USPS-RT-17

BEFORE THE
POSTAL RATE COMMISSION
WASHINGTON, D.C. 20268-0001

POSTAL RATE AND FEE CHANGES, 1997	:	Docket No. R97-1

REBUTTAL TESTIMONY
OF
MICHAEL W. MILLER
ON BEHALF OF
UNITED STATES POSTAL SERVICE

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REBUTTAL TESTIMONY
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AUTOBIOGRAPHICAL SKETCH

My name is Michael W. Miller. I am an Economist in the Product Cost Studies group at the United States Postal Service. Product Cost Studies (PCS) is a branch of the Product Finance department at Headquarters. Prior to joining PCS in January 1997, I was an Industrial Engineer at the Margaret L. Sellers Processing and Distribution Center in San Diego, California.

I have worked on various field projects since joining the Postal Service in February 1991. I was the local coordinator for automation programs in San Diego such as the Remote Bar Coding System (RBCS) and the Delivery Bar Code Sorter (DBCS). I was also responsible for planning the operations for a new Processing and Distribution Center (P&DC) that was activated in 1993. In addition to field work, I have completed detail assignments within the Systems/Process Integration group in Engineering.

Earlier in Docket No. R97-1, I testified before the Postal Rate Commission concerning the Prepaid Reply Mail (PRM) and Qualified Business Reply Mail (QBRM) mail processing cost avoidance.

Prior to joining the Postal Service, I worked as an Industrial Engineer at General Dynamics Space Systems Division where I developed labor and material cost estimates for new business proposals. These estimates were submitted as part of the formal bidding process used to award government contracts.

I earned a Bachelor of Science degree in Industrial Engineering from Iowa State University in 1984 and a Master of Business Administration from San Diego State University in 1990.

I. PURPOSE OF TESTIMONY

The purpose of this testimony is to rebut the testimony of Office of the Consumer Advocate (OCA) witness Willette (OCA-T-400) which advocates that the Postal Rate Commission should recommend the establishment of a Courtesy Envelope Mail (CEM) rate category within First-Class Mail. My testimony, in combination with the testimonies of Mr. Ellard (USPS-RT-14), Dr. Steidtmann (USPS-RT-15), and Mr. Sheehan (USPS-RT-16), explains why the Commission should not recommend a CEM classification to the Governors.

II. INTRODUCTION

The OCA first proposed a Courtesy Envelope Mail (CEM) rate category in Docket No. R87-1. OCA witness Olson attempted to justify that proposal on the basis that CEM resulted "in demonstrable and substantial cost savings compared to other individual First-Class pieces."[1] It was never argued that the American public actually wanted a two-stamp system for their basic First-Class Mail letters. The OCA then followed with CEM proposals in both Docket Nos. R90-1 and MC95-1. In each docket, the Postal Service submitted CEM rebuttal testimony. In Docket No. MC95-1, the Postal Rate Commission recommended a CEM shell classification, but did not recommend a specific rate. The Governors ultimately rejected that recommendation.

In the current case, the Postal Service has proposed Prepaid Reply Mail (PRM). PRM offers consumers two advantages: indirect access to a reduced postage rate of 30 cents and the convenience of not having to use stamps. This convenience feature could reduce the likelihood that the mailing public would switch to bill payment alternatives. The retention of remittance mail offers benefits to all mailers, including non-household First-Class Mail users. If the net contribution for the amount of retained remittance mail exceeded the PRM discount revenue loss, all mailers would benefit.

PRM participation is not a mandatory requirement for current Courtesy Reply Mail (CRM) providers; it is an optional product that businesses can adopt as an added convenience feature for their customers. It is anticipated that the adoption and acceptance of PRM will be a slow and manageable process that can benefit the public while avoiding the problems associated with a two-stamp system.

Despite the fact that the Postal Service proposed this alternative, the OCA has again submitted a two-stamp proposal. The proposed 30-cent CEM rate is based on a cost study in my direct testimony (USPS-T-23) that supported PRM and Qualified Business Reply Mail (QBRM). In response to PRM, witness Willette testified that, "The proposal herein does not contemplate that the Commission adopt CEM as a

[1] Docket No. R87-1, Tr. 20/14968.

replacement for PRM and QBRM. Rather, the CEM proposal enhances the Postal Service proposal..."[2]

In fact, the implementation of CEM would seriously undermine the success of PRM. The candidate mail for both proposals currently exists within the same courtesy reply mail stream. If both were implemented, the rate advantage associated with PRM would vanish, as households could realize the same rate benefit using CEM. Businesses would therefore not be as likely to adopt PRM and the convenience of using the mail system as a bill payment alternative would not be enhanced. If anything, the complications associated with using two stamps could encourage the public to investigate other bill payment alternatives.

Unlike PRM, which would benefit the public while requiring less additional effort on their part, the implementation of CEM would complicate the simple act of mailing letters for every person and organization that uses the nation's mail system. This complication would inhibit the Postal Service's ability to achieve its customer satisfaction goal of improving the ease of use of that system.

CEM could have a negative impact on service, performance, and the public's perception of the mails while generating additional costs for the Postal Service. Therefore, for all of these reasons, the Postal Service opposes CEM. The rebuttal arguments presented in this testimony are as follows:

1. **Complexity:** CEM would complicate the nation's mail system for all parties involved.

2. **Market Research:** A recent survey shows that households do not want a two-stamp system.

3. **Revenue Loss Recovery:** The revenue loss associated with CEM would have to be recovered somewhere.

4. **CEM-Related Costs:** The costs associated with implementing and maintaining a second stamp would also have to be recovered.

5. **Fairness and Equity:** CEM would not fairly and equitably distribute postage costs.

[2] Docket No. R97-1, Tr. 21/10695 at 6-8.

III. CEM WOULD COMPLICATE THE NATION'S MAIL SYSTEM

"CEM is a very simple concept."
---OCA Witness Willette (Docket No. R97-1, Tr. 21/10688 at 11)

A common theme throughout witness Willette's testimony is the claim that CEM is simple. I disagree. The tasks performed by any individual customer or postal employee may not be complex in and of themselves, but the postal system as a whole is incredibly complex. In terms of its impact, CEM would be one of the most extensive rate changes ever implemented. It would complicate the nation's mail system for every person or organization that interacts within that system, including households, businesses, major mailers, as well as the Postal Service.

A. PARTICIPATING HOUSEHOLDS WOULD HAVE TO BUY AND USE TWO STAMPS

In 1995, 96.2% of all households paid at least one bill using the mail.[3] The long-existing one-stamp system has proven to be workable for bill payers. Households know that they can rely on the mail for this relatively uncomplicated service. In a two-stamp environment, this simple system would become complicated because households that participate would have to recognize qualified mail pieces, purchase two different stamp denominations, and use both denominations appropriately.

Confusion Could Prevail: To participate in CEM, households would have to determine which envelopes are qualified for the 30-cent stamp. In order to facilitate that process, businesses would have to mark reply envelopes in a prominent, standardized location. Any lack of standardized CEM markings would hamper efforts to educate the public and increase the potential for confusion. Confused household mailers could make incorrect decisions regarding when each stamp should be used. These decisions could affect how each mail piece is processed and result in delayed or

[3] LR-H-162, page IV-124.

return-to-sender mail. These results, particularly the latter, would adversely affect service and create substantial customer relations problems for the Postal Service.

More Stamp Transactions Would Be Required: The public obtains stamps from a variety of sources. Households can buy stamps from consignment outlets (e.g., grocery stores), from vending machines, and from Postal Service window clerks. If CEM were implemented, this process would become more complicated because some consignment outlets and vending machines would not be able to offer both denominations. As a result, many households would have to make special trips to alternate retail outlets to purchase stamps. Others might require an additional trip to the post office. Finally, some consumers would have to purchase stamps from postal window clerks because the vending machine(s) in a given facility did not have the capacity to offer both stamps. CEM would make purchasing stamps less convenient.

Two Stamps Would Be Less Convenient To Use: A two-stamp system would also be less convenient to use. In a CEM environment, households seeking to minimize their postage would have to ensure that they had sufficient supplies of both stamps. CEM users would need to monitor inventories for both the full-rated single-piece stamp and the CEM stamp. The usage of multiple stamps could become even more complicated in future rate case proceedings if the approved increase for the CEM stamp did not match the approved increase for the full-rated single-piece stamp. In that instance, two non-denomination letter stamps (e.g., "H" and "I") would be required and households would temporarily need four stamps.

The implementation of CEM would complicate matters for households by making it less convenient to use the nation's mail system to pay bills. Household consumers ultimately dictate which bill payment method they use and the complications associated with a second stamp could make various non-mail alternatives appear more attractive.

B. BUSINESSES COULD ENCOUNTER PROBLEMS

Many businesses could also suffer a negative impact because of CEM. For example, consignment outlets that chose to offer both stamps could experience difficulties related to stocking and selling two denominations. Consignment outlet employees could also be plagued by customer inquiries regarding the appropriate use of each denomination. On the other hand, outlets that chose not to offer both stamps could get complaints based on the fact that they do not offer both denominations.

In addition, certain businesses (e.g., mortgage companies, insurance brokers, student loan consolidators, and health care facilities) do not provide prebarcoded reply envelopes to their customers. If household consumers use the CEM stamp in error on mail pieces addressed to these businesses and the mail pieces are returned to sender postage due, businesses could have their mail delayed. On the other hand, if no return address were included on the mail piece, as is often the case, the business could be faced with the decision of either paying the postage due, or having the mail piece (which could include a remittance) forwarded to a mail recovery center.

Finally, like households, businesses also pay bills. Small businesses in particular would experience the same complexities as households in terms of recognizing qualified mail pieces, purchasing two stamp denominations, and using both stamp denominations.

C. MAJOR MAILERS WOULD HAVE TO MODIFY ENVELOPES

Before households and businesses could participate in CEM, large mailers would first have to convert their existing CRM envelopes to a CEM format. Witness Willette believes that these envelopes simply need to "bear an indication" that they are eligible for a CEM discount.[4] This suggestion fails to address the many issues related to reply mail piece design. The conversion process would not be simple by any means and would most likely result in two separate prebarcoded reply mail streams.

The DMM Requires Automation Compatible Reply Envelopes: The Domestic Mail Manual (DMM) currently prohibits outgoing mail pieces that qualify for automation discounts from containing reply envelopes that do not also meet automation compatibility standards.[5] The DMM does not require that the reply envelope be barcoded. Mailers who prefer to use window envelopes with prebarcoded inserts also qualify for automation discounts. When mailings that contain enclosed reply envelopes are brought into a Bulk Mail Entry Unit (BMEU), the agent representing the mailer must certify that the enclosed reply mail pieces bear the proper Facer Identification Mark (FIM) and barcode if they claim discounted automation rates on the outgoing pieces. Because the enclosed reply envelopes cannot be visually verified, compliance is, to an extent, based on an honor system. Of course, over time the Postal Service would generally discover if a customer receiving large amounts of non-compatible reply pieces was improperly claiming automation discounts on the outgoing mail pieces.

In actual practice, postal employees work with mailers that are found not to comply with this DMM requirement -- rather than rejecting, delaying, or assessing higher postage against the mailing. Working with mailers to resolve envelope hygiene problems makes good business sense because the Postal Service can improve the processing characteristics of future reply mail pieces.

Reply Mail Characteristics Vary A Great Deal: The DMM requirements for existing CRM mail pieces are allowed to vary within limits. This variation is allowed because automated equipment can still find and "read" the barcode.[6] A "standardized" reply mail piece is not required because mail processing costs would not be adversely affected by these differences.

Witness Willette states that "the 'transformation' of a CRM piece into a CEM piece would be simple."[7] I disagree. It is difficult to imagine such a wide variety of reply mail pieces being readily "transformed" into uniformly marked mail pieces that CEM users could easily recognize.

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[4] Docket No. R97-1, Tr. 21/10715 at 13.
[5] DMM 53, Section 810C.8.0.
[6] See Exhibit USPS-RT-17A for a more detailed discussion of reply envelope variation.
[7] Docket No. R97-1, Tr. 21/10688 at 16.

Envelopes Would Have To Be Properly Marked: Witness Willette proposes that all CEM qualified mail pieces should contain a marking on the envelope.[8] She suggests placing this marking in the upper right hand corner in the postage affixation block.[9] This would not be an adequate solution because the stamp would obscure the CEM marking. Postal employees would need the ability to determine CEM qualification after the postage is affixed to the envelope. That determination could not be made simply by looking for the presence of a FIM and barcode. Postal employees could not be expected to determine CEM qualification unless the mail piece explicitly indicated so in a manner not obscured when a stamp was affixed to the envelope.

In fact, all parties would need the ability to make that determination. The CEM marking would need to be placed in a standard location on all envelopes. Finding such a location would not be an easy task. Markings at the top of an envelope could interfere with the return address, the FIM, and/or the stamp(s). Markings at the center of the envelope could interfere with window locations. Those at the bottom could interfere with the barcode clear zone.

An alternative would also have to be found for window envelopes with prebarcoded inserts.[10] In that situation, the envelopes would be marked, but the barcode would only be contained on the insert. Properly marked envelopes could therefore be mailed at the discounted rate (without the insert) to someone other than the envelope provider.[11] Placing the CEM marking on inserts would not solve this problem, as envelope windows are located in a wide variety of places and they are sometimes only large enough to expose the address and/or barcode.

In order to minimize public confusion, a uniform marking location would have to be found for the wide variety of reply envelopes that are sent by hundreds of thousands of businesses to their customers each day. Such a location would be difficult to find given the level of variation that exists among current CRM mail pieces.

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[8] Docket No. R97-1, Tr. 21/10686 at 4-5.
[9] Docket No. R97-1, Tr. 21/10685 at 6-8.
[10] In Docket No. MC95-1, Library Reference MCR-119, these reply mail pieces represented 33% of all CRM. In the Exhibit USPS-RT-17A study, these reply mail pieces represented 45% of all sampled CRM.
[11] In a one-stamp system, re-addressed reply envelopes (discussed later in this testimony) can cost more to process. However, such pieces would not generally result in revenue protection problems.

Therefore, many reply mail providers would have to modify their envelope designs. I am not suggesting that this would be an impossible task. However, it would be anything but simple. The OCA has failed to specifically address two important issues related to envelope modifications. First of all, the mail piece design requirement has not been determined. The design could be a marking as indicated by witness Willette or it could be a standardized envelope design similar to that used for Business Reply Mail (BRM). In addition, witness Willette failed to discuss whether mailer compliance would be voluntary or mandatory. Regardless of the requirements, the most likely result would be a remittance mail stream where some prebarcoded, FIM A reply mail pieces would be properly marked as CEM qualified, and others would not.

Voluntary Conversion Could Result In Low CEM Volumes: In today's environment, specific reply envelope designs are used for a multitude of reasons other than the simple enclosure of a remittance. As discussed in Exhibit USPS-RT-17A, some reply mail providers also use envelopes to advertise products, list user instructions, and promote efficient remittance processing. Therefore, some reply mail providers may not be inclined to modify their envelope designs to accommodate CEM on a voluntary basis. As a result, the current CRM mail stream would be separated into two distinct prebarcoded mail streams that require different postage rates, yet have identical mail processing cost characteristics.

Enforcing A Mandatory Conversion Would Be Difficult: This same problem would also exist if CEM conversion were to become a mandatory requirement. In that instance, the DMM would have to be changed to require compliance before a mailer could take advantage of automation discounts on the outgoing mailing. Enforcement of a mandatory policy would be likely to provoke a negative reaction, given the fact that many bulk First-Class Mail users have been prebarcoding their enclosed reply mail pieces for years. Others, who have only recently made significant investments to satisfy new DMM reply envelope standards, may resent having to immediately comply with another mandatory change. Many may question why they are being required to constantly enhance CRM envelopes when there is no further advantage obtained by doing so. Conversion of CRM envelopes to CEM would not improve the speed of

delivery in today's mail processing environment, providing little if any opportunity to advance the capture of remittance mail float. In all likelihood, postal employees would work with the mailers to correct any non-compliance issues (as they currently do in regard to reply mail piece automation compatibility), rather than attempting to strictly enforce a mandatory CEM requirement. This would not be an uncomplicated task.

Whether or not CEM conversion is voluntary or mandatory, the most likely result would be a remittance mail stream where some prebarcoded, FIM A reply mail pieces would be properly marked as CEM qualified, and others would not. At the very least, it would take time for the "transformation" to occur as mailers would want to exhaust old envelope inventories rather than "amending" their envelopes, as suggested by witness Willette (Docket No. R97-1, Tr. 21/10691, at 2-14).[12] How long that would take is not known as mailers were not contacted regarding the CEM proposal.[13]

D. CEM WOULD BE DIFFICULT FOR THE POSTAL SERVICE TO ADMINISTER AND ENFORCE

As stated in previous cases, the Postal Service would experience administration and enforcement problems as a result of CEM. Witness Willette suggests that the Commission just dismiss the Postal Service's concerns, but does not discuss those concerns in detail, or elaborate as to why they should be dismissed.[14] The Postal Service would expect to incur costs related to public education campaigns, increased window service transactions, and revenue protection efforts.

In addition, the Postal Service would experience problems related to stamp sales. The current system relies predominantly on one basic stamp denomination for First-Class Mail letters. Under CEM, consumers could use 33-cent stamps, 30-cent stamps, 33-/30-cent stamps, or 30-/3-cent stamps. It is not known at this time which

[12] As a point of comparison, the Postal Service extended the preparation period for the Classification Reform requirement that sack and tray labels be barcoded. This extension allowed customers an additional six months to replace label stock and make internal production adjustments.
[13] Docket No. R97-1, Tr. 21/10750.
[14] Docket No. R97-1, Tr. 21/10703 at 11-14.

combination, if any, would be prevalent. Sufficient quantities of all these stamps would have to be ready at the time of implementation.

Finally, the costs for processing reply mail could increase. For those CRM pieces that do not convert to CEM, the use of two stamps (e.g., 30 and 3 cents) to pay postage could obscure the FIM markings and result in a prebarcoded mail piece being routed to a less efficient operation.

CEM would be one of the most significant rate changes in postal history in terms of the scope of its impact. The nation's mail system would become more complicated for everyone: households, businesses, major mailers, and the Postal Service.

CEM would complicate the simple and basic First-Class Mail rate schedule which has long been relied upon by the general public. This would seem to contradict the spirit of 39 U.S.C. §3622(b)(7), which encourages simplicity of structure for the entire schedule and simple, identifiable relationships between the rates or fees charged the various classes of mail for postal services. In a CEM environment, there would not be a cost difference (sufficient to justify a CEM rate) between prebarcoded reply mail pieces that converted to CEM, and those that did not.

The CEM proposal would also increase the likelihood that the general public could become confused when using the nation's mail system. Incorrect mailing decisions could be made as a result of that confusion and the public's view of the mails could become increasingly negative, making other bill payment alternatives appear more attractive. This is a major concern for the Postal Service, given the importance of the remittance mail stream.

IV. THE PUBLIC DOES NOT WANT A TWO-STAMP SYSTEM

> ***Question:*** *"What role do you think the preference of households should play in the determination by the Commission to consider a two stamp system for First Class Mail letters?"*
>
> ***OCA Witness Willette:*** *"...It should probably play some role. We have based our CEM proposal on the cost savings associated with processing that mail...I wouldn't want the Commission to ignore that."*
>
> ***Question:*** *"You wouldn't want the Commission to ignore what?"*
>
> ***OCA Witness Willette:*** *"The preference of mailers."*
>
> *(Docket No. R97-1, Tr. 21/10774-10775)*

Despite her comments that household preferences should be considered, witness Willette admits that the OCA has not conducted any market research in the current rate case which indicates whether the mailing public wants a two-stamp system.[15]

A. PAST MARKET RESEARCH SHOWS A LACK OF SUPPORT

From Docket Nos. R87-1, R90-1, and MC95-1 to the present, one element has been missing from each OCA sponsorship of CEM: the OCA has never directly asked the public whether they want it. In fact, every study conducted thus far contains data which indicate there is a decided lack of support for CEM.

Docket No. R87-1: In this case, the OCA did not use household consumer support as a platform for its initial CEM proposal. The OCA attempted to justify that proposal as a means to provide rate relief to households, to increase barcoded mail volumes, and to prevent future electronic diversion.[16]

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[15] Docket No. R97-1, Tr. 21/10751.
[16] Docket No. R87-1, Tr. 20/14968-72.

In rebuttal, USPS witness Rittenhouse cited a 1986 Roper Survey.[17] In that survey, respondents were asked if they would rather have one basic First-Class Mail rate or two separate rates based on specific mail piece characteristics. The single rate was chosen by 62 percent of the respondents.

1988 Tracking Study: In October 1988, the USPS conducted a study which tested consumer reactions to lower CRM rates.[18] When asked an open-ended question about how they felt about a CRM discount, 69 percent of the 1,002 participants responded favorably. However, the percentage of favorable responses decreased when specific discounts were included in the questions. For discounts of five cents (25/20 cent rates) and three cents (25/22 cent rates), the percentage of favorable responses decreased to 66 percent and 49 percent, respectively. Finally, the respondents were asked for their opinions regarding 26/21 cent rates. Even though the discount was still 5 cents, the favorable responses decreased from 66 percent to 21 percent when the full-rated stamp price was increased by a penny. This latter result would seem to suggest that whatever public support might exist for CEM, that support falls sharply once consumers realize that, in order to fund a discount, their rates may have to increase elsewhere.

Docket No. R90-1: OCA witness Thomas presented market research in support of CEM in R90-1.[19] That research relied on several questions that asked respondents about their "likelihood of purchasing a discount stamp" -- given various discounts as compared to two different residual rates (31 and 30 cents). The implication was that a "likelihood to purchase" meant that consumers wanted CEM. This study also contained several responses which indicated a decided lack of public support:

---39.4 percent would probably/definitely not purchase (30 cents/27 cents)
---40.2 percent would probably/definitely not purchase (31 cents/27 cents)
---77.3 percent would probably/definitely not purchase (30 cents/29 cents)
---75.5 percent would probably/definitely not purchase (31 cents/29 cents)
---33.2 percent somewhat/strongly agree the difficulty would just not be worth it
---47.6 percent somewhat/strongly agree it would be difficult to learn
---69.5 percent somewhat/strongly agree stamp would be used inappropriately

[17] Docket No. R87-1, USPS-RT-9, page 21 at 1-11.
[18] Docket No. R90-1, USPS Library Reference F-225.
[19] Docket No. R90-1, Tr. 30/15317.

Docket No. MC95-1: In the Classification Reform case, the OCA presented no additional market research to support CEM. The USPS, however, provided the results from a 1991 Rate Change Telephone Survey.[20] That survey once again showed that consumers were not enthusiastic about CEM:

---67-71percent somewhat/very inconvenient to use, buy and maintain two stamps
---45.6 percent somewhat/very unlikely to purchase (29 cents/27 cents)

B. THE OCA PROVIDES NO SUPPORTING RESEARCH IN DOCKET NO. R97-1

In the current case, the OCA has again neglected to provide any data which show that the public wants a two-stamp system. The only survey that ever directly asked consumers which system they wanted was the 1986 Roper survey and those results showed that 62% of the respondents preferred the current one-stamp system.

C. A RECENT USPS SURVEY SHOWS THE PUBLIC STRONGLY PREFERS THE CURRENT ONE-STAMP SYSTEM

On behalf of the Postal Service, witness Ellard recently conducted a market research survey in order to determine whether households preferred a one-stamp or two-stamp system for their First-Class Mail letters. The results of that survey are reflected in his rebuttal testimony in this proceeding (USPS-RT-14).

The Public Does Not Want A Two-Stamp System: Witness Ellard's survey shows that a likelihood to purchase the discounted stamp (if CEM were to be implemented) does not necessarily mean that the public wants to see the Postal Service implement a two-stamp system. The respondents in witness Ellard's CARAVAN® survey were directly asked in Question P9 which system they preferred, a one-stamp system or a two-stamp system. The overwhelming majority preferred the current one-stamp system. The cumulative figure of 60 percent would seem to validate the 62 percent figure from the 1986 Roper Survey discussed earlier.

[20] Docket No. MC95-1, USPS Library Reference MCR-88.

TABLE 1: HOUSEHOLD PREFERENCE FOR ONE OR TWO STAMPS

Question P9:
Household Preference
60% One-Stamp System
38% Two-Stamp System
2% Don't Know

Lower Income Households Prefer A One-Stamp System: In witness Ellard's survey, the households in the two lowest income categories exhibited the strongest preference for a one-stamp system.

TABLE 2: HOUSEHOLD PREFERENCE - LOWER INCOME LEVELS

Question P9: < $15,000	Question P9: $15,000 - $25,000
Household Preference:	**Household Preference:**
72% One-Stamp System	63% One-Stamp System
26% Two-Stamp System	32% Two-Stamp System
2% Don't Know	4% Don't Know

Witness Willette said in her testimony, "We would note that low income households as well as those on *low* fixed incomes might find saving between four and five dollars a year attractive."[21] They might indeed. But it is doubtful that lower income households would ever mail enough reply envelopes to save such an amount. The CARAVAN® survey shows that the mean number of reply mail envelopes mailed per month decreases as the income level decreases.

In fact, based on the results from Question P2, where respondents were asked the number of payments they mailed per month using a reply envelope, it looks doubtful that the average household in any income category would save four to five dollars annually. It should also be noted that some reply envelopes would not be prebarcoded and therefore would not qualify for a CEM rate. In addition, some prebarcoded reply envelopes probably would not be converted from CRM to CEM. In both cases, the potential savings would be less than that shown in Table 3.

[21] Docket No. R97-1, Tr. 21/10693 at 16-17.

TABLE 3: AVERAGE REPLY ENVELOPES MAILED BY INCOME LEVEL

Question P2: Income Level	Avg. No. CRM Mailed Per Mo.	Average Annual Savings
< $15K	4.4	$ 1.32
$15K-$25K	5.8	$ 1.74
$25K-$35K	6.2	$ 1.86
$35K-$50K	7.9	$ 2.37
> $50K	9.1	$ 2.73

The Possibility Of Other Rate Increases Affects System Preference: It is noteworthy that the preference question was asked a second time of those respondents who said they preferred a two-stamp system in Question P9. They were asked if they still wanted two stamps if such a system contributed, to some extent, to an increase in the rates for regular First-Class Mail letters. After being informed of a possible "push-up" elsewhere, 66 percent of those respondents that originally had preferred a two-stamp system switched to the one-stamp system.

The impact of the two preference questions is significant. When the respondents who switched from a two-stamp to a one-stamp system in question 10 are combined with those respondents who preferred a one-stamp system initially in question 9, the figures show that 86 percent of the total respondents prefer a one-stamp system when they are made aware that their rates could increase elsewhere.

TABLE 4: COMBINED RESULTS FROM PREFERENCE QUESTIONS

Combined Questions P9/10: Household Preference
86% One-Stamp System
12% Two-Stamp System
2% Don't Know

The Postal Service agrees with the OCA that household preference should be considered in regard to CEM. Household consumers have spoken through this survey and the overwhelming majority prefer a one-stamp system. These survey results clearly indicate that CEM is not a desirable classification from the point of view of the user, within the meaning of U.S.C. §3623(c)(5).

V. THE CEM REVENUE LOSS WOULD HAVE TO BE RECOVERED

"I have not taken a formal position on the recovery of the $219 million."
---OCA Witness Willette (Docket No. R97-1, Tr. 21/10735)

OCA witness Sherman contends that PRM could mislead household consumers into thinking that reply mail service is free.[22] That same argument could also be applied to the OCA's proposed CEM rate, since the revenue loss associated with that rate would have to be recovered elsewhere. That loss could be recouped in a variety of ways, but, one way or another, consumers would ultimately shoulder the burden. And it has already been demonstrated through market research that when households are made aware of that fact, the overwhelming majority prefer a one-stamp system.

The revenue loss issue has been presented as a rebuttal argument in Docket Nos. R87-1[23], R90-1[24], and MC95-1[25]. In each docket, the OCA has avoided taking a stand as to how the losses should be recovered. In Docket No. R97-1, witness Willette concludes that, "At 30 cents per piece, CEM mail will travel under a rate that is more closely aligned with costs than consumers' current alternative, the First Class single-piece rate."[26] If aligning rates with costs were truly a cornerstone of CEM, the OCA's proposal would include a provision that recommends a higher single piece rate for letters that cost more to process (e.g., handwritten). Such a provision has not been included in witness Willette's proposal.

CEM would not create any new cost benefits that would, in any way, offset the corresponding revenue loss. In fact, the Postal Service would incur additional costs in order to implement and maintain a two-stamp system. Those costs would also have to be recovered.

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[22] Docket No. R97-1, Tr. 26/13763.
[23] Docket No. R87-1, USPS-RT-9, pages 13-14.
[24] Docket No. R90-1, Tr. 39/21066.
[25] Docket No. MC95-1, Tr. 36/16326.
[26] Docket No. R97-1, Tr. 21/10714 at 2-4.

VI. CEM WOULD FORCE THE POSTAL SERVICE TO INCUR SUBSTANTIAL ADDITIONAL COSTS.

"While the Postal Service has long objected to CEM on such bases as the 'two stamp' problem, I would observe that the Commission dismissed such operational objections to CEM in Docket No. MC95-1, as well it should here."
---OCA Witness Willette (Docket No. R97-1, Tr. 21/10703 at 11-14)

If CEM were implemented, the Postal Service would incur substantial additional costs that it would not normally incur. Some costs are easier to quantify than others.

TABLE 5: QUANTIFIABLE CEM-RELATED COSTS (MILLIONS)

Description	Initial Costs	Annual Costs
Education	$ 33	-----
Window Services	-----	$ 17
Revenue Protection	-----	$ 66 - $ 255
Total	$ 33	$ 83 - $ 272

A. A MULTIMEDIA PUBLIC EDUCATION CAMPAIGN WOULD BE REQUIRED

The Postal Service estimates that it would be necessary to spend approximately $33 million to implement a multimedia campaign designed specifically to explain CEM to the general public.

In R90-1, OCA witness Thomas acknowledged that the Postal Service would have to educate the public about CEM.[27] The Postal Service agrees with that assessment. Because CEM involves a change in household consumer behavior, the Postal Service would need to use television, radio, and newspaper advertisements ($19 million) to educate the public about CEM.[28] As a compliment to that campaign, at least one CEM-specific direct mailing ($11 million) would need to be sent to every household and business in the United States. Finally, CEM-specific brochures ($3 million) would need to be prominently displayed in postal retail lobbies. These costs would not be incurred in the absence of CEM.

[27] Docket No. R90-1, Tr. 30/15355-58.

The education process would also involve additional costs that cannot easily be quantified. For example, some time would have to be spent explaining CEM to the postal workforce. All employees would have to know how CEM works and be able to answer customer inquiries. It would be especially important for employees who maintain regular customer contact (e.g., carriers and window service clerks) to be able to answer CEM questions. In addition, employees would have to be told how to identify short paid mail. Informal training on the workroom floor is currently provided using "stand up talks" that supervisor sometimes give to employees at the beginning of their shifts. Initially, these established "information sharing" sessions would be used for training. If problems were detected, however, a more intensive approach would have to be used and formal training would be required, generating additional systemwide expenses.

To some degree, the magnitude of internal training and all other education efforts would be directly related to the success of the implementation plan. First, an implementation date would have to be determined. Second, all qualifying CEM mail pieces would have to be marked properly by the implementation date. Any non-compliance would hamper education efforts.

As I indicated earlier, it is doubtful that all CRM would convert CEM. In that case, it would always be difficult for carriers and/or window service clerks to explain to customers why a CEM stamp could be placed on one prebarcoded, FIM A mail piece, but could not be placed on a similar mail piece. The explanation that mail pieces must be properly marked would be the technically correct answer, but a technically correct answer may not undo the damage caused by negative customer perceptions.

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[28] Exhibit USPS-RT-17B, page 1.

B. WINDOW SERVICE TRANSACTIONS WOULD INCREASE

The addition of a second basic single-piece First Class Mail stamp for letters would increase the number of stamp sales transactions performed by postal window clerks. The costs associated with this increase are estimated to be $17 million annually.[29]

Past market research has indicated that household consumers would need to make additional trips to the post office in a CEM environment. In Docket No. MC95-1, Library Reference MCR-88, 42.6% of the survey respondents indicated that additional trips would be required. More trips would translate into increased window service costs. These costs are summarized in Exhibit USPS-RT-17C.

In assessing the impact that CEM would have on window service operations, it is also necessary to discuss costs that cannot easily be quantified. One such cost would involve the possible diversion of stamps sales transactions from alternative sources such as consignment outlets and ATMs to postal retail outlets. Many households currently purchase stamps through these alternative sources (73 million transactions annually)[30] and would have to make additional trips to the post office, to the extent that their stamp demands were not satisfied alternatively. Additional workhours would be required to handle transactions that come back to post offices. Each window service stamp transaction currently costs the Postal Service 39 cents.[31]

In addition, some stamp sales transactions would be diverted back to postal window clerks from vending machines. Currently, 9,058 (24 percent) of the Postal Service's total 37,631 vending machines are Booklet Vending Machines (BVM).[32] These machines offer one item -- stamp booklets (74 million transactions annually).[33] They cannot hold more than one type of booklet. Some retail lobbies contain more than one BVM and could theoretically carry both stamps. Other lobbies could not.

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[29] Exhibit USPS-RT-17C, page 1.
[30] Estimated FY 1997 stamp sales transactions managed by Amplex Corporation, the administrator of the USPS stamps on consignment program.
[31] Exhibit USPS-RT-17C, page 1.
[32] Vending Equipment Service System, National Vending and Machine Report, Fiscal Year 1997.
[33] Vending Equipment Service System, National Vending and Machine Report, Fiscal Year 1997.

Those with one BVM could only offer one type of stamp. Therefore, some customers who might have purchased their stamps using vending machines would end up purchasing stamps through a window clerk. This system would become further complicated at times when large volumes of greeting cards (e.g., the December holidays) would be sent by household consumers. BVMs that usually stocked CEM stamps would probably be changed to stock the full-rated single-piece stamp during these seasonal periods. As a result, the planning associated with stamp sales would become more complicated under CEM.

Finally, window service costs would also be affected by customer inquiries related to CEM (i.e., "when do I use each stamp?"). This fact would be especially obvious during CEM implementation. Each independent CEM inquiry transaction would cost the Postal Service 67 cents.[34] Each CEM inquiry transaction that was part of another transaction (e.g., stamp sales) would cost the Postal Service 35 cents.[35]

Overall, the implementation of the CEM proposal would increase window transaction costs. These costs would decrease somewhat in the long term. Initially, however, the CEM proposal could have a dramatic impact on window service as consumers adjusted to the new system.

C. REVENUE PROTECTION COSTS WOULD BE SIGNIFICANT

With the current one-stamp system, it is uncommon for the public to underpay postage for one-ounce letters. If CEM were implemented, that situation would change. The opportunity for confusion would be great and the percentage of short paid mail would increase. The magnitude of that increase, however, is not known. As a result, revenue protection costs (Exhibit USPS-RT-17D) were calculated for various short paid mail percentages.[36] These costs would be significant. For example, if the short paid mail percentage increased from the current 0.06 percent to 2 percent, the Postal

[34] Exhibit USPS-RT-17C, page 2.
[35] Exhibit USPS-RT-17C, page 3.

Service would incur costs on the order of $96 million annually.[37] To minimize these costs, the Postal Service would concentrate its detection efforts at the point of entry to the postal system - the originating Processing and Distribution Centers (P&DC).

