail, must first be run through the CIOSS machine in image-lift mode.

- setting up or taking down operation

Productivities for these activities are developed from the Postal Service's PARS engineering model. Activities associated with CIR letters include an adjustment for net savings for the replacement of the obsolete automation portion of the return-to-sender program (LMLM, ISS-OSS OCR).

A summary of costs from the CIOSS module is provided in Table 3.23. Table 3.24 provides detailed costs from the CIOSS module.

3.4.2 REC Module

The REC module calculates the cost of processing the images of UAA machinable letter mail captured by PARS-enabled sorting equipment and COA forms scanned at CFS units. Such activities are performed by data conversion operators working at Video Coding Desks (VCD). These desks run in different modes depending on which elements of an image need human intervention. For the purposes of this study, an "element" is defined as the portion of an image that needs to be resolved.⁹ An individual image may have one or multiple elements that must be resolved.

Images of letters have seven elements:

- mail class
- endorsement
- address change service (ACS)
- short name
- name plus number
- receiver address
- sender address

Only those elements that the AFR cannot resolve electronically are sent to the REC site for human intervention. Resolving elements electronically is a considerable improvement over the pre-PARS environment, especially for ACS codes (ACS is defined in Section 3.9). The average length of ACS codes is 14 characters. In a pre-PARS environment, CFS clerks were required to enter all of these characters. In a PARS environment, much of this work is electronically performed by the AFR. Only unresolved elements require manual keying.

⁹ REC site personnel generally refer to elements of images as "units."

To determine the productivities at the REC site, the overall keying rate from the Postal Service's PARS engineering model is used: 625 letter images per hour.¹⁰ In order to separate keying of ACS elements from all other elements, a relative productivity factor is developed from the New Equipment Reporting System (NERS), which houses current REC site keying data for PARS. This factor is used to de-average the overall productivity into ACS and non-ACS components.¹¹

For images of COA forms, REC site desks operate in 3 modes:

- non-address coding
- address coding
- verification coding

To ensure accuracy of COA information, some data receive a final review by REC keyers at a verification coding desk. The overall productivity for all of these activities, including verification, is developed from the Postal Service's PARS engineering model. The overall REC site productivity is 126 COA images per hour.¹²

A summary of costs from the REC module is provided in Table 3.25. Table 3.26 (non-ACS activities) and Table 3.27 (ACS activities) provide detailed costs from the REC module. Table 3.28 reports the number of mail piece images input into the AFR, as well as those mail pieces finalized by the AFR and those finalized by the REC site. AFR finalization rates are developed from the Postal Service's PARS engineering model.

3.5 Costs at Originating Delivery Unit

The route and nixie modules encompass the steps for processing UAA mail within the originating delivery unit. These modules are expanded in this section. The "originating delivery unit" is defined as the location associated with the original address on the mail piece.

¹⁰ This productivity is based on a full-deployment target rate of 750 images per hour adjusted by anticipated workhour capture rates.

¹¹ De-averaging is a technique of decomposing the numerator and denominator of a ratio into separate components.

¹² This productivity is based on a full-deployment target rate of 150 images per hour adjusted by anticipated workhour capture rates.

3.5.1 Route Module

As in the pre-PARS environment, the route module calculates the cost of processing UAA mail once the mail reaches the route or P.O box section of the original address. Such activities are performed by city carriers, rural carrier, clerks sorting to P.O. box sections, and clerks sorting to highway contract routes. The route module activities in the PARS environment are identical to those from the pre-PARS environment. The only difference is that fewer letters reach the route module due to interception by PARS-enabled equipment at the plant.

Workhour savings are generated because fewer letters reach the route module in the PARS environment. However, not all savings are immediately realized due to institutional lags and minimum threshold requirements.¹³ Parameters from the Postal Service's engineering model are used to account for such lags and thresholds.

A summary of costs from the route module is reported in Table 3.14. Table 3.15 provides the costs from the route module for all non-PARS pieces, while Table 3.16 provides the costs for all PARS pieces. These tables have the same basic structure as their pre-PARS counterparts. Namely, parts 1, 2, and 3 summarize the costs of performing various UAA activities at the route; while parts 4 and 5 summarize the included cost for processing no-record mail.¹⁴ The costs for one complete no-record mail trip between the route module and CFS module are reported in Table 3.17.

3.5.2 Nixie Module

The nixie module is used to calculate the cost of processing UAA mail after it has been handled at the route and redirected to the nixie unit or comparable operations within the delivery unit. In a PARS environment, nixie clerks process CIF and CIR letters that are redirected from the route to the CIOSS for image lift and label application. Because these clerks no longer have to mark up RTS mail or sort ACS nixie letters by reason, the work content for this mail is greatly

¹³ Although the model measures costs in an environment in which PARS equipment is fully deployed, there is still a need to include lags and minimum threshold requirements. Lags account for the fact that some savings may not be fully realized until several years after full deployment due to the nature of route evaluations. Minimum thresholds are used to form a lower bound on savings by excluding the impact of routes that are minimally affected by PARS.

¹⁴ No-record mail is mail that is sent from the delivery unit to the CFS unit for redirection processing but has no change-of-address order on file in the COA database. CFS clerks send this mail back to the delivery unit for additional processing. See Section 3.4.1 in USPS-LR-L-61 for more details.

reduced relative to the pre-PARS environment, even after accounting for the extra CIF volume flowing through the module (ACS is defined in Section 3.9).¹⁵

Nixie clerks are also responsible for CIR letters that are rejected from the CIOSS (due to automation and/or machinability issues). These pieces are treated just like non-letter pieces flowing through the module; namely, they are treated like letters in the pre-PARS environment. CIR CIOSS rejects are processed by nixie clerks working at the plant.

A summary of costs from the nixie module is reported in Table 3.18. Activities for processing letters are reported in three groupings: letters sent to CIOSS, all other letters, and letters rejected from CIOSS.

3.6 Costs at the CFS Unit

The CFS module is used to calculate the cost of processing UAA mail after it has reached the CFS unit. In a PARS environment, no machinable UAA letters are initially processed in CFS units. As a result, the CFS module has no costs associated with MT activities.

The CFS unit is responsible for INT and CIF letters that are rejected from the CIOSS (due to automation and/or machinability issues). These pieces are treated just like non-letter pieces flowing through the module; namely, they are processed on FFT or NMT machines.

A summary of costs from the CFS module is reported in Table 3.19. Table 3.20 reports the detailed costs for processing flats and parcels (“non-CIOSS mail”). Table 3.21 reports the detailed costs for processing letters rejected from the CIOSS. Table 3.22 provides the keying rates for FFT and NMT machines.

