

RECEIVED

JUL 10 3 12 PM '97

POSTAL RATE COMMISSION
OFFICE OF THE SECRETARY

USPS-T-24

BEFORE THE
POSTAL RATE COMMISSION
WASHINGTON, DC 20268-0001

Docket No. R97-1

POSTAL RATE AND FEE CHANGES, 1997

DIRECT TESTIMONY OF
PAUL M. LION
ON BEHALF OF
UNITED STATES POSTAL SERVICE

CONTENTS

	<u>Page</u>
CONTENTS	i
TABLES	ii
AUTOBIOGRAPHICAL SKETCH.....	iv
I. PURPOSE OF THE TESTIMONY	1
II. ESTIMATION OF BASE YEAR BOXES.....	4
A. REAGGREGATION OF POB SURVEY DATA	4
B. ESTIMATION OF PRE-MC96-3 BOXES	6
C. ESTIMATION OF POST-MC96-3 BOXES.....	11
III. ESTIMATION OF TEST YEAR BOXES.....	16
IV. UNIT COSTS FOR POST OFFICE BOXES	19

TABLES

	<u>Page</u>
1. Number of Boxes Installed (POB Survey Data).....	5
2. Number of Boxes In Use (POB Survey Data).....	6
3. Expansion Factors by Delivery Group.....	7
4. Estimated Boxes In Use by Delivery Group, Pre-MC96-3.....	8
5. Assumptions for Allocation to Fee Groups.....	9
6. Estimated Boxes In Use by Fee Group, Pre-MC96-3	
A. Paid Boxes.....	10
B. Free Boxes.....	10
C. All Boxes.....	11
7. Estimated Boxes In Use by Fee Group, Post-MC96-3	
A. Fee Groups A, B, & C.....	12
B. Fee Group D.....	13
C. Fee Group E.....	14
D. All Fee Groups plus Caller Service & Reserve Numbers.....	15
8. Estimated Boxes in Use by Fee Group, TYBR.....	16
9. Estimated Boxes in Use by Fee Group, TYAR	
A. Fee Groups A-E.....	17
B. Summary plus Caller Service & Reserve Numbers.....	18

TABLES (continued)

	<u>Page</u>
10. Allocation of All Other Costs.....	24
11. Allocation of Space Provision Costs.....	25
12. Allocation of Space Provision Costs.....	26
13. Total Volume-Variable Costs per Box	27

DIRECT TESTIMONY
OF
PAUL MICHEL LION

AUTOBIOGRAPHICAL SKETCH

My name is Paul Michel Lion. I have over 30 years experience in the planning, operations analysis, and economics of large-scale systems.

I am a Vice President with ALK Associates, Inc., a systems development and consulting firm in Princeton, NJ serving the transportation industry. I am in charge of the Washington office. For purposes of the work presented in this testimony, I am a subcontractor to Foster Associates, which is a Postal Service contractor. I previously testified on the subject of post office boxes in Docket No. MC96-3.

Prior to joining ALK Associates, I worked for 10 years with Arthur D. Little, Inc. in Washington, DC. During this period, I was responsible for managing and directing consulting services related to technology planning for the Postal Service. Among the projects that I directed were econometric models of postal demand and costs, and a network analysis of postal operations. I also testified on the subject of purchased transportation costs in two rate proceedings before the Postal Rate Commission, Docket Nos. R84-1 and R87-1.

From 1981 to 1983, I was a consultant with the firm of Snavely, King and Associates in Washington, DC. In that capacity, I provided consulting services in transportation economics and operations analysis to a variety of transportation clients.

From 1977 to 1981, I was Director of Operations and Cost Analysis for the United States Railway Association. In that capacity, I was concerned with the formulation and analysis of rail transportation alternatives for the United States Railway

Association. In addition, I was responsible for the development and implementation of computer models for operations analysis and strategic planning for the northeast rail system. I also directed a study of the effects of impending and proposed rail mergers on Conrail, based on a computer network model.

From 1966 to 1979, I was a Professor with the School of Engineering and Applied Science of Princeton University. In that capacity, I taught graduate and undergraduate courses in engineering systems, transportation economics, methods of operations analysis, and applied mathematics. In addition, my responsibilities included the initiation, funding, and direction of research programs in transportation and in aerospace systems. In 1972, I became the founder and first Director of the Princeton Transportation Program, an interdisciplinary program of research and teaching involving three professional schools.

My educational qualifications include a B.S. from West Point, and an M.S.E., M.A., and Ph.D. in from Princeton University.

1 I. PURPOSE OF THE TESTIMONY

2 The purposes of this testimony are twofold. The first purpose is to re-
3 aggregate the results of the most recent survey of post office boxes ("POB
4 Survey"), which was undertaken for Docket No. MC96-3, in a form appropriate to
5 the new fee groups that were established by that proceeding. The second
6 purpose is to allocate the volume-variable costs of post office box service in
7 order to estimate the cost per box for different box sizes and fee groups.

8 To avoid confusion in estimating the effects of these recent changes (in
9 both fees and fee groups), it is first important to make clear the respective
10 definitions of delivery groups and post office box fee groups, and the distinction
11 between the two. Prior to MC96-3, delivery groups were designated as I-A, I-B,
12 I-C (city delivery offices); II (non-city delivery offices); and III (contract offices
13 administered by non-city delivery offices), with box fees set for each. Thus,
14 there was effectively no difference between fee groups and delivery groups.
15 With the new definitions, delivery groups and fee groups do not overlap as much
16 and the distinction between the two becomes important.

17 The Domestic Mail Manual (DMM § D910) currently groups post offices
18 into three groups defined by the type of carrier delivery provided:

19 City delivery office: an office with at least one city delivery route.

20 Non-city delivery office: an office with no city routes, but at least one
21 rural or highway contract route.

22 Nondelivery office: all other offices.

23 Post offices are designated by a unique finance number and may therefore have
24 multiple 5-digit ZIP Codes, although most have just one.

1 Some postal customers living within the service areas of some city and
2 some non-city delivery offices are ineligible for carrier delivery. Some of these
3 customers are eligible for a free post office box at their local office, under
4 conditions prescribed in the Domestic Mail Classification Schedule (DMCS) and
5 the DMM (DMCS SS-10; DMM § 910).