For purposes of CEM enforcement, this method would be preferred over the reliance on carriers to identify short paid mail. In today's Delivery Point Sequencing (DPS) environment, carriers would not have an opportunity to inspect many mail pieces until they are out on the street. At that point, they would be riffling through multiple bundles (e.g., DPS letters, cased letters, flats, and saturation mailings) as they walked between delivery points, organizing the mail for the next address. Their attention would be primarily focused on the address, not on the stamp. This would be especially true for substitute carriers who are delivering mail for another carrier's permanent route.

By concentrating identification efforts at originating operations, the Postal Service could attempt to minimize the mail processing costs and service problems related to short paid mail. Therefore, the best place to detect short paid mail would be when it enters these facilities as "collection" mail.

Collection mail is "dumped" from hampers onto conveyor belts that cull mail and ultimately feed Advanced Facer Canceler Systems (AFCS). In an ideal environment, the AFCS would be used to trap short paid mail, as it currently cancels 86 percent of all collection mail.[38] The Postal Service has attempted to determine whether the AFCS could be used to isolate the presence of a CEM stamp on a non-qualified envelope. We have concluded that no technical solution is currently possible. A detailed discussion of AFCS operations and an explanation of why the AFCS cannot be used to feasibly trap short paid mail are found in Exhibit USPS-RT-17E.

Short Paid Mail Would Be Isolated Manually: Since short paid mail cannot be captured using automation, it is estimated that two level 6 clerks would be required at each originating plant to sample and record mail after it has been sorted by the AFCS.

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[36] The short paid percentage for additional-ounce First-class Mail letters (7.35% as per FY 96 RPW) was used as a ceiling, since it also represents a situation that involves the usage of two different stamp denominations. 478 Million Short Paid Pieces (> 1 oz.) / 6.5 Billion Total Pieces (> 1 oz.) = 7.35 percent.
[37] FY 96 RPW: 29 Million Short Paid Pieces (< 1 oz.) / 47 Billion Total Pieces (< 1 oz.) = 0.06 percent.
[38] FY 97 MODS: 29 Billion AFCS (Operation 015) Pieces / 33.6 Billion Total Cancellations = 86 percent.

This additional staffing would cost $38 million annually, regardless of the magnitude of the increase in the short paid mail percentage.[39]

The revenue protection clerks would perform two functions. First, they would identify the extent to which short paid mail was a problem in a CEM environment. They would sample mail from the different AFCS machines and record the volume of short paid mail. This data would be collected nationwide to determine the extent to which the public understands CEM. The Postal Service would evaluate the results, attempt to reinforce proper usage (e.g., send a second direct mailing to households and businesses), and develop an enforcement plan. If short paid mail proved to be a major problem, the revenue protection strategy might have to be re-evaluated and additional staffing could be required at the originating plants, as well as at other plants. If additional staffing were required, revenue protection costs would increase.

The revenue protection clerks would also perform a second function as an integral part of the enforcement plan. Depending on the scope of the problem, these clerks might be retained to isolate and identify mail that contained inadequate postage. They would be the most likely means for capturing short paid mail. As it would not be possible for these clerks to sample every canceled mail piece, this method would not result in all short paid mail being found. Only a portion of short paid mail would be captured. For the 2 percent short paid example, the annual costs for returning this mail would be $58 million.[40]

Identified Short Paid Mail Would Be Returned To Sender: After being identified, short paid mail would be forwarded to a postage due unit. The postage due clerks would rate the mail piece and forward it to a manual outgoing primary operation (030). The 030 clerks would then sort the mail to the ZIP Code level before it would be sent back to the delivery unit.[41] At the delivery unit, accountable clerks would process the mail before the carrier picked it up for return to sender. Following delivery, the carrier would return the funds and clear the paperwork with the clerk.

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[39] Exhibit USPS-RT-17D, page 1.
[40] Exhibit USPS-RT-17D, page 3.

The summary table in Exhibit USPS-RT-17D shows that the costs of identifying and returning short paid mail always outweigh the corresponding revenue losses. Accepting these revenue losses would not be an adequate solution. The Postal Service would have to spend the money to reinforce proper CEM usage.[42] In the current system, it is difficult to underpay the postage for First-Class letters weighing less than one ounce. With CEM, it would be much easier.

D. OTHER COSTS ARE NOT AS EASILY QUANTIFIED

In addition to the costs related to education, window services, and revenue protection, the Postal Service would incur other costs which are not easily quantified.

Stamp Costs Could Increase: As I discussed earlier, households could use 33-cent stamps only, 30-cent stamps only, 33-/30-cent stamps, or 30-/3-cent stamps. The mix of stamps that the public would ultimately use is not known. The Postal Service would have to ensure that sufficient quantities of 33, 30, and 3 cent stamps were available at the time CEM was implemented. The amount of stamps produced in advance of CEM implementation would be greater than the amount normally produced. Therefore, additional costs related to inventories, planning, and distribution would be incurred.

It would be expected that these costs would eventually be eliminated as the Postal Service adjusted to stamp demand, but that might not necessarily be true if a large percentage of consignment outlets chose to offer only one stamp. In that situation, the inventories in postal Stamp Distribution Centers (SDC) could ultimately increase. In addition, the average cost per stamp could increase if the Postal Service required smaller batches of more stamp types, as stamp costs are driven by production volumes.

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[41] For purposes of cost determination, it was assumed that the vast majority of mail being returned would fall within the local service area of the originating plant. In some cases, that might not be true and additional handlings would be required.

[42] OCA witness Thomas agreed that reinforcement was necessary (Docket No. R90-1, Tr. 30/15357-58).

Re-Addressed Reply Envelopes Could Become A Problem: Reply envelopes that are provided to consumers are sometimes used for purposes other than their original intent. For example, some people do not always mail their remittances in reply envelopes and, rather than waste them, use them to mail something else. This situation causes problems that ultimately increase mail processing costs.

First of all, re-addressed envelopes are problematic because they have FIM markings, but the preprinted barcode does not correspond to the new address. This mail would therefore be separated as barcoded mail on the AFCS and would immediately be processed on a Bar Code Sorter (BCS). Re-addressed reply envelopes that contain no barcodes or have obliterated barcodes would be rejected on the BCS. They would then have to be routed through the RBCS network.[43]

At that point, the re-addressed reply envelopes that did not have barcodes should be processed successfully. However, those with obliterated barcodes would not. These latter mail pieces would end up being processed on a Letter Mail Labeling Machine (LMLM), so that a label could be placed over the barcode area. Barcodes would then be applied on the LMLM labels when the letters are reprocessed on the Output Sub System (OSS). These additional steps increase mail processing costs beyond what would have normally occurred, had the address been handwritten on a clean, white envelope (assuming the handwriting did not extend into the barcode clear zone).

Finally, those re-addressed envelopes that contain barcodes that are not obliterated would be successfully processed on the BCS and, rather than being delivered to the new address, would be delivered to the original reply mail provider. Once identified, these envelopes would then have to be rerouted through the entire postal system until they successfully reach the intended addressee.

When a reply envelope is re-addressed, it can cause service delays for the sender of the mail piece. In addition, the Postal Service receives complaints from the

[43] In comparison, a normal handwritten envelope would have been less costly to process because it would have been routed directly to RBCS after having its image lifted on the AFCS.

original reply envelope providers that receive this mail. To some degree, this problem already exists today.

The scope of this problem could increase in a CEM environment due to the envelope changes related to that proposal. These changes would be especially problematic for window envelopes that do not contain barcodes on the envelope itself. Under the CEM proposal, these envelopes would be marked as CEM qualified. Therefore, the public could mistakenly conclude that the envelope itself is what saves the Postal Service money. In reality, the prebarcoded insert is what saves mail processing costs and if the insert is no longer used, there are no savings. If the public makes this mistake and uses these envelopes for purposes other than originally intended, the envelopes would actually cost more to process, despite the fact that they were mailed at the CEM rate. As stated, these envelopes would cost more to process than a normal handwritten envelope.

The public may have the best of intentions when they use reply envelopes for something other than their original purposes. However, in a CEM environment, the public could mistakenly assume that the characteristics of the envelope, rather than the presence of a specific barcode that corresponds to a specific delivery address, are why a discounted postage rate is being offered. Therefore, the level of envelope misuse could increase and the Postal Service would incur additional costs. Consumers would ultimately pay for these additional costs and would also suffer from the consequences related to service delays.

In order to implement CEM, the Postal Service would incur costs for public education, additional window service transactions, and revenue protection. Some costs are more easily quantified than others. However, they should not be ignored, as suggested by witness Willette. The CEM proposal involves many unknowns (e.g., short paid percentage) which could increase the cost estimates presented in this testimony. These costs need to be recovered in addition to the revenue loss that was forecast by the OCA.

In regard to the revenue loss, witness Willette estimated that the maximum reduction would be $219 million.[44] Witness Ellard's market research shows that 61 percent of the respondents were very or somewhat likely to purchase the discounted stamp. Taking into account the likely percentage of CEM usage, a revenue loss of $134 million would be a more plausible projection.

In order to implement and maintain CEM, I have shown that the Postal Service could spend $146 million in the first year alone.[45] It would not make financial sense for the Postal Service to spend over $146 million to realign $134 million worth of postage costs. I believe that there is insufficient justification for a special CEM classification within the meaning of U.S.C. §3623(c)(2), in light of this cost/benefit analysis.

[44] Docket No. R97-1, Tr. 21/10692 at 7.

[45] The total quantifiable costs for education ($ 33 million), increased window service transactions ($ 17 million), and revenue protection ($ 96 million). This latter figures assumes that 2% of the mail would be short paid and includes costs for the revenue protection clerks ($ 38 million) and postage due operations ($ 58 million).

VII. CEM WOULD NOT FAIRLY AND EQUITABLY DISTRIBUTE POSTAGE COSTS

"The adoption of CEM as a classification is long overdue. At 30 cents per piece, CEM mail will travel under a rate that is more closely aligned with costs...."
---OCA Witness Willette (Docket No. R97-1, Tr. 21/10714 at 2-4)

In Docket No. MC95-1, Postal Service witness Alexandrovich explained why the implementation of a CEM discount would not promote fairness and equity within the rate schedules for First-Class Mail.[46] The Postal Service maintains that position with respect to the current CEM proposal.

A. CEM WOULD BE DISTINCTLY ONE-SIDED

Witness Alexandrovich's concerns were also shared by the Governors, who cited the lack of fairness and equity as one of the critical reasons why they were rejecting the CEM recommendation before them in Docket No. MC95-1:

> Our last concern, however, goes beyond the state of the record in this proceeding, and addresses the more general issue of fairness and equity. The CEM rate category has been advanced by its proponents as a means of allowing household mailers to obtain a direct and tangible rate benefit from the postal automation program. Yet household mailers already have benefited from automation. The savings realized from automation processing of household mail have been averaged with other costs of First-Class Mail, and used to mitigate overall First-Class rate increases.
>
> We believe that to be fair, given the cost profile of typical household mail. When households use the CEM envelope provided by others to pay a bill (or for some other return correspondence), the letter they mail has relatively low cost. For the rest of their letters, however, sent in their own envelopes, often with handwritten addresses, the households continue to deposit relatively high cost mail. Each of these two disparate types of mail constitutes approximately one-half of the typical household's mail. Under the current rate and classification structure, the costs of all household mail are averaged with the generally low costs of business mail, to create one base letter rate applicable to both. While the Postal Service is not convinced that such a structure serves the best interests of any of its customers, in past years, this arrangement worked to at least the short-run advantage of household mailers, as noted in our discussion of this topic in Docket No. R90-1.

[46] Docket No. MC95-1, Tr. 36/16324-27.

> As we understand the CEM discount concept, it would offer households the new advantages of deaveraging for their low cost mail, and the continuing advantages of averaging for their high-cost mail. We are not convinced that such a ratemaking scheme is either fair or equitable. Unless households were called upon to pay higher rates which reflect costs of their mail that is not sent in reply envelopes (an approach advocated by no one in this case), a proposal such as CEM that would nevertheless allow them to pay lower rates which reflect the lower costs of their reply mail seems distinctly one-sided.[47]

Witness Willette states that, "A second factor to consider is that the Postal Service's past resistance to CEM means that consumers using prebarcoded courtesy reply envelopes have been overpaying the 'correct' postage on their bill payments for a number of years."[48] Assuming this to be true, witness Willette neglects to mention that those same consumers have also been underpaying the "correct" postage on their high-cost mail (e.g., hand-addressed envelopes) for a number of years. As the Governors stated, CEM "seems distinctly one-sided." Deaveraging should not be conducted on a one-sided basis. As with its predecessor proposals, the OCA's latest CEM proposal is not, in the view of the Postal Service, fair and equitable, within the meaning of U.S.C. §3623(c)(1).

B. SINGLE PIECE MAIL PROCESSING COSTS ARE CONVERGING

In Docket No. R87-1, the OCA attempted to justify CEM on cost savings grounds.[49] That docket, however, occurred before the Postal Service proceeded to implement its Corporate Automation Plan (CAP). Since that time, several automation programs have been implemented in the field which have reduced mail processing costs. As a result, the mail processing costs for the different single-piece mail types are converging. The Postal Service is currently making plans to implement additional programs which will further contribute to that trend. This convergence is illustrated below in the chart on page 30 (see Exhibit USPS-RT-17F for cost models).

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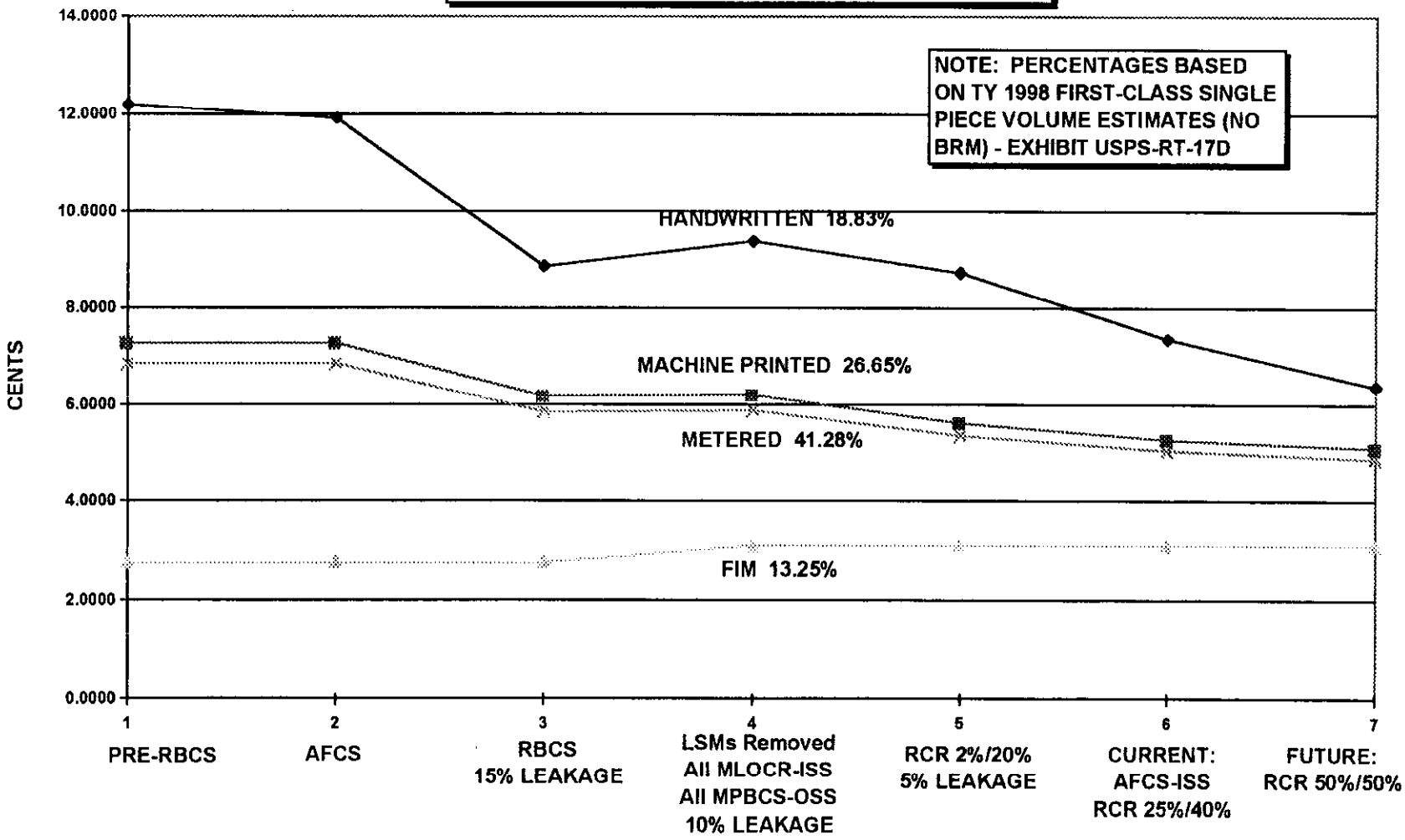
[47] Decision of the Governors of the United States Postal Service on the Recommended Decisions of the Postal Rate Commission on Courtesy Envelope Mail and Bulk Parcel Post, Docket No. MC95-1 at 5 (March 4, 1996).
[48] Docket No. R97-1, Tr. 21/10704 at 10-12.
[49] Docket No. R87-1, OCA-T-500, page 13 at 11-12.

EXHIBIT USPS-RT-17F:
MAIL PROCESSING COST CONVERGENCE
FIRST-CLASS SINGLE PIECE



The models were created to demonstrate the cost differences between various mail types as they are processed through a large automated facility (or facilities, in the case of non-local mail). These costs should not be viewed as all-inclusive single-piece costs. The inputs for the models are the same as those used in Docket No. R97-1 and, in some cases, Docket No. MC95-1. I have attempted to show how these costs would be affected (in current terms) if we removed equipment and reverted to earlier processing strategies. This analysis was based on my experiences working as an industrial engineer on automation deployment projects. A discussion of the specific models can be found in Exhibit USPS-RT-17G. These models show that a CEM rate is less appropriate in today's operating environment. Furthermore, that trend will continue as automation hardware and software continue to improve.

C. CEM WOULD CREATE INEQUITIES

CEM would also create inequities that currently do not exist. From witness Ellard's CARAVAN® survey (USPS-RT-14), it was shown that 37 percent of the respondents were not likely to purchase both stamps. CEM would therefore create a situation where those households could be perceived as paying more than their fair share of postage.

In addition, there would be revenue losses and CEM-related costs which must be recovered. If those costs were not recovered through the single-piece rates, other entities could end up paying to fund CEM. Ironically, it could end up being the same businesses that have provided the reply envelopes to households. It is assumed, however, that businesses would pass any additional costs they incur on to consumers in order to maintain their financial position.

CEM is not a classification that is "long overdue" as claimed by witness Willette. If there were ever a time when this proposal might have been necessary, and even worked, it certainly is not now.

VIII. CONCLUSION

The Postal Service is not the only organization to be confronted with a "CEM" experience. Other examples serve to illustrate what happens when proposals are implemented without proper regard for consumers. In the first example, a recent front-page article in The Washington Post stated that:

> As the April 15 tax-filing deadline draws near, tax preparers and accountants report that many Americans are confused, frustrated and irritated by the complexity of many of the tax cuts passed with such fanfare last year.[50]

The primary source of this confusion, frustration and irritation concerns the recent tax changes made to Schedule D: Capital Gains and Losses. As part of the Taxpayer Relief Act of 1997, Congress introduced a four-tiered capital gains tax, as a means of cutting taxes and stimulating investment. As a result, the Internal Revenue Service (IRS) had to revise Schedule D, expanding it from 23 to 54 lines to accommodate a capital gains tax that can now be 10 percent, 20 percent, 25 percent, or 28 percent, depending on the taxpayer's income, the type of asset, and when it was sold. As the article stated, "Even one of the principal architects of the new tax law agrees that it is too complex" (Congressman Bill Archer, R-Texas). The public and the IRS are now having to deal with the aftermath of those complexities.

This example parallels the CEM proposal, which the OCA has offered without properly considering the affect it would have on the public or the agency responsible for implementing it.

In another example, policy makers enacted a change which also did not bode well with the American public. In this instance, the United States Mint had to deal with the consequences.

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[50] Crenshaw, Albert "True To Form, Tax Time Gets Harder," The Washington Post, Saturday March 7, 1998.

Fact: In 1979, the U.S. Mint began striking a new dollar coin, based on a projected $30 million in Treasury Savings.[51] Problems immediately occurred because consumers confused the new coin with the quarter. In fact, there was no market research which showed that household consumers even wanted the coin. The coin was basically forced into circulation.[52] Consumers eventually voiced their opposition to the use of coin dollars. In addition, the vending machine industry could not fully accommodate the change. As a result, production of the Susan B. Anthony dollar was stopped in 1981. Despite the fact that it is no longer produced, the Anthony dollar remains popular with coin collectors. The $30 million dollar savings never materialized, as the projection was based on a reduction in demand for the dollar bill that never occurred.

There are also parallels between the Susan B. Anthony dollar and the proposed CEM stamp. If CEM were implemented, the Postal Service could endure a similar experience, as illustrated in the following hypothetical scenario.

Fiction?: In 1998, the U.S. Postal Service began printing a new stamp based on a projected $219 million in household postage savings. Problems immediately occurred because the public was confused as to when the stamp should actually be used. In fact, there was no market research which showed that household consumers even wanted the stamp. The stamp was basically forced into circulation. Consumers eventually voiced their opposition to the use of two stamps. In addition, reply envelope providers and the nation's postal system could not fully accommodate the change. As a result, production of the CEM stamp was stopped in 2001. Despite the fact that it is no longer produced, the CEM stamp remains popular with stamp collectors. The $219 million savings never materialized, as postage rates had to be increased elsewhere to cover the corresponding revenue loss and USPS implementation costs.

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[51] Orzano, Michele. "Anthony Dollars: A Woman Scorned." *Coin World*, 1997. Http://www.collect.com/coinworld/infovault/collector/78anthonydollars.html.

[52] Highfill, John W. *The Comprehensive U.S. Silver Dollar Encyclopedia*, Highfill Press, Inc., 1992, pages 757-759.

The United States Postal Service has made significant strides in recent years by surpassing several performance milestones and improving its relationship with the public. CEM threatens to undermine those gains. The Postal Service would be especially vulnerable in the arena of public opinion. CEM could have a negative impact on the Postal Service's relationships with household consumers, major mailers, small businesses, and consignment outlets. CEM is not a simple concept, nor would it be simple to implement. The arguments against CEM, however, are both simple and compelling:

1. CEM would complicate the nation's mail system for all parties involved.
2. Households do not want a two-stamp system.
3. The revenue loss associated with CEM would have to be recovered.
4. The costs associated with implementing and maintaining a second stamp would also have to be recovered.
5. CEM would not fairly and equitably distribute postage costs.

The United States Postal Service believes that these issues must be given serious consideration when evaluating the impact that CEM would have on the nation's mail system.

EXHIBIT USPS-RT-17A: REPLY MAIL PIECE VARIATION

This exhibit describes the mail piece variation that currently exists within the First-Class Courtesy Reply Mail (CRM) stream. Reply mail pieces can be found in a variety of shapes, sizes, and colors. Some envelopes contain preprinted addresses and barcodes, while other mail pieces uses envelope windows that expose the delivery address and/or barcode. In addition, envelope windows can be found in a variety of sizes, shapes and locations. Even the markings within the postage affixation block vary a great deal. Some of these markings might simply say "Place Stamp Here," while others instruct the user that "The Post Office Will Not Deliver Without Proper Postage." In many different ways, the mail piece characteristics for prebarcoded, Facer Identification Mark (FIM) "A" reply envelopes vary a great deal.

Reply mail pieces are allowed to vary within limits because postal automation can still find and "read" the barcode that corresponds to the delivery address. Therefore, the use of "standardized" CRM designs is not necessary. In addition, many reply envelope providers use the envelope for reasons other than the simple enclosure of a remittance.

For example, many mailers use the envelope itself as an advertising medium. Department stores frequently use their envelopes to advertise products. Sweepstakes entries often include graphics that are designed to encourage the envelope user to apply. Many businesses also include their logos, mottoes, or other advertisements designed to promote the organization as a whole.

Other envelope providers might use the mail piece to provide instructions. As an example, some envelopes contain checklists designed to ensure that the reply envelope user has included the statement and check. In addition, many reply envelopes contain instructions about how to notify the envelope provider of an address change.

Finally, many providers also use specific envelope designs to enhance the efficiency of their remittance processing operations. For example, envelopes can be used to collect information from the employee that actually processes the remittance once it is received by the envelope provider (e..g., "For Official Use Only" blocks). Also, many mailers use window envelopes because it is possible to use one standard

envelope design when sending reply mail to multiple processing locations (e.g., the addresses on inserts, rather than the envelope itself, would be modified). Also, it is my understanding that the use of a windows can assist processors because the remittance processing equipment in some locations can quickly sort the statements and checks because it is known where they are located relative to the front of the mail piece (assuming they were inserted correctly).

In order to analyze the extent to which reply envelopes vary, I conducted an analysis of FIM A mail at the Merrifield Processing and Distribution Center (P&DC) on Wednesday March 4, 1998.

This analysis involved the random sampling of FIM A mail pieces from all the Advanced Facer Canceler Systems (AFCS) at the Merrifield plant. A total of 1,280 pieces were sampled. This analysis was not statistically valid by any means, but did show that a wide variety of reply envelopes are currently distributed by businesses to their customers.

This mail was divided into six categories: 1.) preprinted envelopes, 2.) barcoded window envelopes, 3.) window envelopes with barcoded inserts, 4.) envelopes with barcoded labels, 5.) envelopes with no barcodes, and 6.) re-addressed reply envelopes.[1]

Preprinted Envelopes: A little less than 25% of the envelopes sampled contained both preprinted addresses and barcodes directly on the envelope. The addresses for these mail pieces were usually centrally located. These mail pieces exhibited a wider variety of fonts and font sizes in the address area compared to other envelope types. This variation was possible because the barcodes were always located in the barcode clear zone (lower right hand corner of the envelope) which a Bar Code Sorter (BCS) would scan first. Therefore, the specific address characteristics would not have an impact on mail piece readability. In addition, many preprinted envelopes also used the envelope itself to advertise (e.g., sweepstakes entries) and therefore contained graphics on many different sections of the mail piece. The

[1] See results on page 5.

presence of graphics also did not affect mail piece readability because the graphics did not interfere with the barcode.

Barcoded Window Envelopes: The overwhelming majority of FIM A envelopes were window envelopes. In this survey, nearly 74% of the envelopes sampled had some form of envelope window.[2]

However, there were many different types of window envelopes. In this survey, 29% of the window envelopes had a barcode printed directly on the envelope. Like preprinted envelopes, these barcodes were always located in the lower right hand corner, within the limits of the barcode clear zone. The windows were used to expose the destinating address and, in some cases, a second barcode. The location for these windows, however, was not in a standardized area. Some windows were located close to the left edge of the mail piece and some were situated closer to the right edge. In addition, some were located closer to the top while some were placed closer to the bottom of the mail piece. These variations were possible, because the windows did not interfere with the barcode. These envelopes also contained some graphics directly on the envelope, but to a lesser extent than preprinted envelopes.

Window Envelopes With Barcoded Inserts: The largest percentage of mail pieces sampled in this survey, consisted of window envelopes with barcoded inserts (nearly 45%). When barcodes are located in the address block, the Wide Area Bar Code Reader (WABCR) would be relied upon to "read" the barcode. The locations of the windows (i.e., address block) could vary, but the barcode had to be in specific locations relative to the address. In this survey, the barcodes were found either directly above the first address line (14%) or directly below the last address line (31%). These envelopes rarely contained any graphics outside of those located within the return address block (upper left corner of the mail piece).

Barcoded Labels: A small number of envelopes were sampled which had barcoded labels attached to the envelope (less than 1%). These labels contained

[2] In Docket No. MC95-1, Library Reference MCR-119, 62% of the envelopes in the reply mail study were window envelopes.

barcodes which were located either above or below the destinating address (also printed on the label).

No Barcodes: A small percentage of mail (also less than 1%) was found to have the correct FIM A marking, but no corresponding barcode. These envelopes usually had windows and, in all cases, the insert was properly positioned; there simply was no barcode on either the envelope or the insert.

Re-Addressed Reply Envelopes: Of the entire 1,280 piece sample, one envelope was found where a reply envelope had been used for something other than its original purpose (discussed in page 25 of my testimony). This particular envelope was a window envelope where the window was located in the left center section of the mail piece. No address could be seen on the insert. The insert appeared to be something other than the intended statement, bill, or remittance. The user had written an address by hand to the right of the window. The return address block contained an address for a mortgage company which had been crossed out. The user had then written a different return address next to it by hand.

Like the results of the reply mail study conducted in MC95-1 (Library Reference MCR-119), this survey shows that reply mail piece characteristics vary a great deal. For the most part, these variations do not affect mail processing costs because most machines are equipped (with features like the WABCR) to accommodate that variation. As a result, it would be very difficult to find a standard location for a "Courtesy Envelope Mail (CEM) qualified" marking that could accommodate the wide variety of CRM envelopes that exist in today's processing environment.

EXHIBIT USPS-RT-17A: REPLY MAIL PIECE VARIATION
MERRIFIELD P&DC SAMPLE - 3/4/98

Mail Piece Type	Volume	%	Description	Volume	%		
FIM A/Preprinted Envelopes	313	24.45%	Preprinted Address/Barcode	313	24.45%		
FIM A/Window Envelopes	944	73.75%	Window Envelopes/Barcoded Envelope	371	28.98%		
			Window Envelopes/Barcoded Insert	573	44.77%		
			Barcode Above Address			174	13.59%
			Barcode Below Address			399	31.17%
FIM A/Barcoded Labels	10	0.78%	Barcoded Labels	10	0.78%		
FIM A/No Barcode	12	0.94%	No Barcode	12	0.94%		
FIM A/Re-addressed	1	0.08%	Re-addressed Reply Envelope	1	0.08%		
TOTAL	1280	100.00%		1280	100.00%		

EXHIBIT USPS-RT-17B: EDUCATION COSTS

EXHIBIT USPS-RT-17B: EDUCATION COSTS

			(1)
A. TELEVISION, RADIO, AND NEWSPAPER ADVERTISING			$19,298,700
Network Television		$11,934,500	
Prime/Prime News	$9,532,600		
Evening News	$1,383,400		
EMI	$1,018,500		
Network Radio		$3,153,500	
R.O.S.			
Newspapers		$4,210,700	
Top 25 Markets			

B. DIRECT MAILING (2 OUNCE LETTER)

(2)	(3)	(4)	(5)
Number of Delivery Pts	Printing Cost Per Piece	Postage Cost Per Piece	Total Cost
130,000,000	$0.04	$0.044	$10,963,550

C. POINT-OF-PURCHASE BROCHURES

(6)	(7)	(8)	(9)
Number of P.O.'s, Stations and Branches	Printing Cost Per Brochure	Avg Qty Per Retail Unit	Total Cost
38,019	$0.04	2,000	$3,041,520

TOTAL EDUCATION COSTS **$33,303,770**

(1) Cohn and Wolfe Estimate (see page 2)
(2) FY 97 USPS Annual Report
(3) Young Rubican estimate (see page 2)
(4) USPS-29C, p.3. Standard A Saturation Letter ECR Cost
(5) (2) * [(3) + (4)]

(6) FY 97 USPS Annual Report
(7) Young Rubican estimate (see page 2)
(8) USPS Estimate
(9) (6) * (7) * (8)

Cohn & Wolfe Estimate: In order to properly educate consumers, assuming CEM were to be implemented, the United States Postal Service would have to conduct a multi-media campaign. In order to determine what the details and costs of such a campaign might be, the Postal Service requested that the public relations firm of Cohn & Wolfe estimate the costs required to educate the public about the CEM stamp using television, radio, and newspaper advertising. The schematic media plan provided by Cohn & Wolfe showed that those cost would be approximately $20 million.

Young Rubican Estimate: The Postal Service also requested two per-piece cost estimates from the public relations firm of Young Rubican. The first cost estimate was for printing a direct mailing that would be sent to every household and business in the United States. The second cost estimate was for printing posters that would be prominently displayed in postal retail lobbies. Both the direct mailing and the posters would be designed to explain CEM implementation to the general public.

EXHIBIT USPS-RT-17C: WINDOW SERVICE COSTS

EXHIBIT USPS-RT-17C: WINDOW SERVICE COSTS

(1)	(2)	(3)	(4)
Number of Households	% Households Requiring Additional Trips to Purchase Stamps	Average Additional Trips Per Year	Total Number of Additional Transactions
99,600,000	42.60%	1	42,429,600

INCURRED COST OF ONE STAMP PURCHASE TRANSATION.

(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Mean Time for Single Component Transaction (seconds)	Seconds to Hour Conversion	Window Clerk Wage Rate ($/hour)	Misc Volume Variable Costs	Variability Factor	Waiting Time Adjustment	Piggyback Factor	Incurred Cost of Transaction ($)
54.40	0.000278	$ 25.55	1.075	46.12%	1.434	1.41856	$ 0.3893

ANNUAL COST FROM STAMP PURCHASE TRANSACTIONS.

(13)
Annual Cost
$16,516,253

(1) The Household Diary Study, Fiscal Year 1996, page II-3
(2) Docket No. MC95-1, Library Reference MCR-88, page 18
(3) USPS Estimate (1 trip per year used as conservative estimate)
(4) (1) * (2) * (3)
(5) LR-H-167, page 160
(6) 1/60 min/sec * 1/60 hr/min
(7) LR-H-146, page VIII-2
(8) The overhead and uniform allowance of Component 3.2 is considered volume variable with respect to window clerk activity costs. The miscellaneous volume variable cost factor is calculated by dividing overhead ($124.0 million) and uniform costs ($7.8 million) by total window clerk activity costs ($1,762.0 million). The result is calculated as follows: ($124.0 + $7.8) / $1,762.0 = 0.075. See Docket No. R97-1, Alexandrovich WP B3, W/S 3.2.1.
(9) Docket No. R97-1 USPS-T-21, page 23
(10) The waiting time factor is calculated by dividing total window clerk waiting time ($276.5 million) by total attributable window service costs ($637.8 million). The result is calculated as follows: ($276.5) / ($637.8) = 0.434. See Docket No. R97-1, Alexandrovich WP B3, W/S 3.2.1.
(11) LR-H-77, page 62, line 6
(12) (5) * (6) * (7) * (8) * (9) * (10) * (11)
(13) (4) * (12)

EXHIBIT USPS-RT-17C: WINDOW SERVICE COSTS
INCURRED COST OF ONE INQUIRY TRANSACTION.

(1) Mean Time for Inquiry Transaction (seconds)	(2) Seconds to Hour Conversion	(3) Window Clerk Wage Rate ($/hour)	(4) Misc Volume Variable Costs	(5) Variability Factor	(6) Waiting Time Adjustment	(7) Piggyback Factor	(8) Incurred Cost of Transaction ($)
61.93	0.000278	$ 25.55	1.075	100.00%	1.000	1.41856	**$ 0.6703**

(1) LR-H-167, page 160
(2) 1/60 min/sec * 1/60 hr/min
(3) LR-H-146, page VIII-2
(4) The overhead and uniform allowance of Component 3.2 is considered volume variable with respect to window clerk activity costs. The miscellaneous volume variable cost factor is calculated by dividing overhead ($124.0 million) and uniform costs ($7.8 million) by total window clerk activity costs ($1,762.0 million). The result is calculated as follows: ($124.0 + $7.8) / $1,762.0 = 0.075. See Docket No. R97-1, Alexandrovich WP B3, W/S 3.2.1.
(5) An inquiry is considered to be 100 percent variable.
(6) An inquiry is not considered to incur any total window clerk waiting time costs.
(7) LR-H-77, page 62, line 6
(8) (1) * (2) * (3) * (4) * (5) * (6) * (7)

EXHIBIT USPS-RT-17C: WINDOW SERVICE COSTS
INCURRED COST OF AN INQUIRY IN A MULTICOMPONENT TRANSACTION.