3.7 Mail Processing and Transportation Costs

After being redirected, UAA mail re-enters the Postal Service mail processing and transportation network. Depending on its disposition, a UAA mail piece is either forwarded to its final address or returned to its original sender. The mail processing and transportation module calculates the costs of these activities as explained in this section.

¹⁵ In a PARS environment, nixie clerks organize CIR mail into 14 different groups, according to the reason the pieces are being returned to sender. Nixie clerks use specialize machine-readable cards to separate the groups. When fed through the CIOSS, these separator cards trigger the CIOSS to change the reason code printed on the yellow label.

When determining mail processing costs in a PARS environment, it is important to consider at what point in the processing chain costs are attributed to UAA mail. Because PARS has the capacity to identify and redirect some mail pieces at the point of origin, there are savings in mail processing costs relative to the pre-PARS environment. That is, because PARS moves the UAA identification point “farther up” the processing chain, many activities are avoided; namely, activities to process mail from the induction point to the originating delivery unit. As such, an argument could be made that, when determining mail processing costs in a PARS environment, savings for these avoided activities should be included. However, in order to determine such savings, it would be necessary to know the pre-PARS baseline costs—costs that, as noted in Section 3.6 of USPS-LR-L-61, are not measured because they occur prior to UAA mail identification. Thus, within this framework, PARS mail processing savings are not calculated. This is not to say that such savings do not exist, for indeed they may be considerable once PARS is fully deployed. However, from the standpoint of this analysis, these savings are considered to be institutional and not specifically attributable to UAA mail.

To account for letters in a PARS environment, separate unit costs are developed for machinable and non-machinable mail pieces. This is accomplished by de-averaging the CRA-based letter unit cost from the pre-PARS environment. Unit costs for flats and parcels are the same as those in the pre-PARS environment (after adjusting for labor rate inflation). Table 3.29 shows the post-redirection mail processing and transportation unit costs by shape and disposition. For letters, notice that the returned-to-sender unit cost is considerably higher than the forwarded unit cost. For machinable letters, this is partly due to savings from the obsolete automation portion of the returned-to-sender program accruing in the CLOSS and REC modules rather than the mail processing and transportation module. If the savings were accrued here, the returned-to-sender unit cost would be closer to—but still above—the forwarded unit cost. The reason the returned-to-sender unit cost would not be equal to the forwarded unit cost is probably due to network differences.

Table 3.30 shows how the average mail processing and transportation unit cost is derived for PARS pieces (CLOSS letters including rejects) and non-PARS pieces (non-machinable letters, flats and parcels).

3.8 Costs at the Destinating Delivery Unit

3.8.1 Processing Postage Due Pieces

Once a UAA mail piece exits the mail processing and transportation network and reaches the delivery unit of the final address (i.e., the “destinating delivery unit”), it must be cased and delivered by a carrier or sorted to a box by a clerk. Because these activities represent the normal flow of operations that was interrupted when the mail piece was identified as UAA, they are not included in the UAA cost calculations. Only the costs associated with postage due processing are included since these activities are caused by UAA mail. The costs for these activities, as determined in the postage due module, are developed in this section.

PARS affects postage due activities in two ways: (1) the interception of some returned-to-sender letters reduces the number of pieces passing through the upstream nixie unit, and (2) any returned-to-sender letters that do pass through the upstream nixie unit on the way to the CIOSS do not require special handling (prep, postage due mark up, etc.). As shown in Table 3.31, these factors have the combined effect of decreasing the overall costs of processing postage due mail relative to costs in the pre-PARS environment (Table 3.14, USPS-LR-L-61, after adjusting costs for labor rate inflation).

PARS has no effect on postage due activities at the destinating delivery unit. This is because accountable mail clerks and carriers still must perform their normal postage due work (preparation, distribution, acceptance, clearance, etc.) regardless of whether the pieces were marked up as postage due through PARS components or not. Thus, as shown in Table 3.32 through 3.34, the costs and volumes in the PARS environment are identical to the pre-PARS environment values (after adjusting costs for labor rate inflation). Table 3.35 reports the number of postage due pieces that pass through various PARS components and those that do not.

3.8.2 Processing Form 3546

A customer who has moved may refuse to pay postage due on all forwarded Package Services pieces. If this occurs, the accountable mail clerk and the carrier at the new address fill out and process Form 3546 *Forwarding Order Change Notice* with the “*Refuses to pay postage due on ALL fourth-class*” box checked on line 12. The form is then sent to the accountable mail unit of the originating delivery unit where it is processed and filed. In the PARS environment, it is assumed that this procedure only applies to non-PARS pieces.

Table 3.36 summarizes the costs associated with this form. At the bottom of Table 3.2, these costs are directly attributed to forwarded mail.

3.9 Costs of Fulfilling Address Correction Requests

The Postal Service's Address Correction Service provides mailers with a notification when an address on a mailed piece is out of date or incorrect, or when the mail piece cannot be delivered for some other reason (deceased, refused, etc.) This notification occurs manually on Forms 3547 and 3579, or electronically through the Address Change Service (ACS).¹⁶ Mailers who use this manual or electronic notification service are required to display the appropriate endorsements and markings on their mail pieces (excluding Periodicals).

As described on Section 3.2.2, PARS has a direct impact on parts of this process. For machinable letters, PARS reduces the cost of generating manual notice Form 3547 and electronic ACS notices. In this section, these cost reductions are determined. More detailed ACS costs are reported in Section 5.

3.9.1 Manual Notifications

PARS impacts the cost of processing manual notices (Form 3547) in three particular ways:

- Because the process is completely automated through CIOSS and NCSC, there is no labor cost associated with generating notices.
- Because the NCSC printing equipment automatically presorts notices in ZIP Code sequence, the mail processing cost to send the notices to the destinating delivery unit is reduced.
- NCSC presorting of notices also reduces the handling cost of the accountable mail clerk in preparing notices for final delivery.

Table 3.11 reports the costs of processing Form 3547 in a PARS environment. Part 1 of the table displays the cost of forms generated from the CIOSS/NCSC system; that is, forms based on letters flowing across PARS-enabled equipment. Part 2 of the table displays the costs of forms generated from the CFS system; that is, forms based on non-machinable letters and non-letters. This section of

¹⁶ The term "Address Correction Service" is used in this study to refer to the entire notification system, including both manual and electronic notices. The term "Address Change Service" is used to refer to only the electronic notification system. Throughout this study, the acronym "ACS" always stands for Address Change Service.

the table is identical to the 3547 section of pre-PARS table (Table 3.5, USPS-LR-L-61, after adjusting costs for labor rate inflation) except for differences in volume frequencies and weights. The 3547 volume weights by notification method are derived in Table 3.38. The top panel of that table contains volumes of forms associated with letters, while the bottom panel contains volumes of forms associated with non-letters. The percentages derived on the right side of that table feed directly to the “weights” column of Table 3.11.