6 Post office box fee groups, in contrast, are now defined principally in
7 terms of the fees paid. There are, at present, five different groups:

- 8 A. Customers in designated ZIP Codes in Manhattan (New York).
- 9 B. Customers in designated ZIP Codes in 8 metropolitan areas.
- 10 C. Customers eligible for delivery at remaining city delivery offices.
- 11 D. Customers eligible for delivery at non-city delivery offices.
- 12 E. Customers ineligible for delivery (and meeting the conditions
13 prescribed in the DMM).

14 Boxholders in Fee Group A pay the highest fees. Customers in Fee Groups B, C
15 and D pay progressively lower fees, while the fee for those in Group E is zero.

16 Section II of this testimony estimates the numbers of boxes in use and
17 revenue from these new fee groups. The starting point is the POB Survey,
18 which inventoried post office boxes at postal facilities that then offered box
19 service at Group I or Group II fees. Using the Delivery Statistics File (DSF), the
20 POB Survey results were converted from grouping by the former box fee groups
21 to grouping by the type of carrier delivery offered. Allowance is then made for
22 Group E boxes, so that the grouping by type of carrier delivery is further
23 converted into grouping by the new fee groups. Section II concludes with

1 estimates of the number of boxholders and revenue that will result from the fees
2 established in MC96-3 ("Post-MC96-3" boxes and revenues).

3 Section III estimates the growth in numbers of boxes in use during the test
4 year before implementation of the rates proposed in this proceeding ("TYBR
5 boxes") and applies previously estimated elasticities to estimate the number
6 after implementation of the rates proposed in this proceeding ("TYAR boxes").
7 The effect on revenue is also estimated.

8 Section IV presents unit cost calculations based on TYBR box counts and
9 cost data. Volume-variable costs are allocated to post office boxes in three
10 categories: space provision, space support, and all other using the same
11 methodology as in Docket No. MC96-3. Unit costs for post office boxes are
12 presented for each box size and fee group.

1 II. ESTIMATION OF BASE YEAR BOXES

2 This section presents the POB Survey data in a form appropriate to the new
3 post office box fee groups established in Docket No. MC96-3. First, the survey
4 data were reaggreated in terms of the delivery groups defined in Section I. The
5 Delivery Statistics File (DSF) was used to estimate the current number of boxes
6 installed nationwide, i.e. the number of boxes in each carrier delivery group (Pre-
7 MC96-3). Second, assumptions as to the numbers of postal customers ineligible
8 for delivery in each delivery group were used to estimate the numbers of box
9 customers in each fee group prior to the MC96-3 increases. Finally, elasticities of
10 boxholders with respect to fee increases were used to estimate Post-MC96-3 box
11 customers.

12 A. REAGGREGATION OF POB SURVEY DATA

13 Table 1 below shows the results of regrouping the survey data according
14 to the new definitions cited in Section I. This table is comparable to Table 3 in
15 USPS-T-4 in Docket No. MC96-3. The overall total and the totals for each box
16 size are the same. The totals for the new Fee Group A and for the former Group
17 I-A are the same, since both are defined by the same designated ZIP Codes.
18 New Fee Group B and former Group I-B are also defined by the same
19 designated ZIP Codes. However, the totals are slightly different due to a
20 correction from the previous testimony. As a result, there are 4,113 more boxes
21 in the new Group B. Fee Groups C, D, and E are defined differently and cannot
22 be compared directly to previous groups.

Table 1. Number of Boxes Installed (POB Survey Data)						
Delivery Group						
Box Size	City - A	City - B	City - other	Non-city	Non-Delivery	Total
1	35,535	58,079	4,211,964	3,564,918	976,251	8,846,747
2	1,987	16,525	2,030,453	1,544,572	357,141	3,950,678
3	1,162	5,899	719,650	409,758	89,322	1,225,791
4	118	1,154	170,699	35,142	7,807	214,920
5	51	747	40,705	6,674	3,985	52,162
Total	38,853	82,404	7,173,471	5,561,064	1,434,506	14,290,298

1

2

3

4

5

6

7

Table 2 below shows the survey data on boxes in use, regrouped in the same way as described above. This table is comparable to Table 4 in USPS-T-4 in Docket No. MC96-3. As above, the overall total and the totals by box size are the same. New Fee Group A and former Group I-A again have identical totals, whereas new Fee Group B is, as indicated above, slightly larger than former Group I-B.

Table 2. Number of Boxes In Use (POB Survey Data)						
Delivery Group						
Box Size	City - A	City - B	City - other	Non-city	Non-Delivery	Total
1	26,350	49,829	3,505,859	2,919,274	790,924	7,292,236
2	1,644	11,966	1,484,143	1,215,255	271,560	2,984,568
3	922	4,309	492,129	317,831	65,283	880,474
4	96	674	105,050	25,395	5,320	136,535
5	28	678	21,988	2,823	606	26,123
Total	29,040	67,456	5,609,169	4,480,578	1,133,693	11,319,936

1

2

B. ESTIMATION OF PRE-MC96-3 BOXES

3

4

5

6

7

8

The Delivery Statistics File (DSF) was used in April 1997 to count the numbers of boxes installed in each of the five carrier delivery groups described in DMM § 910 (i.e., the three city delivery groups, one non-city delivery group, and one nondelivery group). The results are shown in the first data column of Table 3 below. In the adjoining column are the corresponding totals from the survey data, taken from the last row of Table 1.

9

10

11

12

13

14

There is no information in the DSF on boxes in use or on box size. An assumption must therefore be made as to the occupancy rate in order to estimate the Pre-MC96-3 boxes in use. The basic assumption is that the occupancy rate in early 1997 is the same as that shown in the survey (which was taken in late 1995) and is constant across box sizes. However, in this proceeding, the expansion factor is calculated by carrier delivery group, in

1 contrast to MC96-3 in which a single overall factor was used. These expansion
 2 factors are calculated in the last column of Table 3 as the ratio of the first to the
 3 second column. As Table 3 shows, this results in larger expansion factors for
 4 the "higher" delivery groups.

Table 3. Expansion Factor by Delivery Group			
Delivery Group	Boxes Installed (DSF 97)	Boxes Installed (POB Survey)	Expansion Factor
City - A	104,371	38,853	2.69
City - B	201,628	82,404	2.45
City - other	10,731,828	7,173,471	1.50
Non-city	7,013,282	5,561,064	1.26
Nondelivery	1,724,907	1,434,506	1.20
Total	19,776,016	14,290,298	1.38

5
 6 Note that the total number of boxes counted in the DSF in April 1997 is
 7 19,776,016, as compared with the total of 19,541,497 used in MC96-3.¹ This
 8 represents growth of about 1.2% (with no fee change) between the two DSF
 9 runs.