(1) Incremental Time for Inquiry Transaction (seconds)	(2) Seconds to Hour Conversion	(3) Window Clerk Wage Rate ($/hour)	(4) Misc Volume Variable Costs	(5) Variability Factor	(6) Waiting Time Adjustment	(7) Piggyback Factor	(8) Incurred Cost of Transaction ($)
32.69	0.000278	$ 25.55	1.075	100.00%	1.000	1.41856	**$ 0.3538**

(1) LR-H-167, page 237
(2) 1/60 min/sec * 1/60 hr/min
(3) LR-H-146, page VIII-2
(4) The overhead and uniform allowance of Component 3.2 is considered volume variable with respect to window clerk activity costs. The miscellaneous volume variable cost factor is calculated by dividing overhead ($124.0 million) and uniform costs ($7.8 million) by total window clerk activity costs ($1,762.0 million). The result is calculated as follows: ($124.0 + $7.8) / $1,762.0 = 0.075. See Docket No. R97-1, Alexandrovich WP B3, W/S 3.2.1.
(5) An inquiry is considered to be 100 percent variable.
(6) An inquiry is not considered to incur any total window clerk waiting time costs.
(7) LR-H-77, page 62, line 6
(8) (1) * (2) * (3) * (4) * (5) * (6) * (7)

EXHIBIT USPS-RT-17D: REVENUE PROTECTION COSTS

EXHIBIT USPS-RT-17D: REVENUE PROTECTION COSTS
SHORT PAID MAIL COST SUMMARY

(1)	(2)	(3)	(4)	(5)	(6)
% Short Paid	Revenue Clerk Costs	Postage Due Costs	Total Annual Costs	Total Possible Short Paid Volume	Maximum Revenue Loss
1.00%	$37,614,012	$28,079,270	**$65,693,282**	228,813,655	**$6,864,410**
2.00%	$37,614,012	$57,950,834	**$95,564,846**	472,232,437	**$14,166,973**
3.00%	$37,614,012	$87,822,398	**$125,436,411**	715,651,219	**$21,469,537**
4.00%	$37,614,012	$117,693,962	**$155,307,975**	959,070,001	**$28,772,100**
5.00%	$37,614,012	$147,565,526	**$185,179,539**	1,202,488,783	**$36,074,663**
7.35%	$37,614,012	$217,763,702	**$255,377,714**	1,774,522,921	**$53,235,688**

(1) Estimated Percent Shortpaid. 7.35% = FY96 RPW % short paid for FCM weighing over 1 ounce.
(2) From Individual Cost Sheets
(3) From Individual Cost Sheets
(4) (2) + (3)
(5) From Individual Cost Sheets
(6) (5) * $0.03

EXHIBIT USPS-RT-17D: REVENUE PROTECTION COSTS

(1) 1.00% SHORT PAID

A. REVENUE PROTECTION CLERKS

(2) No. Of Plants	(3) Average Clerks/Plant	(4) Wage Rate	(5) Piggyback Factor	(6) Annual Cost
259	2	$25.45	1.372	$37,614,012

B. POSTAGE DUE COLLECTION

(7) FCSP Handwritten/Machine Printed Volume =	24,341,878,200
(8) Current % Short Paid (FCM < 1 Ounce) =	0.06%
(9) Total Additional Short Paid Single Piece Mail Volume =	228,813,655
(10) Sampling Productivity =	2,241
(11) Amount Sampled=	2,414,543,040
(12) Additional Short Paid Mail Pieces Identified=	22,696,705

Operation Description		Pieces Per Hour	(17) Wage Rate	(18) Cents Per Piece	(19) Piggyback Factor	(20) Cents Per Piece	
Outgoing Postage Due Unit	(13)	244	$25.45	10.4345	1.372	14.3161	
Outgoing Primary (Operation 030)	(14)	662	$25.45	3.8444	1.372	5.2745	
Destinating Postage Due Unit	(15)	69	$25.45	36.6480	1.372	50.2811	
Carrier Costs	(16)	64	$26.08	40.9456	1.315	53.8435	
						$1.2372	(21)
					Annual Cost	$28,079,270	(22)

(1) Estimated Short Paid Percentage
(2) AFCS Plants
(3) 1 Clerk to sample handwritten mail (AFCS Stackers 3,4)
1 Clerk to sample machine printed mail (AFCS Stackers 5,6)
(4) LR-H-146
(5) LR-H-77
(6) (2) * (3) * (8 hrs/day) * (5 days/wk) * (52 wks/yr) * (4) * (5)
(7) Handwritten/Machine Printed Volume [item (7)] from page 9
(8) FY 96 RPW
(9) (7) * [(1) - (8)]
(10) MODS FY 97 Op. 029 (Riffle) Productivity
(11) (2) * (3) * (8 hrs/day) * (5 days/wk) * (52 wks/yr) * (10)
(12) (11) * [(1) - (8)]

(13) Docket No. MC95-1, Library Reference MCR-76, page 5-30.
1/0.0041 hrs/pc = 244 pcs/hr (rating a letter postage due)
(14) LR-H-113 (manual outgoing primary sortation)
(15) Docket No. MC95-1, Library Reference MCR-76, page 5-30.
1/(0.0066+0.0078 pcs/hr) = 69 pcs/hr (prep, accept, and clear)
(16) Docket No. MC95-1, Library Reference MCR-76, page 5-39.
1/(0.0079+0.0078 pcs/hr) = 64 pcs/hr (deliver, collect, and clear)
(17) LR-H-146
(18) (17) * 100 / (13-16)
(19) LR-H-77
(20) (18) * (19)
(21) SUM [(20)]
(22) (21) * (12)

EXHIBIT USPS-RT-17D: REVENUE PROTECTION COSTS

(1) 2.00% SHORT PAID

A. REVENUE PROTECTION CLERKS

(2) No. Of Plants	(3) Average Clerks/Plant	(4) Wage Rate	(5) Piggyback Factor	(6) Annual Cost
259	2	$25.45	1.372	$37,614,012

B. POSTAGE DUE COLLECTION

(7) FCSP Handwritten/Machine Printed Volume =	24,341,878,200
(8) Current % Short Paid (FCM < 1 Ounce) =	0.06%
(9) Total Additional Short Paid Single Piece Mail Volume =	472,232,437
(10) Sampling Productivity =	2,241
(11) Amount Sampled=	2,414,543,040
(12) Additional Short Paid Mail Pieces Identified=	46,842,135

Operation Description		Pieces Per Hour	(17) Wage Rate	(18) Cents Per Piece	(19) Piggyback Factor	(20) Cents Per Piece	
Outgoing Postage Due Unit	(13)	244	$25.45	10.4345	1.372	14.3161	
Outgoing Primary (Operation 030)	(14)	662	$25.45	3.8444	1.372	5.2745	
Destinating Postage Due Unit	(15)	69	$25.45	36.6480	1.372	50.2811	
Carrier Costs	(16)	64	$26.08	40.9456	1.315	53.8435	
						$1.2372	(21)
					Annual Cost	$57,960,834	(22)

(1) Estimated Short Paid Percentage
(2) AFCS Plants
(3) 1 Clerk to sample handwritten mail (AFCS Stackers 3,4)
1 Clerk to sample machine printed mail (AFCS Stackers 5,6)
(4) LR-H-146
(5) LR-H-77
(6) (2) * (3) * (8 hrs/day) * (5 days/wk) * (52 wks/yr) * (4) * (5)
(7) Handwritten/Machine Printed Volume [Item (7)] from page 9
(8) FY 96 RPW
(9) (7) * [(1) - (8)]
(10) MODS FY 97 Op. 029 (Riffle) Productivity
(11) (2) * (3) * (8 hrs/day) * (5 days/wk) * (52 wks/yr) * (10)
(12) (11) * [(1) - (8)]

(13) Docket No. MC95-1, Library Reference MCR-76, page 5-30.
1/0.0041 hrs/pc = 244 pcs/hr (rating a letter postage due)
(14) LR-H-113 (manual outgoing primary sortation)
(15) Docket No. MC95-1, Library Reference MCR-76, page 5-30.
1/(0.0066+0.0078 pcs/hr) = 69 pcs/hr (prep, accept, and clear)
(16) Docket No. MC95-1, Library Reference MCR-76, page 5-39.
1/(0.0079+0.0078 pcs/hr) = 64 pcs/hr (deliver, collect, and clear)
(17) LR-H-146
(18) (17) * 100 / (13-16)
(19) LR-H-77
(20) (18) * (19)
(21) SUM [(20)]
(22) (21) * (12)

EXHIBIT USPS-RT-17D: REVENUE PROTECTION COSTS

(1) 3.00% SHORT PAID

A. REVENUE PROTECTION CLERKS

(2) No. Of Plants	(3) Average Clerks/Plant	(4) Wage Rate	(5) Piggyback Factor	(6) Annual Cost
259	2	$25.45	1.372	$37,614,012

B. POSTAGE DUE COLLECTION

(7) FCSP Handwritten/Machine Printed Volume =	24,341,878,200
(8) Current % Short Paid (FCM < 1 Ounce) =	0.06%
(9) Total Additional Short Paid Single Piece Mail Volume =	715,651,219
(10) Sampling Productivity =	2,241
(11) Amount Sampled=	2,414,543,040
(12) Additional Short Paid Mail Pieces Identified=	70,987,565

Operation Description		Pieces Per Hour	(17) Wage Rate	(18) Cents Per Piece	(19) Piggyback Factor	(20) Cents Per Piece	
Outgoing Postage Due Unit	(13)	244	$25.45	10.4345	1.372	14.3161	
Outgoing Primary (Operation 030)	(14)	662	$25.45	3.8444	1.372	5.2745	
Destinating Postage Due Unit	(15)	69	$25.45	36.6480	1.372	50.2811	
Carrier Costs	(16)	64	$26.08	40.9456	1.315	53.8435	
						$1.2372	(21)
					Annual Cost	$87,822,398	(22)

(1) Estimated Short Paid Percentage
(2) AFCS Plants
(3) 1 Clerk to sample handwritten mail (AFCS Stackers 3,4)
1 Clerk to sample machine printed mail (AFCS Stackers 5,6)
(4) LR-H-146
(5) LR-H-77
(6) (2) * (3) * (8 hrs/day) * (5 days/wk) * (52 wks/yr) * (4) * (5)
(7) Handwritten/Machine Printed Volume [item (7)] from page 9
(8) FY 96 RPW
(9) (7) * [(1) - (8)]
(10) MODS FY 97 Op. 029 (Riffle) Productivity
(11) (2) * (3) * (8 hrs/day) * (5 days/wk) * (52 wks/yr) * (10)
(12) (11) * [(1) - (8)]

(13) Docket No. MC95-1, Library Reference MCR-76, page 5-30.
1/0.0041 hrs/pc = 244 pcs/hr (rating a letter postage due)
(14) LR-H-113 (manual outgoing primary sortation)
(15) Docket No. MC95-1, Library Reference MCR-76, page 5-30.
1/(0.0066+0.0078 pcs/hr) = 69 pcs/hr (prep, accept, and clear)
(16) Docket No. MC95-1, Library Reference MCR-76, page 5-39.
1/(0.0079+0.0078 pcs/hr) = 64 pcs/hr (deliver, collect, and clear)
(17) LR-H-146
(18) (17) * 100 / (13-16)
(19) LR-H-77
(20) (18) * (19)
(21) SUM [(20)]
(22) (21) * (12)

EXHIBIT USPS-RT-17D: REVENUE PROTECTION COSTS

(1) 4.00% SHORT PAID

A. REVENUE PROTECTION CLERKS

(2) No. Of Plants	(3) Average Clerks/Plant	(4) Wage Rate	(5) Piggyback Factor	(6) Annual Cost
259	2	$25.45	1.372	$37,614,012

B. POSTAGE DUE COLLECTION

(7) FCSP Handwritten/Machine Printed Volume =	24,341,878,200
(8) Current % Short Paid (FCM < 1 Ounce) =	0.06%
(9) Total Additional Short Paid Single Piece Mail Volume =	959,070,001
(10) Sampling Productivity =	2,241
(11) Amount Sampled=	2,414,543,040
(12) Additional Short Paid Mail Pieces Identified=	95,132,996

Operation Description		Pieces Per Hour	(17) Wage Rate	(18) Cents Per Piece	(19) Piggyback Factor	(20) Cents Per Piece	
Outgoing Postage Due Unit	(13)	244	$25.45	10.4345	1.372	14.3161	
Outgoing Primary (Operation 030)	(14)	662	$25.45	3.8444	1.372	5.2745	
Destinating Postage Due Unit	(15)	69	$25.45	36.6480	1.372	50.2811	
Carrier Costs	(16)	64	$26.08	40.9456	1.315	53.8435	
						$1.2372	(21)
					Annual Cost	$117,693,962	(22)

(1) Estimated Short Paid Percentage
(2) AFCS Plants
(3) 1 Clerk to sample handwritten mail (AFCS Stackers 3,4)
1 Clerk to sample machine printed mail (AFCS Stackers 5,6)
(4) LR-H-146
(5) LR-H-77
(6) (2) * (3) * (8 hrs/day) * (5 days/wk) * (52 wks/yr) * (4) * (5)
(7) Handwritten/Machine Printed Volume [item (7)] from page 9
(8) FY 96 RPW
(9) (7) * [(1) - (8)]
(10) MODS FY 97 Op. 029 (Riffle) Productivity
(11) (2) * (3) * (8 hrs/day) * (5 days/wk) * (52 wks/yr) * (10)
(12) (11) * [(1) - (8)]

(13) Docket No. MC95-1, Library Reference MCR-76, page 5-30.
1/0.0041 hrs/pc = 244 pcs/hr (rating a letter postage due)
(14) LR-H-113 (manual outgoing primary sortation)
(15) Docket No. MC95-1, Library Reference MCR-76, page 5-30.
1/(0.0066+0.0078 pcs/hr) = 69 pcs/hr (prep, accept, and clear)
(16) Docket No. MC95-1, Library Reference MCR-76, page 5-39.
1/(0.0079+0.0078 pcs/hr) = 64 pcs/hr (deliver, collect, and clear)
(17) LR-H-146
(18) (17) * 100 / (13-16)
(19) LR-H-77
(20) (18) * (19)
(21) SUM [(20)]
(22) (21) * (12)

EXHIBIT USPS-RT-17D: REVENUE PROTECTION COSTS

(1) 5.00% SHORT PAID

A. REVENUE PROTECTION CLERKS

(2) No. Of Plants	(3) Average Clerks/Plant	(4) Wage Rate	(5) Piggyback Factor	(6) Annual Cost
259	2	$25.45	1.372	$37,614,012

B. POSTAGE DUE COLLECTION

(7) FCSP Handwritten/Machine Printed Volume =	24,341,878,200
(8) Current % Short Paid (FCM < 1 Ounce) =	0.06%
(9) Total Additional Short Paid Single Piece Mail Volume =	1,202,488,783
(10) Sampling Productivity =	2,241
(11) Amount Sampled=	2,414,543,040
(12) Additional Short Paid Mail Pieces Identified=	119,278,426

Operation Description		Pieces Per Hour	(17) Wage Rate	(18) Cents Per Piece	(19) Piggyback Factor	(20) Cents Per Piece	
Outgoing Postage Due Unit	(13)	244	$25.45	10.4345	1.372	14.3161	
Outgoing Primary (Operation 030)	(14)	662	$25.45	3.8444	1.372	5.2745	
Destinating Postage Due Unit	(15)	69	$25.45	36.6480	1.372	50.2811	
Carrier Costs	(16)	64	$26.08	40.9456	1.315	53.8435	
						$1.2372	(21)
					Annual Cost	$147,565,526	(22)

(1) Estimated Short Paid Percentage
(2) AFCS Plants
(3) 1 Clerk to sample handwritten mail (AFCS Stackers 3,4)
1 Clerk to sample machine printed mail (AFCS Stackers 5,6)
(4) LR-H-146
(5) LR-H-77
(6) (2) * (3) * (8 hrs/day) * (5 days/wk) * (52 wks/yr) * (4) * (5)
(7) Handwritten/Machine Printed Volume [item (7)] from page 9
(8) FY 96 RPW
(9) (7) * [(1) - (8)]
(10) MODS FY 97 Op. 029 (Riffle) Productivity
(11) (2) * (3) * (8 hrs/day) * (5 days/wk) * (52 wks/yr) * (10)
(12) (11) * [(1) - (8)]

(13) Docket No. MC95-1, Library Reference MCR-76, page 5-30.
1/0.0041 hrs/pc = 244 pcs/hr (rating a letter postage due)
(14) LR-H-113 (manual outgoing primary sortation)
(15) Docket No. MC95-1, Library Reference MCR-76, page 5-30.
1/(0.0066+0.0078 pcs/hr) = 69 pcs/hr (prep, accept, and clear)
(16) Docket No. MC95-1, Library Reference MCR-76, page 5-39.
1/(0.0079+0.0078 pcs/hr) = 64 pcs/hr (deliver, collect, and clear)
(17) LR-H-146
(18) (17) * 100 / (13-16)
(19) LR-H-77
(20) (18) * (19)
(21) SUM [(20)]
(22) (21) * (12)

EXHIBIT USPS-RT-17D: REVENUE PROTECTION COSTS

(1) 7.35% SHORT PAID

A. REVENUE PROTECTION CLERKS

(2) No. Of Plants	(3) Average Clerks/Plant	(4) Wage Rate	(5) Piggyback Factor	(6) Annual Cost
259	2	$25.45	1.372	$37,614,012

B. POSTAGE DUE COLLECTION

(7) FCSP Handwritten/Machine Printed Volume =	24,341,878,200
(8) Current % Short Paid (FCM < 1 Ounce) =	0.06%
(9) Total Additional Short Paid Single Piece Mail Volume =	1,774,522,921
(10) Sampling Productivity =	2,241
(11) Amount Sampled=	2,414,543,040
(12) Additional Short Paid Mail Pieces Identified=	176,020,188

Operation Description		Pieces Per Hour	(17) Wage Rate	(18) Cents Per Piece	(19) Piggyback Factor	(20) Cents Per Piece	
Outgoing Postage Due Unit	(13)	244	$25.45	10.4345	1.372	14.3161	
Outgoing Primary (Operation 030)	(14)	662	$25.45	3.8444	1.372	5.2745	
Destinating Postage Due Unit	(15)	69	$25.45	36.6480	1.372	50.2811	
Carrier Costs	(16)	64	$26.08	40.9456	1.315	53.8435	
						$1.2372	(21)
					Annual Cost	$217,763,702	(22)

(1) Estimated Short Paid Percentage
(2) AFCS Plants
(3) 1 Clerk to sample handwritten mail (AFCS Stackers 3,4)
1 Clerk to sample machine printed mail (AFCS Stackers 5,6)
(4) LR-H-146
(5) LR-H-77
(6) (2) * (3) * (8 hrs/day) * (5 days/wk) * (52 wks/yr) * (4) * (5)
(7) Handwritten/Machine Printed Volume [item (7)] from page 9
(8) FY 96 RPW
(9) (7) * [(1) - (8)]
(10) MODS FY 97 Op. 029 (Riffle) Productivity
(11) (2) * (3) * (8 hrs/day) * (5 days/wk) * (52 wks/yr) * (10)
(12) (11) * [(1) - (8)]

(13) Docket No. MC95-1, Library Reference MCR-76, page 5-30.
1/0.0041 hrs/pc = 244 pcs/hr (rating a letter postage due)
(14) LR-H-113 (manual outgoing primary sortation)
(15) Docket No. MC95-1, Library Reference MCR-76, page 5-30.
1/(0.0066+0.0078 pcs/hr) = 69 pcs/hr (prep, accept, and clear)
(16) Docket No. MC95-1, Library Reference MCR-76, page 5-39.
1/(0.0079+0.0078 pcs/hr) = 64 pcs/hr (deliver, collect, and clear)
(17) LR-H-146
(18) (17) * 100 / (13-16)
(19) LR-H-77
(20) (18) * (19)
(21) SUM [(20)]
(22) (21) * (12)

EXHIBIT USPS-RT-17D: FY 96 FIRST-CLASS SINGLE PIECE VOLUMES

Mail Type	% Total	FY 96 ODIS SUBTOTAL	CATEGORY	FY 96 ODIS VOLUME		COMMENTS
BRM	1.82%	1,078,386,301	Permit, with FIM Mark	1,031,806,580		
			Permit, with no Fim Mark	46,579,721		
Metered	40.52%	23,970,152,791	Metered with no FIM Mark	23,970,152,791		
Barcoded	13.00%	7,692,464,340	Govt, with FIM Mark	190,670,602		
			Metered, with FIM Mark	516,897,414		
			Permit, with FIM Mark	99,748,265		BRM Subtracted Out
			Stamped, with FIM Mark	6,885,148,059		
Machine Printed	26.16%	15,474,594,761	Govt, with no FIM Mark	432,431,294	**(1)**	
			Permit, with no FIM Mark	3,506,409,872	**(2)**	BRM Subtracted Out
			Stamped, with no FIM Mark	11,535,753,595	**(1)**	
Handwritten	18.49%	10,936,444,813	Govt, with no FIM Mark	395,152,734	**(1)**	
			Stamped, with no FIM Mark	10,541,292,079	**(1)**	
TOTAL FC Single Piece	**100.00%**	**59,152,043,006**		**59,152,043,006**		

(1) Volumes split between machine printed/handwritten using FY 97 AFCS densities (34.8% / 31.8%)
(2) Assumed all to be machine printed

EXHIBIT USPS-RT-17D: TY 1998 FIRST-CLASS SINGLE PIECE VOLUME ESTIMATES

TEST YEAR VOLUME = 54,517,802,000 (1)

Mail Type	(2) % Total	(3) (No BRM) % Total	(4) TEST YR SUBTOTAL	
BRM	1.82%	---	993,900,597	
Metered	40.52%	41.28%	22,092,221,627	
Barcoded	13.00%	13.25%	7,089,801,577	
Machine Printed	26.16%	26.65%	14,262,244,385	
Handwritten	18.49%	18.83%	10,079,633,815	
TOTAL FC Single Piece	100.00%	---	54,517,802,000	(5)
TOTAL FC Single Piece (Excluding BRM)	---	100.00%	53,523,901,403	(6)
Total Handwritten and Machine Printed Mail Volume			24,341,878,200	(7)

(1) USPS-T-32, Workpapers I, page 5.
(2) (4) / (5)
(3) (4) / (6)
(4) [FY 96 Mail Type % (From Page 8)] x (1)
(5) Sum [(4)]
(6) Sum [(4), excluding BRM volume]
(7) Machine Printed Volume + Handwritten Volume

EXHIBIT USPS-RT-17E: AFCS OPERATIONS

This exhibit provides a detailed description of AFCS operations. Based on those operations, it is then discussed why the AFCS itself cannot be used to trap short paid mail.

A. AFCS OPERATIONS

Collection mail first moves through a series of separators, channels, and levelers. Mail that does not meet machinability standards would be culled into awaiting storage containers. Remaining pieces would be resting on their "long edges" and "faced" into one of four directions.

This mail then travels through the inverter module and ultimately ends up being faced in one of two directions, referred to as "trail" (facing forward with the stamp on the bottom) and "lead" (facing away with the stamp on the bottom). After a letter enters the inverter, it is first scanned by a trailing indicia detector followed by a leading indicia detector. These "indicia" detectors can identify the presence of meter marks, stamps, or FIM marks. If no indicia is found, the mail piece is turned upside down.

The mail then enters the enricher module where it passes by a second set of detectors and photocells. These detectors recognize the presence of indicia as well as specific FIM types. For mail pieces that were inverted, the detectors again check for indicia and, if none are found, the mail pieces are rejected. The photocells can distinguish between meter marks and stamps. FIM, meter, and stamp signals are generated by these devices and used later in cancellation and sort decisions.

While also in the enricher module, letters pass by a series of detectors and image scanners which determine whether a mail piece is script (handwritten) or imprint (machine printed). This information is also recorded and used in sort decisions later. Depending on how the AFCS is programmed, script and/or imprint mail will then be labeled with a Remote Bar Code System (RBCS) ID tag and have its image lifted. These images are routed directly to the Remote Computer Read (RCR) system before being transmitted through telephone (T1) lines, if necessary, to the Remote Encoding Center (REC).

After passing through the enricher module, letters are canceled. At this point, the system has recorded which letters actually require a cancellation mark. There are

two separate dies, one for the leading edge mail pieces and one for the trailing edge mail pieces. If no indicia were detected earlier, the mail piece would not be canceled.

The final step is sortation. Mail is sorted into one of seven bins: trailing FIM A and C (bin 1), leading FIM A and C (bin 2), trailing script (bin 3), leading script (bin 4), trailing imprint (bin 5), leading imprint (bin 6), and reject (bin 7).

B. NO TECHNICAL SOLUTIONS

The Postal Service attempted to determine whether the AFCS could be used to isolate the presence of a CEM stamp on a non-qualified mail piece. It became apparent that no technical solution was possible.

AFCS photocells can identify indicia because they can detect the presence of phosphor (stamps) and fluorescent ink (meter marks). Phosphor readings vary depending on the image design and stamp printing methods. Suppliers must produce stamps within an acceptable phosphor reading. If the phosphor reading is too low, or is masked by darker images, the equipment will reject the mail piece. If the phosphor reading is too high, the equipment will be "blinded" and will not be able to properly detect the presence of indicia on any mail piece until it readjusts itself.

Therefore, CEM stamp phosphor levels could not be adjusted so that the AFCS would be able to differentiate between a 33-cent and 30-cent stamp. The AFCS only detects the presence of phosphor within a specified level; it can not determine the actual phosphor reading. This same problem exists with meter photocells. With millions of meters in operation throughout the United States, the AFCS was designed to detect the presence of fluorescent ink, not an actual fluorescence reading. Therefore, the intensity of these indicia can not be adjusted so that the AFCS could recognize short paid mail. Any attempts to protect revenue in subsequent operations would meet limited success as the AFCS would have already sorted collection mail into separate mail streams that would require processing on a wide variety of equipment.

In today's operating environment, the only way short paid mail could be identified through automation would be to have a machine that could weigh each letter and determine whether adequate postage had been applied. A machine could not simply look for a specific indicia or stamp as mailers have many payment options (e.g.,

using multiple stamps). Some organizations and countries have experimented with developing revenue protection technology, but it currently is not available.[1] Even if the AFCS could be modified, such an endeavor would be costly.[2] In today's operating environment where mail receives much less human contact, the only way short paid mail would be detected is through non-automated means.

[1] As per Engineering.
[2] Retrofitting the AFCS to have image lift capabilities cost the Postal Service over $100 million. Even if the revenue protection technology were available, the costs would undoubtedly be greater as additional stackers, detectors, etc., would be required. More than likely, a new machine would be required.

EXHIBIT USPS-RT-17F: MAIL PROCESSING COST CONVERGENCE MODELS

EXHIBIT USPS-RT-17F:
MAIL PROCESSING COST CONVERGENCE
FIRST-CLASS SINGLE PIECE

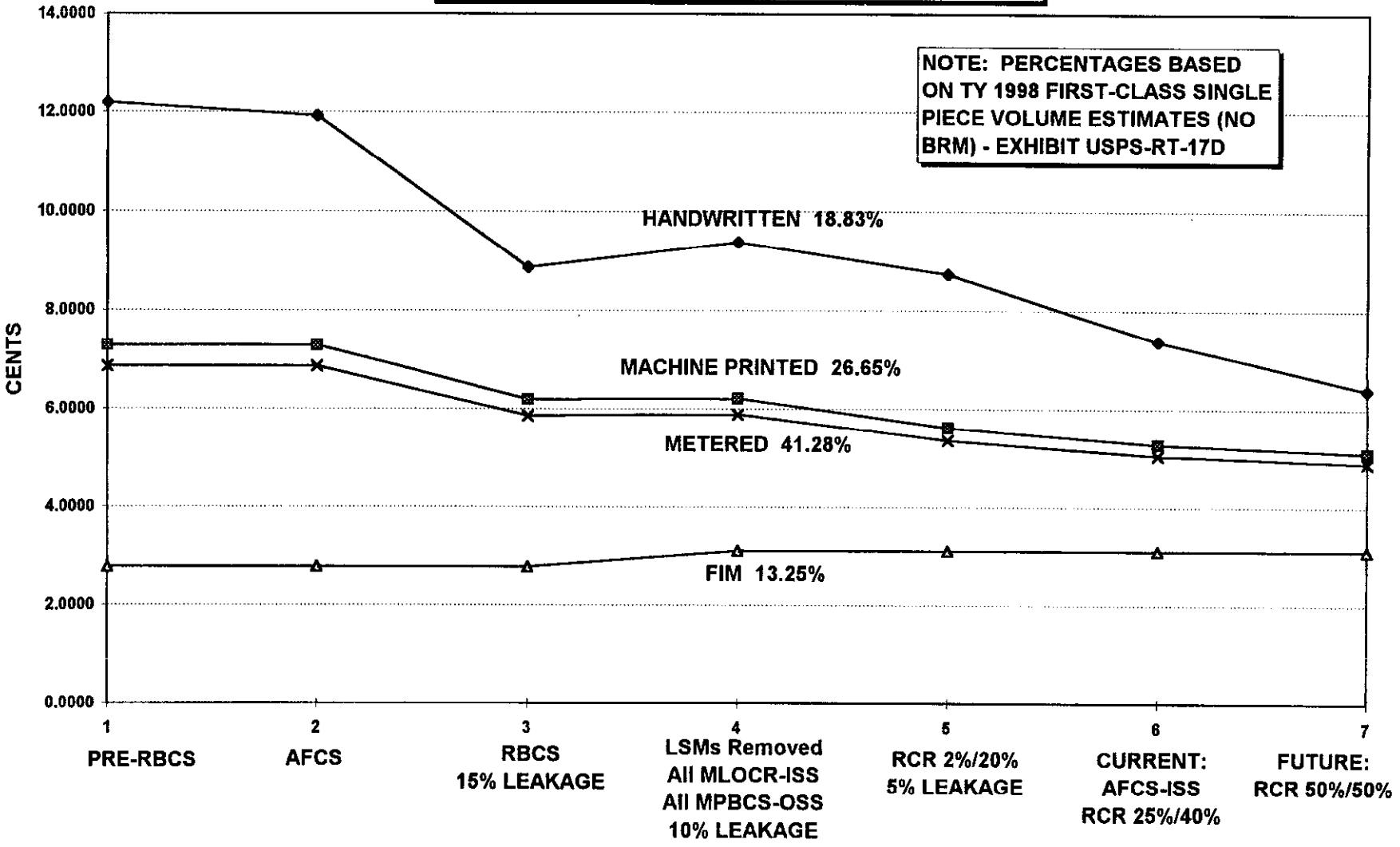

EXHIBIT USPS-RT-17F: MAIL PROCESSING MODEL UNIT COST SUMMARY

MODEL NO.	MODEL DESCRIPTION	HANDWRITTEN	MACH PRINT	METERED	BARCODE
1	PRE-RBCS ENVIRONMENT	12.1918	7.2828	6.8497	2.7715
2	AFCS DEPLOYMENT	11.9184	7.2828	6.8497	2.7715
3	RBCS DEPLOYMENT/15% LEAKAGE	8.8653	6.1907	5.8603	2.7715
4	LSMs REMOVED/ALL MLOCR-ISS/ALL MPBCS-OSS/10% LEAKAGE	9.3735	6.2094	5.8906	3.1004
5	RCR DEPLOYMENT (FINALIZATION 2% HW, 20% MP), 5% LEAKAG	8.7256	5.6121	5.3544	3.1004
6	AFCS-ISS RETROFITS, RCR MODIFICATIONS (25% HW, 40% MP)	7.3686	5.2696	5.0473	3.1004
7	FUTURE RCR MODIFICATIONS (50% HW, 50% MP)	6.3872	5.0984	4.8937	3.1004

EXHIBIT USPS-RT-17F: COVERAGE FACTORS

DESCRIPTION	SOURCE	VALUE
DPS % Given BCS Destination	USPS LR-H-128	89.77%
DBCS DPS Volume Share	USPS LR-H-128	80.00%
CSBCS DPS Volume Share	USPS LR-H-128	20.00%

EXHIBIT USPS-RT-17F: TEST YEAR WAGE RATES

DESCRIPTION	SOURCE	VALUE
Remote Encoding Centers (REC)	USPS LR-H-146	$14.92
Other Mail Processing	USPS LR-H-146	$25.45
Premium Pay Adjustment Factor	USPS LR-H-77	1.020

EXHIBIT USPS-RT-17F: MARGINAL (VOLUME VARIABLE) PRODUCTIVITIES

DESCRIPTION	SOURCE	VALUE
MLOCR/MLOCR-ISS	USPS LR-H-113	7,350
REC	USPS LR-H-113	660
LMLM	USPS LR-H-113	4,985
MPBCS - OSS	USPS LR-H-113	11,984
MPBCS/DBCS (Non-Inc Sec)	USPS LR-H-113	7,467
MPBCS Incoming Secondary	USPS LR-H-113	6,633
DBCS Incoming Secondary	USPS LR-H-113	8,393
CSBCS Incoming Secondary	USPS LR-H-113	17,124
LSM Outgoing Primary	USPS LR-H-113	1,413
LSM Outgoing Secondary	USPS LR-H-113	1,440
LSM Incoming Primary	USPS LR-H-113	1,271
LSM Incoming Secondary	USPS LR-H-113	1,151
Manual Outgoing Primary	USPS LR-H-113	662
Manual Outgoing Secondary	USPS LR-H-113	691
Manual Incoming Primary	USPS LR-H-113	562
Manual Incoming Secondary	USPS LR-H-113	646

EXHIBIT USPS-RT-17F: PIGGYBACK FACTORS

DESCRIPTION	SOURCE	VALUE
MLOCR	USPS LR-H-77	2.095
REC	USPS LR-H-77	1.450
LMLM	USPS LR-H-77	1.450
MPBCS	USPS LR-H-77	1.719
DBCS	USPS LR-H-77	2.434
CSBCS	USPS LR-H-77	1.948
LSM	USPS LR-H-77	2.240
Manual	USPS LR-H-77	1.372

EXHIBIT USPS-RT-17F: ACCEPT/UPGRADE RATES

DESCRIPTION	SOURCE	VALUE
MLOCR Accept (Hand)	USPS LR-H-130	8.36%
MLOCR Upgrade (Hand)	USPS LR-H-130	57.42%
MPBCS OSS Accept (Hand)	USPS LR-H-130	87.35%
MPBCS OSS Upgrade (Hand)	USPS LR-H-130	92.99%
MPBCS OSS Errors (Hand):		
OSS Refeeds	USPS LR-H-130	0.96%
ISS Refeeds	USPS LR-H-130	3.95%
LMLM	USPS LR-H-130	6.79%
Manual/LSM	USPS LR-H-130	0.95%
MLOCR Accept (Mach Print)	USPS LR-H-130	70.24%
MLOCR Upgrade (Mach Print)	USPS LR-H-130	79.95%
MPBCS OSS Accept (Mach Print)	USPS LR-H-130	83.04%
MPBCS OSS Upgrade (Mach Print)	USPS LR-H-130	92.70%
MPBCS OSS Errors (Mach Print):		
OSS Refeeds	USPS LR-H-130	1.19%
ISS Refeeds	USPS LR-H-130	6.49%
LMLM	USPS LR-H-130	7.48%
Manual/LSM	USPS LR-H-130	1.80%
MLOCR Accept (Metered)	USPS LR-H-130	74.88%
MLOCR Upgrade (Metered)	USPS LR-H-130	81.05%
MPBCS OSS Accept (Metered)	USPS LR-H-130	85.68%
MPBCS OSS Upgrade (Metered)	USPS LR-H-130	91.46%
MPBCS OSS Errors (Metered):		
OSS Refeeds	USPS LR-H-130	1.38%
ISS Refeeds	USPS LR-H-130	5.99%
LMLM	USPS LR-H-130	5.59%
Manual/LSM	USPS LR-H-130	1.36%
BCS Accept (Non-Inc Sec)	USPS LR-H-113	95.00%
BCS Accept (Inc Sec)	USPS LR-H-113	89.90%
DBCS Accept (Inc Sec-Pass1)	USPS LR-H-113	95.00%
DBCS Accept (Inc Sec-Pass2)	USPS LR-H-113	95.00%
CSBCS Accept (Inc Sec-Pass1)	MC95-1, Exhibit USPS-T-10G	98.50%
CSBCS Accept (Inc Sec-Pass2,3)	MC95-1, Exhibit USPS-T-10G	99.00%
LSM Outgoing Primary	MC95-1, MCR-2	94.30%
LSM Outgoing Secondary	MC95-1, MCR-2	93.40%
LSM Incoming Primary	MC95-1, MCR-2	94.60%
LSM Incoming Secondary	MC95-1, MCR-2	96.00%