Table 3.12 reports the costs of processing Form 3579 in a PARS environment. Because this form is associated with Periodicals, and because Periodicals are predominately non-letters, PARS-enabled processing equipment does not isolate pieces associated with these notices. As such, the cost estimates developed in this table are identical to those estimates developed in the pre-PARS environment (Table 3.6, USPS-LR-L-61, after adjusting costs for labor rate inflation). The proportions of forms generated at CFS and nixie units are displayed in Table 3.39.

Table 3.40 displays mail processing and transportation costs for Forms 3547 and 3579. For Form 3547, costs are separated between forms generated in the CIOSS/NCSC system and the CFS system. Notice that the unit cost for forms generated in the CIOSS/NCSC is lower than the unit cost for generated in the CFS system. This is because forms from the CIOSS/NCSC system are presorted by ZIP Code and, hence, are cheaper to process on average.

Table 3.37 displays the major inputs needed to calculate the cost of manual notifications. Table 3.41 summarizes the unit costs of Forms 3547 and 3579 and develops the unit cost for both types of notices combined. The overall cost of processing Form 3547, including all activities at the CIOSS/NCSC, CFS unit, mail processing and transportation, accountable mail unit, and carrier delivery, is \$0.350 per form. The overall cost for processing Form 3579 is \$0.649 per form. The combined cost is \$0.396 per form.

3.9.2 Electronic Notification

PARS impacts the cost of processing electronic ACS notices in two ways:

- Letters whose ACS codes are completely resolved by the AFR have no labor cost associated with generating notices.
- Letters whose ACS codes must be manually resolved by REC site operators have a relatively low labor cost compared to letters manually resolved by CFS clerks. This is because REC site operators work at designated ACS video coding desks in which the effective keying rate is

higher than the keying rate of CFS clerks working on mechanized machines.

Table 3.43 reports the costs of processing ACS electronic notices in a PARS environment. As shown at the bottom of the table, the overall unit cost for all shapes is \$0.208. The unit cost of generating an ACS COA notice is \$0.222, while the unit cost for generating an ACS nixie notice is \$0.186. Volume frequencies across shape and ACS notification type (COA or nixie) are developed in Table 3.42.

3.9.3 Electronic Notification – OneCode ACS Environment

An important variation of electronic notification processing is processing ACS notices in the “OneCode ACS” environment, available to UAA letters that contain the so-called 4-state barcode. The 4-state barcode is a 31-digit barcode that allows customers to condense multiple mail piece attributes into one barcode string. The 4-state barcode is long enough to completely and uniquely contain all the information needed for an ACS notice.¹⁷

The AFR will eventually be able to read 4-state barcodes. Because the AFR read rate is considerably higher for barcodes than for alpha/numeric character strings, it is possible to estimate the cost of processing an electronic notice in the OneCode ACS environment. These costs are reported in Table 3.44. As indicated by the gray-shaded cells, in the OneCode ACS environment the finalization rate for the REC site falls to zero. This is because, with the exception of CIOSS rejects, all ACS letters are finalized by the AFR. Because AFR finalization is an automated process with no labor cost, the overall letter unit cost falls to \$.004 per piece.

3.10 Costs of Processing Change-Of-Address Orders

As described in Section 3.2.2, the processing of change-of-address cards is changed considerably in the PARS environment. The majority of hard copy forms are no longer manually entered at the CFS unit. Instead, electronic scanners are used. After the change-of-address information has been scanned and verified, 3982 labels are printed and directed to the originating delivery unit. Carriers no longer have to manually complete Form 3982. They simply verify the information printed on each label and apply the labels to Form 3982.

¹⁷ A 4-state barcode is similar to the existing POSTNET Code and PLANET Code barcodes. These barcodes belong to the class of height-modulated barcodes. While the POSTNET Code and PLANET Code barcodes use tall bars and short bars to encode data, the 4-state barcode uses tall bars and short bars at 3 different vertical positions so that more information can be encoded in about the same amount of space.

Table 3.13 summarizes the costs of processing COA orders in the PARS environment. The table is divided between activities associated with original orders and activities associated modifications and deletions. The overall unit cost for processing COA orders is \$1.782. Relative to the pre-PARS environment (Table 3.6, USPS-LR-L-61), costs savings are mainly associated with carrier work and CFS processing.

4.0 UAA PARS 08 RATE CATEGORY COSTS

Refer to the electronic workbook *PARS08 ClassTabs_v.xls* in Appendix A (L62AppendixA\PARS08\Tables) of the attached CD for all tables referenced in this section.

4.1 Overview

The *PARS 08 Rate Category Cost Model* is constructed based on the same principles as the *Pre-PARS Rate Category Cost Model* in USPS-LR-L-61. Namely, baseline unit costs of every step within every module are fixed, and volumes are then “pushed” through that are specific to each individual rate category. The main difference is that the *PARS 08 Rate Category Cost Model* uses baseline values derived from a PARS environment rather than a pre-PARS environment. Variations in cost and volume inputs between FY 04 and TY 08 also drive differences between the PARS and pre-PARS models.

4.2 Cost Results

The cost results for all classes and rate categories are developed in Table 4.2 through 4.64. For each rate category, a separate table is developed by disposition. Each table reports volumes, costs, and unit costs by shape. Activities directly associated with UAA mail are reported separately from address correction activities. All calculations for the *PARS 08 Rate Category Cost Model* are provided in Appendix A.