10 In Table 4 below, the expansion factors are applied to the corresponding
 11 delivery group to estimate the total numbers of boxes in use prior to the
 12 implementation of the fee changes in MC96-3. This table is comparable to Table
 13 14 in my testimony in that docket.

¹ See USPS LR-SSR-93 at page 1.

Table 4. Estimated Boxes in Use, Pre-MC96-3						
Carrier Delivery Group						
Box Size	City - A	City - B	City - other	Non-city	Non-Delivery	Total
1	70,784	121,923	5,244,919	3,681,614	951,038	10,070,279
2	4,416	29,279	2,220,343	1,532,607	326,535	4,113,180
3	2,477	10,543	736,247	400,829	78,499	1,228,595
4	258	1,649	157,159	32,027	6,397	197,490
5	75	1,659	32,895	3,560	729	38,918
Total	78,010	165,053	8,391,563	5,650,638	1,363,197	15,648,462

1

2 In order to estimate the effect of the fee changes established in MC96-3,
3 it is next necessary to regroup the boxes in Table 4 into the new fee groups (as
4 opposed to delivery groups), since this is now how fees are prescribed. Delivery
5 Groups City-A and City-B, both defined in terms of specific ZIP Codes, translate
6 directly into Fee Groups A and B, respectively. However, the three "lower"
7 groups each have some customers who are ineligible for carrier delivery and
8 who are thus entitled to a post office box at no fee. The numbers of these
9 ineligible customers were estimated in the Postal Service's response to the
10 Presiding Officer's Information Request No. 6, Question 4, in Docket No. MC96-
11 3. The midpoints of those estimates have been used in these calculations.

12 Table 5 below presents the assumptions for Fee Groups C, D, and E.
13 Several new subgroups are defined. These subgroups must be kept distinct

- 1 when the elasticities are applied, because they face different percentage fee
 2 changes.

Table 5. Assumptions for Allocation to Fee Groups						
Delivery Group			Eligible Customers		Ineligible Customers	
			Subgroup	Pct.	Subgroup	Pct.
City Delivery Offices			C	99%	E-0	1%
Non-city Delivery Offices		Pct.				
	Classified	94%	D-1	98%	E-1	2%
	Contract	6%	D-2	10%	E-2	90%
Nondelivery Offices			D-3	70%	E-3	30%

3

- 4 Table 6A below shows the results of applying the percentages in Table 5
 5 to the box counts in Table 4 for fee groups A-D. Note that Group D is the sum of
 6 three subgroups. Table 6B provides the same information for Group E, which is
 7 the sum of four subgroups. The totals are summarized in Table 6C, in terms of
 8 paid boxes, free boxes, and the overall total.

Table 6A. Estimated Boxes in Use, Pre-MC96-3							
Paid Boxes							
	Fee Group						
Box Size	A	B	C	D-1	D-2	D-3	D
1	70,784	121,923	5,192,470	3,391,503	22,090	665,727	4,079,320
2	4,416	29,279	2,198,140	1,411,838	9,196	228,574	1,649,607
3	2,477	10,543	728,884	369,244	2,405	54,949	426,598
4	258	1,649	155,588	29,503	195	4,478	34,173
5	75	1,659	32,566	3,280	21	510	3,811
Total	78,010	165,053	8,307,648	5,205,367	33,904	954,238	6,193,509

Table 6B. Estimated Boxes in Use, Pre-MC96-3					
Free Boxes					
	Fee Group				
Box Size	E-0	E-1	E-2	E-3	E
1	52,449	69,214	198,807	285,312	605,782
2	22,203	28,813	82,761	97,960	231,738
3	7,362	7,536	21,645	23,550	60,093
4	1,572	602	1,729	1,919	5,822
5	329	67	192	219	807
Total	83,916	106,232	305,134	408,959	904,241

Table 6C. Estimated Boxes in Use, Pre-MC96-3			
All Boxes			
Box Size	Paid Boxes	Free Boxes	Total
1	9,464,496	605,782	10,070,279
2	3,881,442	231,738	4,113,180
3	1,168,503	60,093	1,228,595
4	191,668	5,822	197,490
5	38,111	807	38,918
Total	14,744,220	904,241	15,648,462

1

2 **C. ESTIMATION OF POST-MC96-3 BOXES**

3 The final step is to apply price elasticities to estimate the effect of the new
4 fees on each subgroup.² This information is presented in Tables 7A-D on the
5 next four pages. Table 7A shows the results for Fee Groups A, B, and C.
6 Tables 7B and 7C show the results for Fee Groups D and E respectively; Table
7 7D summarizes the results for all fee groups, plus caller service and reserve
8 numbers. In addition to the Post-MC96-3 box counts, these tables estimate the
9 resulting revenue change. Because of the fee increases, revenue for post office
10 boxes is projected to increase by \$16.9 million to \$595.7 million annually (or 2.9
11 percent). The total box count decreases from 16.0 million to 15.6 million (or 2.0
12 percent).

² The elasticities used are from Postal Rate Commission's *Opinion and Recommended Decision* in Docket No. MC96-3, Appendix D, Schedule 3, page 17.