EXHIBIT USPS-RT-17F: MAILFLOW DENSITIES

(MC95-1, Library Reference MCR-3)*

MODS OPERATION		OP (BCS)	OS	MMP	SCF	IP	IS	Firm	Total
831/881	MLOCR/MLOCR-ISS Out Prim	2.62%	21.90%	5.00%	14.09%	10.44%	45.90%	0.06%	100.00%
832/882	MLOCR/MLOCR-ISS Out Sec		17.70%	18.17%	50.15%	8.01%	5.98%	0.00%	100.00%
833/883	MLOCR/MLOCR-ISS MMP			4.28%	16.04%	9.72%	68.55%	1.41%	100.00%
834/884	MLOCR/MLOCR-ISS SCF				9.13%	5.84%	84.66%	0.36%	100.00%
835/885	MLOCR/MLOCR-ISS Inc Prim					7.68%	91.46%	0.87%	100.00%
		OP	**OS**	**MMP**	**SCF**	**IP**	**IS**	**Firm**	**Total**
871/891	MPBCS/DBCS Out Prim	**0.17%**	17.56%	17.05%	13.60%	11.86%	19.23%	20.70%	100.17%
872/892	MPBCS/DBCS Out Sec		**1.31%**	50.51%	24.32%	17.48%	6.83%	0.86%	101.31%
873/893	MPBCS/DBCS MMP			**0.84%**	21.21%	9.40%	61.45%	7.94%	100.84%
874/894	MPBCS/DBCS SCF				**0.84%**	4.32%	90.69%	5.00%	100.84%
875/895	MPBCS/DBCS Inc Prim					**1.08%**	88.42%	11.58%	101.08%
	(Diagonal allocated 100% to IS)**								
		OP (BCS)	**OS**	**MMP**	**SCF**	**IP**	**IS**	**Firm**	**Total**
971	MPBCS-OSS Out Prim	0.32%	22.36%	5.60%	16.97%	13.97%	40.52%	0.25%	100.00%
972	MPBCS-OSS Out Sec		20.78%	13.22%	38.80%	16.77%	10.42%	0.01%	100.00%
973	MPBCS-OSS MMP			2.88%	16.47%	11.99%	66.26%	2.40%	100.00%
974	MPBCS-OSS SCF				5.27%	4.67%	86.03%	4.04%	100.00%
975	MPBCS-OSS Inc Prim					4.63%	94.84%	0.53%	100.00%
		OP	**OS**	**MMP**	**SCF**	**IP**	**IS**	**Firm**	**Total**
081	LSM Out Prim	**0.00%**	0.96%	25.12%	10.96%	9.18%	52.09%	1.68%	100.00%
082	LSM Out Sec			27.06%	4.83%	7.73%	57.28%	3.09%	100.00%
083	LSM MMP			**2.12%**	9.78%	3.59%	81.48%	5.16%	102.12%
084	LSM SCF				**3.00%**	4.03%	93.21%	2.76%	103.00%
085	LSM Inc Prim					**2.67%**	94.40%	5.60%	102.67%
	(Diagonal allocated 100% to IS)**								
		OP	**OS**	**MMP**	**SCF**	**IP**	**IS**	**Firm**	**Total**
030	Manual Out Prim		15.48%	36.22%	16.42%	12.18%	19.70%	0.00%	100.00%
040	Manual Out Sec			42.85%	19.43%	14.41%	23.31%	0.00%	100.00%
043	Manual MMP				43.63%	26.47%	29.90%	0.00%	100.00%
044	Manual SCF					6.47%	93.53%	0.00%	100.00%
150	Manual Inc Prim						100.00%	0.00%	100.00%

*** The density tables were revised to include DISP code 9 volumes. See Exhibit USPS-RT-17H for discussion and program.**

**** Bold numbers indicate second handlings (i.e., flows to same machine/ same level). These percentages were incorporated into the TPH calculations in the models.**

EXHIBIT USPS-RT-17F: RBCS INFORMATION

1.) LEAKAGE

A. INITIAL DEPLOYMENT 15%
B. INTERMEDIATE LEAKAGE 10%

FY	AP	Percent Leakage
97	1	7.50%
	2	7.60%
	3	7.10%
	4	6.10%
	5	7.00%
	6	6.70%
	7	6.30%
CUMMULATIVE		6.98%

C. CURRENT LEAKAGE TARGET 5.00%

NOTE: DATA OBTAINED FROM IMAGE PROCESSING SUB-SYSTEM (IPSS) REPORTS

2.) RCR FINALIZATION RATES

A. HANDWRITTEN:	RCR% ORIGINAL	2.00%	Source: ENGINEERING
	RCR % CURRENT	25.00%	
	RCR % FUTURE	50.00%	
B. MACHINE PRINTED/ METERED:	RCR% ORIGINAL	20.00%	
	RCR % CURRENT	40.00%	
	RCR % FUTURE	50.00%	

EXHIBIT USPS-RT-17F: HANDWRITTEN MAIL PROCESSING MODEL UNIT COSTS

MODEL 1: PRE-RBCS ENVIRONMENT

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MLOCR	10,000	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.7323
MPBCS/DBCS	13	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0007
LSM	9,521	1,413	$25.45	1.8008	2.2400	0.0367	4.0704	3.8753
Manual	543	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.2904
Outgoing Secondary								
MPBCS/DBCS	109	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0064
LSM	92	1,440	$25.45	1.7670	2.2400	0.0360	3.9941	0.0366
Manual	90	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.0462
Incoming Primary								
MPBCS/DBCS	243	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0144
LSM	4,219	1,271	$25.45	2.0020	2.2400	0.0408	4.5252	1.9092
Manual	643	562	$25.45	4.5276	1.3720	0.0922	6.3040	0.4052
Incoming Secondary								
MPBCS	44	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.0029
DBCS	605	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.0450
CSBCS	230	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.0067
LSM	8,431	1,151	$25.45	2.2107	2.2400	0.0450	4.9969	4.2127
Manual	1,108	646	$25.45	3.9389	1.3720	0.0802	5.4843	0.6076
TOTAL MAIL PROCESSING MODEL UNIT COSTS								12.1918

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: HANDWRITTEN MAIL PROCESSING MODEL

MODEL 1: PRE-RBCS ENVIRONMENT

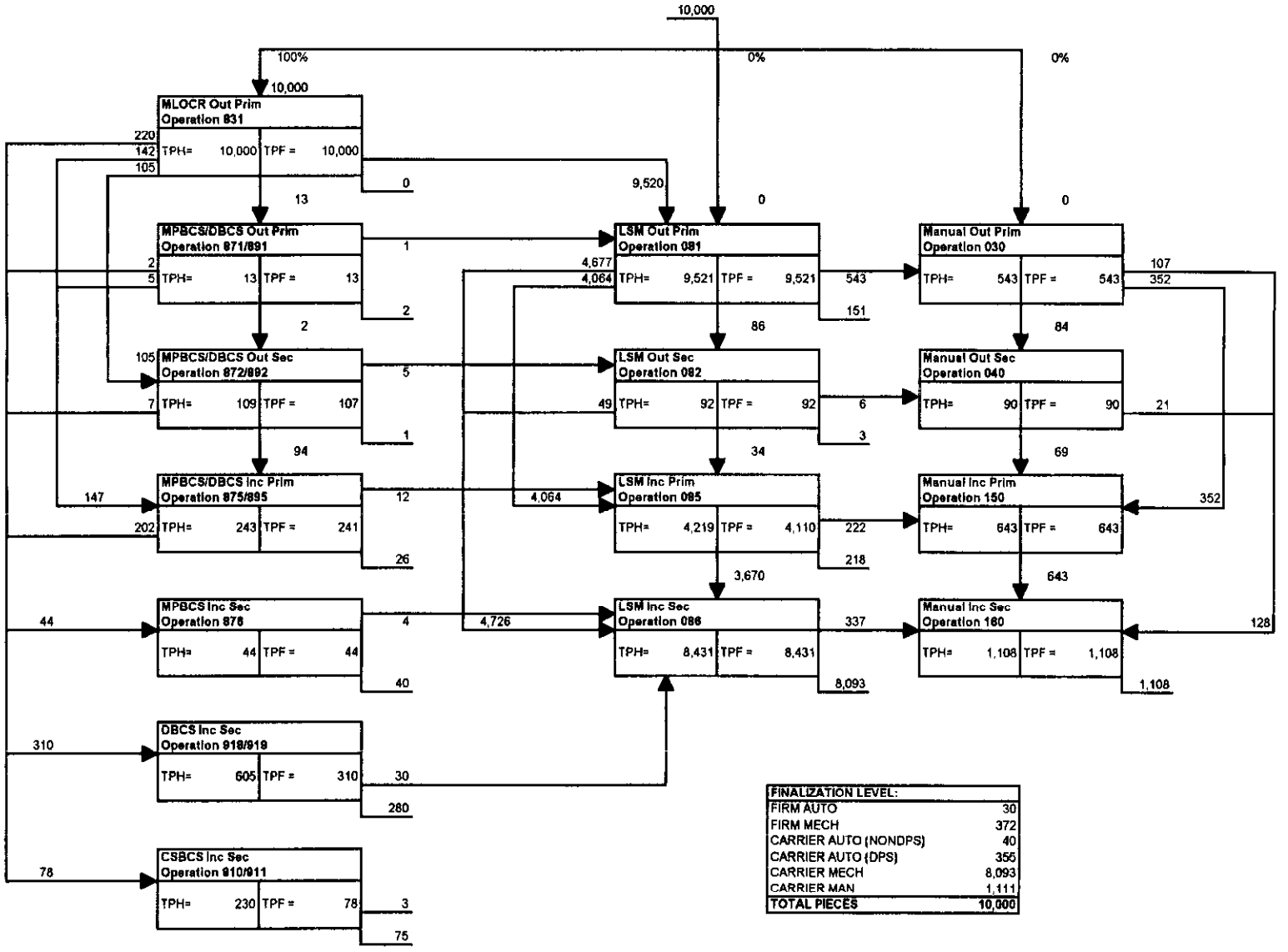

EXHIBIT USPS-RT-17F: HANDWRITTEN MAIL PROCESSING MODEL UNIT COSTS
MODEL 2: AFCS DEPLOYMENT

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MLOCR	0	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.0000
MPBCS/DBCS	0	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0000
LSM	10,000	1,413	$25.45	1.8008	2.2400	0.0367	4.0704	4.0704
Manual	570	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.3050
Outgoing Secondary								
MPBCS/DBCS	0	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0000
LSM	91	1,440	$25.45	1.7670	2.2400	0.0360	3.9941	0.0362
Manual	94	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.0483
Incoming Primary								
MPBCS/DBCS	0	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0000
LSM	4,416	1,271	$25.45	2.0020	2.2400	0.0408	4.5252	1.9985
Manual	674	562	$25.45	4.5276	1.3720	0.0922	6.3040	0.4249
Incoming Secondary								
MPBCS	0	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.0000
DBCS	0	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.0000
CSBCS	0	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.0000
LSM	8,802	1,151	$25.45	2.2107	2.2400	0.0450	4.9969	4.3985
Manual	1,160	646	$25.45	3.9389	1.3720	0.0802	5.4843	0.6364
TOTAL MAIL PROCESSING MODEL UNIT COSTS								**11.9184**

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: HANDWRITTEN MAIL PROCESSING MODEL

MODEL 2: AFCS DEPLOYMENT

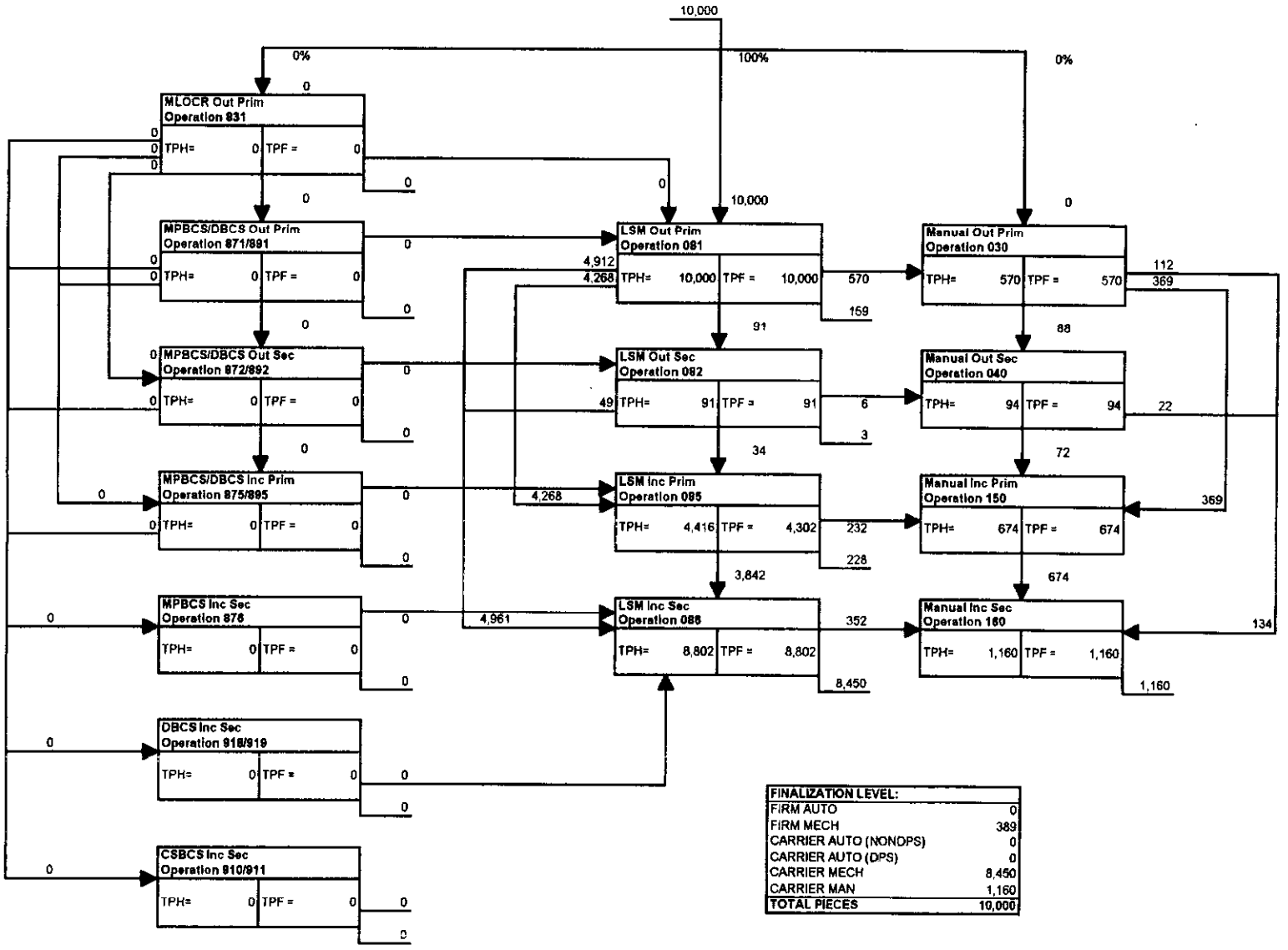

EXHIBIT USPS-RT-17F: HANDWRITTEN MAIL PROCESSING MODEL UNIT COSTS
MODEL 3: RBCS DEPLOYMENT/15% LEAKAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MLOCR-ISS	10,319	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.7557
REC	9,839	660	$14.92	2.2605	1.4500	0.0460	3.3237	3.2703
MPBCS-OSS	9,039	11,984	$25.45	0.2123	1.7190	0.0043	0.3693	0.3338
LMLM	550	4,985	$25.45	0.5104	1.4500	0.0104	0.7505	0.0413
MPBCS/DBCS	36	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0022
LSM	2,180	1,413	$25.45	1.8008	2.2400	0.0367	4.0704	0.8874
Manual	124	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.0665
Outgoing Secondary								
MPBCS/DBCS	1,776	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.1053
LSM	107	1,440	$25.45	1.7670	2.2400	0.0360	3.9941	0.0429
Manual	26	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.0135
Incoming Primary								
MPBCS/DBCS	4,424	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.2622
LSM	1,221	1,271	$25.45	2.0020	2.2400	0.0408	4.5252	0.5524
Manual	165	562	$25.45	4.5276	1.3720	0.0922	6.3040	0.1040
Incoming Secondary								
MPBCS	715	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.0477
DBCS	9,792	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.7286
CSBCS	3,716	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.1087
LSM	2,752	1,151	$25.45	2.2107	2.2400	0.0450	4.9969	1.3752
Manual	306	646	$25.45	3.9389	1.3720	0.0802	5.4843	0.1676
TOTAL MAIL PROCESSING MODEL UNIT COSTS								**8.8653**

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: HANDWRITTEN MAIL PROCESSING MODEL

MODEL 3: RBCS DEPLOYMENT/15% LEAKAGE

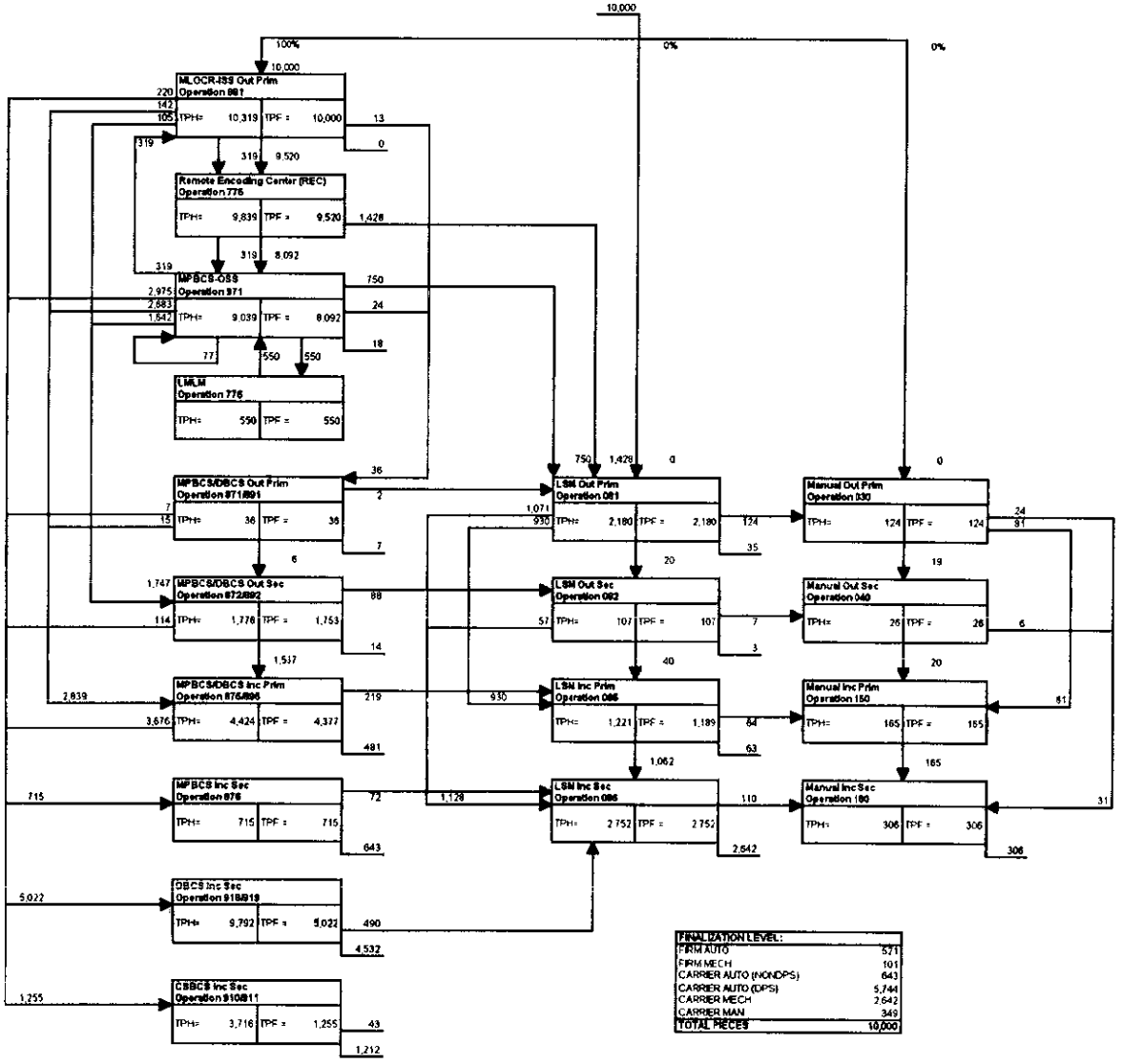

EXHIBIT USPS-RT-17F: HANDWRITTEN MAIL PROCESSING MODEL UNIT COSTS
MODEL 4: LSMs REMOVED/ALL MLOCR-ISS/ALL MPBCS-OSS/10% LEAKAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MLOCR-ISS	10,338	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.7571
REC	9,858	660	$14.92	2.2605	1.4500	0.0460	3.3237	3.2766
MPBCS-OSS	9,570	11,984	$25.45	0.2123	1.7190	0.0043	0.3693	0.3534
LMLM	582	4,985	$25.45	0.5104	1.4500	0.0104	0.7505	0.0437
MPBCS/DBCS	38	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0022
Manual	1,748	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.9356
Outgoing Secondary								
MPBCS/DBCS	1,874	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.1111
Manual	363	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.1862
Incoming Primary								
MPBCS/DBCS	4,670	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.2768
Manual	1,643	562	$25.45	4.5276	1.3720	0.0922	6.3040	1.0355
Incoming Secondary								
MPBCS	755	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.0504
DBCS	10,332	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.7688
CSBCS	3,921	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.1147
Manual	2,665	646	$25.45	3.9389	1.3720	0.0802	5.4843	1.4613
TOTAL MAIL PROCESSING MODEL UNIT COSTS								**9.3735**

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: HANDWRITTEN MAIL PROCESSING MODEL

MODEL 4: LSMs REMOVED/ALL MLOCR CONVERTED TO MLOCR-ISS/10% LEAKAGE

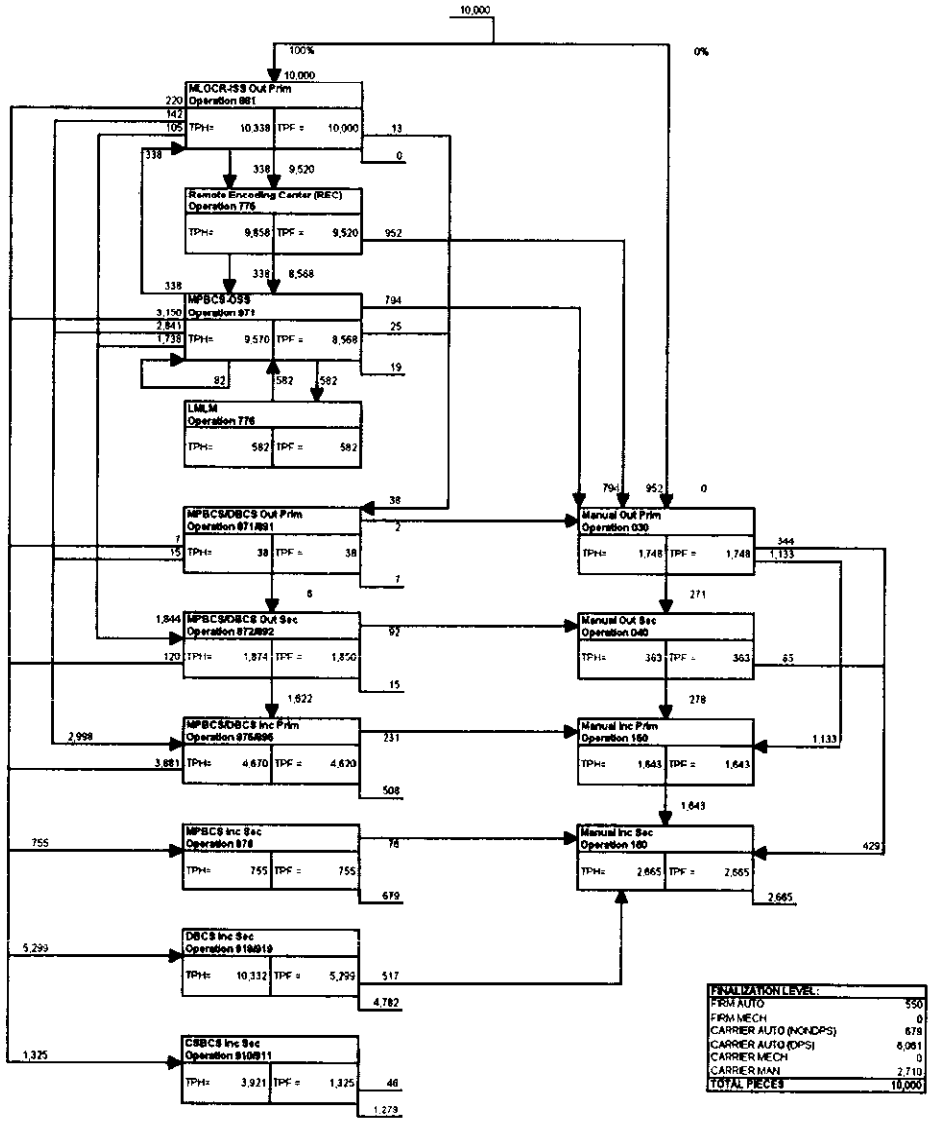

EXHIBIT USPS-RT-17F: HANDWRITTEN MAIL PROCESSING MODEL UNIT COSTS
MODEL 5: RCR DEPLOYMENT (HW-2%) / 5% LEAKAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MLOCR-ISS	10,357	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.7585
REC	9,687	660	$14.92	2.2605	1.4500	0.0460	3.3237	3.2197
MPBCS-OSS	10,113	11,984	$25.45	0.2123	1.7190	0.0043	0.3693	0.3735
LMLM	615	4,985	$25.45	0.5104	1.4500	0.0104	0.7505	0.0462
MPBCS/DBCS	39	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0023
Manual	1,308	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.6999
Outgoing Secondary								
MPBCS/DBCS	1,974	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.1170
Manual	300	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.1538
Incoming Primary								
MPBCS/DBCS	4,921	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.2917
Manual	1,321	562	$25.45	4.5276	1.3720	0.0922	6.3040	0.8328
Incoming Secondary								
MPBCS	795	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.0530
DBCS	10,884	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.8098
CSBCS	4,130	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.1208
Manual	2,273	646	$25.45	3.9389	1.3720	0.0802	5.4843	1.2466
TOTAL MAIL PROCESSING MODEL UNIT COSTS								**8.7256**

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: HANDWRITTEN MAIL PROCESSING MODEL
MODEL 5: RCR DEPLOYMENT (HW-2%) / 5% LEAKAGE

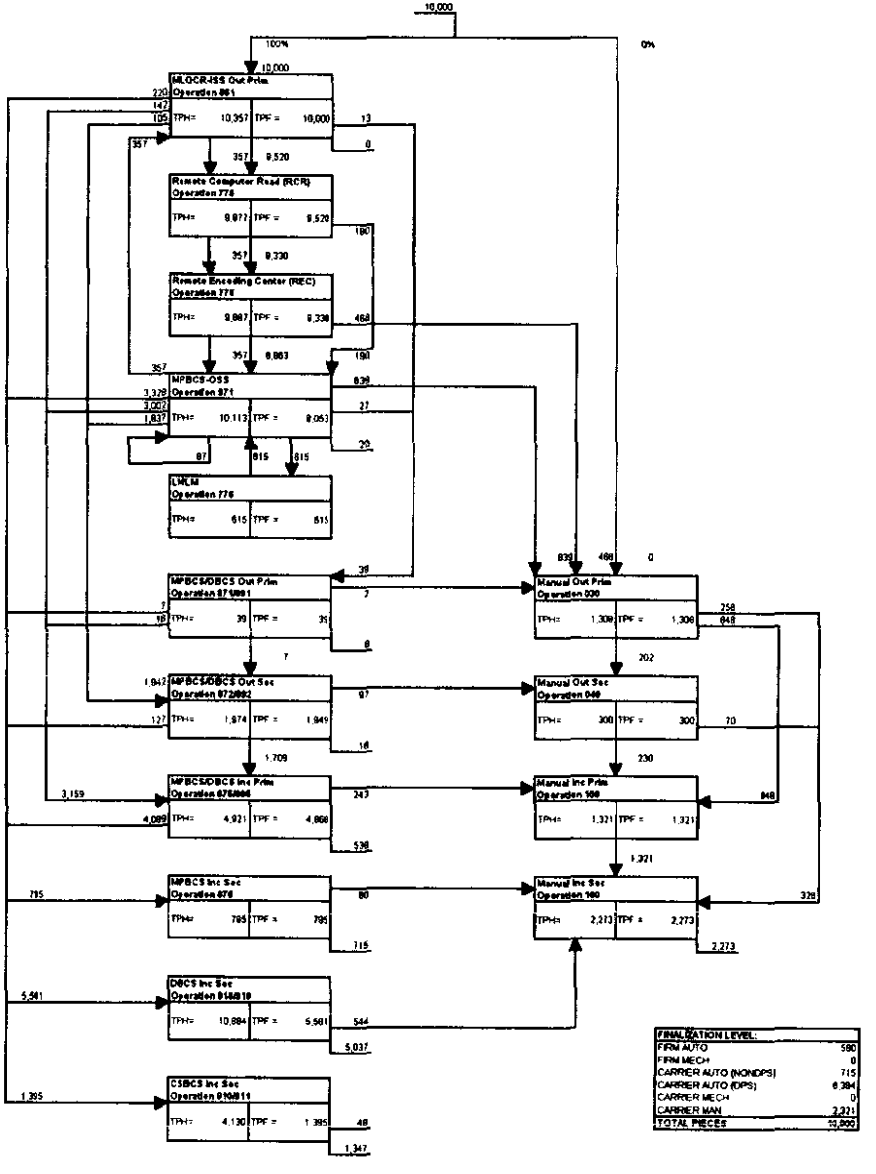

EXHIBIT USPS-RT-17F: HANDWRITTEN MAIL PROCESSING MODEL UNIT COSTS
MODEL 6: CURRENT - AFCS-ISS RETROFITS/RCR MODIFICATIONS (HW-25%)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MLOCR-ISS	380	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.0278
REC	7,880	660	$14.92	2.2605	1.4500	0.0460	3.3237	2.6191
MPBCS-OSS	10,751	11,984	$25.45	0.2123	1.7190	0.0043	0.3693	0.3970
LMLM	654	4,985	$25.45	0.5104	1.4500	0.0104	0.7505	0.0491
MPBCS/DBCS	28	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0017
Manual	1,269	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.6790
Outgoing Secondary								
MPBCS/DBCS	1,983	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.1176
Manual	294	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.1509
Incoming Primary								
MPBCS/DBCS	4,972	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.2947
Manual	1,294	562	$25.45	4.5276	1.3720	0.0922	6.3040	0.8158
Incoming Secondary								
MPBCS	798	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.0533
DBCS	10,928	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.8131
CSBCS	4,147	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.1213
Manual	2,240	646	$25.45	3.9389	1.3720	0.0802	5.4843	1.2283
TOTAL MAIL PROCESSING MODEL UNIT COSTS								**7.3686**

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: HANDWRITTEN MAIL PROCESSING MODEL
MODEL 6: CURRENT - AFCS-ISS RETROFITS/RCR MODIFICATIONS (HW-25%)

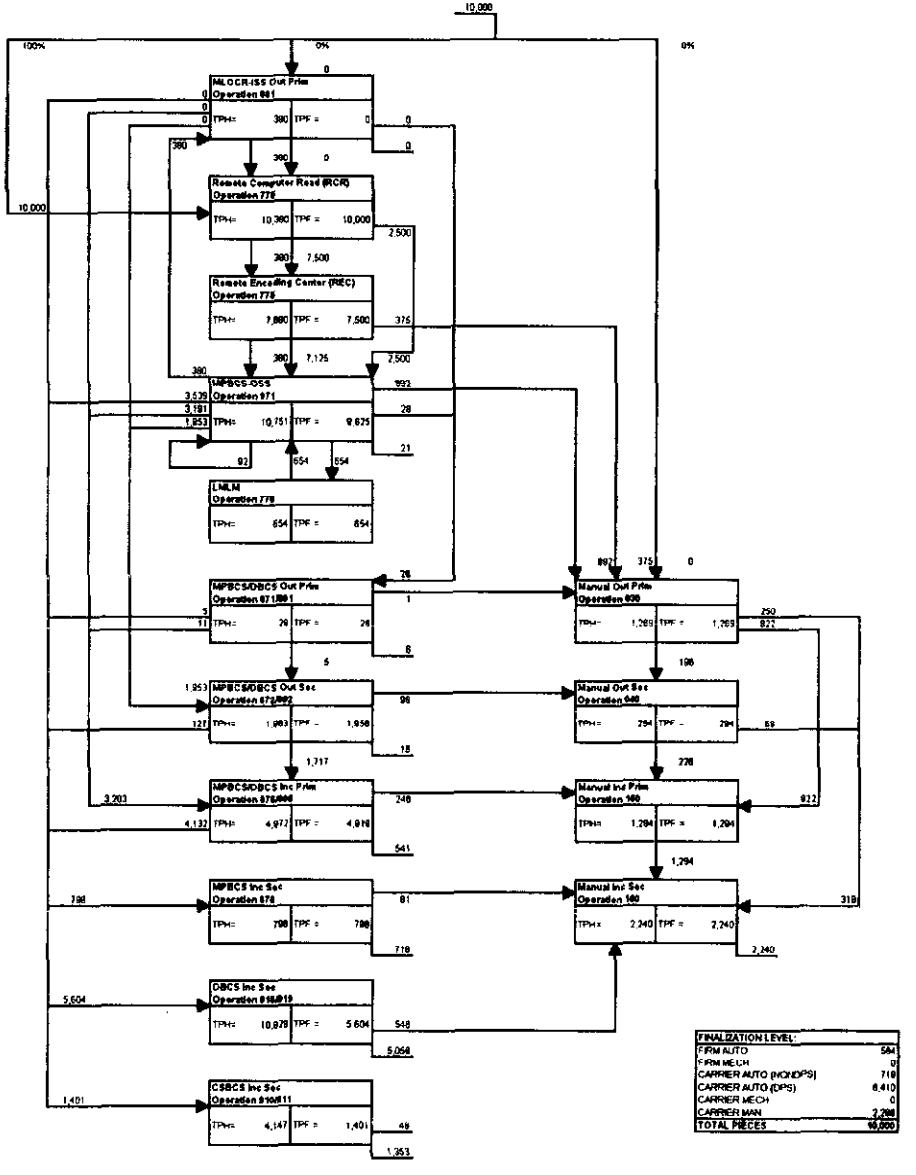

EXHIBIT USPS-RT-17F: HANDWRITTEN MAIL PROCESSING MODEL UNIT COSTS
MODEL 7: FUTURE - RCR MODIFICATIONS (HW-50%)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MLOCR-ISS	385	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.0282
REC	5,385	660	$14.92	2.2605	1.4500	0.0460	3.3237	1.7898
MPBCS-OSS	10,891	11,984	$25.45	0.2123	1.7190	0.0043	0.3693	0.4022
LMLM	662	4,985	$25.45	0.5104	1.4500	0.0104	0.7505	0.0497
MPBCS/DBCS	29	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0017
Manual	1,155	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.6183
Outgoing Secondary								
MPBCS/DBCS	2,009	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.1191
Manual	278	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.1425
Incoming Primary								
MPBCS/DBCS	5,037	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.2986
Manual	1,211	562	$25.45	4.5276	1.3720	0.0922	6.3040	0.7636
Incoming Secondary								
MPBCS	809	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.0540
DBCS	11,070	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.8237
CSBCS	4,201	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.1229
Manual	2,139	646	$25.45	3.9389	1.3720	0.0802	5.4843	1.1730
TOTAL MAIL PROCESSING MODEL UNIT COSTS								**6.3872**