The following classes and rate categories are reported:

- First-Class Mail
 - Single-Piece: Tables 4.2 – 4.4
 - Nonautomation Presort (“Presorted”): Tables 4.5 – 4.7
 - Automation Presort (“Automation”): Tables 4.8 – 4.10
- Periodicals Mail
 - Nonautomation Presort (“Presorted”): Tables 4.12 – 4.14
 - Carrier Route: Tables 4.15 – 4.17
 - Automation Presort (“Automation”): Tables 4.18 – 4.20
- Standard Mail
 - Nonautomation Presort (“Presorted”): Tables 4.22 – 4.24
 - Enhanced Carrier Route: Tables 4.25 – 4.27
 - Automation Presort (“Automation”): Tables 4.28 – 4.30
- Package Services Mail

- Parcel Post: Tables 4.32 – 4.34
- Parcel Select: Tables 4.35 – 4.37
- Bound Printed Matter: Tables 4.38 – 4.40
- Media Mail/Library Mail: Tables 4.41 – 4.43
- Other Mail Classes
 - International: Tables 4.45 – 4.47
 - Priority: Tables 4.48 – 4.50
 - USPS Mail: Tables 4.51 – 4.53
 - Free Mail for the Blind: Tables 4.54 – 4.56
 - Express Mail: Tables 4.57 – 4.59

Summary tables are provided from each class and across all classes. The summary tables for each class are as follows:

- First-Class Mail: Table 4.11
- Periodicals: Table 4.21
- Standard Mail: Table 4.31
- Package Services: Table 4.44
- Other Mail Classes: Table 4.60

The summary tables across all classes are as follows:

- All Dispositions: Table 4.61
- Forwarded Mail: Table 4.62
- Returned Mail: Table 4.63
- Wasted Mail: Table 4.64

Note that the values between the baseline tables and these rate category tables are completely consistent. In particular, the derived unit cost value across all dispositions, rate categories, and shapes from the rate category tables matches the comparable unit cost value from the baseline tables. For instance, the grand total cost in Table 4.61, \$1.552 billion, matches the sum of forwarded mail, returned-to-sender mail, wasted mail, and electronic notice processing, and manual notice processing in Table 3.1 ($\$.326 + \$.727 + \$.365 + \$.074 + \$.061$). Likewise, total UAA volume in Table 4.61, 10.075 billion, matches the sum of volume by disposition in Table 3.1.¹⁸

¹⁸ When reconciling volumes between Tables 3.1 and 4.61, it is not necessary to include address correction volumes since these pieces are already accounted for in the disposition volumes.

5.0 DETAILED ACS COSTS

Refer to the electronic workbook *PARS08 ACSTabs_v.xls* in Appendix A (L62AppendixA\PARS08\Tables) of the attached CD for all tables referenced in this section.

5.1 ACS COA and Nixie Costs

Using the *PARS 08 Rate Category Cost Model* outlined in Section 4, it is possible to expand the ACS cost estimates from Tables 3.43 and 3.44 by shape and class. Costs by processing step can also be provided. Such estimates are important in developing ACS pricing policies. These estimates are developed in this section. All calculations are provided in the *PARS 08 Rate Category Cost Model* in Appendix A.

Tables 5.1 and 5.2 provide ACS cost and volume detail by shape and class for all dispositions. These tables are developed based on the same pre-PARS concepts developed in Section 6.1 of USPS-LR-L-61. The only exception is that Table 5.1, which reports ACS letters, includes additional activities for CIOSS processing (including AFR and REC activities). Table 5.3 provides ACS cost and volume detail by class, aggregated over all shapes. As shown in the lower right-hand corner of the table, the overall unit cost over all classes and shapes is \$.208. This is equivalent to the value derived in Table 3.43, indicating that the rate category cost model is completely consistent with the baseline cost model. Table 5.4 provides ACS cost and volume detail in the OneCode ACS environment.

5.2 Electronic Versus Physical Returns

An important exercise in evaluating ACS mail is to consider the cost difference between UAA mail pieces that are physically returned to the mailer versus UAA mail pieces for which an electronic address correction notice is sent to the mailer and the mail piece itself is wasted—so-called electronic returns. Such costs are developed in this section. All calculations are provided in the *PARS 08 Rate Category Cost Model* in Appendix A.

The definitions of electronic and physical returns are the same as those developed in Section 6.2 of USPS-LR-L-61: electronic returns are ACS mail pieces that are wasted after redirection processing; physical returns are non-ACS

mail pieces that are physically returned to the sender. However, in a PARS environment some further explanation is required.

In a PARS environment, letter-shaped electronic returns are processed on the CIOSS. Some of these letters are part of the INT mail stream, while others are part of the CIR and CIF mail streams. INT letters do not require carrier or nixie clerk preparation and, thus, have a lower work content than CIF and CIR letters.

In a PARS environment, most letter-shaped physical returns are also processed on the CIOSS.¹⁹ These letters are comprised of “delivery unit returns” and “CIOSS returns.” Delivery unit returns are letters that are identified by a carrier, sent through the nixie unit, and then directed to the CIOSS for processing.²⁰ In a pre-PARS environment, these pieces would also be called “delivery unit returns.” CIOSS returns are move-related letters that are either intercepted by PARS-enabled equipment at the plant or are identified by carriers. In a pre-PARS environment, these pieces would be called “CFS unit returns.”

Tables 5.5 through 5.8 report costs and volumes of electronic returns by class and shape. Tables 5.9 through 5.12 provide comparable detail of physical returns. The activities listed in the tables cover all activities from the time a mail piece is identified as UAA until it reaches its final disposition. For physical returns, this includes the costs of carrier preparation, nixie clerk handling, redirection processing (at the CFS unit or on PARS-enabled sorting machines), and postage due activities. For electronic returns, this includes the costs of carrier preparation, nixie clerk handling, redirection processing, and ACS code identification and keying (at the CFS unit or on PARS-enabled sorting machines).

As specified at the bottom of Tables 5.5 through 5.8, the class and shape differentials are reported. In most cases, the unit cost of physical returns is greater than the unit cost of electronic returns. This difference is most pronounced for Standard Mail and Package Services due to costly postage due activities for physical returns. The gray-highlighted section of Table 5.8 provides the differentials across all shapes and classes.

¹⁹ Non-machinable letters are processed through the CFS.

²⁰ In a PARS environment, a small portion of letter-shaped delivery unit returns are intercepted at the plant and do not require preparation by carriers or nixie clerks.

**6.0 APPENDIX A – PARS 08 VOLUME AND COST
MATERIALS**

(Electronically Available on CD)

The Excel workbooks used to develop the costs and volumes in the PARS 08 environment are listed below. Electronic versions of these workbooks are available under the directory “L62AppendixA” on the attached CD.

The PARS 08 components of this study rely on volume and cost inputs from the pre-PARS analysis as found in USPS-LR-L-61 and the PARS 04 analysis as found in USPS-LR-L-116. For convenience, the electronic versions of the inputs from USPS-LR-L-61 and USPS-LR-L-116 are included under the directories “L61AppendixC” and “L116AppendixA” on the attached CD.

6.1 UAA TY 08 Rollforward Volumes

The following Excel workbooks are used to develop UAA TY 08 rollforward volumes as reported in Section 2 above.