Table 7A. Estimated Boxes in Use by Fee Group, Post-MC96-3

Fee Groups A, B, & C

Fee Group	Box Size	Pre 96-3 Fees	Post 96-3 Fees	Pct. Change	Pre 96-3 Boxes	Elasticity	Post 96-3 Boxes	Pre 96-3 Revenues	Post 96-3 Revenues	Change in Revenues	
A	1	\$48	\$48	0%	70,784	-0.522	70,784	\$3,397,638	\$3,397,638	\$0	
	2	\$74	\$74	0%	4,416	-0.601	4,416	\$326,805	\$326,805	\$0	
	City (Manhattan)	3	\$128	\$128	0%	2,477	-0.517	2,477	\$317,027	\$317,027	\$0
		4	\$210	\$242	15%	258	-0.517	238	\$54,156	\$57,495	\$3,339
		5	\$348	\$418	20%	75	-0.517	67	\$26,175	\$28,173	\$1,998
Subtotal A				78,010		77,982	4,121,802	4,127,138	5,337		
B	1	\$44	\$44	0%	121,923	-0.478	121,923	\$5,364,601	\$5,364,601	\$0	
	2	\$66	\$66	0%	29,279	-0.603	29,279	\$1,932,393	\$1,932,393	\$0	
	City (8 areas)	3	\$112	\$112	0%	10,543	-0.517	10,543	\$1,180,856	\$1,180,856	\$0
		4	\$190	\$218	15%	1,649	-0.517	1,524	\$313,340	\$332,143	\$18,803
		5	\$310	\$372	20%	1,659	-0.517	1,488	\$514,273	\$553,359	\$39,086
Subtotal B				165,053		164,756	\$9,305,463	\$9,363,353	\$57,889		
C	1	\$40	\$40	0%	5,192,470	-0.522	5,192,470	\$207,698,800	\$207,698,800	\$0	
	2	\$58	\$58	0%	2,198,140	-0.605	2,198,140	\$127,492,105	\$127,492,105	\$0	
	City eligible	3	\$104	\$104	0%	728,884	-0.517	728,884	\$75,803,952	\$75,803,952	\$0
		4	\$172	\$172	0%	155,588	-0.517	155,588	\$26,761,106	\$26,761,106	\$0
		5	\$288	\$288	0%	32,566	-0.517	32,566	\$9,379,027	\$9,379,027	\$0
Subtotal C				8,307,648		8,307,648	\$447,134,990	\$447,134,990	\$0		
Total Paid Boxes in City Offices					8,550,711		8,550,386	\$460,562,255	\$460,625,481	\$63,226	

Table 7B. Estimated Boxes in Use by Fee Group, Post-MC96-3

Fee Group D

Fee Group	Box Size	Pre 96-3 Fees	Post 96-3 Fees	Pct. Change	Pre 96-3 Boxes	Elasticity	Post 96-3 Boxes	Pre 96-3 Revenues	Post 96-3 Revenues	Change in Revenues
D-1	1	\$8	\$12	50%	3,391,503	-0.085	3,247,450	\$27,132,023	\$38,969,400	\$11,837,376
Noncity	2	\$13	\$20	54%	1,411,838	-0.136	1,308,573	\$18,353,889	\$26,171,457	\$7,817,568
Classified	3	\$24	\$36	50%	369,244	-0.152	341,143	\$8,861,859	\$12,281,164	\$3,419,306
eligible	4	\$35	\$53	51%	29,503	-0.152	27,194	\$1,032,604	\$1,441,257	\$408,654
	5	\$55	\$83	51%	3,280	-0.152	3,026	\$180,381	\$251,119	\$70,738
Subtotal					5,205,367		4,927,385	\$55,560,756	\$79,114,397	\$23,553,641
D-2	1	\$2	\$12	500%	22,090	-0.054	16,173	\$44,179	\$194,074	\$149,894
Noncity	2	\$2	\$20	900%	9,196	-0.069	3,471	\$18,391	\$69,427	\$51,036
Contract	3	\$2	\$36	1700%	2,405	-0.036	930	\$4,810	\$33,465	\$28,655
eligible	4	\$2	\$53	2550%	192	-0.024	73	\$384	\$3,845	\$3,460
	5	\$2	\$83	4050%	21	-0.015	8	\$43	\$669	\$627
Subtotal					33,904		20,654	\$67,808	\$301,479	\$233,672
D-3	1	\$8	\$12	50%	665,727	-0.054	647,895	\$5,325,815	\$7,774,739	\$2,448,924
Nondelivery	2	\$13	\$20	54%	228,574	-0.069	220,061	\$2,971,464	\$4,401,225	\$1,429,761
eligible	3	\$24	\$36	50%	54,949	-0.036	53,958	\$1,318,781	\$1,942,478	\$623,697
	4	\$35	\$53	51%	4,478	-0.024	4,422	\$156,726	\$234,348	\$77,622
	5	\$55	\$83	51%	510	-0.015	506	\$28,054	\$42,005	\$13,951
Subtotal					954,238		926,842	\$9,800,841	\$14,394,796	\$4,593,955
D	1		\$12		4,079,320		3,911,518	\$27,176,203	\$39,163,473	\$11,987,271
	2		\$20		1,649,607		1,532,105	\$18,372,281	\$26,240,884	\$7,868,604
Total	3		\$36		426,598		396,031	\$8,866,669	\$12,314,629	\$3,447,960
eligible	4		\$53		34,173		31,688	\$1,032,988	\$1,445,102	\$412,114
	5		\$83		3,811		3,540	\$180,424	\$251,788	\$71,364
Total D					6,193,509		5,874,881	\$55,628,564	\$79,415,877	\$23,787,313

**Table 7C. Estimated Boxes in Use by Fee Group, Post-MC96-3
Fee Group E**

Fee Group	Box Size	Pre 96-3 Fees	Post 96-3 Fees	Pct. Change	Pre 96-3 Boxes	Elasticity	Post 96-3 Boxes	Pre 96-3 Revenues	Post 96-3 Revenues
E-0	1	\$8	\$0		52,449		52,449	\$419,594	\$0 (\$419,594)
City	2	\$13	\$0		22,203		22,203	\$288,645	\$0 (\$288,645)
ineligible	3	\$24	\$0		7,362		7,362	\$176,699	\$0 (\$176,699)
	4	\$35	\$0		1,572		1,572	\$55,006	\$0 (\$55,006)
	5	\$55	\$0		329		329	\$18,092	\$0 (\$18,092)
Subtotal					83,916		83,916	\$958,035	\$0 (\$958,035)
E-1	1	\$8	\$0		69,214		69,214	\$553,715	\$0 (\$553,715)
Noncity	2	\$13	\$0		28,813		28,813	\$374,569	\$0 (\$374,569)
Classified	3	\$24	\$0		7,536		7,536	\$180,854	\$0 (\$180,854)
ineligible	4	\$35	\$0		602		602	\$21,074	\$0 (\$21,074)
	5	\$55	\$0		67		67	\$3,681	\$0 (\$3,681)
Subtotal					106,232		106,232	\$1,133,893	\$0 (\$1,133,893)
E-2	1	\$2	\$0		198,807		198,807	\$397,614	\$0 (\$397,614)
Noncity	2	\$2	\$0		82,761		82,761	\$165,522	\$0 (\$165,522)
Contract	3	\$2	\$0		21,645		21,645	\$43,290	\$0 (\$43,290)
ineligible	4	\$2	\$0		1,729		1,729	\$3,459	\$0 (\$3,459)
	5	\$2	\$0		192		192	\$385	\$0 (\$385)
Subtotal					305,134		305,134	\$610,269	\$0 (\$610,269)
E-3	1	\$8	\$0		285,312		285,312	\$2,282,492	\$0 (\$2,282,492)
Nondelivery	2	\$13	\$0		97,960		97,960	\$1,273,485	\$0 (\$1,273,485)
ineligible	3	\$24	\$0		23,550		23,550	\$565,192	\$0 (\$565,192)
	4	\$35	\$0		1,919		1,919	\$67,168	\$0 (\$67,168)
	5	\$55	\$0		219		219	\$12,023	\$0 (\$12,023)
Subtotal					408,959		408,959	\$4,200,360	\$0 (\$4,200,360)
E	1		\$0		605,782		605,782	\$3,653,415	\$0 (\$3,653,415)
Total	2		\$0		231,738		231,738	\$2,102,220	\$0 (\$2,102,220)
ineligible	3		\$0		60,093		60,093	\$966,035	\$0 (\$966,035)
	4		\$0		5,822		5,822	\$146,706	\$0 (\$146,706)
	5		\$0		807		807	\$34,181	\$0 (\$34,181)
Total E					904,241		904,241	\$6,902,556	\$0 (\$6,902,556)