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: HANDWRITTEN MAIL PROCESSING MODEL
MODEL 7: FUTURE - RCR MODIFICATIONS (HW-50%)

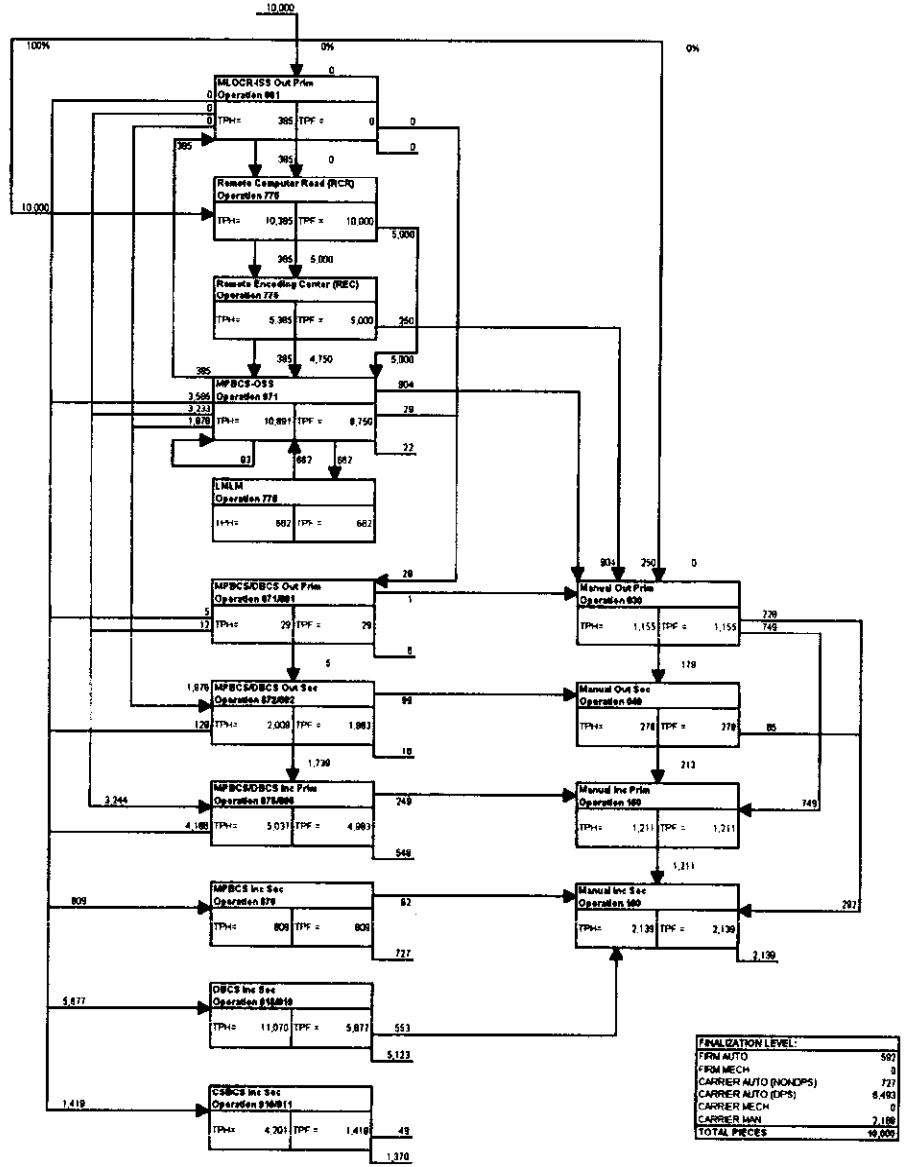

EXHIBIT USPS-RT-17F: MACHINE PRINTED MAIL PROCESSING MODEL UNIT COSTS
MODELS 1,2: PRE-RBCS ENVIRONMENT/AFCS DEPLOYMENT

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MLOCR	10,000	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.7323
MPBCS/DBCS	147	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0087
LSM	4,392	1,413	$25.45	1.8008	2.2400	0.0367	4.0704	1.7877
Manual	250	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.1340
Outgoing Secondary								
MPBCS/DBCS	1,271	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0753
LSM	103	1,440	$25.45	1.7670	2.2400	0.0360	3.9941	0.0410
Manual	46	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.0233
Incoming Primary								
MPBCS/DBCS	2,848	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.1688
LSM	2,108	1,271	$25.45	2.0020	2.2400	0.0408	4.5252	0.9540
Manual	308	562	$25.45	4.5276	1.3720	0.0922	6.3040	0.1942
Incoming Secondary								
MPBCS	517	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.0345
DBCS	7,075	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.5265
CSBCS	2,685	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.0785
LSM	4,452	1,151	$25.45	2.2107	2.2400	0.0450	4.9969	2.2246
Manual	546	646	$25.45	3.9389	1.3720	0.0802	5.4843	0.2995
TOTAL MAIL PROCESSING MODEL UNIT COSTS								7.2828

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: MACHINE PRINTED MAIL PROCESSING MODEL

MODELS 1,2: PRE-RBCS ENVIRONMENT/AFCS DEPLOYMENT

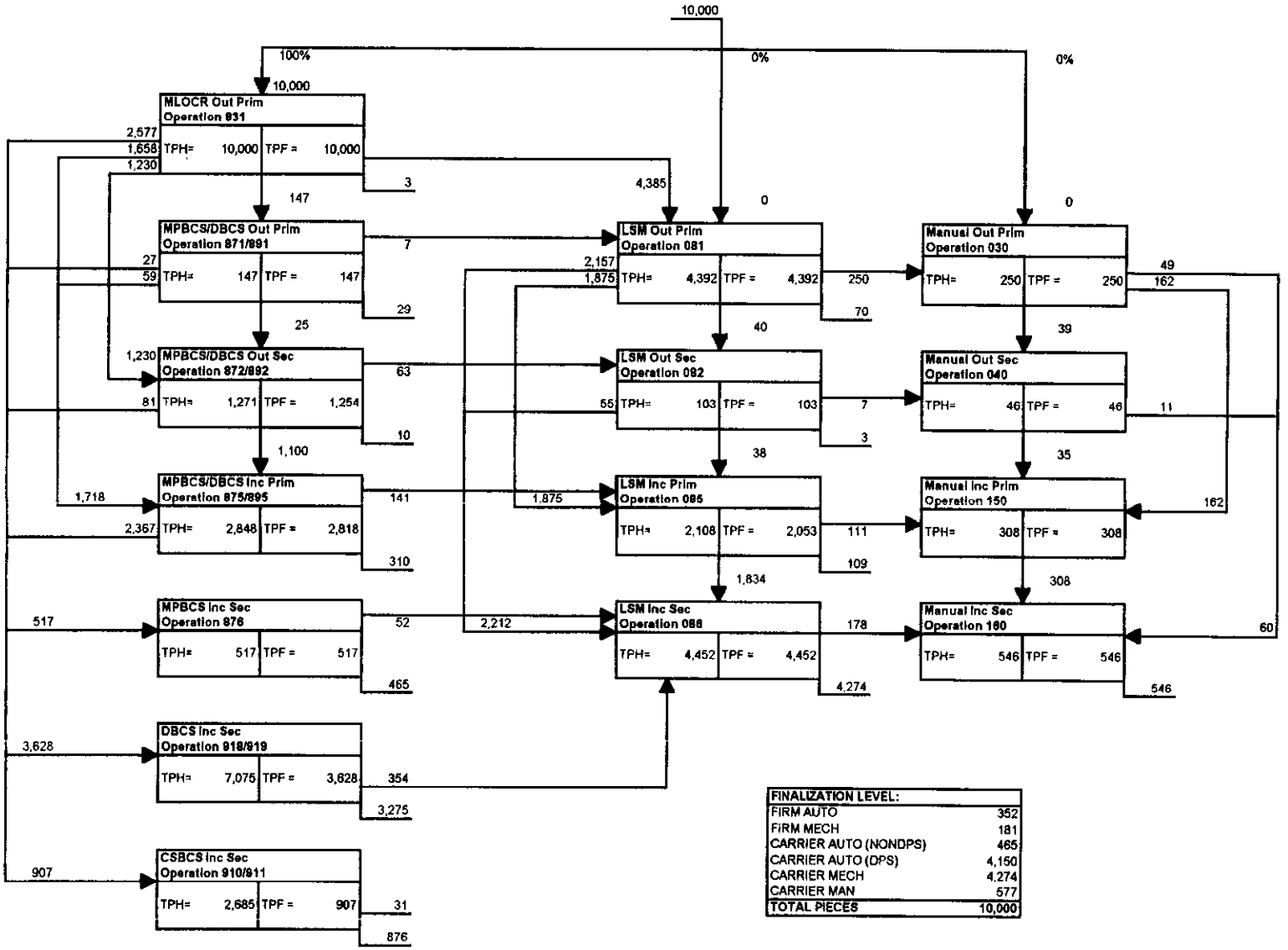

EXHIBIT USPS-RT-17F: MACHINE PRINTED MAIL PROCESSING MODEL UNIT COSTS
MODEL 3: RBCS DEPLOYMENT/15% LEAKAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MLOCR	10,000	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.7323
MLOCR-ISS	4,626	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.3388
REC	4,626	660	$14.92	2.2605	1.4500	0.0460	3.3237	1.5377
MPBCS-OSS	4,292	11,984	$25.45	0.2123	1.7190	0.0043	0.3693	0.1585
LMLM	279	4,985	$25.45	0.5104	1.4500	0.0104	0.7505	0.0209
MPBCS/DBCS	158	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0094
LSM	1,088	1,413	$25.45	1.8008	2.2400	0.0367	4.0704	0.4430
Manual	62	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.0332
Outgoing Secondary								
MPBCS/DBCS	2,021	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.1198
LSM	110	1,440	$25.45	1.7670	2.2400	0.0360	3.9941	0.0438
Manual	17	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.0086
Incoming Primary								
MPBCS/DBCS	4,729	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.2803
LSM	759	1,271	$25.45	2.0020	2.2400	0.0408	4.5252	0.3434
Manual	93	562	$25.45	4.5276	1.3720	0.0922	6.3040	0.0587
Incoming Secondary								
MPBCS	819	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.0546
DBCS	11,210	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.8341
CSBCS	4,254	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.1244
LSM	1,897	1,151	$25.45	2.2107	2.2400	0.0450	4.9969	0.9477
Manual	185	646	$25.45	3.9389	1.3720	0.0802	5.4843	0.1015
TOTAL MAIL PROCESSING MODEL UNIT COSTS								**6.1907**

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: MACHINE PRINTED MAIL PROCESSING MODEL

MODEL 3: RBCS DEPLOYMENT/15% LEAKAGE

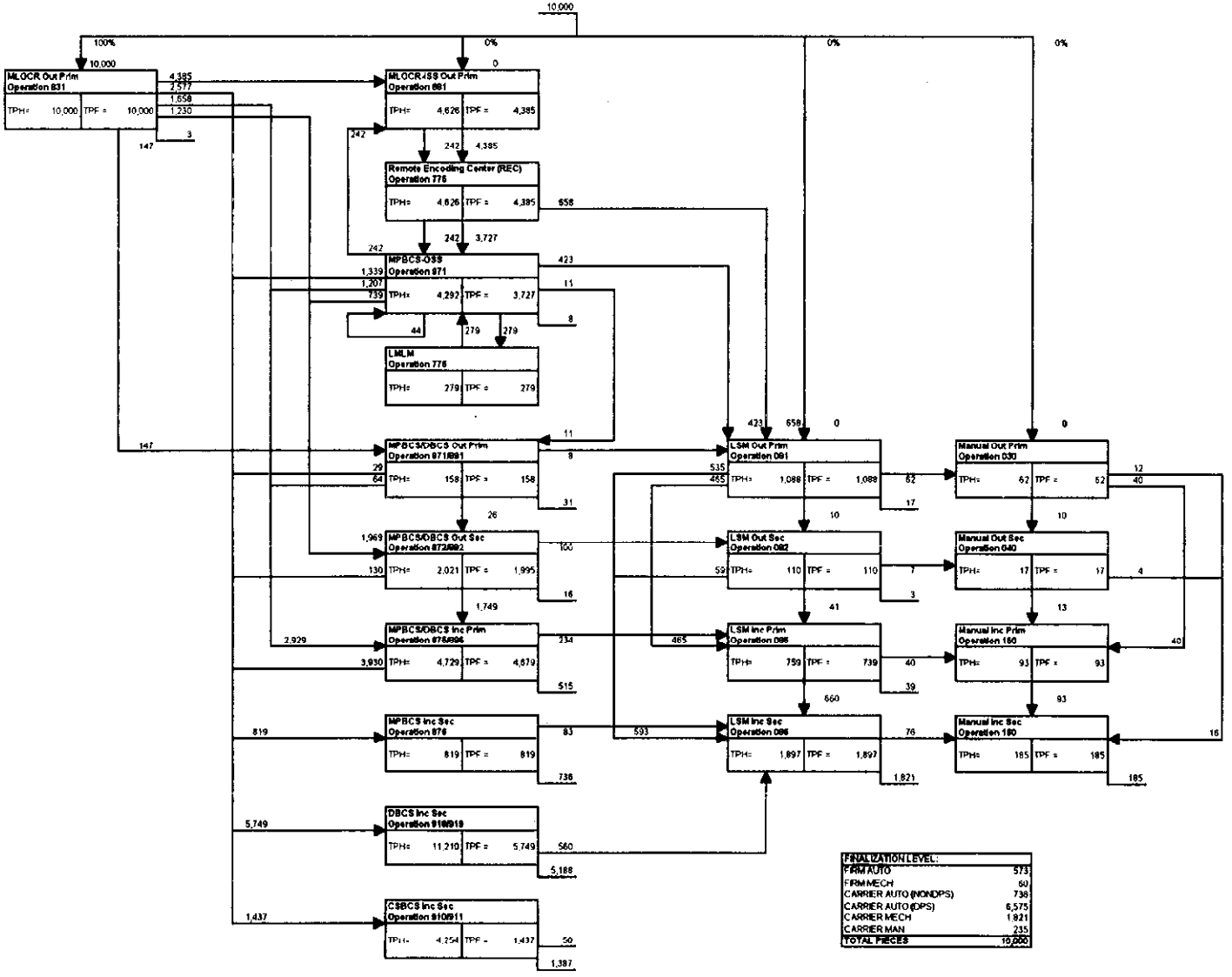

EXHIBIT USPS-RT-17F: MACHINE PRINTED MAIL PROCESSING MODEL UNIT COSTS
MODEL 4: LSMs REMOVED/ALL MLOCR-ISS/ALL MPBCS-OSS/10% LEAKAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MLOCR-ISS	10,256	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.7511
REC	4,640	660	$14.92	2.2605	1.4500	0.0460	3.3237	1.5424
MPBCS-OSS	4,544	11,984	$25.45	0.2123	1.7190	0.0043	0.3693	0.1678
LMLM	295	4,985	$25.45	0.5104	1.4500	0.0104	0.7505	0.0222
MPBCS/DBCS	159	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0094
Manual	894	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.4785
Outgoing Secondary								
MPBCS/DBCS	2,065	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.1224
Manual	240	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.1232
Incoming Primary								
MPBCS/DBCS	4,840	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.2869
Manual	1,003	562	$25.45	4.5276	1.3720	0.0922	6.3040	0.6325
Incoming Secondary								
MPBCS	837	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.0558
DBCS	11,453	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.8522
CSBCS	4,346	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.1271
Manual	1,893	646	$25.45	3.9389	1.3720	0.0802	5.4843	1.0380
TOTAL MAIL PROCESSING MODEL UNIT COSTS								**6.2094**

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: MACHINE PRINTED MAIL PROCESSING MODEL

MODEL 4: LSMs REMOVED/ALL MLOCR CONVERTED TO MLOCR-ISS/10% LEAKAGE

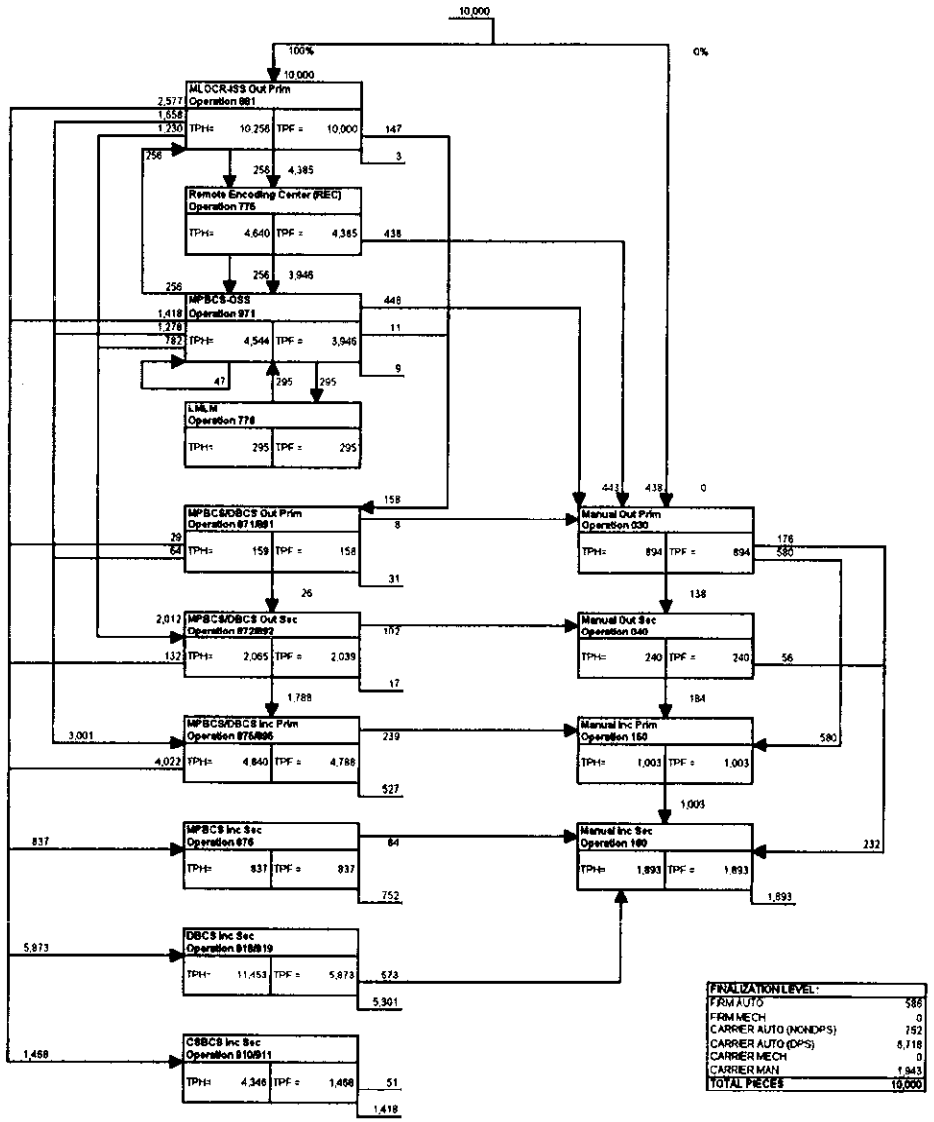

EXHIBIT USPS-RT-17F: MACHINE PRINTED MAIL PROCESSING MODEL UNIT COSTS
MODEL 5: RCR DEPLOYMENT (MP - 20%) / 5% LEAKAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MLOCR-ISS	10,273	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.7523
REC	3,781	660	$14.92	2.2605	1.4500	0.0460	3.3237	1.2566
MPBCS-OSS	4,847	11,984	$25.45	0.2123	1.7190	0.0043	0.3693	0.1790
LMLM	315	4,985	$25.45	0.5104	1.4500	0.0104	0.7505	0.0236
MPBCS/DBCS	159	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0094
Manual	661	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.3537
Outgoing Secondary								
MPBCS/DBCS	2,118	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.1256
Manual	207	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.1061
Incoming Primary								
MPBCS/DBCS	4,973	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.2947
Manual	833	562	$25.45	4.5276	1.3720	0.0922	6.3040	0.5252
Incoming Secondary								
MPBCS	858	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.0572
DBCS	11,745	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.8739
CSBCS	4,457	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.1304
Manual	1,685	646	$25.45	3.9389	1.3720	0.0802	5.4843	0.9243
TOTAL MAIL PROCESSING MODEL UNIT COSTS								**5.6121**

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: MACHINE PRINTED MAIL PROCESSING MODEL
MODEL 5: RCR DEPLOYMENT (MP - 20%) / 5% LEAKAGE

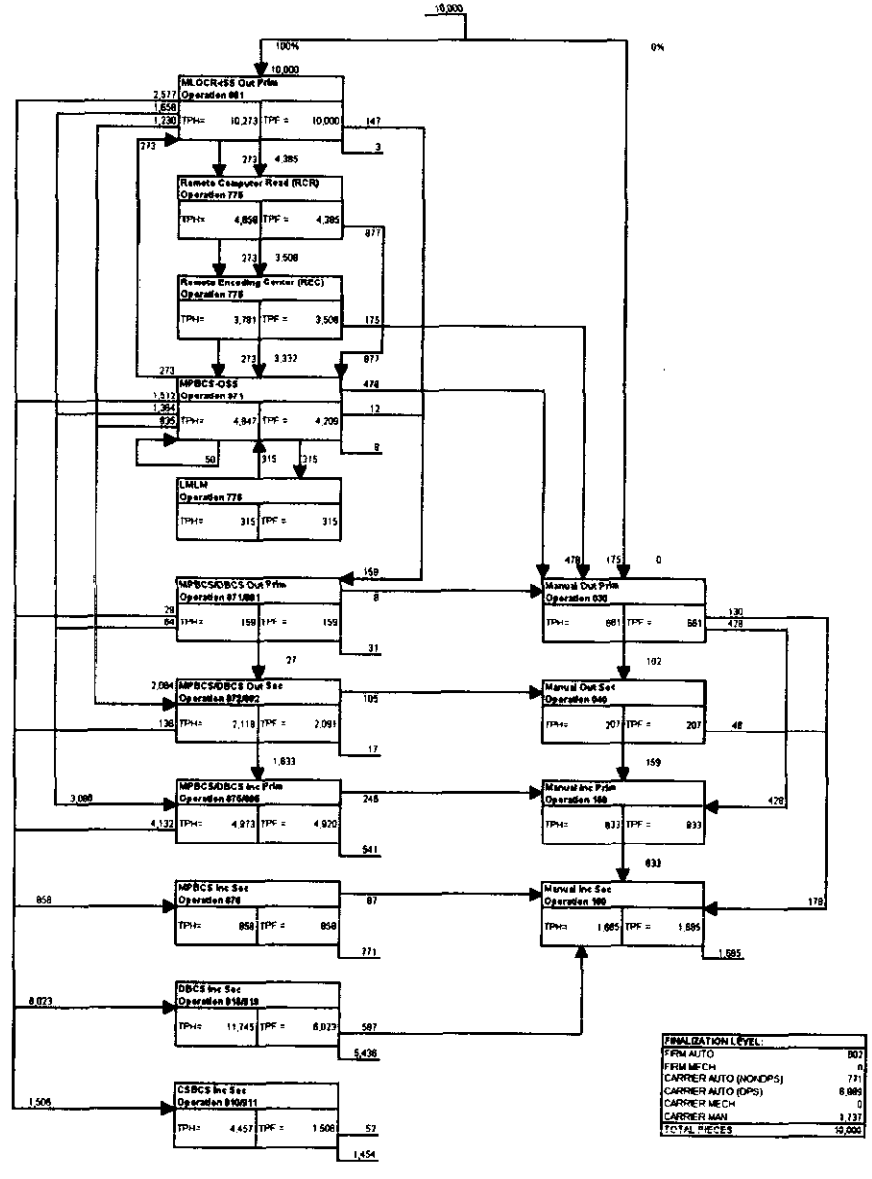

EXHIBIT USPS-RT-17F: MACHINE PRINTED MAIL PROCESSING MODEL UNIT COSTS
MODEL 6: CURRENT - AFCS-ISS RETROFITS/RCR MODIFICATIONS (MP-40%)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MLOCR-ISS	10,276	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.7525
REC	2,907	660	$14.92	2.2605	1.4500	0.0460	3.3237	0.9661
MPBCS-OSS	4,898	11,984	$25.45	0.2123	1.7190	0.0043	0.3693	0.1809
LMLM	318	4,985	$25.45	0.5104	1.4500	0.0104	0.7505	0.0239
MPBCS/DBCS	159	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0095
Manual	622	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.3329
Outgoing Secondary								
MPBCS/DBCS	2,127	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.1261
Manual	201	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.1032
Incoming Primary								
MPBCS/DBCS	4,995	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.2961
Manual	805	562	$25.45	4.5276	1.3720	0.0922	6.3040	0.5073
Incoming Secondary								
MPBCS	862	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.0575
DBCS	11,793	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.8775
CSBCS	4,476	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.1309
Manual	1,651	646	$25.45	3.9389	1.3720	0.0802	5.4843	0.9054
TOTAL MAIL PROCESSING MODEL UNIT COSTS								**5.2696**

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: MACHINE PRINTED MAIL PROCESSING MODEL

MODEL 6: CURRENT - AFCS-ISS RETROFITS/RCR MODIFICATIONS (MP-40%)

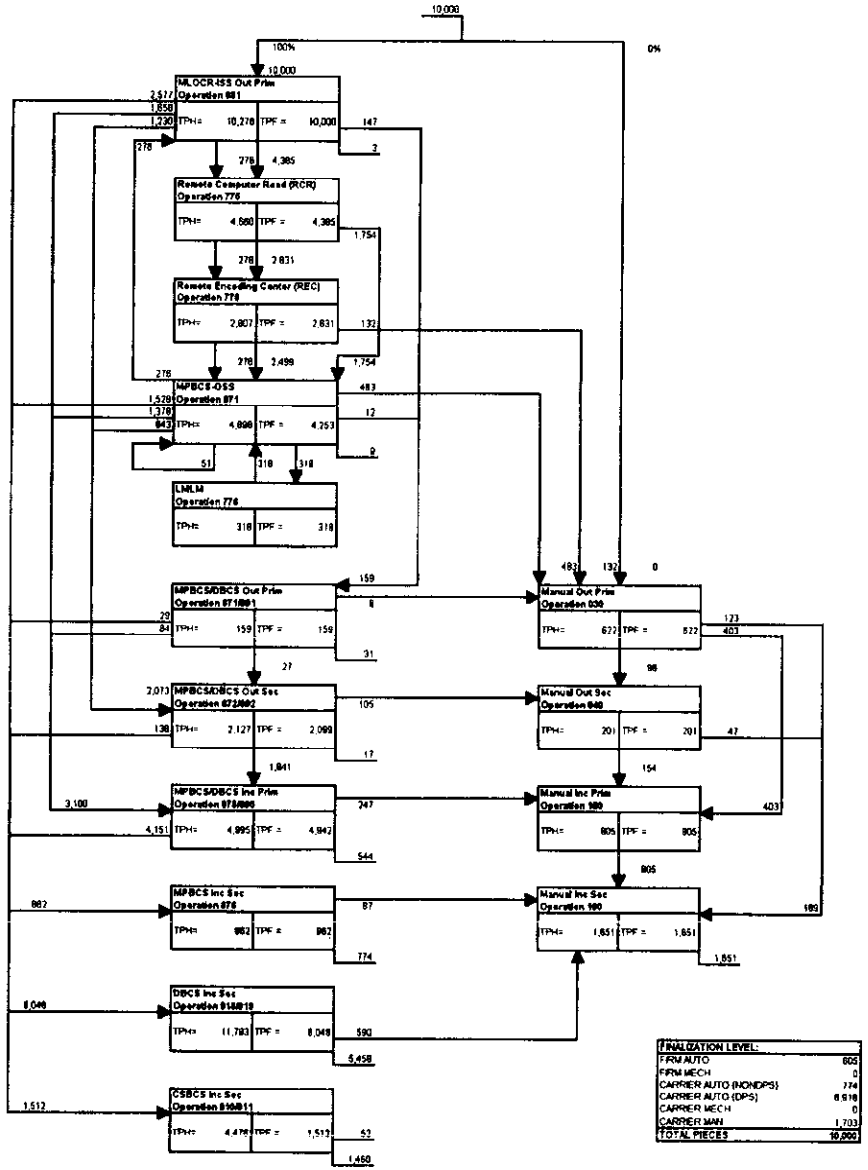

EXHIBIT USPS-RT-17F: MACHINE PRINTED MAIL PROCESSING MODEL UNIT COSTS
MODEL 7: FUTURE - RCR MODIFICATIONS (MP-50%)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MLOCR-ISS	10,277	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.7526
REC	2,470	660	$14.92	2.2605	1.4500	0.0460	3.3237	0.8208
MPBCS-OSS	4,923	11,984	$25.45	0.2123	1.7190	0.0043	0.3693	0.1818
LMLM	320	4,985	$25.45	0.5104	1.4500	0.0104	0.7505	0.0240
MPBCS/DBCS	160	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0095
Manual	603	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.3225
Outgoing Secondary								
MPBCS/DBCS	2,131	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.1263
Manual	198	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.1018
Incoming Primary								
MPBCS/DBCS	5,006	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.2967
Manual	790	562	$25.45	4.5276	1.3720	0.0922	6.3040	0.4983
Incoming Secondary								
MPBCS	863	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.0576
DBCS	11,818	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.8793
CSBCS	4,485	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.1312
Manual	1,634	646	$25.45	3.9389	1.3720	0.0802	5.4843	0.8959
TOTAL MAIL PROCESSING MODEL UNIT COSTS								**5.0984**

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: MACHINE PRINTED MAIL PROCESSING MODEL
MODEL 7: FUTURE - RCR MODIFICATIONS (MP-50%)

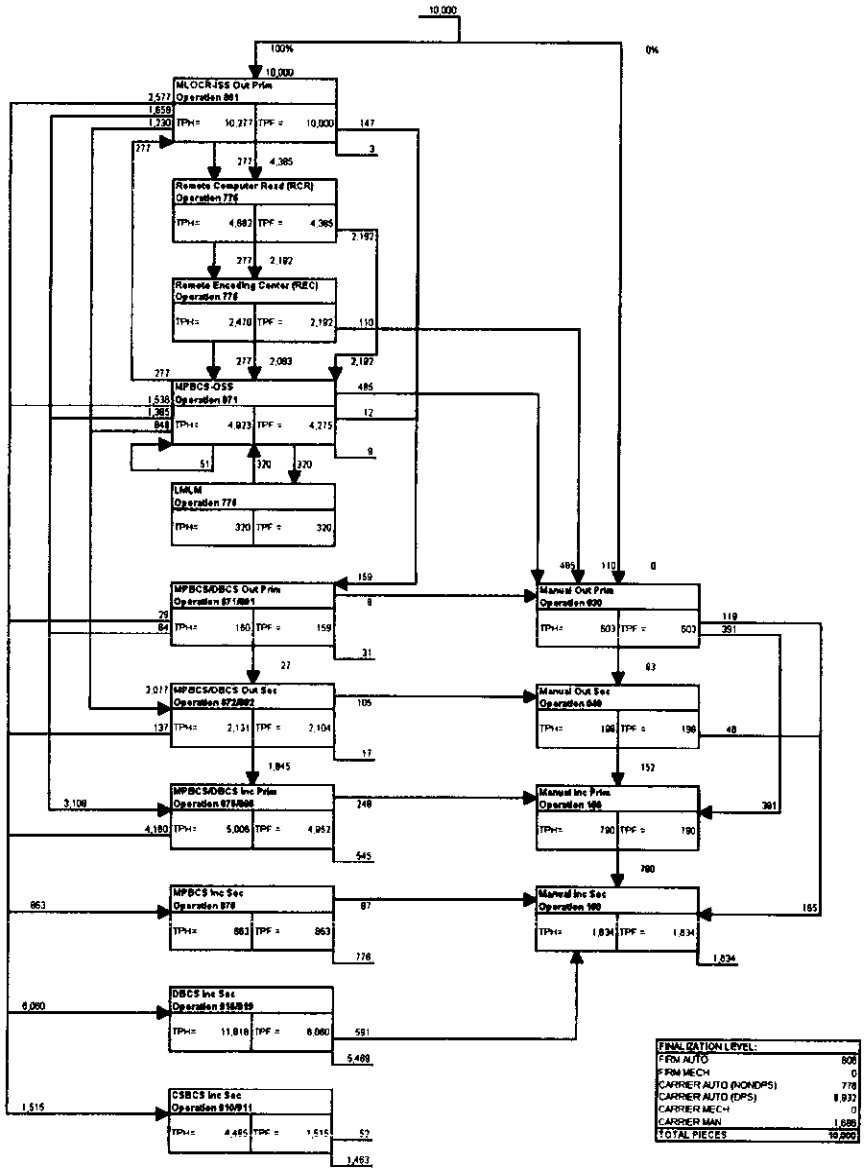

EXHIBIT USPS-RT-17F: METERED MAIL PROCESSING MODEL UNIT COSTS
MODELS 1,2: PRE-RBCS ENVIRONMENT/AFCS DEPLOYMENT

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MLOCR	10,000	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.7323
MPBCS/DBCS	159	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0094
LSM	3,939	1,413	$25.45	1.8008	2.2400	0.0367	4.0704	1.6035
Manual	225	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.1202
Outgoing Secondary								
MPBCS/DBCS	1,373	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0814
LSM	104	1,440	$25.45	1.7670	2.2400	0.0360	3.9941	0.0413
Manual	42	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.0213
Incoming Primary								
MPBCS/DBCS	3,078	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.1824
LSM	1,922	1,271	$25.45	2.0020	2.2400	0.0408	4.5252	0.8697
Manual	279	562	$25.45	4.5276	1.3720	0.0922	6.3040	0.1756
Incoming Secondary								
MPBCS	559	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.0373
DBCS	7,646	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.5689
CSBCS	2,902	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.0849
LSM	4,101	1,151	$25.45	2.2107	2.2400	0.0450	4.9969	2.0492
Manual	496	646	$25.45	3.9389	1.3720	0.0802	5.4843	0.2723
TOTAL MAIL PROCESSING MODEL UNIT COSTS								**6.8497**