Workbook: **fcst 05q4DecV5Maura.xls** (L62AppendixA\PARS08\Volumes)

Purpose: Excel workbook containing the volume results of the RPW rollforward model (before rates) from USPS-LR-L-66/Docket R2006-1.

Input

- Data from USPS-LR-L-66/Docket R2006-1

Workbook: **volforecast_pars08.xls** (L62AppendixA\PARS08\Volumes)

Purpose: Excel workbook containing rollforward TY 08 UAA volumes.

Input

- **duvol6_class.xls** – FY 04 non-letter UAA volumes (from USPS-LR-L-61)
- **duvol6_class_pars.xls** – FY 04 letter UAA volumes, including machinability and COA characteristics (from USPS-LR-L-116)
- **fcst 05q4DecV5Maura.xls** – TY 08 RPW rollforward volumes (before rates)
- **TablesCFS6.xls** – FY 04 ACS letter volumes (from USPS-LR-L-61)
- **TablesCFS6_pars08.xls** – TY 08 CFS volumes cross reference check
- **TablesDU6.xls** – FY 04 non-ACS letter volumes (from USPS-LR-L-61)
- **TablesDU6_pars08.xls** – TY 08 DU volumes cross reference check
- **UAA PrePARS Model-AddQual.xls** – Pre-PARS FY 04 address quality costs and volumes, needed to form distribution keys (from USPS-LR-L-61)

Workbook: **distvol6_pars08.xls** (L62AppendixA\PARS08\Volumes)

Purpose: Excel workbook to summarize TY 08 UAA volumes.

Input

- **distdata.txt** – file containing data before unknown data are distributed (created by **distdat.f** in USPS-LR-L-61)
- **distdata6.txt** – file containing final distribution data (created by **distdat.f** in USPS-LR-L-61)
- **cfs_path_model6.xls** – FY 04 CFS volumes by dispositions distribution keys (from USPS-LR-L-61)
- **SSAMnth04.xls** – FY 04 CFS control volumes (from USPS-LR-L-61)
- **volforecast_pars08.xls** – UAA volume growth rates, FY04 – TY 08

Workbook: **TablesCFS6_pars08.xls** (L62AppendixA\PARS08\Volumes)

Purpose: Excel workbook to summarize TY 08 volumes at CFS units.

Input

- **distvol6_pars08.xls** – TY 08 distributed volumes pivot tables inputs

Workbook: **TablesDU6_pars08.xls** (L62AppendixA\PARS08\Volumes)

Purpose: Excel workbook to summarize TY 08 volumes at delivery units.

Input

- **distvol6_pars08.xls** – TY 08 distributed volumes pivot tables inputs

Workbook: **PARS08 VoITabs.xls** (L62AppendixA\PARS08\Tables)

Purpose: Excel workbook to report final UAA TY 08 volumes for Tables 2.1 through 2.3.

Input

- **TablesCFS6_pars08.xls** – TY 08 CFS volumes by class, rate category, and shape
- **TablesDU6_pars08.xls** – TY 08 DU volumes by class, rate category, and shape

Workbook: **PARS08 VoITabs_v.xls** (L62AppendixA\PARS08\Tables)

Purpose: Excel workbook to report final UAA TY 08 volumes for Tables 2.1 through 2.3, excluding links to source data in external workbooks. The results in this workbook are identical to those found in **PARS08 VolTabs.xls**.

Input

- None

6.2 PARS 08 Baseline Cost Model

The following Excel workbooks are used to calculate costs for the *PARS 08 Baseline Cost Model* as reported in Section 3 above.

6.2.1 Volumes

Workbook: duvol6_class_pars08.xls (L62AppendixA\PARS08\Volumes)

Purpose: Excel workbook to report TY 08 rate category letter volumes by route type, including machinability and COA characteristics. This workbook also reports TY 08 rate category non-letter volumes by route type.

Input

- **duvol6_class_pars.xls** – FY 04 DU letter volumes (from USPS-LR-L-116)
- **duvol6_class.xls** – FY 04 DU nonletter volumes (from USPS-LR-L-61)
- **distvol6_pars08.xls** – UAA volume growth rates, FY 04 – TY 08
- **TablesCFS6_pars08.xls** – TY 08 CFS volumes cross reference check
- **TablesDU6_pars08.xls** – TY 08 DU volumes cross reference check
- **volforecast_pars08.xls** – TY 08 UAA total volumes cross reference check

Workbook: duvol6_pars08.xls (L62AppendixA\PARS08\Volumes)

Purpose: Excel workbook to report TY 08 UAA aggregated letters by route type, including machinability characteristics and COA characteristics. This workbook also reports TY 08 aggregated non-letter volumes by route type.

Input

- **duvol6_class_pars08.xls** – TY 08 DU volumes by rate category

- **SSAMnth04.xls** – FY 04 CFS no-record mail volumes (from USPS-LR-L-61)

Workbook: cfsvol6_pars08.xls (L62AppendixA\PARS08\Volumes)

Purpose: Excel workbook to report TY 08 UAA aggregated volumes processed at CFS units.

Input

- **distvol6_pars08.xls** – TY 08 distributed volumes pivot tables inputs
- **CFS_Form5.xls** – FY 04 MRC mail productivities (from USPS-LR-L-61)
- **pdsurvey6_pars08.xls** – TY 08 postage due volumes cross reference check
- **TablesCFS6_pars08.xls** – TY 08 CFS volumes cross reference check

Workbook: cfsvol6_class_pars08.xls (L62AppendixA\PARS08\Volumes)

Purpose: Excel workbook to report TY 08 UAA volumes by rate category processed at CFS units.

Input

- **distvol6_pars08.xls** – TY 08 distributed volumes pivot tables inputs
- **CFS_Form5.xls** – FY 04 MRC mail productivities (from USPS-LR-L-61)
- **cfsvol6_pars08.xls** – TY 08 CFS aggregated volumes cross reference check
- **pdsurvey6_pars08.xls** – TY 08 postage due volumes cross reference check
- **TablesCFS6_pars08.xls** – TY 08 CFS volumes cross reference check

Workbook: nixiesurvey6_pars08.xls (L62AppendixA\PARS08\Volumes)

Purpose: Excel workbook to report TY 08 UAA nixie volumes. Letter volumes in this workbook include machinability characteristics.