Table 7D. Estimated Boxes in Use by Fee Group, Post-MC96-3
All Fee Groups plus Caller Service and Reserve Numbers

Fee Group	Box Size	Pre 96-3 Fees	Post 96-3 Fees	Pct. Change	Pre 96-3 Boxes	Elasticity	Post 96-3 Boxes	Pre 96-3 Revenues	Post 96-3 Revenues	Change in Revenues
Paid Boxes (A+B+C+D)					14,744,220		14,425,267	\$516,190,819	\$540,041,358	\$23,850,539
Free Boxes (E)					904,241		904,241	\$6,902,558	\$0	(\$6,902,558)
Total Boxes					15,648,462		15,329,509	\$523,093,377	\$540,041,358	\$16,947,981
Caller Service		\$451	\$451	0%	110,370		110,370	\$49,776,870	\$49,776,870	\$0
Reserve Numbers		\$30	\$30	0%	195,742		195,742	\$5,872,260	\$5,872,260	\$0
Grand Total					15,954,574		15,635,621	\$578,742,507	\$595,690,488	\$16,947,981

1 **III. ESTIMATION OF TEST YEAR BOXES**

2 In this section, the estimated box count for the test year before rates
 3 (TYBR) is derived, and price elasticities are applied to estimate the effect on the
 4 number of box customers of the fees proposed in this proceeding (TYAR boxes).
 5 The effect on revenue is also estimated.

6 TYBR boxes are estimated by applying a 1.9 percent growth factor to the
 7 Post-MC96-3 box counts presented in the last section (Table 7). The results are
 8 shown in Table 8 below.

Table 8. Estimated Boxes in Use, TYBR						
Fee Group						
Box Size	A	B	C	D	E	Total
1	72,129	124,239	5,291,127	3,985,837	617,292	10,090,624
2	4,500	29,835	2,239,904	1,561,215	236,141	4,071,596
3	2,524	10,744	742,733	403,555	61,234	1,220,790
4	242	1,553	158,544	32,290	5,933	198,561
5	69	1,516	33,185	3,607	822	39,198
Total	79,464	167,886	8,465,493	5,986,504	921,422	15,620,769

9

10 TYAR boxes are estimated using the same elasticities as before. The
 11 results are shown in Tables 9A and 9B on the following pages. Table 9A shows
 12 the results for all five fee groups. Table 9B summarizes this information in terms
 13 of paid boxes and free boxes and includes caller service and reserve numbers.
 14 The revenue from post office boxes is estimated to increase \$71 million to a total
 15 of \$688 million (or slightly under 12 percent).

Table 9B. Estimated Boxes In Use by Fee Group, TYAR

Fee Group	Box Size	Current Fee	New Fee	Pct. Change	TYBR Number of Boxes	Elasticity	TYAR Number of Boxes	TYBR Revenues	TYAR Revenues	Change In Revenues
A	1	\$48	\$70	46%	72,129	-0.522	54,875	\$3,462,193	\$3,841,262	\$379,068
	2	\$74	\$105	42%	4,500	-0.601	3,368	\$333,014	\$353,648	\$20,634
	3	\$128	\$185	45%	2,524	-0.517	1,943	\$323,050	\$359,485	\$36,435
	4	\$242	\$325	34%	242	-0.517	199	\$58,587	\$64,739	\$6,152
	5	\$418	\$555	33%	69	-0.517	57	\$28,708	\$31,663	\$2,955
Subtotal A		\$53	\$77	45%	79,464	-0.527	60,443	\$4,205,554	\$4,650,797	\$445,243
B	1	\$44	\$60	36%	124,239	-0.478	102,625	\$5,466,528	\$6,157,524	\$690,996
	2	\$66	\$90	36%	29,835	-0.603	23,298	\$1,969,109	\$2,098,806	\$127,697
	3	\$112	\$150	34%	10,744	-0.517	8,860	\$1,203,293	\$1,329,057	\$125,764
	4	\$218	\$290	33%	1,553	-0.517	1,288	\$338,454	\$373,409	\$34,955
	5	\$372	\$435	17%	1,516	-0.517	1,383	\$563,873	\$601,674	\$37,801
Subtotal B		\$57	\$77	35%	167,886	-0.516	137,454	\$9,541,257	\$10,558,471	\$1,017,214
C	1	\$40	\$45	13%	5,291,127	-0.522	4,945,941	\$211,645,078	\$222,567,349	\$10,922,271
	2	\$58	\$65	12%	2,239,904	-0.605	2,076,309	\$129,914,455	\$134,960,112	\$5,045,656
	3	\$104	\$115	11%	742,733	-0.517	702,145	\$77,244,227	\$80,746,711	\$3,502,483
	4	\$172	\$195	13%	158,544	-0.517	147,591	\$27,269,567	\$28,780,156	\$1,510,589
	5	\$288	\$325	13%	33,185	-0.517	30,982	\$9,557,228	\$10,069,197	\$511,969
Subtotal C		\$54	\$60	12%	8,465,493	-0.546	7,902,968	\$455,630,555	\$477,123,524	\$21,492,969
D	1	\$12	\$18	50%	3,985,837	-0.054	3,879,073	\$47,830,039	\$69,823,315	\$21,993,277
	2	\$20	\$30	50%	1,561,215	-0.069	1,507,223	\$31,224,309	\$45,216,703	\$13,992,394
	3	\$36	\$55	53%	403,555	-0.036	395,869	\$14,527,993	\$21,772,811	\$7,244,818
	4	\$53	\$80	51%	32,290	-0.024	31,888	\$1,711,360	\$2,551,060	\$839,700
	5	\$83	\$125	51%	3,607	-0.015	3,579	\$299,375	\$447,359	\$147,984
Total D		\$16	\$24	51%	5,986,504	-0.056	5,817,633	\$95,593,076	\$139,811,248	\$44,218,172
E	1	\$0	\$0		617,292		617,292	\$0	\$0	\$0
	2	\$0	\$0		236,141		236,141	\$0	\$0	\$0
	3	\$0	\$0		61,234		61,234	\$0	\$0	\$0
	4	\$0	\$0		5,933		5,933	\$0	\$0	\$0
	5	\$0	\$0		822		822	\$0	\$0	\$0
Total E					921,422		921,422	\$0	\$0	\$0