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: METERED MAIL PROCESSING MODEL

MODELS 1,2: PRE-RBCS ENVIRONMENT/AFCS DEPLOYMENT

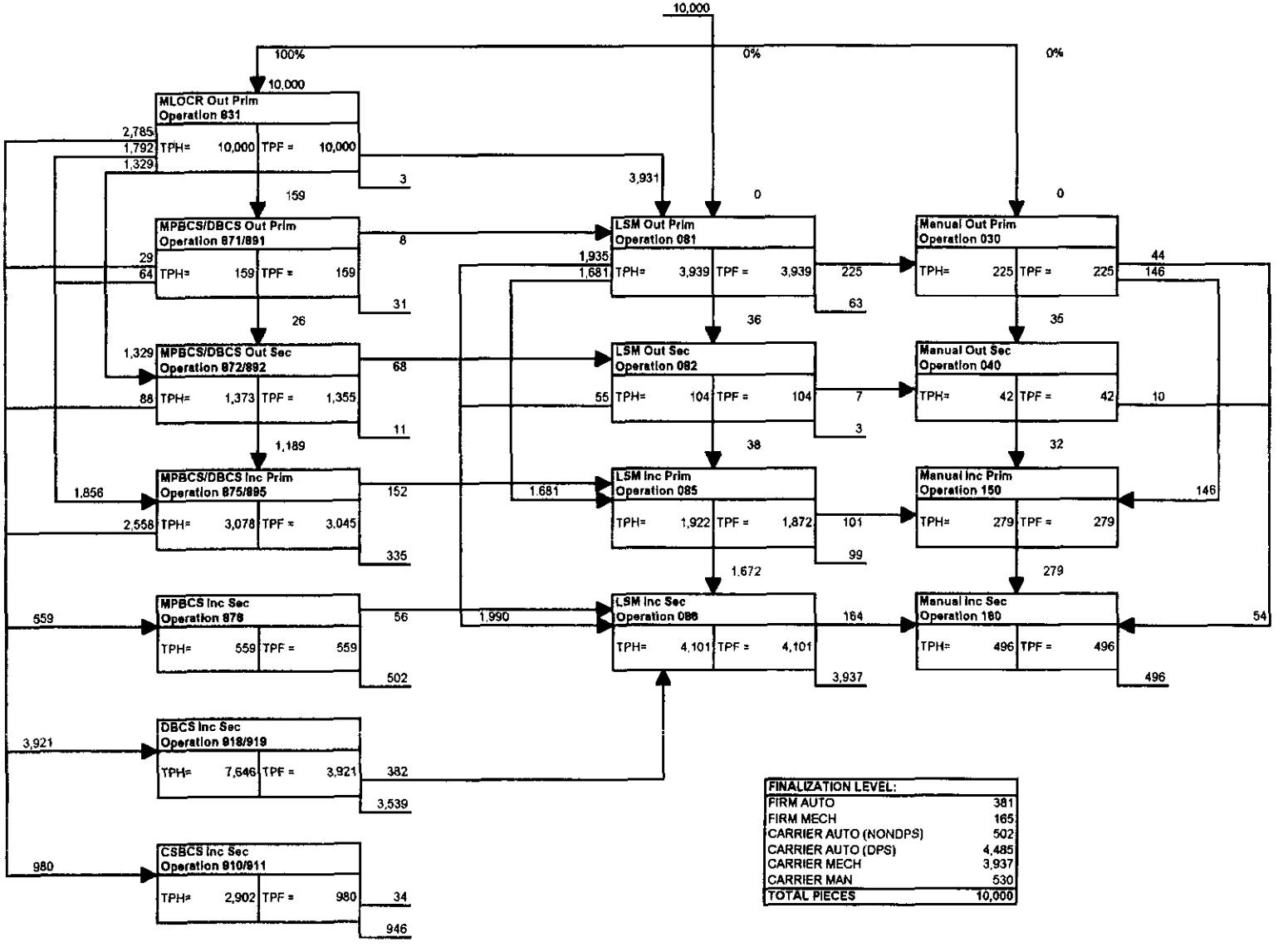

EXHIBIT USPS-RT-17F: METERED MAIL PROCESSING MODEL UNIT COSTS
MODEL 3: RBCS DEPLOYMENT/15% LEAKAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MLOCR	10,000	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.7323
MLOCR-ISS	4,131	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.3026
REC	4,131	660	$14.92	2.2605	1.4500	0.0460	3.3237	1.3732
MPBCS-OSS	3,775	11,984	$25.45	0.2123	1.7190	0.0043	0.3693	0.1394
LMLM	187	4,985	$25.45	0.5104	1.4500	0.0104	0.7505	0.0140
MPBCS/DBCS	169	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0100
LSM	982	1,413	$25.45	1.8008	2.2400	0.0367	4.0704	0.3996
Manual	56	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.0299
Outgoing Secondary								
MPBCS/DBCS	2,045	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.1212
LSM	110	1,440	$25.45	1.7670	2.2400	0.0360	3.9941	0.0439
Manual	16	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.0082
Incoming Primary								
MPBCS/DBCS	4,762	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.2823
LSM	714	1,271	$25.45	2.0020	2.2400	0.0408	4.5252	0.3230
Manual	86	562	$25.45	4.5276	1.3720	0.0922	6.3040	0.0542
Incoming Secondary								
MPBCS	829	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.0553
DBCS	11,348	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.8444
CSBCS	4,307	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.1260
LSM	1,813	1,151	$25.45	2.2107	2.2400	0.0450	4.9969	0.9059
Manual	173	646	$25.45	3.9389	1.3720	0.0802	5.4843	0.0950
TOTAL MAIL PROCESSING MODEL UNIT COSTS								**5.8603**

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: METERED MAIL PROCESSING MODEL

MODEL 3: RBCS DEPLOYMENT/15% LEAKAGE

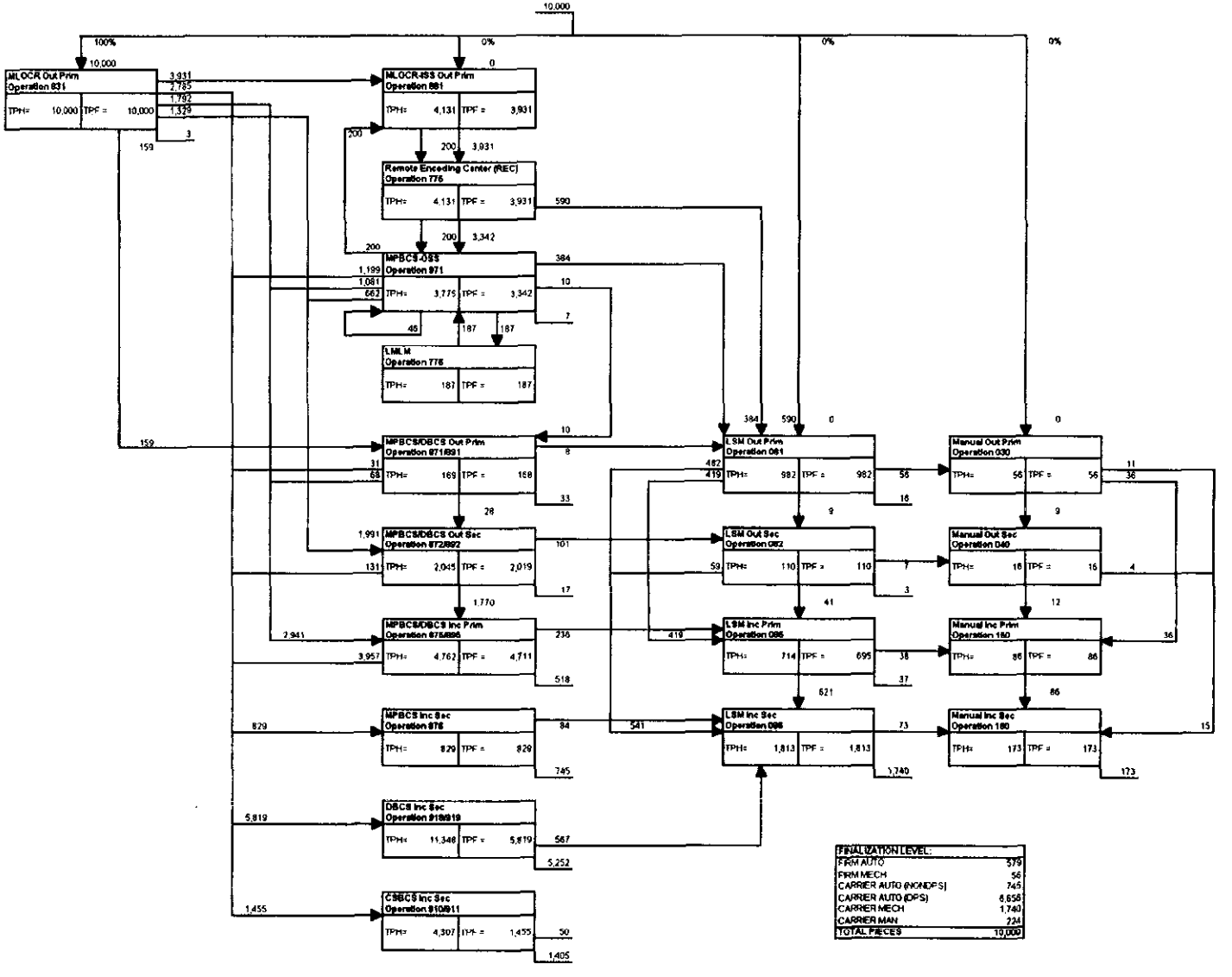

EXHIBIT USPS-RT-17F: METERED MAIL PROCESSING MODEL UNIT COSTS
MODEL 4: LSMs REMOVED/ALL MLOCR-ISS/ALL MPBCS-OSS/10% LEAKAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MLOCR-ISS	10,212	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.7478
REC	4,143	660	$14.92	2.2605	1.4500	0.0460	3.3237	1.3771
MPBCS-OSS	3,997	11,984	$25.45	0.2123	1.7190	0.0043	0.3693	0.1476
LMLM	198	4,985	$25.45	0.5104	1.4500	0.0104	0.7505	0.0149
MPBCS/DBCS	169	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0100
Manual	808	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.4323
Outgoing Secondary								
MPBCS/DBCS	2,085	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.1236
Manual	228	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.1169
Incoming Primary								
MPBCS/DBCS	4,861	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.2881
Manual	939	562	$25.45	4.5276	1.3720	0.0922	6.3040	0.5918
Incoming Secondary								
MPBCS	845	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.0564
DBCS	11,566	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.8606
CSBCS	4,389	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.1284
Manual	1,815	646	$25.45	3.9389	1.3720	0.0802	5.4843	0.9952
TOTAL MAIL PROCESSING MODEL UNIT COSTS								**5.8906**

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: METERED MAIL PROCESSING MODEL

MODEL 4: LSMs REMOVED/ALL MLOCR CONVERTED TO MLOCR-ISS/10% LEAKAGE

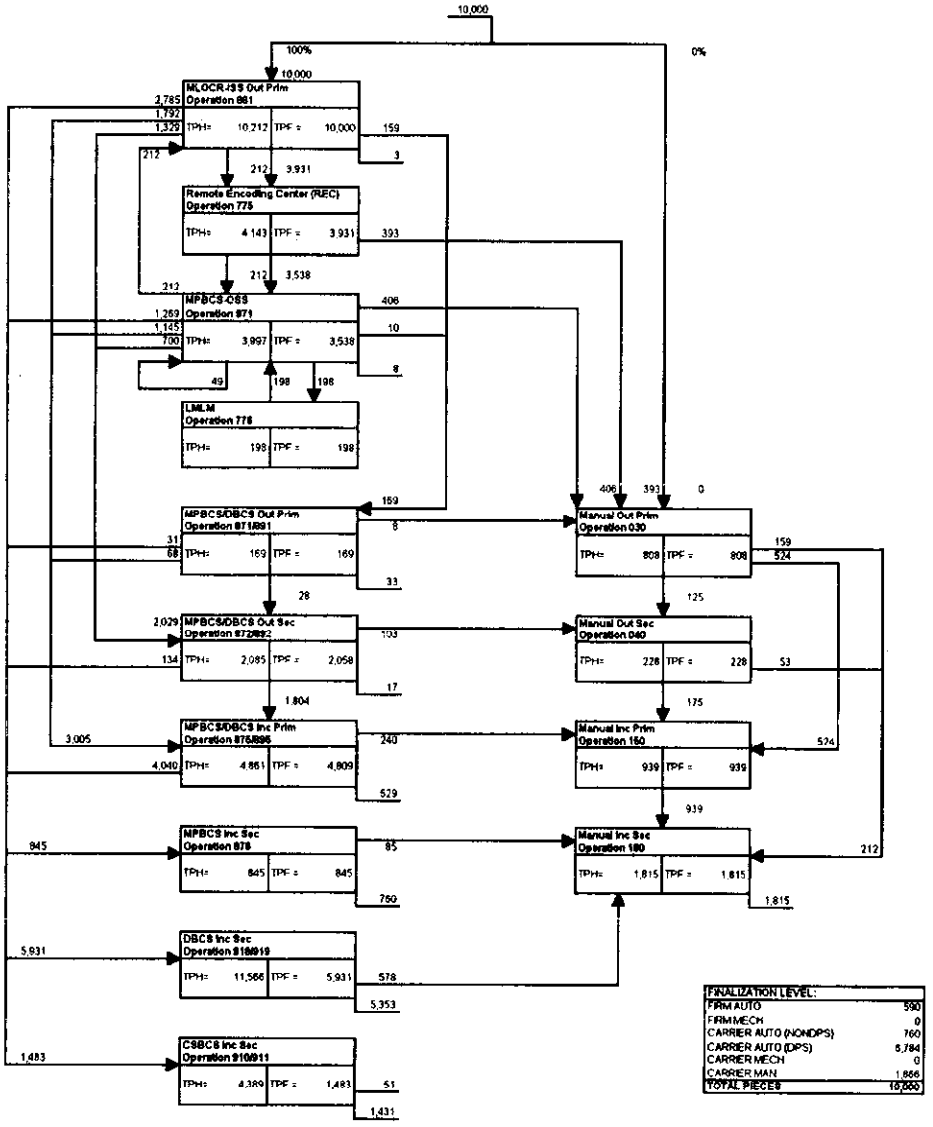

EXHIBIT USPS-RT-17F: METERED MAIL PROCESSING MODEL UNIT COSTS
MODEL 5: RCR DEPLOYMENT (MTR - 20%) / 5% LEAKAGE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MLOCR-ISS	10,226	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.7489
REC	3,371	660	$14.92	2.2605	1.4500	0.0460	3.3237	1.1204
MPBCS-OSS	4,263	11,984	$25.45	0.2123	1.7190	0.0043	0.3693	0.1574
LMLM	211	4,985	$25.45	0.5104	1.4500	0.0104	0.7505	0.0158
MPBCS/DBCS	170	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0101
Manual	599	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.3206
Outgoing Secondary								
MPBCS/DBCS	2,132	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.1264
Manual	198	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.1015
Incoming Primary								
MPBCS/DBCS	4,980	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.2952
Manual	786	562	$25.45	4.5276	1.3720	0.0922	6.3040	0.4957
Incoming Secondary								
MPBCS	864	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.0576
DBCS	11,827	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.8800
CSBCS	4,488	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.1313
Manual	1,629	646	$25.45	3.9389	1.3720	0.0802	5.4843	0.8935
TOTAL MAIL PROCESSING MODEL UNIT COSTS								**5.3544**

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: METERED MAIL PROCESSING MODEL
MODEL 5: RCR DEPLOYMENT (MTR-20%) / 5% LEAKAGE

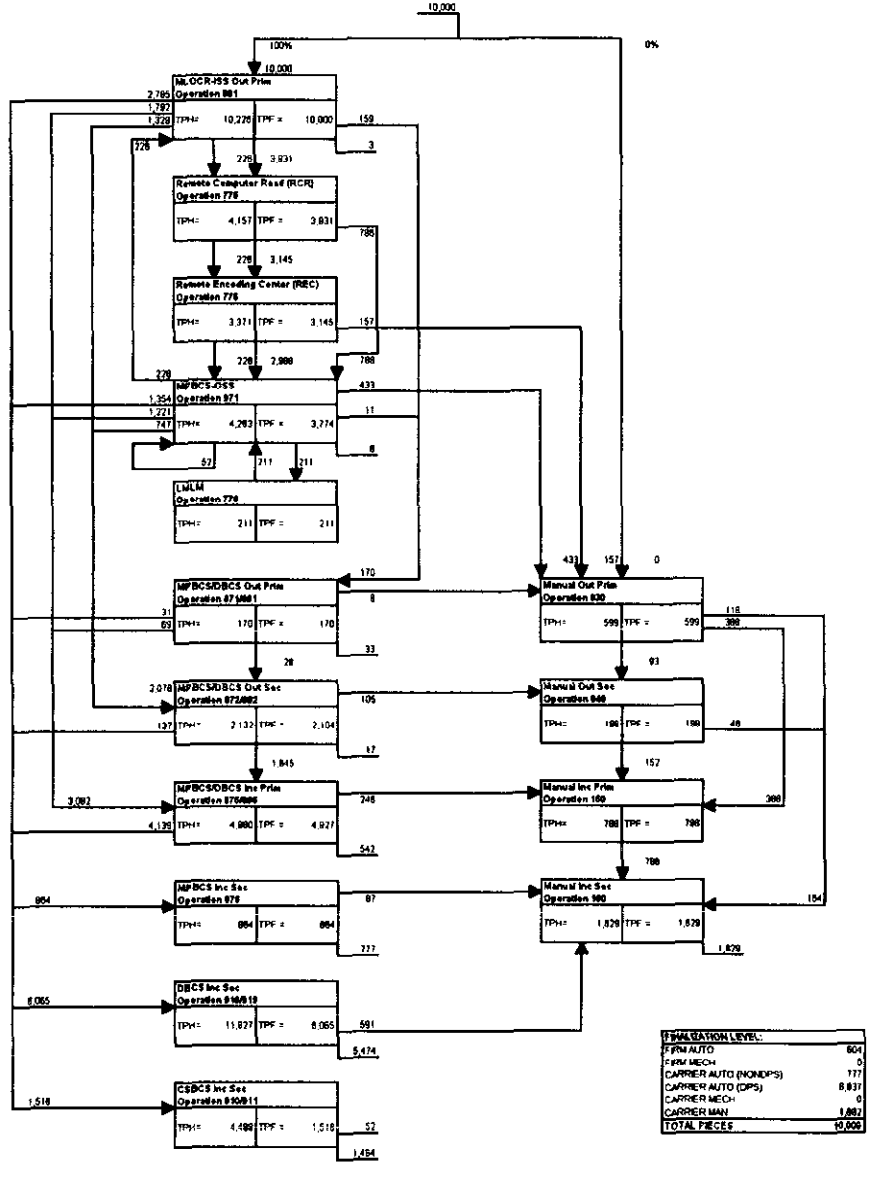

EXHIBIT USPS-RT-17F: METERED MAIL PROCESSING MODEL UNIT COSTS
MODEL 6: CURRENT - AFCS-ISS RETROFITS/RCR MODIFICATIONS (MTR-40%)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MLOCR-ISS	10,228	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.7490
REC	2,587	660	$14.92	2.2605	1.4500	0.0460	3.3237	0.8599
MPBCS-OSS	4,308	11,984	$25.45	0.2123	1.7190	0.0043	0.3693	0.1591
LMLM	213	4,985	$25.45	0.5104	1.4500	0.0104	0.7505	0.0160
MPBCS/DBCS	170	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0101
Manual	564	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.3019
Outgoing Secondary								
MPBCS/DBCS	2,140	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.1268
Manual	193	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.0989
Incoming Primary								
MPBCS/DBCS	5,000	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.2964
Manual	761	562	$25.45	4.5276	1.3720	0.0922	6.3040	0.4797
Incoming Secondary								
MPBCS	867	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.0579
DBCS	11,870	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.8833
CSBCS	4,505	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.1318
Manual	1,598	646	$25.45	3.9389	1.3720	0.0802	5.4843	0.8765
TOTAL MAIL PROCESSING MODEL UNIT COSTS								**5.0473**

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: METERED MAIL PROCESSING MODEL
MODEL 6: CURRENT - AFCS-ISS RETROFITS/RCR MODIFICATIONS (MTR-40%)

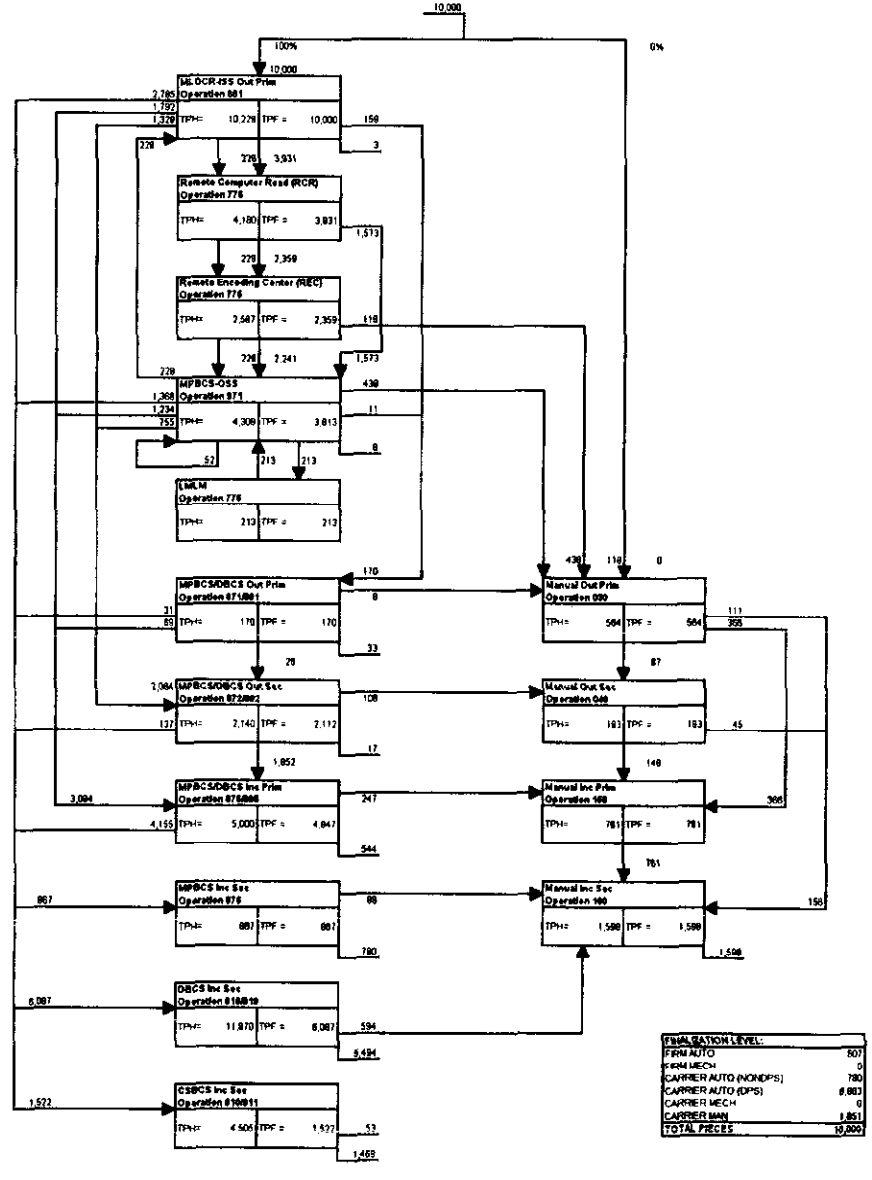

EXHIBIT USPS-RT-17F: METERED MAIL PROCESSING MODEL UNIT COSTS
MODEL 7: FUTURE - RCR MODIFICATIONS (MTR-50%)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MLOCR-ISS	10,229	7,350	$25.45	0.3462	2.0950	0.0070	0.7323	0.7491
REC	2,195	660	$14.92	2.2605	1.4500	0.0460	3.3237	0.7296
MPBCS-OSS	4,330	11,984	$25.45	0.2123	1.7190	0.0043	0.3693	0.1599
LMLM	214	4,985	$25.45	0.5104	1.4500	0.0104	0.7505	0.0161
MPBCS/DBCS	170	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.0101
Manual	547	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.2926
Outgoing Secondary								
MPBCS/DBCS	2,144	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.1271
Manual	190	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.0976
Incoming Primary								
MPBCS/DBCS	5,010	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.2969
Manual	748	562	$25.45	4.5276	1.3720	0.0922	6.3040	0.4717
Incoming Secondary								
MPBCS	869	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.0580
DBCS	11,892	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.8849
CSBCS	4,513	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.1320
Manual	1,583	646	$25.45	3.9389	1.3720	0.0802	5.4843	0.8680
TOTAL MAIL PROCESSING MODEL UNIT COSTS								**4.8937**

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: METERED MAIL PROCESSING MODEL
MODEL 7: FUTURE - RCR MODIFICATIONS (MTR-50%)

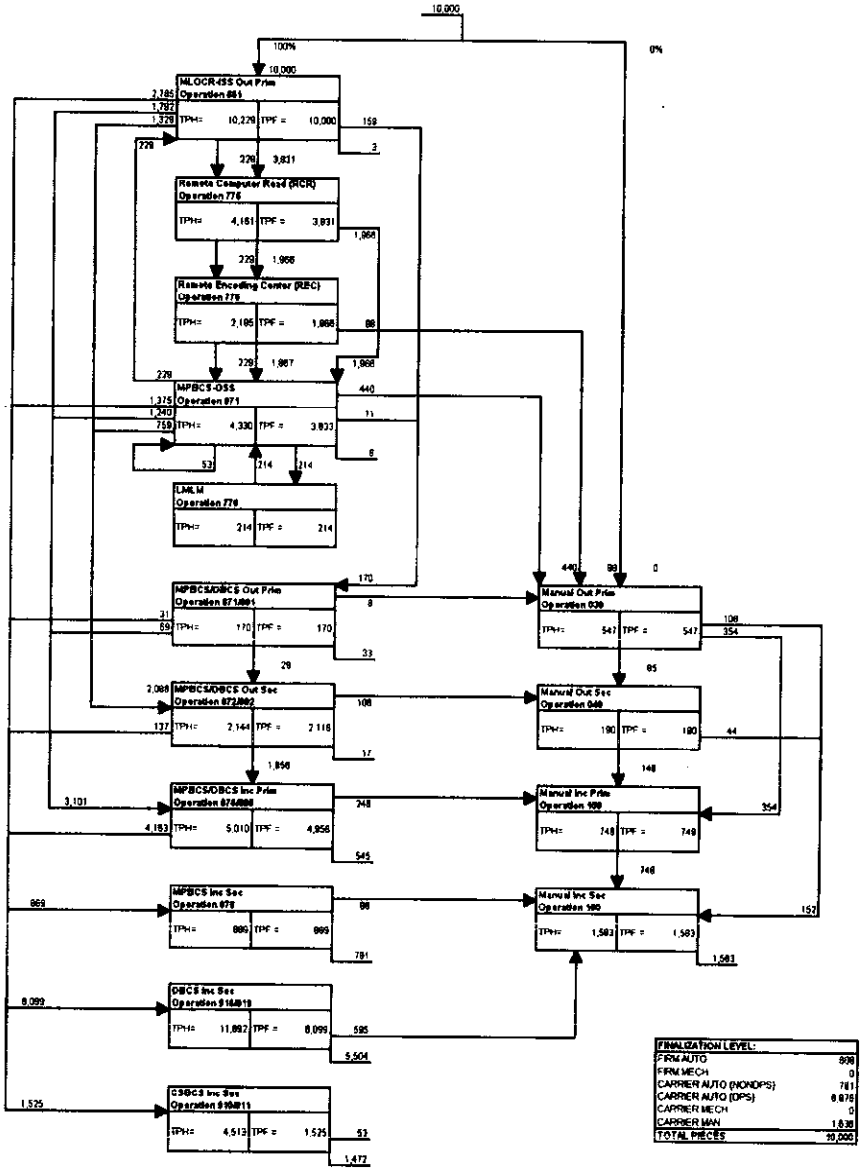

EXHIBIT USPS-RT-17F: BARCODED MAIL FLOW
MODELS 1-3

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MPBCS/DBCS	10,017	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.5937
LSM	500	1,413	$25.45	1.8008	2.2400	0.0367	4.0704	0.2035
Manual	29	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.0153
Outgoing Secondary								
MPBCS/DBCS	1,690	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.1002
LSM	88	1,440	$25.45	1.7670	2.2400	0.0360	3.9941	0.0351
Manual	10	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.0052
Incoming Primary								
MPBCS/DBCS	5,560	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.3296
LSM	535	1,271	$25.45	2.0020	2.2400	0.0408	4.5252	0.2421
Manual	54	562	$25.45	4.5276	1.3720	0.0922	6.3040	0.0343
Incoming Secondary								
MPBCS	6,556	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.4374
DBCS	0	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.0000
CSBCS	0	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.0000
LSM	1,420	1,151	$25.45	2.2107	2.2400	0.0450	4.9969	0.7096
Manual	119	646	$25.45	3.9389	1.3720	0.0802	5.4843	0.0654
TOTAL MAIL PROCESSING MODEL UNIT COSTS								**2.7715**

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: BARCODED MAIL FLOW
MODELS 4-7

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outgoing Primary	TPH	Pieces Per Hour	Wage Rate	Cents Per Piece	Piggyback Factor	Premium Pay Adj	Total Cents Per Piece	Weighted Cost
MPBCS/DBCS	10,017	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.5937
Manual	500	662	$25.45	3.8437	1.3720	0.0783	5.3518	0.2676
Outgoing Secondary								
MPBCS/DBCS	1,690	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.1002
Manual	161	691	$25.45	3.6823	1.3720	0.0750	5.1271	0.0825
Incoming Primary								
MPBCS/DBCS	5,560	7,467	$25.45	0.3408	1.7190	0.0069	0.5927	0.3296
Manual	722	562	$25.45	4.5276	1.3720	0.0922	6.3040	0.4555
Incoming Secondary								
MPBCS	6,556	6,633	$25.45	0.3836	1.7190	0.0078	0.6672	0.4374
DBCS	0	8,393	$25.45	0.3032	2.4340	0.0062	0.7441	0.0000
CSBCS	0	17,124	$25.45	0.1486	1.9480	0.0030	0.2925	0.0000
Manual	1,521	646	$25.45	3.9389	1.3720	0.0802	5.4843	0.8340
TOTAL MAIL PROCESSING MODEL UNIT COSTS								**3.1004**

(1) TPH from corresponding model
(2) Exhibit USPS-RT-17F, page 5
(3) Exhibit USPS-RT-17F, page 4
(4) [(3) x 100] / (2)
(5) Exhibit USPS-RT-17F, page 6
(6) [(Premium Pay Adjustment Factor) - 1] * (4)
(7) [(4) x (5)] + (6)
(8) [(1) x (7)] / 10,000

EXHIBIT USPS-RT-17F: BARCODED MAIL FLOW
MODELS 4-7

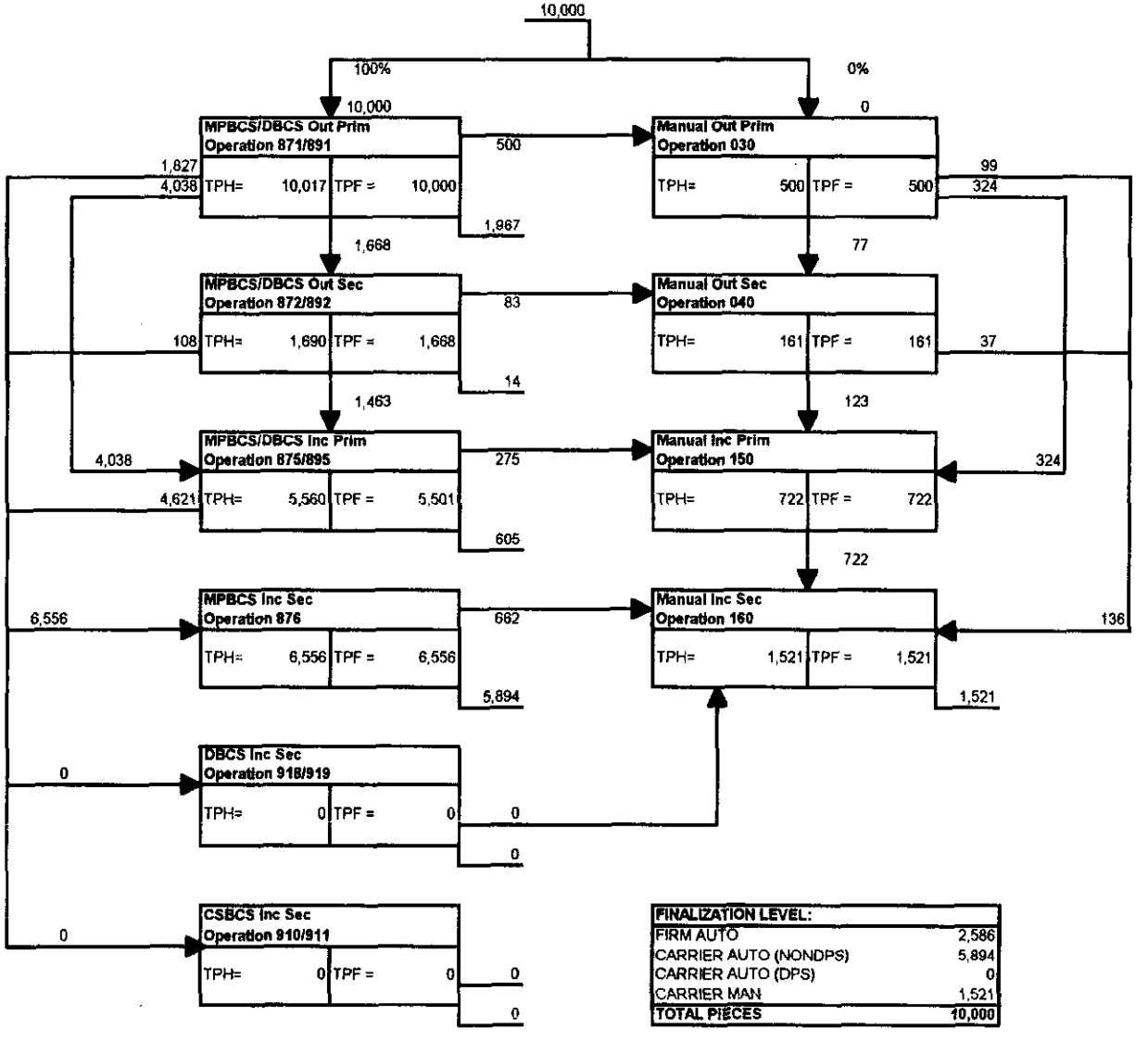

EXHIBIT USPS-RT-17G: COST CONVERGENCE MODEL DESCRIPTIONS

This exhibit describes the single piece cost models that were created to support CEM rebuttal testimony. These models show that the mail processing costs for the four single piece mail streams (handwritten, machine printed, metered, and prebarcoded are converging. In other words, the costs for processing handwritten, machine printed, and metered mail) are approaching those for prebarcoded of "FIM" (Facer Identification Mark) mail. The model inputs, assumptions, and the specific models themselves will be discussed in this exhibit.