Input

- nixdat.txt – file containing nixie unit volumes (created by **readnixie.f** in USPS-LR-L-61)
- **distvol6_pars08.xls** – TY 08 distributed volumes pivot tables inputs

- **make_HTweights.xls** – Horwitz-Thompson sample weights (from USPS-LR-L-61)
- **duvol6_class_pars08.xls** – TY 08 DU letter volumes by rate category controls
- **UAA PARS04 Model-BaseCFS.xls** – FY 04 address correction manual notice volumes (from USPS-LR-L-116)
- **UAA PARS08 Model-BaseCFS.xls** – TY 08 address correction manual notice volumes

Workbook: **nixvol6_pars08.xls** (L62AppendixA\PARS08\Volumes)

Purpose: Excel workbook to report TY 08 UAA aggregated volumes processed at nixie units.

Input

- **nixiesurvey6_pars08.xls** – TY 08 nixie unit volumes
- **distvol6_pars08.xls** – TY 08 nixie unit volumes cross reference check

Workbook: **nixvol6_class_pars08.xls** (L62AppendixA\PARS08\Volumes)

Purpose: Excel workbook to report TY 08 UAA volumes by rate category processed at nixie units.

Input

- **nixiesurvey6_pars08.xls** – TY 08 nixie unit volumes, letter volumes include machinability characteristics
- **duvol6_class_pars08.xls** – TY 08 DU letter volumes, including machinability characteristics, COA characteristics, and separations for intercepted and non-intercepted volumes
- **UAA PARS08 Model-BaseDU.xls** – PARS interception rates

Workbook: **pdsurvey6_pars08.xls** (L62AppendixA\PARS08\Volumes)

Purpose: Excel workbook to report TY 08 UAA postage due volumes.

Input

- pdprod.txt – file containing accountable mail unit productivities (created by **readpostdue.f** in USPS-LR-L-61)
- pddat.txt – file containing accountable mail unit volumes (created by **readpostdue.f** in USPS-LR-L-61)
- **distvol6_pars08.xls** – TY 08 distributed volumes pivot tables inputs
- **make_HTweights.xls** – Horwitz-Thompson sample weights (from USPS-LR-L-61)
- **nixiesurvey6_pars08.xls** – TY 08 nixie unit postage due volumes

Workbook: pdvol6_pars08.xls (L62AppendixA\PARS08\Volumes)

Purpose: Excel workbook to report TY 08 UAA aggregated volumes processed at accountable mail units.

Input

- **pdsurvey6_pars08.xls** – TY 08 postage due volumes

Workbook: pdvol6_class_pars08.xls (L62AppendixA\PARS08\Volumes)

Purpose: Excel workbook to report TY 08 UAA volumes by rate category processed at accountable mail units.

Input

- **pdsurvey6.xls** – FY 04 postage due volumes (from USPS-LR-L-61)

Workbook: machvol6_pars08.xls (L62AppendixA\PARS08\Volumes)

Purpose: Excel workbook to report TY 08 UAA aggregated parcels by disposition and machinability.

Input

- **distvol6_pars08.xls** – TY 08 distributed volumes pivot tables inputs
- **TablesCFS6_pars08.xls** – TY 08 CFS volumes cross reference check
- **TablesDU6_pars08.xls** – TY 08 DU volumes cross reference check

Workbook: coaforecast_pars08.xls (L62AppendixA\PARS08\Volumes)

Purpose: Excel workbook containing rollforward TY 08 COA form counts.

Input

- **UAA PrePARS Model-BaseDU.xls** – FY 04 COA form counts (from USPS-LR-L-61)

6.2.2 CRA Costs and Other Inputs

Workbook: FY2008 Test Year Piggyback Factors USPS Version.xls
(L62AppendixA\PARS08\CRA)

Purpose: Excel workbook containing TY 08 CRA component/segment piggyback factors from USPS-LR-L-52/Docket R2006-1.

Input

- Data from USPS-LR-L-52/Docket R2006-1

Workbook: **MPPGBY08.xls** (L62AppendixA\PARS08\CRA)

Purpose: Excel workbook containing TY 08 CRA cost pool piggyback factors from USPS-LR-L-53/Docket R2006-1.

Input

- Data from USPS-LR-L-53/Docket R2006-1

Workbook: **LabRates08.xls** (L62AppendixA\PARS08\CRA)

Purpose: Excel workbook to summarize TY 08 labor rates.

Input

- Data from USPS-LR-L-50/Docket R2006-1

Workbook: **FCM CARDS - LETTERS1 R2006-1 ver2 28 06.xls**
(L62AppendixA\PARS08\CRA)

Purpose: Excel workbook containing TY 08 First-Class Mail letters data from USPS-LR-L-48/Docket R2006-1.

Input

- Data from USPS-LR-L-48/Docket R2006-1

Workbook: **R2006_TY2008BR_USPS.CRpt.xls** (L62AppendixA\PARS08\CRA)

Purpose: Excel workbook containing TY 08 rollforward CRA costs (before rates) from USPS-LR-L-7/Docket R2006-1.

Input

- Data from USPS-LR-L-7/Docket R2006-1

6.2.3 Cost Modules and Final Tables

Workbook: **UAA PARS08 Model-BaseDU.xls** (L62AppendixA\PARS08\Costs)

Purpose: Excel workbook to calculate PARS TY 08 costs for the route module, nixie module, and postage due module, including costs associated with no-record mail, COA forms, and address correction forms.

Input

- **aqvol6.xls** – FY 04 bundle parameters (from USPS-LR-L-61)
- **BYPBack04.USPS.20050214.xls** – FY 04 component piggyback factors (from USPS-LR-L-61)
- **CFS Form4.xls** – FY 04 CFS postage due productivities (from USPS-LR-L-61)
- **coaforecast_pars08** – TY 08 COA form counts
- **CRA04_UAA.xls** – FY 04 CRA control ratios (from USPS-LR-L-61)
- **distvol6_pars08.xls** – labor rate, volume, and piggyback factor forecast switches
- **duvol6_pars08.xls** – TY 08 DU letter volumes
- **FY04 mail proc variabilities.xls** – FY 04 Cost pool variabilities (from USPS-LR-L-61)
- **FY04Seg_20050214.xls** – FY 04 CRA segment and component costs (from USPS-LR-L-61)
- **FY2008 Test Year Piggyback Factors USPS Version.xls** – TY 08 component piggyback factors
- **LabRates04.xls** – FY 04 labor rates by craft (from USPS-LR-L-61)
- **LabRates08.xls** – TY 08 labor rates by craft
- **LR-K-43FIRST-CLASS FLATS.xls** – PKR IS flat productivities (from USPS-LR-L-61)
- **LR-K-48FCLTRS-RevisedV4.xls** – PKR IS letter productivities (from USPS-LR-L-61)
- **MPPGBY04.xls** – FY 04 cost pool piggyback factors (from USPS-LR-L-61)
- **MPPGBY08.xls** – TY 08 cost pool piggyback factors
- **nixiesurvey6.xls** – FY 04 nixie unit productivities (from USPS-LR-L-61)
- **nixiesurvey6_pars08.xls** – TY 08 address correction manual forms
- **nixvol6_pars08.xls** – TY 08 nixie unit non-letter volumes
- **nixvol6_class_pars08.xls** – TY 08 nixie unit post-interception letter volumes
- **pdsurvey6.xls** – FY 04 accountable unit productivities (from USPS-LR-L-61)
- **pdvol6_pars08.xls** – TY 08 accountable unit postage due volumes
- **Qt047_2.xls** – FY 04 COD volumes (from USPS-LR-L-61)
- **SSAMnth04.xls** – FY 04 COA parameters (from USPS-LR-L-61)
- **UAA PARS04 Model-BaseDU.xls** – PARS FY 04 city carrier parameters; COA form counts (from USPS-LR-L-116)
- **UAA PARS08 Model-BaseCFS.xls** – TY 08 CIOSS rejects cross reference check; address correction notices; other various parameters