Table 9B. Estimated Boxes In Use by Fee Group, TYAR

Summary plus Caller Service & Reserve Numbers

Fee Group	Box Size	Current Fee	New Fee	Pct. Change	TYBR Number of Boxes	Elasticity	TYAR Number of Boxes	TYBR Revenues	TYAR Revenues	Change in Revenues
Paid Boxes		\$38	\$45	34%	14,690,347	-0.155	13,918,498	\$564,970,441	\$832,144,039	\$67,173,598
Free Boxes (E)					921,422		921,422	\$0	\$0	\$0
Total Boxes		\$36	\$43	34%	15,620,769	-0.146	14,839,920	\$564,970,441	\$832,144,039	\$67,173,598
Caller Service		\$451	\$550	22%	102,185	-0.517	90,596	\$46,085,579	\$49,827,932	\$3,742,353
Reserve Numbers		\$30	\$40	33%	182,113	-0.517	150,749	\$5,463,379	\$6,029,976	\$566,598
Grand Total								\$616,519,399	\$688,001,947	\$71,482,549

1 IV. UNIT COSTS FOR POST OFFICE BOXES

2 The purpose of this section is to allocate post office box volume-variable
3 costs in order to calculate unit costs per box. The methodology used is identical
4 to that used in Docket No. MC96-3. Volume-variable cost data for the test year
5 are taken from USPS-T-5, WP E, Tables C and D. TYBR box counts are taken
6 from Section III of this testimony. The only other input is the average rental
7 costs by fee group. The derivation of these data is presented in USPS LR-H-
8 188.

9 There are three main categories of post office box volume-variable costs:
10 "Space Support", "Space Provision", and "All Other", defined as follows

- 11 1. Space Support costs are for (1) custodial supplies and services, (2) building
12 supplies and services, (3) maintenance of plant and building equipment (e.g.,
13 elevators, heating, and air conditioning), (4) fuels, electricity, and water, and
14 (5) protection activities, internal audits, and special investigations. The costs
15 attributed to post office boxes are normally reported in cost segments 11.1.1,
16 11.1.2, 11.3, 15.2, 16.3.1, and 18.1.2.
- 17 2. Space Provision costs are (1) rents, (2) interest expenses, and (3)
18 depreciation costs for floor space located in postal facilities. The costs
19 attributed to post office boxes are normally reported in cost segments 15.1,
20 20.3, and 20.5.
- 21 3. All Other costs are primarily labor costs for window service, and related
22 supervisory and personnel costs. The costs attributed to post office boxes
23 are all cost groupings other than the ones listed above for space support and
24 space provision (i.e., in -cost segments 1, 2, 3, 6, 7, 18, and 20).

1 Total TYBR costs attributed to post office boxes were approximately \$608
2 million. The breakdown among the three categories is (with dollars in
3 thousands):

4		
5	Space Support	\$ 279,928
6	Space Provision	223,226
7	<u>All Other</u>	<u>104,580</u>
8	Total Volume-Variable Costs	\$ 607,734
9		

10 The basis of allocation for each of these categories is different. Costs for
11 the All Other category are allocated proportionately to the number of boxes. The
12 reason is that labor costs such do not depend upon box size or location.

13 Space Support costs, in contrast, depend on box size. For this category,
14 costs are allocated on the basis of capacity (measured in cubic feet). For
15 example, a size 5 box, which has 12 times the capacity of a size 1 box, would be
16 assigned 12 times the volume-variable cost for space support. Similar analyses
17 were presented in Docket Nos. R90-1 and MC96-3.

18 The allocation of Space Provision costs also reflects box capacity.
19 Moreover, since Space Provision costs include rent paid for leased space or
20 imputed rent for owned space, they vary also with location and, therefore, with
21 fee group. Space Provision costs are thus allocated in direct proportion to both
22 box capacity and rental cost per square foot for the location. For example, if
23 there are 100 boxes of a given size in a given office where rent is \$4 per square
24 foot, and 100 boxes of the same size in another office where rent is \$8 per

1 square foot, the Space Provision costs allocated to the boxes in the second
2 office will be twice those allocated to boxes in the first office. Similarly, for a
3 given location, a box with twice the capacity of another will be allocated twice the
4 Space Provision costs.

5 The estimated number of post office boxes in the test year before rates
6 (TYBR), as presented in Table 8, is the beginning point for the cost allocation.
7 Determination of costs per box in each of the three cost categories is presented
8 in Tables 10, 11, and 12 on the following pages. Total unit costs are presented
9 in Table 13.

10 Cost per box in the All Other category is derived by applying the
11 percentage of boxes in a particular fee group and box size to the total volume-
12 variable costs in this category (\$104.6 million). The result is a cost per box that
13 is constant for all fee groups, as shown in Table 10.