A. MODEL INPUTS

For the most part, the inputs to these models are the same as those used in other cost models in Docket No. R97-1. In some instances, data from Docket No. MC95-1 were used. For example, the models in R97-1 did not include Letter Sorting Machine (LSM) operations. Therefore, some LSM data from Docket No. MC95-1 were used. In addition, the density tables were recalculated to include the "DISP code 9" (firm mail) data to more accurately represent single piece mail flows.[1]

B. ASSUMPTIONS

The costs contained in these models should not be viewed as all-inclusive single costs. The models were created to demonstrate the impact that automation deployments and other technological improvements have had on single piece mail processing costs. I have attempted to show how the costs would be affected (in current terms) if we removed these improvements and reverted to earlier processing strategies.

Simplified Mail Flow: The models demonstrate the cost differences between the four mail streams as letters are processed through a large automated facility, or facilities in the case of non-local mail. In addition, the densities for Automated Area Distribution Center (AADC), Section Center Facility (SCF) and Incoming Primary operations were added together when flowing mail to what is labeled the "incoming

[1] See Exhibit USPS-RT-17H.

primary" operation in the models. The assumption here is that the facilities only have one incoming primary type of operation. This was the case in San Diego which had a service area that spanned three "SCFs" or Sectional Center Facilities (ZIP Codes beginning with 919, 920,or 921). Since this same assumption was used in all models, the impact on any cost differences between the mail types should be minimal.

RCR Node: Some of the differences between the models involve changes to the finalization rates for the Remote Computer Read (RCR) system.[2] Therefore, an RCR node was used in the models. As a result, the lower Remote Encoding Center (REC) productivity from LR-H-113 was used for all models. This productivity was more representative of the pure keying productivity at a REC because it minimized the impact of RCR. (The models in USPS-T-25 and USPS-T-29 used the higher productivity because they did not have separate RCR nodes and therefore the RCR impact was built into the REC productivity.)

Finalized Firm Mail: The presort models did not use density tables that included firm mail because it was assumed that presort mail destinated at household delivery addresses. As stated previously, these single piece models do include firm holdout mail. The mail finalized on any given operation is shown in the "shelf" hanging from the lower right hand corner of all applicable operations in the models.

Barcoded Incoming Secondaries: All mail flowing to incoming secondaries in the barcoded modes was diverted to the single pass operation. This assumption was used to illustrate the fact that many ZIP Codes where carriers would deliver mail to businesses would be the least likely Delivery Point Sequence (DPS) zones. Even in a DPS environment, some sites would hold out firm mail (depending on the volume) on the first pass rather than sorting it in walk sequence. In addition, many firms have their mail finalized on a box section program (operation 877) that is usually a single pass incoming secondary for box section mail. Therefore, the single pass assumption was used for incoming secondary mail.

[2] See page 5 for more detailed description.

C. MODELS

Models were constructed to reflect seven different processing environments.

Model 1 - Pre-RBCS Environment: Prior to 1992, automation operations consisted primarily of Multi-Line Optical Character Readers (MLOCR) and Mail Processing Bar Code Sorters (MPBCS). The LSM also carried a great deal of the processing burden. When collection mail entered an originating facility, it was canceled on the M-36 machine, the precursor to the Advanced Facer Canceler System (AFCS).

Those machines could separate barcoded FIM mail, but they could not separate handwritten mail from machine printed mail. Therefore, greater cost differences existed between the different mail types because handwritten mail would be mixed with machine printed mail and would be rejected, for the most part, on an MLOCR. Those rejects would then have to be sorted on an LSM. The manual, mechanized (LSM), and automated (barcoded) mail streams were packaged separately when dispatched. In that manner, the destinating site could ensure that the mail was routed to the most efficient operation when it was unpackaged at the opening unit at that facility.

Model 2 - AFCS Deployment: San Diego actually went on-line with the Remote Bar Coding System (RBCS) before it started receiving the AFCS in the spring of 1993. RBCS implementation at plants, however, was not a turnkey operation. The plant and the REC slowly increased the amount of mail that was being processed through the RBCS system over time. Therefore, I did observe some of the benefits that were attributed solely to the deployment of the AFCS. The only mail stream that experienced these benefits was the handwritten mail stream. The AFCS had the capability to separate FIM, handwritten and machine printed mail. Therefore, handwritten mail could be sent directly to an LSM rather than first being processed on an MLOCR.

Model 3 - RBCS Deployment/15% Leakage: San Diego was the fourth Phase I deployment site in the country to receive RBCS when it went on-line in June 1992. At that time, only a portion of the MLOCRs was converted to Input Sub Systems (ISS) that could lift images. The same was true for the MPBCS Output Sub System (OSS)

retrofits. The amount that were retrofitted at each plant was calculated using a nationwide spreadsheet model referred to as the Barcode Automation Model (BAM).

Once RBCS was operational, it was possible to route handwritten mail directly to an MLOCR-ISS. Due to the higher read rates, machine printed and metered mail were sent directly to the MLOCRs that had no image lift capabilities. The rejects from that operation were then routed to the MLOCR-ISS to have the images lifted.

As stated previously, the barcoded, mechanized, and manual mail streams were packaged separately to facilitate processing at the destinating P&DC. One of the major advantages of having RBCS was the fact that a higher percentage of mail was barcoded by the originating facility. Therefore, the costs for processing "incoming" mail decreased substantially because the destinating facility had more barcoded mail and less mechanized and manual mail to process.

Leakage refers to mail that is processed through the REC, but a corresponding result is never retrieved from the Decision Storage Unit (DSU). For the RBCS system as a whole, the initial leakage percentage was fairly high due to the fact that there was some resistance to change and a lot of uncertainty as to what the different OSS errors actually represented. For purposes of modeling, a 15% leakage value was used.

Model 4 - LSM Removals/All MLOCR Converted To ISS/All MPBCS Converted to OSS/10% Leakage: These models represent what happened during the period between the initial RBCS deployment and the Remote Computer Read (RCR) installation. In San Diego, these changes occurred between 1993 and 1996. All LSMs were removed, all MLOCRs were converted to ISSs, all MPBCSs were converted to OSSs, and the leakage was reduced.

The handwritten and barcoded mail processing costs increased due to the fact that, with the removal of LSMs, automation rejects had to be processed in manual operations. This change was actually beneficial because it improved service. At that time, the LSM was processing the lowest quality automation reject mail. The addresses on these mail pieces were often difficult to read. Therefore, the percentage of LSM errors was high because the keyers were still required to process this mail at 60 letters

per minute. As a result, many sites noticed dramatic improvements in their EXternal First-Class (EXFC) measurement scores after removing their LSMs.

The machine printed and metered mail costs would have also increased slightly with the removal of the LSMs, but that increase was offset by the fact that all the MLOCRs had been retrofitted to ISSs. Therefore, this mail only had to be processed on an MLOCR once and any mail pieces that were not encoded would have had their images directly lifted by the ISS.

Model 5 - RCR Deployments/5% Leakage: San Diego received the RCR system in April 1996. This system was a component that was added to the RBCS computer equipment at the plant. All images were routed through RCR before being transmitted to the REC. RCR used advanced image processing and pattern recognition software to finalize images electronically. Initially, the finalization percentages were 2% for handwritten mail and 20% for machine printed and metered mail.[3] Finalized images did not require any REC keying. Therefore, the mail processing costs were reduced. During this time, the leakage percentage also continued to decrease.

Model 6 - AFCS-ISS Retrofits/RCR Modifications: These models most closely resemble today's processing environment. San Diego began retrofitting its AFCSs with image lift capabilities in the Fall of 1996. The changes further contributed to reducing the costs for handwritten mail as images could be lifted directly on the AFCS. During that same time period, modifications were added to the RCR system which increased the finalization rates to 25% for handwritten mail and 40% for machine printed and metered mail. Mail processing costs for all three of these mail types decreased to some extent due to the RCR enhancements.

Model 7 - Future RCR Modifications: Single piece mail processing costs will continue to converge in the future as the Postal Service strengthens its automation program. RCR modifications are being planned which will improve the finalization rates to at least 50% for all mail types.[4] These changes were reflected in the models.

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[3] As per Engineering.
[4] As per Engineering.

There are also other changes being planned which could not be incorporated into the models. For example, a requirements call was recently solicited to plants for DBCS Output Sub System (DBCS-OSS) retrofits. The current MPBCS-OSS has limited bin capacity (96) and, as a result, a sizable percentage of mail must be "residued" and finalized to the 3-digit or 5-digit level in a separate operation. The DBCS-OSS will increase bin capacity (174, on average) and will therefore eliminate some of these additional handlings. As a result, the mail processing costs for handwritten, machine printed, and metered mail will continue to approach those of prebarcoded mail.

EXHIBIT USPS-RT-17H: DENSITY TABLES

The purpose of this analysis is to add firm holdout downflow density percentages to the work done in Docket No MC95-1, LR-MCR-3.

LR-MCR-3 calculated downflow densities for several MODS operations at the Outgoing Primary, Outgoing Secondary, Managed Mail, SCF, Incoming Primary, and Incoming Secondary levels. Downflow densities are defined as the percentage of mail that is sorted to each level, or "flows downward" to each level. Early in the work period for LR-MCR-3, it was determined to exclude all bins with a disposition or DISP code of 9. DISP code 9 bins are defined as bins containing a complete 9-digit ZIP or a firm name, regardless of the remaining description. The current work added DISP code 9 densities back into the density tables.

The work done to add DISP code 9 mail back into the results table was relatively straight-forward. Since the data had already been collected, the programs that had taken DISP code 9 mail out of the final dataset were modified to leave that mail in the dataset and separate it from the other sort levels. The result is a summary of final densities table that is similar to Table 4 in LR-MCR-3, but has an extra column for DISP code 9 mail.

The specific changes to the programs were very minor. In the program Anal_3.sas (pages 3-8), the section of code from lines 41 through 68 was commented out, since this is the section that eliminated DISP code 9 mail in the original program. The section of code in lines 264 through 273 was also commented out, since this section eliminated the remainder of the DISP code 9 mail. In the program Anal_4.sas (pages 9-17), line 749 was added to format the DISP code 9 tallies. The rest of the program remained the same. No other changes were necessary since the output datasets from Anal_3.sas now include the DISP code 9 tallies.

Following is an updated version of Table 4 (page 2) from Docket No. MC95-1, LR-MCR-3. This table now includes DISP9 densities. The modified programs Anal_3.sas and Anal_4.sas are also included.

This exhibit describes the single piece cost models that were created to support CEM rebuttal testimony. These models show that the mail processing costs for the four metered mail will continue to approach those of prebarcoded mail.

EXHIBIT USPS-RT-17H: DENSITY TABLES

MODS Operation	Sort Levels						
	OP	OS	MMP	SCF	IP	IS	DISP9
081	0.00001	0.00962	0.25120	0.10957	0.09184	0.52092	0.01684
082			0.27064	0.04833	0.07730	0.57283	0.03090
083			0.02121	0.09568	0.03509	0.79747	0.05055
084				0.02995	0.03910	0.90418	0.02677
085					0.02667	0.91883	0.05450
141	0.00008	0.12823	0.33173	0.22821	0.13422	0.17714	0.00039
142			0.79993	0.06792	0.06943	0.06127	0.00145
143			0.02512	0.25416	0.08611	0.62967	0.00494
144				0.00635	0.00821	0.98274	0.00271
145					0.00218	0.92318	0.07464
961		0.10431	0.28766	0.29373	0.11743	0.19655	0.00031
962			0.82516	0.04890	0.09774	0.02820	
963			0.00719	0.22750	0.10698	0.64191	0.01642
964				0.00146	0.01509	0.98160	0.00186
965					0.00010	0.96096	0.03894
971	0.00324	0.22364	0.05603	0.16971	0.13970	0.40523	0.00245
972		0.20784	0.13216	0.38804	0.16772	0.10415	0.00008
973			0.02879	0.16471	0.11989	0.66258	0.02403
974				0.05274	0.04665	0.86026	0.04035
975					0.04633	0.94838	0.00528
MLOCR/ISS-OP	0.02617	0.21899	0.04995	0.14094	0.10443	0.45895	0.00057
MLOCR/ISS-OS		0.17695	0.18171	0.50145	0.08010	0.05979	
MLOCR/ISS-MMP			0.04284	0.16035	0.09720	0.68549	0.01412
MLOCR/ISS-SCF				0.09131	0.05841	0.84664	0.00365
MLOCR/ISS-IP					0.07677	0.91455	0.00868
MPBCS/DBCS-OP	0.00172	0.17530	0.17016	0.13574	0.11844	0.19197	0.20667
MPBCS/DBCS-OS		0.01314	0.49845	0.23996	0.17251	0.06744	0.00848
MPBCS/DBCS-MMP			0.00841	0.21030	0.09321	0.60931	0.07876
MPBCS/DBCS-SCF				0.00843	0.04279	0.89922	0.04956
MPBCS/DBCS-IP					0.01079	0.87466	0.11455

```
1    ************************************************************************;
2    * This program collapses multiple sortplans within mods operations*;
3    * & put observations into an appropriate dataset based upon the    *;
4    * direction/type of flow.                                          *;
5    *                                                                  *;
6    * Author:  Paul Seckar                                            *;
7    * Date:    12/5/94                                                 *;
8    * Edited by Bill McNary on 10/22/97                                *;
9    * Name:    Anal_3.sas                                              *;
10   *                                                                  *;
11   *  Input datasets:  flow.sd2 (from anal_2.sas)                     *;
12   *                   regpos.sd2 (from read_dbf.sas)                 *;
13   *                   tphvols.sd2 (from read_dbf.sas)                *;
14   *  Output datasets: dwnwd.sd2                                      *;
15   ************************************************************************;
16
17   options ls=110 ps=85;
18
19   libname data 'c:\mydocu~1\bill\density';
NOTE: Libref DATA was successfully assigned as follows:
      Engine:        V612
      Physical Name: c:\mydocu~1\bill\density
20   libname alpurdat 'c:\mydocu~1\bill\density';
NOTE: Libname ALPURDAT refers to the same physical library as DATA.
NOTE: Libref ALPURDAT was successfully assigned as follows:
      Engine:        V612
      Physical Name: c:\mydocu~1\bill\density
21   libname sampdata 'c:\mydocu~1\bill\density';
NOTE: Libname SAMPDATA refers to the same physical library as ALPURDAT.
NOTE: Libref SAMPDATA was successfully assigned as follows:
      Engine:        V612
      Physical Name: c:\mydocu~1\bill\density
22
23   proc contents data=data.flow;run;

NOTE: The PROCEDURE CONTENTS used 1.05 seconds.


24   proc contents data=alpurdat.regpos;run;

NOTE: The PROCEDURE CONTENTS used 0.11 seconds.


25   proc contents data=alpurdat.tphvols;run;

NOTE: The PROCEDURE CONTENTS used 0.16 seconds.


26
27
28   proc sort data=data.flow out=flow tagsort;
29     by site from_mod from_sp nextop;
30   run;

NOTE: The data set WORK.FLOW has 115604 observations and 7 variables.
NOTE: The PROCEDURE SORT used 41.03 seconds.


31   ************************************************************************;
32   ***Sum up densities within site, from_mod, & from_sp, by nextop.  **;
33   ************************************************************************;
34   proc means data=flow noprint;
35     by site from_mod from_sp nextop;
36     var density;
37     output out=colovnop(drop=_type_ _freq_) sum=density;
38   run;

NOTE: The data set WORK.COLOVNOP has 6048 observations and 5 variables.
NOTE: The PROCEDURE MEANS used 5.54 seconds.
```

```
39
40   /*
41   ************************************************************************;
42   ***The next section of code shows to what extent MOD 871 sortplans**;
43   ***are made up of firm mail.  And deletes all MOD 871 sortplans   **;
44   ***that consist of at least 20% firm mail.                        **;
45   ************************************************************************;
46   proc print data=colovnop;
47     where nextop=9 & (from_mod=871 or from_mod=891 or from_mod=971);
48     title 'From Anal_3.sas';
49     title2 'Dataset colovnop:  from_mod 871/891/971 sortplans that';
50     title3 'contain firm mail';
51     var site from_mod from_sp nextop density;
52   run;
53
54   data all_firm;
55     set colovnop;
56     if nextop = 9 and density > 20 then do;
57       if from_mod=871 or from_mod=891 or from_mod=971 then do;
58         del = 1;
59         output;
60       end;*if from_mod*;
61     end;*if nextop*;
62   run;
63
64   data colovnop (drop=del);
65     merge colovnop all_firm;
66     by site from_mod from_sp;
67     if del = 1 then delete;
68   run;
69   */
70
71   ************************************************************************;
72   ***Read in the summary spreadsheet that details multiple       **;
73   ***sortplans and calculate wts based on the associated volume. **;
74   ************************************************************************;
75   data summ_sp;
76     set data.summary;
77     site=upcase(site);
78     rename volume=sp_vol;
79   run;

NOTE: The data set WORK.SUMM_SP has 489 observations and 4 variables.
NOTE: The DATA statement used 1.32 seconds.


80
81   proc sort data=summ_sp tagsort;
82     by site from_mod from_sp;
83   run;

NOTE: The data set WORK.SUMM_SP has 489 observations and 4 variables.
NOTE: The PROCEDURE SORT used 0.27 seconds.


84
85   **merge sortplan vols onto appropriate density flows***;
86   **and get volume associated with each nextop        ***;
87   data sumovnop;
88     merge colovnop summ_sp;
89     by site from_mod from_sp;
90     nop_vol=(density*sp_vol)/100;
91   run;

NOTE: Missing values were generated as a result of performing an operation on missing
values.
      Each place is given by: (Number of times) at (Line):(Column).
      3825 at 90:19   3825 at 90:27
NOTE: The data set WORK.SUMOVNOP has 6062 observations and 7 variables.
NOTE: The DATA statement used 0.81 seconds.
```

```
92
93   proc summary data=sumovnop noprint;
94     where sp_vol ne .;
95     class site from_mod nextop;
96     var nop_vol;
97     output out=sum_sps(drop=_freq_) sum=volovmod;
98   run;

NOTE: The data set WORK.SUM_SPS has 1910 observations and 5 variables.
NOTE: The PROCEDURE SUMMARY used 0.77 seconds.


99
100  data sum_sps(drop=_type_) mod_tot(drop=_type_ nextop);
101    set sum_sps;
102    if _type_=6 then do;
103      modtotal=volovmod;
104      output mod_tot;
105    end;
106    else if _type_=7 then do;
107      rename volovmod=volovsp;
108      output sum_sps;
109    end;
110  run;

NOTE: The data set WORK.SUM_SPS has 1105 observations and 5 variables.
NOTE: The data set WORK.MOD_TOT has 204 observations and 4 variables.
NOTE: The DATA statement used 0.6 seconds.


111
112  data nomoresp(drop=modtotal volovsp);
113    merge mod_tot(drop=volovsp) sum_sps(drop=modtotal);
114    by site from_mod;
115    **if density > 0 and modtotal > 0;
116    density = volovsp/modtotal;
117  run;

NOTE: The data set WORK.NOMORESP has 1105 observations and 4 variables.
NOTE: The DATA statement used 0.39 seconds.


118
119  ***add density flows aggregated over sort plans to existing***;
120  ***density flows that did not have multiple sortplans       ***;
121  data aggdovsp(drop=sp_vol nop_vol from_sp);
122    set sumovnop nomoresp;
123    if sp_vol ne . then delete;
124  run;

NOTE: The data set WORK.AGGDOVSP has 4916 observations and 4 variables.
NOTE: The DATA statement used 0.48 seconds.


125
126  proc sort data=aggdovsp tagsort;
127    by site from_mod;
128  run;

NOTE: The data set WORK.AGGDOVSP has 4916 observations and 4 variables.
NOTE: The PROCEDURE SORT used 0.48 seconds.


129
130  ***AT THIS POINT, WE NO LONGER HAVE MULTIPLE SORTPLANS***;
131
132
133
134  ***Read in all_purpose dataset that has regpos and and fin_nums**;
135  ***for each site and merge onto density flows***;
136  proc sort data=alpurdat.regpos tagsort;
137    by site;
138  run;

NOTE: Input data set is already sorted, no sorting done.
NOTE: The PROCEDURE SORT used 0.11 seconds.


139
140  data aggdovsp;
141    merge aggdovsp alpurdat.regpos;
142    by site;
143    if from_mod=. then delete;
144  run;

NOTE: The data set WORK.AGGDOVSP has 4916 observations and 6 variables.
NOTE: The DATA statement used 0.66 seconds.


145
146  ************************************************************;
147  *Read in all_purpose dataset that has regpos and fin_nums    *;
148  *attached to each site, along with the distributional TPH    *;
149  *volume for all mod operations.                              *;
150  ************************************************************;
151  data tphvols;
152    set alpurdat.tphvols;
153    fin_num2=fin_num*1;
154    regpo2=regpo*1;
155    drop regpo fin_num;
156    rename fin_num2=fin_num;
157    rename regpo2=regpo;
158  run;

NOTE: The data set WORK.TPHVOLS has 321 observations and 72 variables.
NOTE: The DATA statement used 0.55 seconds.


159
160  proc sort data=tphvols tagsort out=data.tphvols;
161    by fin_num regpo;
162  run;

NOTE: The data set DATA.TPHVOLS has 321 observations and 72 variables.
NOTE: The PROCEDURE SORT used 0.48 seconds.


163
164  proc sort data=aggdovsp tagsort;
165    by fin_num regpo;
166  run;

NOTE: The data set WORK.AGGDOVSP has 4916 observations and 6 variables.
NOTE: The PROCEDURE SORT used 0.66 seconds.


167
168  ************************************************************;
169  ***Merge ALL dist_tph volumes for each mod operation onto    **;
170  ***each observation in Aggdovsp dataset by regpo and fun_num **;
171  ***(which define sites).  Compute the distributional TPH     **;
172  ***volume associated with each density.  Finally, put all    **;
173  ***observations into one ofthe following datasets:  Horiz(6),**;
174  ***Upward(7), Reject(8), Firm(9), or Downward(all others)    **;
175  ************************************************************;
176  data aggdovsp(drop=finame) inv_fmod;
177    merge aggdovsp tphvols;
178    by fin_num regpo;
179    if mod(from_mod,10) > 5 or mod(from_mod,10) < 1 then do;
180      if from_mod ne . and nextop ne . then output inv_fmod;
181    end;
```

```
182     else do;
183       if from_mod=. or nextop = . then delete;
184       output aggdovsp;
185     end;
186   run;

NOTE: Missing values were generated as a result of performing an operation on missing
values.
      Each place is given by: (Number of times) at (Line):(Column).
      281 at 179:6    281 at 179:30
NOTE: The data set WORK.AGGDOVSP has 4538 observations and 75 variables.
NOTE: The data set WORK.INV_FMOD has 0 observations and 76 variables.
NOTE: The DATA statement used 1.91 seconds.


187
188   proc print data=inv_fmod;
189     title 'Dataset inv_fmod';
190     var site from_mod;
191   run;

NOTE: No observations in data set WORK.INV_FMOD.
NOTE: The PROCEDURE PRINT used 0.22 seconds.


192
193   data horiz upward reject
194         data.dwnwd97 down_0s;
195     set aggdovsp;
196
197     ind831=831;ind832=832;ind833=833;ind834=834;ind835=835;
198     ind841=841;ind842=842;ind843=843;ind844=844;ind845=845;
199     ind851=851;ind852=852;ind853=853;ind854=854;ind855=855;
200     ind881=881;ind882=882;ind883=883;ind884=884;ind885=885;
201     ind861=861;ind862=862;ind863=863;ind864=864;ind865=865;
202     ind871=871;ind872=872;ind873=873;ind874=874;ind875=875;
203     ind891=891;ind892=892;ind893=893;ind894=894;ind895=895;
204     ind971=971;ind972=972;ind973=973;ind974=974;ind975=975;
205     ind081=81;ind082=82;ind083=83;ind084=84;ind085=85;
206     ind091=91;ind093=93;ind094=94;ind095=95;ind060=60;
207     ind070=70;ind073=73;ind074=74;ind170=170;ind961=961;
208     ind962=962;ind963=963;ind964=964;ind965=965;ind141=141;
209     ind142=142;ind143=143;ind144=144;ind145=145;ind030=30;
210     ind040=40;ind043=43;ind044=44;ind150=150;
211
212     array indx(69) ind831-ind835 ind841-ind845 ind851-ind855
213                    ind881-ind885 ind861-ind865 ind871-ind875
214                    ind891-ind895 ind971-ind975 ind081-ind085
215                    ind091 ind093-ind095 ind060 ind070 ind073
216                    ind074 ind170 ind961-ind965 ind141-ind145
217                    ind030 ind040 ind043 ind044 ind150;
218     array mod_vol(69) TPH831-TPH835 TPH841-TPH845 TPH851-TPH855
219                       TPH881-TPH885 TPH861-TPH865 TPH871-TPH875
220                       TPH891-TPH895 TPH971-TPH975 TPH081-TPH085
221                       TPH091 TPH093-TPH095 TPH060 TPH070 TPH073
222                       TPH074 TPH170 TPH961-TPH965 TPH141-TPH145
223                       TPH030 TPH040 TPH043 TPH044 TPH150;
224
225     found=0;
226     do i = 1 to 69 while(not(found));
227       if from_mod = indx(i) then do;
228         place=i;
229         found=1;
230       end;
231     end;
232     dist_vol=(density/100)*(1000*mod_vol(place));
233
234     if nextop=6 then do;
235       drop ind831-ind835 ind841-ind845 ind851-ind855
236            ind881-ind885 ind861-ind865 ind871-ind875
237            ind891-ind895 ind971-ind975 ind081-ind085
238            ind091 ind093-ind095 ind060 ind070 ind073
239            ind074 ind170 ind961-ind965 ind141-ind145
240            ind030 ind040 ind043 ind044 ind150
241            i place found;
242       output horiz;
243     end;
244       else if nextop=7 then do;
245         drop ind831-ind835 ind841-ind845 ind851-ind855
246              ind881-ind885 ind861-ind865 ind871-ind875
247              ind891-ind895 ind971-ind975 ind081-ind085
248              ind091 ind093-ind095 ind060 ind070 ind073
249              ind074 ind170 ind961-ind965 ind141-ind145
250              ind030 ind040 ind043 ind044 ind150
251              i place found;
252         output upward;
253       end;
254         else if nextop=8 then do;
255           drop ind831-ind835 ind841-ind845 ind851-ind855
256                ind881-ind885 ind861-ind865 ind871-ind875
257                ind891-ind895 ind971-ind975 ind081-ind085
258                ind091 ind093-ind095 ind060 ind070 ind073
259                ind074 ind170 ind961-ind965 ind141-ind145
260                ind030 ind040 ind043 ind044 ind150
261                i place found;
262           output reject;
263         end;
264          * else if nextop=9 then do;
265           *  drop ind831-ind835 ind841-ind845 ind851-ind855
266                ind881-ind885 ind861-ind865 ind871-ind875
267                ind891-ind895 ind971-ind975 ind081-ind085
268                ind091 ind093-ind095 ind060 ind070 ind073
269                ind074 ind170 ind961-ind965 ind141-ind145
270                ind030 ind040 ind043 ind044 ind150
271                i place found;
272           * output firm;
273         * end;
274           else if dist_vol <= 0 then do;
275             drop ind831-ind835 ind841-ind845 ind851-ind855
276                  ind881-ind885 ind861-ind865 ind871-ind875
277                  ind891-ind895 ind971-ind975 ind081-ind085
278                  ind091 ind093-ind095 ind060 ind070 ind073
279                  ind074 ind170 ind961-ind965 ind141-ind145
280                  ind030 ind040 ind043 ind044 ind150
281                  i place found;
282             output down_0s;
283           end;
284             else do;
285               drop ind831-ind835 ind841-ind845 ind851-ind855
286                    ind881-ind885 ind861-ind865 ind871-ind875
287                    ind891-ind895 ind971-ind975 ind081-ind085
288                    ind091 ind093-ind095 ind060 ind070 ind073
289                    ind074 ind170 ind961-ind965 ind141-ind145
290                    ind030 ind040 ind043 ind044 ind150
291                    i place found;
292               output data.dwnwd97;
293             end;
294   run;

NOTE: The data set WORK.HORIZ has 2 observations and 76 variables.
NOTE: The data set WORK.UPWARD has 657 observations and 76 variables.
NOTE: The data set WORK.REJECT has 584 observations and 76 variables.
NOTE: The data set DATA.DWNWD97 has 3270 observations and 76 variables.
NOTE: The data set WORK.DOWN_0S has 25 observations and 76 variables.
NOTE: The DATA statement used 4.12 seconds.


295
296   proc contents data=data.dwnwd97;run;

NOTE: The PROCEDURE CONTENTS used 0.27 seconds.The SAS System
Friday, February 27, 1998    1                                          17:19
```

CONTENTS PROCEDURE

Data Set Name: DATA.FLOW Observations: 115604
Member Type: DATA Variables: 7
Engine: V612 Indexes: 0
Created: 9:40 Wednesday, February 22, 1995 Observation Length: 72
Last Modified: 9:41 Wednesday, February 22, 1995 Deleted Observations: 0
Protection: Compressed: NO
Data Set Type: Sorted: NO
Label:

-----Engine/Host Dependent Information-----

Data Set Page Size: 4096
Number of Data Set Pages: 2065
File Format: 607
First Data Page: 1
Max Obs per Page: 56
Obs in First Data Page: 40

-----Alphabetic List of Variables and Attributes-----

#	Variable	Type	Len	Pos	Format
1	BIN_NUM	Num	8	0	9.
7	CLASS	Char	5	67	$5.
2	DENSITY	Num	8	8	9.4
5	FROM_MOD	Num	8	44	9.
6	FROM_SP	Char	15	52	$15.
3	NEXTOP	Num	8	16	9.
4	SITE	Char	20	24	$20.

CONTENTS PROCEDURE

Data Set Name: ALPURDAT.REGPOS Observations: 40
Member Type: DATA Variables: 3
Engine: V612 Indexes: 0
Created: 14:47 Friday, February 27, 1998 Observation Length: 41
Last Modified: 14:47 Friday, February 27, 1998 Deleted Observations: 0
Protection: Compressed: NO
Data Set Type: Sorted: YES
Label:

-----Engine/Host Dependent Information-----

Data Set Page Size: 4096
Number of Data Set Pages: 1
File Format: 607
First Data Page: 1
Max Obs per Page: 99
Obs in First Data Page: 40

-----Alphabetic List of Variables and Attributes-----

#	Variable	Type	Len	Pos	Format
1	FIN_NUM	Num	8	0	9.
3	REGPO	Num	8	33	9.
2	SITE	Char	25	8	$25.

-----Sort Information-----

Sortedby: SITE
Validated: YES
Character Set: ANSI

CONTENTS PROCEDURE

Data Set Name: ALPURDAT.TPHVOLS Observations: 321
Member Type: DATA Variables: 72
Engine: V612 Indexes: 0
Created: 16:13 Friday, February 27, 1998 Observation Length: 593
Last Modified: 16:13 Friday, February 27, 1998 Deleted Observations: 0
Protection: Compressed: NO
Data Set Type: Sorted: YES
Label:

-----Engine/Host Dependent Information-----

Data Set Page Size: 16384
Number of Data Set Pages: 13
File Format: 607
First Data Page: 1
Max Obs per Page: 27
Obs in First Data Page: 12

-----Alphabetic List of Variables and Attributes-----

#	Variable	Type	Len	Pos	Format
1	FINAME	Char	25	0	$25.
71	FIN_NUM	Num	8	577	
72	REGPO	Num	8	585	
66	TPH030	Num	8	537	9.
67	TPH040	Num	8	545	9.
68	TPH043	Num	8	553	9.
69	TPH044	Num	8	561	9.
51	TPH060	Num	8	417	9.
52	TPH070	Num	8	425	9.
53	TPH073	Num	8	433	9.
54	TPH074	Num	8	441	9.
42	TPH081	Num	8	345	9.
43	TPH082	Num	8	353	9.
44	TPH083	Num	8	361	9.
45	TPH084	Num	8	369	9.
46	TPH085	Num	8	377	9.
47	TPH091	Num	8	385	9.
48	TPH093	Num	8	393	9.
49	TPH094	Num	8	401	9.
50	TPH095	Num	8	409	9.
61	TPH141	Num	8	497	9.
62	TPH142	Num	8	505	9.
63	TPH143	Num	8	513	9.
64	TPH144	Num	8	521	9.

65	TPH145	Num	8	529	9.
70	TPH150	Num	8	569	9.
55	TPH170	Num	8	449	9.
2	TPH831	Num	8	25	9.
3	TPH832	Num	8	33	9.
4	TPH833	Num	8	41	9.
5	TPH834	Num	8	49	9.
6	TPH835	Num	8	57	9.
7	TPH841	Num	8	65	9.
8	TPH842	Num	8	73	9.
9	TPH843	Num	8	81	9.
10	TPH844	Num	8	89	9.
11	TPH845	Num	8	97	9.
12	TPH851	Num	8	105	9.
13	TPH852	Num	8	113	9.
14	TPH853	Num	8	121	9.
15	TPH854	Num	8	129	9.
16	TPH855	Num	8	137	9.
22	TPH861	Num	8	185	9.
23	TPH862	Num	8	193	9.
24	TPH863	Num	8	201	9.
25	TPH864	Num	8	209	9.
26	TPH865	Num	8	217	9.
27	TPH871	Num	8	225	9.
28	TPH872	Num	8	233	9.
29	TPH873	Num	8	241	9.
30	TPH874	Num	8	249	9.
31	TPH875	Num	8	257	9.
17	TPH881	Num	8	145	9.
18	TPH882	Num	8	153	9.
19	TPH883	Num	8	161	9.
20	TPH884	Num	8	169	9.
21	TPH885	Num	8	177	9.
32	TPH891	Num	8	265	9.
33	TPH892	Num	8	273	9.

CONTENTS PROCEDURE

#	Variable	Type	Len	Pos	Format
34	TPH893	Num	8	281	9.
35	TPH894	Num	8	289	9.
36	TPH895	Num	8	297	9.
56	TPH961	Num	8	457	9.
57	TPH962	Num	8	465	9.
58	TPH963	Num	8	473	9.
59	TPH964	Num	8	481	9.
60	TPH965	Num	8	489	9.
37	TPH971	Num	8	305	9.
38	TPH972	Num	8	313	9.
39	TPH973	Num	8	321	9.
40	TPH974	Num	8	329	9.
41	TPH975	Num	8	337	9.

-----Sort Information-----

Sortedby: FIN_NUM REGPO
Validated: YES
Character Set: ANSI

CONTENTS PROCEDURE

Data Set Name: DATA.DWNWD97 Observations:
3270

Member Type: DATA Variables:
76

Engine: V612 Indexes:
0

Created: 17:20 Friday, February 27, 1998 Observation
Length: 620

Last Modified: 17:20 Friday, February 27, 1998 Deleted
Observations: 0

Protection: Compressed:
NO

Data Set Type: Sorted:
NO

Label:

-----Engine/Host Dependent Information-----

Data Set Page Size: 16384
Number of Data Set Pages: 127
File Format: 607
First Data Page: 1
Max Obs per Page: 26
Obs in First Data Page: 10

-----Alphabetic List of Variables and Attributes-----

#	Variable	Type	Len	Pos	Format
4	DENSITY	Num	8	36	9.4
76	DIST_VOL	Num	8	612	
5	FIN_NUM	Num	8	44	9.
2	FROM_MOD	Num	8	20	9.
3	NEXTOP	Num	8	28	9.
6	REGPO	Num	8	52	9.
1	SITE	Char	20	0	$20.
71	TPH030	Num	8	572	9.
72	TPH040	Num	8	580	9.
73	TPH043	Num	8	588	9.
74	TPH044	Num	8	596	9.
56	TPH060	Num	8	452	9.
57	TPH070	Num	8	460	9.
58	TPH073	Num	8	468	9.
59	TPH074	Num	8	476	9.
47	TPH081	Num	8	380	9.
48	TPH082	Num	8	388	9.
49	TPH083	Num	8	396	9.
50	TPH084	Num	8	404	9.
51	TPH085	Num	8	412	9.
52	TPH091	Num	8	420	9.
53	TPH093	Num	8	428	9.
54	TPH094	Num	8	436	9.
55	TPH095	Num	8	444	9.
66	TPH141	Num	8	532	9.
67	TPH142	Num	8	540	9.
68	TPH143	Num	8	548	9.
69	TPH144	Num	8	556	9.
70	TPH145	Num	8	564	9.
75	TPH150	Num	8	604	9.
60	TPH170	Num	8	484	9.
7	TPH831	Num	8	60	9.
8	TPH832	Num	8	68	9.
9	TPH833	Num	8	76	9.
10	TPH834	Num	8	84	9.
11	TPH835	Num	8	92	9.
12	TPH841	Num	8	100	9.
13	TPH842	Num	8	108	9.
14	TPH843	Num	8	116	9.
15	TPH844	Num	8	124	9.
16	TPH845	Num	8	132	9.
17	TPH851	Num	8	140	9.
18	TPH852	Num	8	148	9.
19	TPH853	Num	8	156	9.