- **UAA PARS08 Model-BasePInt.xls** – PARS TY 08 CIOSS processing cost, needed for non-record mail cost calculations
- **UAA PrePARS Model-BaseCFS.xls** – Pre-PARS FY 04 letter mail processing and transportation cost, needed for COA label cost calculations (from USPS-LR-L-61)
- **UAA PrePARS Model-BaseDU.xls** – FY 04 volumes, needed to preserve productivities and average labor rates; pre-PARS FY 04 COA processing workhours, needed for cross reference check; pre-PARS FY 04 CRA control ratios (from USPS-LR-L-61)
- **UAA_DPS_Percent_Model.xls** – DPS percentages (from USPS-LR-L-61)

Workbook: **UAA PARS08 Model-BaseCFS.xls** (L62AppendixA\PARS08\Costs)

Purpose: Excel workbook to calculate PARS TY 08 costs for the CFS module and the mail processing and transportation module.

Input

- **CFS_Form1.xls** – FY 04 CFS field supplies cost (from USPS-LR-L-61)
- **CFS_Form2.xls** – FY 04 CFS re-key rates (from USPS-LR-L-61)
- **CFS_Form3.xls** – FY 04 Form 3547 disposition (from USPS-LR-L-61)
- **CFS_Form4.xls** – FY 04 CFS postage due productivities (from USPS-LR-L-61)
- **CFS_Form5.xls** – FY 04 CFS MRC mail productivities (from USPS-LR-L-61)
- **CFSProds04.xls** – FY 04 FCS database productivities (from USPS-LR-L-61)
- **cfsvol6_pars08.xls** – TY 08 CFS volumes
- **CRA04_UAA.xls** – Pre-PARS FY 04 CFS control ratios (from USPS-LR-L-61)
- **distvol6_pars08.xls** – labor rate, volume, and piggyback factor forecast switches
- **FY04 mail proc variabilities.xls** – FY 04 Cost pool variabilities (from USPS-LR-L-61)
- **FY04Seg_20050214.xls** – CRA FY 04 C/S 14 First-Class Mail cost (from USPS-LR-L-61)
- **LabRates04.xls** – FY 04 labor rates by craft (from USPS-LR-L-61)
- **LabRates08.xls** – TY 08 labor rates by craft
- **Qt047_2.xls** – FY 04 First-Class Mail volume, needed for transportation unit cost (from USPS-LR-L-61)
- **SSAMnth04.xls** – FY 04 COA mail volumes; Form 3579 parameters (from USPS-LR-L-61)

- **UAA PARS04 Model-BaseCFS.xls** – FY 04 volumes, needed to preserve FFT keying rates (from USPS-LR-L-116)
- **UAA PARS08 Model-BaseDU.xls** – TY 08 CIOSS reject letter volumes
- **UAA PrePARS Model-BaseDU.xls** – FY 04 letter/flat relative productivity factor (from USPS-LR-L-61)
- **UAA PrePARS Model-BaseCFS.xls** – FY 04 postage due and MRC volumes, needed to preserve productivities; pre-PARS FY 04 CRA control ratios, needed for CIOSS reject processing and non-letter processing (from USPS-LR-L-61)

Workbook: **UAA PARS08 Model-BasePInt.xls** (L62AppendixA\PARS08\Costs)

Purpose: Excel workbook to calculate PARS TY 08 costs for the CIOSS and REC modules.

Input

- **cfsvol6_class_pars08.xls** – TY 08 CFS volumes, needed to create postage due distribution keys of CIOSS letters
- **duvol6_class_pars08.xls** – TY 08 letter volumes by rate category, including machinability and COA characteristics
- **FY04 mail proc variabilities.xls** – FY 04 Cost pool variabilities (from USPS-LR-L-61)
- **nixvol6_class_pars08.xls** – TY 08 nixie letter volumes, needed to create postage due distribution keys of CIOSS letters
- **pdvol6_class_pars08.xls** – TY 08 postage due volumes
- **PARS08 VolTabs.xls** – TY 08 total volumes cross reference check
- **TablesCFS6_pars08.xls** – TY 08 CFS volumes cross reference check
- **TablesDU6_pars08.xls** – TY 08 DU volumes cross reference check
- **UAA PARS04 Model-BasePInt.xls** – FY 04 ACS/Non-ACS volumes, needed to preserve productivities (from USPS-LR-L-116)
- **UAA PARS08 Model-BaseDU.xls** – TY 08 DU letter volumes cross reference check; PARS parameters
- **UAA PARS08 Model-BaseCFS.xls** – TY 08 CFS nonletter volumes and non-machinable letter volumes

Workbook: **UAA PARS08 Model-BaseMP.xls** (L62AppendixA\PARS08\Costs)

Purpose: Excel workbook to calculate the PARS TY 08 mail processing and transportation module.