14 Space Support costs per box are derived by first multiplying the number of
15 boxes in each fee group and box size by a factor reflecting the relative capacity
16 of each box size. For example, box size 2, which is half again as large as box
17 size 1, has a capacity factor of 1.5. The product is termed "equivalent capacity"
18 in that it represents the equivalent number of size 1 boxes. Summing equivalent
19 capacity over all box sizes and fee groups gives the total equivalent capacity.
20 The percentage of the total equivalent capacity for each fee group and box size
21 is then applied to the volume-variable costs in this category (\$279.9 million).
22 The result is a cost per box that varies with box size, but not with fee group, as
23 shown in Table 11.

1 As discussed above, Space Provision costs vary proportionately with both
 2 box size (capacity) and with location (average rent). In mathematical terms, this
 3 can be expressed as:

$$4 \quad AC_{jk} = c (R_j) (EC_{jk}) \quad (1)$$

5 where AC_{jk} is the volume-variable cost for fee group j and box size k , R_j is
 6 average cost per square foot for fee group j , and EC_{jk} is the equivalent capacity
 7 for fee group j and box size k . The constant of proportionality (c) is determined
 8 so as to make the sum over all fee groups and box sizes equal the volume-
 9 variable cost for space provision (\$223.2 million). Since the average rents are
 10 the same for all box sizes in a given fee group, this constant can be calculated
 11 from the expression:

$$12 \quad c = (\$179,233,000) / Q \quad (2)$$

13 where $Q = R_A E_A + R_B E_B + \dots + R_E E_E$. In this expression E_j refers to the total
 14 equivalent capacity for fee group j ($E_j = \sum_k EC_{jk}$). The corresponding rents are
 15 in contained in Table 12. The constant "c" can be interpreted as the cost for a
 16 "basic" unit of capacity and, in this case, equals \$1.52.

17 The cost per box is calculated by dividing AC_{jk} by the number of boxes in
 18 that fee group and box size. Therefore, it can also be calculated directly from
 19 the expression:

$$20 \quad ac_{jk} = c (R_j) (CF_k) \quad (3)$$

21 where ac_{jk} is the volume-variable cost per box for fee group j and box size k , and
 22 CF_k is the capacity factor for box size k . The resulting unit costs vary with both
 23 box size and fee group, as shown in Table 12.

1

Total unit costs by fee group and box size are shown in Table 13.

Table 10. ALLOCATION OF ALL OTHER COSTS					
Fee Group	Box Size	No. of Boxes	Percentage	Total Costs (thousands)	Costs Per Box
A	1	72,129	0.46%	\$483	\$6.69
	2	4,500	0.03%	\$30	\$6.69
	3	2,524	0.02%	\$17	\$6.69
	4	242	0.00%	\$2	\$6.69
	5	69	0.00%	\$0	\$6.69
	Total	79,464	0.51%	\$532	\$6.69
B	1	124,239	0.80%	\$832	\$6.69
	2	29,835	0.19%	\$200	\$6.69
	3	10,744	0.07%	\$72	\$6.69
	4	1,553	0.01%	\$10	\$6.69
	5	1,516	0.01%	\$10	\$6.69
	Total	167,886	1.07%	\$1,124	\$6.69
C	1	5,291,127	33.87%	\$35,424	\$6.69
	2	2,239,904	14.34%	\$14,996	\$6.69
	3	742,733	4.75%	\$4,973	\$6.69
	4	158,544	1.01%	\$1,061	\$6.69
	5	33,185	0.21%	\$222	\$6.69
	Total	8,465,493	54.19%	\$56,676	\$6.69
D	1	3,985,837	25.52%	\$26,685	\$6.69
	2	1,561,215	9.99%	\$10,452	\$6.69
	3	403,555	2.58%	\$2,702	\$6.69
	4	32,290	0.21%	\$216	\$6.69
	5	3,607	0.02%	\$24	\$6.69
	Total	5,986,504	38.32%	\$40,079	\$6.69
E	1	617,292	3.95%	\$4,133	\$6.69
	2	236,141	1.51%	\$1,581	\$6.69
	3	61,234	0.39%	\$410	\$6.69
	4	5,933	0.04%	\$40	\$6.69
	5	822	0.01%	\$6	\$6.69
	Total	921,422	5.90%	\$6,169	\$6.69
Grand Total		15,620,769	100.00%	\$104,580	\$6.69

Table 11. ALLOCATION OF SPACE SUPPORT COSTS

Fee Group	Box Size	No. of Boxes	Capacity Factor	Equivalent Capacity	Percentage of Equivalent	Total Costs (thousands)	Costs Per Box
A	1	72,129	1	72,129	0.3351%	\$938	\$13.01
	2	4,500	1.5	6,750	0.0314%	\$88	\$19.51
	3	2,524	3	7,571	0.0352%	\$98	\$39.02
	4	242	6	1,453	0.0067%	\$19	\$78.04
	5	69	12	824	0.0038%	\$11	\$156.08
	Total	79,464	1.12	88,728	0.41%	\$1,154	\$14.52
B	1	124,239	1	124,239	0.5773%	\$1,616	\$13.01
	2	29,835	1.5	44,752	0.2079%	\$582	\$19.51
	3	10,744	3	32,231	0.1498%	\$419	\$39.02
	4	1,553	6	9,315	0.0433%	\$121	\$78.04
	5	1,516	12	18,189	0.0845%	\$237	\$156.08
	Total	167,886	1.36	228,728	1.06%	\$2,975	\$17.72
C	1	5,291,127	1	5,291,127	24.5846%	\$68,819	\$13.01
	2	2,239,904	1.5	3,359,857	15.6112%	\$43,700	\$19.51
	3	742,733	3	2,228,199	10.3531%	\$28,981	\$39.02
	4	158,544	6	951,264	4.4199%	\$12,373	\$78.04
	5	33,185	12	398,218	1.8503%	\$5,179	\$156.08
	Total	8,465,493	1.44	12,228,664	56.82%	\$159,052	\$18.79
D	1	3,985,837	1	3,985,837	18.5197%	\$51,842	\$13.01
	2	1,561,215	1.5	2,341,823	10.8810%	\$30,459	\$19.51
	3	403,555	3	1,210,666	5.6252%	\$15,747	\$39.02
	4	32,290	6	193,739	0.9002%	\$2,520	\$78.04
	5	3,607	12	43,283	0.2011%	\$563	\$156.08
	Total	5,986,504	1.30	7,775,348	36.13%	\$101,130	\$16.89
E	1	617,292	1	617,292	2.8682%	\$8,029	\$13.01
	2	236,141	1.5	354,211	1.6458%	\$4,607	\$19.51
	3	61,234	3	183,703	0.8536%	\$2,389	\$39.02
	4	5,933	6	35,597	0.1654%	\$463	\$78.04
	5	822	12	9,865	0.0458%	\$128	\$156.08
	Total	921,422	1.30	1,200,668	5.58%	\$15,617	\$16.95
Grand Total		15,620,769	1.38	21,522,135	100%	\$279,928	\$17.92