20	TPH854	Num	8	164	9.
21	TPH855	Num	8	172	9.
27	TPH861	Num	8	220	9.
28	TPH862	Num	8	228	9.
29	TPH863	Num	8	236	9.
30	TPH864	Num	8	244	9.
31	TPH865	Num	8	252	9.
32	TPH871	Num	8	260	9.
33	TPH872	Num	8	268	9.
34	TPH873	Num	8	276	9.
35	TPH874	Num	8	284	9.
36	TPH875	Num	8	292	9.
22	TPH881	Num	8	180	9.
23	TPH882	Num	8	188	9.
24	TPH883	Num	8	196	9.

CONTENTS PROCEDURE

#	Variable	Type	Len	Pos	Format
25	TPH884	Num	8	204	9.
26	TPH885	Num	8	212	9.
37	TPH891	Num	8	300	9.
38	TPH892	Num	8	308	9.
39	TPH893	Num	8	316	9.
40	TPH894	Num	8	324	9.
41	TPH895	Num	8	332	9.
61	TPH961	Num	8	492	9.
62	TPH962	Num	8	500	9.
63	TPH963	Num	8	508	9.
64	TPH964	Num	8	516	9.
65	TPH965	Num	8	524	9.
42	TPH971	Num	8	340	9.
43	TPH972	Num	8	348	9.
44	TPH973	Num	8	356	9.
45	TPH974	Num	8	364	9.
46	TPH975	Num	8	372	9.

```
297  ****************************************************************;
298  * This program aggregates observations by machine type (where     *;
299  * necessary, weights the data, & outputs the final densities.     *;
300  *                                                                 *;
301  * Author:  Paul Seckar                                           *;
302  * Date:    12/5/94                                               *;
303  * Edited:  Bill McNary  10/22/97                                 *;
304  * Name:    Anal_4.sas                                           *;
305  *                                                                 *;
306  * Input datasets:  dwnwd97.sd2 (from anal_3c.sas)                 *;
307  *                  regpos.sd2 (from read_dbf.sas)                 *;
308  *                  popwstr3.sd2                                   *;
309  *                     (from drw_190.sas in sample sub-dir)        *;
310  * Output datasets: fin_all.sd2                                    *;
311  ****************************************************************;
312
313  options ls=110 ps=85;
314
315  libname data 'c:\mydocu~1\bill\density';
NOTE: Libname DATA refers to the same physical library as SAMPDATA.
NOTE: Libref DATA was successfully assigned as follows:
      Engine:        V612
      Physical Name: c:\mydocu~1\bill\density
316  libname alpurdat 'c:\mydocu~1\bill\density';
NOTE: Libname ALPURDAT refers to the same physical library as DATA.
NOTE: Libref ALPURDAT was successfully assigned as follows:
      Engine:        V612
      Physical Name: c:\mydocu~1\bill\density
317  libname sampdata 'c:\mydocu~1\bill\density';
NOTE: Libname SAMPDATA refers to the same physical library as ALPURDAT.
NOTE: Libref SAMPDATA was successfully assigned as follows:
      Engine:        V612
      Physical Name: c:\mydocu~1\bill\density
318  filename flat_all
319      'c:\mydocu~1\bill\density\res_all.txt';
320  filename flat_no3
321      'c:\mydocu~1\bill\density\res_no3.txt';
322  filename flat_no1
323      'c:\mydocu~1\bill\density\res_no1.txt';
324
325  *proc contents data=data.dwnwd97;run;
326  *proc contents data=alpurdat.regpos;run;
327  *proc contents data=sampdata.popwstr3;run;
328
329  ****************************************************************;
330  ***Combine nextop dist_vols by machine type.  MLOCR = 831-835 **;
331  ***and 881-885.  MPBCS = 871-875, 891-895.                  ***;
332  ****************************************************************;
333  data downmach downothr;
334    set data.dwnwd97;
335    if (831 <= from_mod <= 835) or (881 <= from_mod <= 885) then do;
336       machine='mlocr';
337       adj_fmod=mod(from_mod,10);
338       ****************************************;
339       *if 4 <= adj_fmod <= 5 then adj_fmod = 45 *;
340       *                                        *;
341       *USE ONLY WHEN COMBINING SCF & IP        *;
342       ****************************************;
343
344       output downmach;
345    end;
346    else if (871 <= from_mod <= 875) or (891 <= from_mod <= 895) then do;
347          machine='mpbcs';
348          adj_fmod=mod(from_mod,10);
349       ****************************************;
350       *If 4 <= adj_fmod <= 5 then adj_fmod = 45;*;
351       *                                        *;
352       *USE ONLY WHEN COMBINING SCF & IP        *;
353       ****************************************;
354          output downmach;
355    end;
356         else do;
357          ************************************************************;
358          *  if 84 <= from_mod <= 85 then from_mod = 8485            *;
359          *    else if 144 <= from_mod <= 145 then from_mod = 144145 *;
360          *     else if 964 <= from_mod <= 965 then from_mod = 964965*;
361          *                                                          *;
362          *USE ONLY WHEN COMBINING SCF & IP                         *;
363          ************************************************************;
364            output downothr;
365         end;*else do*;
366  run;

NOTE: The data set WORK.DOWNMACH has 1684 observations and 78 variables.
NOTE: The data set WORK.DOWNOTHR has 1586 observations and 78 variables.
NOTE: The DATA statement used 2.64 seconds.


367
368  ****************************************************************;
369  *Calculate the total TPH volume (flowing downstream) for each  *;
370  *nextop within/by machine type (mlocr & mpbcs) and adj_fmod    *;
371  *(1,2,...,5 - corresponding to 831,831,...,835 for example)    *;
372  ****************************************************************;
373  proc summary data=downmach;
374    class fin_num regpo machine adj_fmod nextop;
375    var dist_vol;
376    output out=machines(drop=_freq_) sum=combdvol;
377  run;

NOTE: The data set WORK.MACHINES has 9839 observations and 7 variables.
NOTE: The PROCEDURE SUMMARY used 1.54 seconds.


378
379  ****************************************************************;
380  *Calculate the total TPH volume (flowing downstream) across all*;
381  *nextops within/by machine type (mlocr & mpbcs) and adj_fmod   *;
382  *(1,2,...,5 - corresponding to 831,831,...,835 for example)    *;
383  ****************************************************************;
384  proc sort data=machines tagsort;
385    by fin_num regpo machine adj_fmod;
386  run;

NOTE: The data set WORK.MACHINES has 9839 observations and 7 variables.
NOTE: The PROCEDURE SORT used 1.69 seconds.


387
388  proc means data=machines noprint;
389    where (_type_ = 31) and (combdvol ne .);
390    by fin_num regpo machine adj_fmod;
391    var combdvol;
392    output out=totals(drop=_freq_ _type_) sum=combtots;
```

```
393  run;

NOTE: The data set WORK.TOTALS has 296 observations and 5 variables.
NOTE: The PROCEDURE MEANS used 0.48 seconds.


394
395  ****************************************************************;
396  *Combine the grand-totals and the adjusted machine nextop totals.*;
397  *Rename the adj_fmods such that all operations that are included *;
398  *by mach                                                         *;
399  ****************************************************************;
400  data machines(drop=_type_);
401    merge machines(in=inmach) totals;
402    by fin_num regpo machine adj_fmod;
403    if inmach and _type_ < 31 then delete;
404    rename combdvol=dist_vol;
405    rename combtots=tot_dvol;
406    if machine='mlocr' then do;
407      if adj_fmod=1 then adj_fmod=831881;
408      if adj_fmod=2 then adj_fmod=832882;
409      if adj_fmod=3 then adj_fmod=833883;
410      ********************************************;
411      *if adj_fmod=45 then adj_fmod=834884835885  *;
412      *                                          *;
413      *USE ONLY WHEN COMBINING SCF & IP          *;
414      ********************************************;
415      if adj_fmod=4 then adj_fmod=834884;
416      if adj_fmod=5 then adj_fmod=835885;
417
418    end;
419    else if machine='mpbcs' then do;
420      if adj_fmod=1 then adj_fmod=871891;
421      if adj_fmod=2 then adj_fmod=872892;
422      if adj_fmod=3 then adj_fmod=873893;
423      ************************************************;
424      *if adj_fmod=45 then adj_fmod=8748949748758959754;
425      *                                              *;
426      *USE ONLY WHEN COMBINING SCF & IP              *;
427      ************************************************;
428      if adj_fmod=4 then adj_fmod=874894;
429      if adj_fmod=5 then adj_fmod=875895;
430    end;
431    rename adj_fmod=from_mod;
432  run;

NOTE: The data set WORK.MACHINES has 1161 observations and 7 variables.
NOTE: The DATA statement used 1.2 seconds.


433
434  ************************************************************;
435  *Merge site names back onto observations via regpo & fin_num  *;
436  ************************************************************;
437  proc sort data=alpurdat.regpos tagsort;
438    by fin_num regpo;
439  run;

NOTE: The data set ALPURDAT.REGPOS has 40 observations and 3 variables.
NOTE: The PROCEDURE SORT used 0.33 seconds.


440
441  data machines;
442    merge alpurdat.regpos machines;
443    by fin_num regpo;
444  run;

NOTE: The data set WORK.MACHINES has 1161 observations and 8 variables.
NOTE: The DATA statement used 0.5 seconds.


445
446  ************************************************************;
447  *Calculate the total TPH volume (flowing downstream) for mods  *;
448  *operations that are not associated with specific machines     *;
449  ************************************************************;
450  proc sort data=downothr tagsort;
451    by fin_num regpo from_mod;
452  run;

NOTE: The data set WORK.DOWNOTHR has 1586 observations and 78 variables.
NOTE: The PROCEDURE SORT used 0.81 seconds.


453
454  proc means data=downothr noprint;
455    where dist_vol ne .;
456    by fin_num regpo from_mod;
457    var dist_vol;
458    output out=sum_atl(drop=_type_ _freq_) sum=tot_dvol;
459  run;

NOTE: The data set WORK.SUM_ATL has 408 observations and 4 variables.
NOTE: The PROCEDURE MEANS used 0.44 seconds.


460
461
462  ************************************************************;
463  *Merge grand-totals back onto nextop totals (dist_vol) for mod *;
464  *operations that are not associated with specific machines     *;
465  ************************************************************;
466  data downothr;
467    merge downothr(keep=fin_num site regpo from_mod nextop dist_vol)
468          sum_atl;
469    by fin_num regpo from_mod;
470  run;

NOTE: The data set WORK.DOWNOTHR has 1586 observations and 7 variables.
NOTE: The DATA statement used 0.59 seconds.


471
472  ************************************************************;
473  *Combine non-machine specific mods and machine specific mods.*;
474  ************************************************************;
475  data downonly;
476    set machines downothr;
477    density=dist_vol/tot_dvol;
478  run;

NOTE: The data set WORK.DOWNONLY has 2747 observations and 9 variables.
NOTE: The DATA statement used 0.44 seconds.
```

```
479
480  ************************************************************;
481  *Merge strata identifiers (from drw_190.sas) onto downonly.   *;
482  ************************************************************;
483  proc sort data=downonly tagsort;
484    by fin_num regpo;
485  run;

NOTE: The data set WORK.DOWNONLY has 2747 observations and 9 variables.
NOTE: The PROCEDURE SORT used 0.48 seconds.


486
487  data downonly;
488    merge sampdata.popwstr3(drop=finame in=inpop)
489          downonly(keep=dist_vol tot_dvol fin_num from_mod
490                        nextop regpo site in=indown);
491    by fin_num regpo;
492    if inpop and indown;
493  run;

NOTE: The data set WORK.DOWNONLY has 2747 observations and 9 variables.
NOTE: The DATA statement used 0.7 seconds.


494
495  proc summary data=downonly;
496    *where insample=1;
497    class strata from_mod nextop;
498    var dist_vol;
499    output out=sampsums sum=dv_sum;
500  run;

NOTE: The data set WORK.SAMPSUMS has 781 observations and 6 variables.
NOTE: The PROCEDURE SUMMARY used 0.44 seconds.


501
502  data sumopdes(drop=_type_) sumop(drop=_type_ nextop);
503    set sampsums(drop=_freq_);
504    if _type_ = 7 then do;
505      suminnop=dv_sum;
506      output sumopdes;
507    end;
508    if _type_ = 6 then do;
509      rename dv_sum=suminmod;
510      output sumop;
511    end;
512  run;

NOTE: The data set WORK.SUMOPDES has 454 observations and 5 variables.
NOTE: The data set WORK.SUMOP has 105 observations and 4 variables.
NOTE: The DATA statement used 0.5 seconds.


513
514  data sampsums;
515    merge sumopdes(drop=suminmod) sumop(drop=suminnop);
516    by strata from_mod;
517    r_h=suminnop/suminmod;
518  run;

NOTE: The data set WORK.SAMPSUMS has 454 observations and 6 variables.
NOTE: The DATA statement used 0.44 seconds.


519
520  ************************************************************;
521  *The second step in aggregating over sites is to sum over each *;
522  *operation, the distributional TPH population volume within    *;
523  *each strata.  To do this, the strata identifiers need to be   *;
524  *merged onto findtph.dbf (or really, tphvols)                  *;
525  ************************************************************;
526  data popwstr3(keep=strata insample site);
527    set sampdata.popwstr3;
528    site=finame;
529    site=compress(site,' "');
530    site=upcase(site);
531    if finame='MARGARETSELLERSP&DC' then site='SANDIEGOP&DC';
532    if finame='MGRMID-ISLANDP&DC' then site='MIDISLANDP&DC';
533  run;

NOTE: The data set WORK.POPWSTR3 has 190 observations and 3 variables.
NOTE: The DATA statement used 0.44 seconds.


534
535  data tphvols(drop=finame);
536    set data.tphvols(drop=fin_num regpo);
537    site=finame;
538    site=compress(site,' "');
539    site=upcase(site);
540    if finame='MARGARETSELLERSP&DC' then site='SANDIEGOP&DC';
541    if finame='MGRMID-ISLANDP&DC' then site='MIDISLANDP&DC';
542  run;

NOTE: The data set WORK.TPHVOLS has 321 observations and 70 variables.
NOTE: The DATA statement used 0.66 seconds.


543
544  proc sort data=popwstr3 tagsort;
545    by site;
546  run;

NOTE: The data set WORK.POPWSTR3 has 190 observations and 3 variables.
NOTE: The PROCEDURE SORT used 0.28 seconds.


547
548  proc sort data=tphvols tagsort;
549    by site;
550  run;

NOTE: The data set WORK.TPHVOLS has 321 observations and 70 variables.
NOTE: The PROCEDURE SORT used 0.6 seconds.


551
552  ************************************************************;
553  *The following merge statement merges the tph volumes onto the  *;
554  *population of 190 sites, which includes strata indentifiers.   *;
```

```
555  *It also creates variables which correspond to machine (mlocr & *;
556  *mpbcs) tph volumes as defined above.                          *;
557  ****************************************************************;
558  data pop_vols;
559    merge popwstr3(in=inpopw) tphvols(in=intphv);
560    by site;
561    if inpopw and intphv;
562
563    array the880s{5} tph881-tph885;
564    array the830s{5} tph831-tph835;
565    array the870s{5} tph871-tph875;
566    array the890s{5} tph891-tph895;
567    array mlocr{5} tphocr1-tphocr5;
568    array mpbcs{5} tphbcs1-tphbcs5;
569
570    do i = 1 to 5;
571      mlocr{i} = the880s{i} + the830s{i};
572      mpbcs{i} = the870s{i} + the890s{i};
573    end;
574    ********************************;
575    *tphocr45 = tphocr4 + tphocr5    *;
576    *tphbcs45 = tphbcs4 + tphbcs5    *;
577    *tph8485  = tph084 + tph085      *;
578    *tph14445 = tph144 + tph145      *;
579    *tph96465 = tph964 + tph965      *;
580    *USE ONLY TO COMBINE SCF & IP    *;
581    ********************************;
582  run;

NOTE: MERGE statement has more than one data set with repeats of BY values.
NOTE: The data set WORK.POP_VOLS has 188 observations and 83 variables.
NOTE: The DATA statement used 0.93 seconds.


583
584  proc sort data=pop_vols tagsort;
585    by strata;
586  run;

NOTE: The data set WORK.POP_VOLS has 188 observations and 83 variables.
NOTE: The PROCEDURE SORT used 0.38 seconds.


587
588  ****************************************************************;
589  *The following proc means stmt. computes (sums) population,    ***;
590  * operation specific TPH volumes across strata (X_h).          ***;
591  ****************************************************************;
592  proc means data=pop_vols noprint;
593    by strata;
594    var TPH831-TPH835 TPH841-TPH845 TPH851-TPH855 TPH881-TPH885
595        TPH861-TPH865 TPH871-TPH875 TPH891-TPH895 TPH971-TPH975
596        TPH081-TPH085 TPH091 TPH093-TPH095 TPH060 TPH070 TPH073
597        TPH074 TPH170 TPH961-TPH965 TPH141-TPH145 TPH030 TPH040
598        TPH043 TPH044 TPH150 tphocr1-tphocr5 tphbcs1-tphbcs5;
599        ************************************************;
600        *tphocr45 tphbcs45 tph8485 tph14445 tph96465    *;
601        *                                               *;
602        *USE ONLY WHEN COMBINING SCF & IP               *;
603        ************************************************;
604
605    output out=tphsums(drop=_type_ _freq_)
606           sum=sum831-sum835 sum841-sum845 sum851-sum855
607               sum881-sum885 sum861-sum865 sum871-sum875
608               sum891-sum895 sum971-sum975 sum081-sum085
609               sum091 sum093-sum095 sum060 sum070 sum073
610               sum074 sum170 sum961-sum965 sum141-sum145
611               sum030 sum040 sum043 sum044 sum150
612               sumocr1-sumocr5 sumbcs1-sumbcs5;
613               ************************************************;
614               *sumocr45 sumbcs45 sum8485 sum14445 sum96465  *;
615               *                                             *;
616               *USE ONLY WHEN COMBINING SCF & IP             *;
617               ************************************************;
618  run;

NOTE: The data set WORK.TPHSUMS has 5 observations and 80 variables.
NOTE: The PROCEDURE MEANS used 0.55 seconds.


619
620  ****************************************************************;
621  *The following merge statement merges the population, operation**;
622  *specific TPH volumes (X_h) onto the sample data, by strata.    **;
623  *And the sample ratio is multipled by the associated pop.,      **;
624  *operation TPH volume (rh_Xh).                                  **;
625  ****************************************************************;
626  data sampsums;
627    merge sampsums(in=inss) tphsums(in=intphs);
628    by strata;
629    if intphs and inss;
630    ind831=831;ind832=832;ind833=833;ind834=834;ind835=835;
631    ind841=841;ind842=842;ind843=843;ind844=844;ind845=845;
632    ind851=851;ind852=852;ind853=853;ind854=854;ind855=855;
633    ind881=881;ind882=882;ind883=883;ind884=884;ind885=885;
634    ind861=861;ind862=862;ind863=863;ind864=864;ind865=865;
635    ind871=871;ind872=872;ind873=873;ind874=874;ind875=875;
636    ind891=891;ind892=892;ind893=893;ind894=894;ind895=895;
637    ind971=971;ind972=972;ind973=973;ind974=974;ind975=975;
638    ind081=81;ind082=82;ind083=83;ind084=84;ind085=85;
639    ind091=91;ind093=93;ind094=94;ind095=95;ind060=60;
640    ind070=70;ind073=73;ind074=74;ind170=170;ind961=961;
641    ind962=962;ind963=963;ind964=964;ind965=965;ind141=141;
642    ind142=142;ind143=143;ind144=144;ind145=145;ind030=30;
643    ind040=40;ind043=43;ind044=44;ind150=150;indocr1=831881;
644    indocr2=832882;indocr3=833883;indocr4=834884;indocr5=835885;
645    indbcs1=871891;indbcs2=872892;indbcs3=873893;
646    indbcs4=874894;indbcs5=875895;
647    ****************************************************************;
648    *indocr45=834884835885; indbcs45=874894974875895975;          *;
649    *ind8485=8485; ind14445=144145; ind96465=964965;              *;
650    *                                                             *;
651    *USE ONLY WHEN COMBINING SCF & IP                             *;
652    ****************************************************************;
653
654    array indx{79} ind831-ind835 ind841-ind845 ind851-ind855
655                   ind881-ind885 ind861-ind865 ind871-ind875
656                   ind891-ind895 ind971-ind975 ind081-ind085
657                   ind091 ind093-ind095 ind060 ind070 ind073
658                   ind074 ind170 ind961-ind965 ind141-ind145
659                   ind030 ind040 ind043 ind044 ind150
660                   indocr1-indocr5 indbcs1-indbcs5;
661                   ************************************************;
662                   *indocr45 indbcs45 ind8485 ind14445 ind96465  *;
```

```
                  *                                                  *;
                  *USE ONLY WHEN COMBINING SCF  & IP                 *;
                  ****************************************************;

   array mod_sum(79) sum831-sum835 sum841-sum845 sum851-sum855
                     sum881-sum885 sum861-sum865 sum871-sum875
                     sum891-sum895 sum971-sum975 sum081-sum085
                     sum091 sum093-sum095 sum060 sum070 sum073
                     sum074 sum170 sum961-sum965 sum141-sum145
                     sum030 sum040 sum043 sum044 sum150
                     sumocr1-sumocr5 sumbcs1-sumbcs5;
                     ****************************************************;
                     *sumocr45 sumbcs45 sum8485 sum14445 sum96465    *;
                     *                                               *;
                     *USE ONLY WHEN COMBINING SCF & IP               *;
                     ****************************************************;

   found=0;
   do i = 1 to 79 while(not(found));
     if from_mod = indx(i) then do;
       place=i;
       found=1;
     end;
   end;
   rh_xh=r_h*mod_sum(place);
   x_h=rh_xh/r_h;
   keep strata from_mod nextop r_h x_h rh_xh;
run;
```

NOTE: The data set WORK.SAMPSUMS has 454 observations and 6 variables.
NOTE: The DATA statement used 1.32 seconds.

```
*****************************************************************;
*The following proc summary statement sums the rh_Xh's over the *;
*strata, within from_mod and nextop (RX_over_strata).  And sums *;
*the h_h's over the strata, within from_mod only (xovstr).      *;
*****************************************************************;
proc summary data=sampsums;
  class from_mod nextop;
  var rh_xh;
  output out=sumovstr(drop=_freq_) sum=sumrxs;
run;
```

NOTE: The data set WORK.SUMOVSTR has 182 observations and 4 variables.
NOTE: The PROCEDURE SUMMARY used 0.28 seconds.

```
data the_rxs(drop=_type_) the_xs(drop=_type_);
  set sumovstr;
  if _type_ = 3 then do;
    rxovstr=sumrxs;
    output the_rxs;
  end;
  if _type_ = 2 then do;
    rename sumrxs=xovstr;
    output the_xs;
  end;
run;
```

NOTE: The data set WORK.THE_RXS has 144 observations and 4 variables.
NOTE: The data set WORK.THE_XS has 30 observations and 4 variables.
NOTE: The DATA statement used 0.44 seconds.

```
data data.fin_all2;
  merge the_rxs(drop=xovstr) the_xs(drop=rxovstr nextop);
  by from_mod;
  pop_den=rxovstr/xovstr;
run;
```

NOTE: The data set DATA.FIN_ALL2 has 144 observations and 5 variables.
NOTE: The DATA statement used 0.44 seconds.

```
proc format;
  value modfmt 831881='MLOCR/ISS - OP'
               832882='MLOCR/ISS - OS'
               833883='MLOCR/ISS - MMP'
               834884='MLOCR/ISS - SCF'
               835885='MLOCR/ISS - IP'

               871891='MPBCS/DBCS - OP'
               872892='MPBCS/DBCS - OS'
               873893='MPBCS/DBCS - MMP'
               874894='MPBCS/DBCS - SCF'
               875895='MPBCS/DBCS - IP';
```

NOTE: Format MODFMT has been output.

```
               ****************************************;
               *8485='LSM - SCF/IP'                    *;
               *144145='MPFSM - SCF/IP'                *;
               *964965='FMBCR - SCF/IP'                *;
               *                                       *;
               *USE ONLY WHEN COMBINING SCF & IP       *;
               ****************************************;

  value nopfmt -1='OP'
               0='OS'
               1='MMP'
               2='SCF'
               3='IP'
               5='IS'
               9='DISP9';
```

NOTE: Format NOPFMT has been output.

```
run;
```

NOTE: The PROCEDURE FORMAT used 0.81 seconds.

```
proc print data=data.fin_all2;
  title 'From Anal_4.sas';
  title2 'Dataset fin_all:  details the density flow at the';
  title3 'population level using formats for nextop';
  title4 'CALCULATIONS BASED ON ALL SORTPLANS';
  *title4 'CALCULATIONS DO NOT INCLUDE ANY 3C SPECIFIC SORTPLANS';
  *title4 'CALCULATIONS DO NOT INCLUDE ANY 1C SPECIFIC SORTPLANS';
```

```
760    by from_mod;
761    var nextop pop_den;
762    format from_mod modfmt. nextop nopfmt.;
763  run;

NOTE: The PROCEDURE PRINT used 0.38 seconds.


764
765  ************************************************************;
766  *the next data step outputs the final results to a flat file*;
767  ************************************************************;
768  data _null_;
769    set data.fin_all2;
770    file flat_all;*FOR ALL SORTPLANS*;
771    *file flat_no1;*NO 1C SPECIFIC SORTPLANS*;
772    *file flat_no3;*NO 3C SPECIFIC SORTPLANS*;
773    put from_mod nextop pop_den;
774    format from_mod modfmt. nextop nopfmt.;
775  run;

NOTE: The file FLAT_ALL is:
      FILENAME=c:\mydocu~1\bill\density\res_all.txt,
      RECFM=V,LRECL=256

NOTE: 144 records were written to the file FLAT_ALL.
      The minimum record length was 17.
      The maximum record length was 35.
NOTE: The DATA statement used 0.59 seconds.


776
777  proc contents data=data.fin_all2;run;

NOTE: The PROCEDURE CONTENTS used 0.11 seconds.


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                             Dataset fin_all:  details the density flow at the
                                 population level using formats for nextop
                                    CALCULATIONS BASED ON ALL SORTPLANS

---------------------------------------------- FROM_MOD=81 ----------------------------
---------------------

                                       OBS    NEXTOP    POP_DEN

                                         1    OP        0.00001
                                         2    OS        0.00962
                                         3    MMP       0.25120
                                         4    SCF       0.10957
                                         5    IP        0.09184
                                         6    IS        0.52092
                                         7    DISP9     0.01684


---------------------------------------------- FROM_MOD=82 ----------------------------
---------------------

                                       OBS    NEXTOP    POP_DEN

                                         8    MMP       0.27064
                                         9    SCF       0.04833
                                        10    IP        0.07730
                                        11    IS        0.57283
                                        12    DISP9     0.03090


---------------------------------------------- FROM_MOD=83 ----------------------------
---------------------

                                       OBS    NEXTOP    POP_DEN

                                        13    MMP       0.02121
                                        14    SCF       0.09568
                                        15    IP        0.03509
                                        16    IS        0.79747
                                        17    DISP9     0.05055


---------------------------------------------- FROM_MOD=84 ----------------------------
---------------------

                                       OBS    NEXTOP    POP_DEN

                                        18    SCF       0.02995
                                        19    IP        0.03910
                                        20    IS        0.90418
                                        21    DISP9     0.02677


---------------------------------------------- FROM_MOD=85 ----------------------------
---------------------

                                       OBS    NEXTOP    POP_DEN

                                        22    IP        0.02667
                                        23    IS        0.91883
                                        24    DISP9     0.05450


---------------------------------------------- FROM_MOD=141 ---------------------------
---------------------

                                       OBS    NEXTOP    POP_DEN

                                        25    OP        0.00008
                                        26    OS        0.12823
                                        27    MMP       0.33173
                                        28    SCF       0.22821
                                        29    IP        0.13422
                                        30    IS        0.17714
                                        31    DISP9     0.00039


---------------------------------------------- FROM_MOD=142 ---------------------------
---------------------

                                       OBS    NEXTOP    POP_DEN

                                        32    MMP       0.79993
                                        33    SCF       0.06792
                                        34    IP        0.06943
                                        35    IS        0.06127
```

36	DISP9	0.00145

Dataset fin_all: details the density flow at the population level using formats for nextop
CALCULATIONS BASED ON ALL SORTPLANS

FROM_MOD=143

OBS	NEXTOP	POP_DEN
37	MMP	0.02512
38	SCF	0.25416
39	IP	0.08611
40	IS	0.62967
41	DISP9	0.00494

FROM_MOD=144

OBS	NEXTOP	POP_DEN
42	SCF	0.00635
43	IP	0.00821
44	IS	0.98274
45	DISP9	0.00271

FROM_MOD=145

OBS	NEXTOP	POP_DEN
46	IP	0.00218
47	IS	0.92318
48	DISP9	0.07464

FROM_MOD=961

OBS	NEXTOP	POP_DEN
49	OS	0.10431
50	MMP	0.28766
51	SCF	0.29373
52	IP	0.11743
53	IS	0.19655
54	DISP9	0.00031

FROM_MOD=962

OBS	NEXTOP	POP_DEN
55	MMP	0.82516
56	SCF	0.04890
57	IP	0.09774
58	IS	0.02820

FROM_MOD=963

OBS	NEXTOP	POP_DEN
59	MMP	0.00719
60	SCF	0.22750
61	IP	0.10698
62	IS	0.64191
63	DISP9	0.01642

FROM_MOD=964

OBS	NEXTOP	POP_DEN
64	SCF	0.00146
65	IP	0.01509
66	IS	0.98160
67	DISP9	0.00186

FROM_MOD=965

OBS	NEXTOP	POP_DEN
68	IP	0.00010
69	IS	0.96096
70	DISP9	0.03894

Dataset fin_all: details the density flow at the population level using formats for nextop
CALCULATIONS BASED ON ALL SORTPLANS

FROM_MOD=971

OBS	NEXTOP	POP_DEN
71	OP	0.00324
72	OS	0.22364
73	MMP	0.05603
74	SCF	0.16971
75	IP	0.13970
76	IS	0.40523
77	DISP9	0.00245

FROM_MOD=972

OBS	NEXTOP	POP_DEN
78	OS	0.20784
79	MMP	0.13216

80	SCF	0.38804
81	IP	0.16772
82	IS	0.10415
83	DISP9	0.00008

FROM_MOD=973

OBS	NEXTOP	POP_DEN
84	MMP	0.02879
85	SCF	0.16471
86	IP	0.11989
87	IS	0.66258
88	DISP9	0.02403

FROM_MOD=974

OBS	NEXTOP	POP_DEN
89	SCF	0.05274
90	IP	0.04665
91	IS	0.86026
92	DISP9	0.04035

FROM_MOD=975

OBS	NEXTOP	POP_DEN
93	IP	0.04633
94	IS	0.94838
95	DISP9	0.00528

FROM_MOD=MLOCR/ISS - OP

OBS	NEXTOP	POP_DEN
96	OP	0.02617
97	OS	0.21899
98	MMP	0.04995
99	SCF	0.14094
100	IP	0.10443
101	IS	0.45895
102	DISP9	0.00057

FROM_MOD=MLOCR/ISS - OS

OBS	NEXTOP	POP_DEN
103	OS	0.17695
104	MMP	0.18171
105	SCF	0.50145
106	IP	0.08010
107	IS	0.05979

Dataset fin_all: details the density flow at the population level using formats for nextop
CALCULATIONS BASED ON ALL SORTPLANS

FROM_MOD=MLOCR/ISS - MMP

OBS	NEXTOP	POP_DEN
108	MMP	0.04284
109	SCF	0.16035
110	IP	0.09720
111	IS	0.68549
112	DISP9	0.01412

FROM_MOD=MLOCR/ISS - SCF

OBS	NEXTOP	POP_DEN
113	SCF	0.09131
114	IP	0.05841
115	IS	0.84664
116	DISP9	0.00365

FROM_MOD=MLOCR/ISS - IP

OBS	NEXTOP	POP_DEN
117	IP	0.07677
118	IS	0.91455
119	DISP9	0.00868

FROM_MOD=MPBCS/DBCS - OP

OBS	NEXTOP	POP_DEN
120	OP	0.00172
121	OS	0.17530
122	MMP	0.17016
123	SCF	0.13574
124	IP	0.11844
125	IS	0.19197
126	DISP9	0.20667

FROM_MOD=MPBCS/DBCS - OS

OBS	NEXTOP	POP_DEN
127	OS	0.01314
128	MMP	0.49845

129	SCF	0.23996
130	IP	0.17251
131	IS	0.06744
132	DISP9	0.00848

---------- FROM_MOD=MPBCS/DBCS - MMP ----------

OBS	NEXTOP	POP_DEN
133	MMP	0.00841
134	SCF	0.21030
135	IP	0.09321
136	IS	0.60931
137	DISP9	0.07876

---------- FROM_MOD=MPBCS/DBCS - SCF ----------

OBS	NEXTOP	POP_DEN
138	SCF	0.00843
139	IP	0.04279
140	IS	0.89922
141	DISP9	0.04956

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Dataset fin_all: details the density flow at the population level using formats for nextop
CALCULATIONS BASED ON ALL SORTPLANS

---------- FROM_MOD=MPBCS/DBCS - I? ----------

OBS	NEXTOP	POP_DEN
142	IP	0.01079
143	IS	0.87466
144	DISP9	0.11455

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Dataset fin_all: details the density flow at the population level using formats for nextop
CALCULATIONS BASED ON ALL SORTPLANS

CONTENTS PROCEDURE

Data Set Name: DATA.FIN_ALL2 Observations: 144
Member Type: DATA Variables: 5
Engine: V612 Indexes: 0
Created: 17:24 Friday, February 27, 1998 Observation Length: 40
Last Modified: 17:24 Friday, February 27, 1998 Deleted Observations: 0

Protection: Compressed: NO
Data Set Type: Sorted: NO
Label:

-----Engine/Host Dependent Information-----

Data Set Page Size: 8192
Number of Data Set Pages: 1
File Format: 607
First Data Page: 1
Max Obs per Page: 203
Obs in First Data Page: 144

-----Alphabetic List of Variables and Attributes-----

#	Variable	Type	Len	Pos	Format
1	FROM_MOD	Num	8	0	9.
2	NEXTOP	Num	8	8	9.
5	POP_DEN	Num	8	32	
3	RXOVSTR	Num	8	16	
4	XOVSTR	Num	8	24	