Input

- **FY04 CRA Costs by UAA Category.xls** – FY 04 mail processing cost by cost pool for forwarded and returned mail (pivot table inputs) (from USPS-LR-L-61)
- **distvol6_pars08.xls** – labor rate, volume, and piggyback factor forecast switches
- **duvol6_class_pars.xls** – FY 04 DU letter volumes (from USPS-LR-L-116)
- **FCM CARDS - LETTERS1 R2006-1 ver2 28 06.xls** – TY 08 MAADC and MADC relative productivities
- **fcst 05q4DecV5Maura.xls** – TY 08 First-Class Mail RPW volumes
- **LR-K-48FCLTRS-RevisedV4.xls** – MAADC and MADC relative productivities, needed to determine the relative cost of machinable and non-machinable letters (from USPS-LR-L-61)
- **R2006_TY2008BR_USPS.CRpt.xls** – TY 08 rollforward First-Class Mail transportation cost
- **TablesCFS6_pars08.xls** – TY 08 CFS non-letter volumes
- **TablesDU6_pars08.xls** – TY 08 DU non-letter volumes
- **UAA PARS04 Model-BaseCFS.xls** – PARS FY 04 CFS non-letter mail processing and transportation costs and volumes (from USPS-LR-L-116)
- **UAA PARS04 Model-BaseDU.xls** – FY 04 labor rates (from USPS-LR-L-116)
- **UAA PARS04 Model-BaseMP.xls** – PARS FY 04 mail processing costs and volumes (from USPS-LR-L-116)
- **UAA PARS08 Model-BaseCFS.xls** – TY 08 CIOSS reject volumes cross reference check
- **UAA PARS08 Model-BaseDU.xls** – TY 08 labor rates; TY 08 DU volumes
- **UAA PARS08 Model-BasePInt.xls** – TY 08 CIOSS volumes cross reference check
- **UAA PrePARS Model-BaseCFS.xls** – FY 04 CFS letter volumes (from USPS-LR-L-61)

Workbook: **PARS08 BaseTabs.xls** (L62AppendixA\PARS08\Tables)

Purpose: Excel workbook to report final PARS TY 08 costs for Tables 3.1 through 3.44.

Input

- **PARS08 VoITabs.xls** – TY 08 total volumes cross reference check
- **TablesCFS6_pars08.xls** – TY 08 CFS volumes cross reference check
- **TablesDU6_pars08.xls** – TY 08 DU volumes cross reference check

- **UAA PARS08 Model-BaseCFS.xls** – Results from the PARS TY 08 CFS module
- **UAA PARS08 Model-BaseDU.xls** – Results from the PARS TY 08 route, nixie, and postage due modules
- **UAA PARS08 Model-BasePInt.xls** – Results from the PARS TY 08 plant module
- **UAA PARS08 Model-BaseMP.xls** – Results from the PARS TY 08 mail processing and transportation module

Workbook: **PARS08 BaseTabs_v.xls** (L62AppendixA\PARS08\Tables)

Purpose: Excel workbook to report final PARS TY 08 costs for Tables 3.1 through 3.44, excluding links to source data in external workbooks. The results in this workbook are identical to those found in **PARS08 BaseTabs.xls**.

Input

- None

6.3 PARS 08 Rate Category Cost Model

The following Excel workbooks are used to calculate costs for the *PARS 08 Rate Category Cost Model* as reported in Section 4 above.

Workbook: **UAA PARS08 Model-RateCat.xls** (L62AppendixA\PARS08\Costs)

Purpose: Excel workbook to calculate PARS TY 08 costs at the rate category level for all modules.

Input

- **cfsvol6_pars08.xls** – TY 08 CFS non-letter volumes cross reference check
- **cfsvol6_class_pars08.xls** – TY 08 CFS non-letter volumes by class, rate category
- **duvol6_pars08.xls** – TY 08 DU non-letter volumes cross reference check
- **duvol6_class_pars08.xls** – TY 08 PARS DU non-letter volumes by class and rate category
- **machvol6_pars08.xls** – TY 08 machinable/non-machinable parcel volumes by class and subclass
- **nixiesurvey6_pars08.xls** – TY 08 nixie unit volumes cross reference check
- **nixvol6_class_pars08.xls** – TY 08 nixie unit non-letter volumes by class and rate category

- **PARS08 BaseTabs.xls** – TY 08 baseline cost model cross reference check
- **PARS08 VolTabs.xls** – TY 08 final UAA volumes cross reference check
- **pdsurvey6_pars08.xls** – TY 08 postage due volumes cross reference check
- **pdvol6_class_pars08.xls** – TY 08 postage due volumes by class, rate category, and shape
- **UAA PARS08 Model-DU.xls** – PARS TY 08 unit costs and other parameters from the route module, nixie module, and postage due module
- **UAA PARS08 Model-BaseCFS.xls** – PARS TY 08 unit costs and other parameters from the CFS module and the non-letter portion of the mail processing and transportation module
- **UAA PARS08 Model-BasePInt.xls** – PARS TY 08 unit costs and other parameters from the CIOSS and REC modules

Workbook: **PARS08 ClassTabs.xls** (L62AppendixA\PARS08\Tables)

Purpose: Excel workbook to report final PARS TY 08 costs and volumes for Tables 4.2 through 4.64.

Input

- **UAA PARS08 Model-RateCat.xls** – PARS TY 08 cost and volumes by class, rate category, and shape
- **PARS08 BaseTabs.xls** – PARS TY 08 baseline cost model cross reference check

Workbook: **PARS08 ClassTabs_v.xls** (L62AppendixA\PARS08\Tables)

Purpose: Excel workbook to report final PARS TY 08 costs and volumes for Tables 4.2 through 4.64, excluding links to source data in external workbooks. The results in this workbook are identical to those found in **PARS08 ClassTabs.xls**.

Input

- None

6.4 Detailed ACS Costs

The following Excel workbook is used to calculate PARS TY 08 detailed ACS costs reported in Section 5 above.

Workbook: **PARS08 ACSTabs.xls** (L62AppendixA\PARS08\Tables)

Purpose: Excel workbook to report final PARS TY 08 detailed ACS costs for Tables 5.1 through 5.12.

Input

- **UAA PARS08 Model-RateCat.xls** – PARS TY 08 ACS/non-ACS costs and volumes by class and shape
- **PARS08 BaseTabs.xls** – PARS TY 04 baseline cost model cross reference checks

Workbook: **PARS08 ACSTabs_v.xls** (L62AppendixA\PARS08\Tables)

Purpose: Excel workbook to report final PARS TY 08 detailed ACS costs for Tables 5.1 through 5.12, excluding links to source data in external workbooks. The results in this workbook are identical to those found in **PARS08 ACSTabs.xls**.

Input

- None

6.5 Data Processing

All processing for Excel workbooks is performed on PCs running the Windows XP Professional Version 2002 Service Pack 2 operating system and using Microsoft Office Excel 2003 Service Pack 1 from the Microsoft Office Professional Edition 2003.