Table 12. ALLOCATION OF SPACE PROVISION COSTS

Fee Group.	Box Size	No. of Boxes	Cap. Factor	Equivalent Capacity	Percentage of Equivalent	Average Rent	Total Costs (thousands)	Costs Per Box
A	1	72,129	1	72,129	0.3351%	\$23.49	\$2,576	\$35.71
	2	4,500	1.5	6,750	0.0314%	\$23.49	\$241	\$53.56
	3	2,524	3	7,571	0.0352%	\$23.49	\$270	\$107.12
	4	242	6	1,453	0.0067%	\$23.49	\$52	\$214.24
	5	69	12	824	0.0038%	\$23.49	\$29	\$428.49
	Total	79,464	1.12	88,728	0.41%	\$23.49	\$3,168	\$39.87
B	1	124,239	1	124,239	0.5773%	\$16.74	\$3,161	\$25.45
	2	29,835	1.5	44,752	0.2079%	\$16.74	\$1,139	\$38.17
	3	10,744	3	32,231	0.1498%	\$16.74	\$820	\$76.34
	4	1,553	6	9,315	0.0433%	\$16.74	\$237	\$152.68
	5	1,516	12	18,189	0.0845%	\$16.74	\$463	\$305.36
	Total	167,886	1.36	228,728	1.06%	\$16.74	\$5,820	\$34.67
C	1	5,291,127	1	5,291,127	24.5846%	\$7.71	\$62,012	\$11.72
	2	2,239,904	1.5	3,359,857	15.6112%	\$7.71	\$39,378	\$17.58
	3	742,733	3	2,228,199	10.3531%	\$7.71	\$26,115	\$35.16
	4	158,544	6	951,264	4.4199%	\$7.71	\$11,149	\$70.32
	5	33,185	12	398,218	1.8503%	\$7.71	\$4,667	\$140.64
	Total	8,465,493	1.44	12,228,664	56.82%	\$7.71	\$143,321	\$16.93
D	1	3,985,837	1	3,985,837	18.5197%	\$6.00	\$36,354	\$9.12
	2	1,561,215	1.5	2,341,823	10.8810%	\$6.00	\$21,359	\$13.68
	3	403,555	3	1,210,666	5.6252%	\$6.00	\$11,042	\$27.36
	4	32,290	6	193,739	0.9002%	\$6.00	\$1,767	\$54.72
	5	3,607	12	43,283	0.2011%	\$6.00	\$395	\$109.45
	Total	5,986,504	1.30	7,775,348	36.13%	\$6.00	\$70,916	\$11.85
E	1	617,292	1	617,292	2.8682%	\$7.19	\$6,747	\$10.93
	2	236,141	1.5	354,211	1.6458%	\$7.19	\$3,871	\$16.39
	3	61,234	3	183,703	0.8536%	\$7.19	\$2,008	\$32.79
	4	5,933	6	35,597	0.1654%	\$7.19	\$389	\$65.58
	5	822	12	9,865	0.0458%	\$7.19	\$108	\$131.16
	Total	921,422	1.30	1,200,668	5.58%	\$7.19	\$13,123	\$14.24
GRAND TOTAL		15,620,769	1.38	21,522,135	100%		\$223,226	\$14.29

Table 13. TOTAL VOLUME-VARIABLE COSTS PER BOX						
Fee Group	Box Size	No. of Boxes	Space Provision	Space Support	All Other	Costs Per Box
A	1	72,129	\$35.71	\$13.01	\$6.69	\$55.41
	2	4,500	\$53.56	\$19.51	\$6.69	\$79.77
	3	2,524	\$107.12	\$39.02	\$6.69	\$152.84
	4	242	\$214.24	\$78.04	\$6.69	\$298.98
	5	69	\$428.49	\$156.08	\$6.69	\$591.26
	Total	79,464	\$39.87	\$14.52	\$6.69	\$61.09
B	1	124,239	\$25.45	\$13.01	\$6.69	\$45.15
	2	29,835	\$38.17	\$19.51	\$6.69	\$64.37
	3	10,744	\$76.34	\$39.02	\$6.69	\$122.05
	4	1,553	\$152.68	\$78.04	\$6.69	\$237.41
	5	1,516	\$305.36	\$156.08	\$6.69	\$468.13
	Total	167,886	\$34.67	\$17.72	\$6.69	\$59.08
C	1	5,291,127	\$11.72	\$13.01	\$6.69	\$31.42
	2	2,239,904	\$17.58	\$19.51	\$6.69	\$43.78
	3	742,733	\$35.16	\$39.02	\$6.69	\$80.87
	4	158,544	\$70.32	\$78.04	\$6.69	\$155.05
	5	33,185	\$140.64	\$156.08	\$6.69	\$303.41
	Total	8,465,493	\$16.93	\$18.79	\$6.69	\$42.41
D	1	3,985,837	\$9.12	\$13.01	\$6.69	\$28.82
	2	1,561,215	\$13.68	\$19.51	\$6.69	\$39.89
	3	403,555	\$27.36	\$39.02	\$6.69	\$73.08
	4	32,290	\$54.72	\$78.04	\$6.69	\$139.46
	5	3,607	\$109.45	\$156.08	\$6.69	\$272.22
	Total	5,986,504	\$11.85	\$16.89	\$6.69	\$35.43
E	1	617,292	\$10.93	\$13.01	\$6.69	\$30.63
	2	236,141	\$16.39	\$19.51	\$6.69	\$42.60
	3	61,234	\$32.79	\$39.02	\$6.69	\$78.50
	4	5,933	\$65.58	\$78.04	\$6.69	\$150.31
	5	822	\$131.16	\$156.08	\$6.69	\$293.93
	Total	921,422	\$14.24	\$16.95	\$6.69	\$37.89
GRAND TOTAL		15,620,769	\$14.29	\$17.92	\$6.69	\$38.91