DOCKET SECTION

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

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

RESPONSES OF JOINT PARTIES WITNESS ANTOINETTE CROWDER TO
INTERROGATORIES OF UNITED STATES POSTAL SERVICE (USPS/JP-NOI-1-7)

The Advertising Mail Marketing Association, Direct Marketing Association, Mail Order Association of America, Parcel Shippers Association, and Advo, Inc. (the Joint parties) hereby submit the responses of Joint Parties witness Antoinette Crowder to United States Postal Service interrogatories USPS/JP-NOI-1-7. The interrogatories are stated verbatim and are followed by the response.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that I have on this date served the foregoing document upon all participants of record in this proceeding in accordance with section 12 of the Rules of Practice.

Thomas W. McLaughlin

February 27, 1998

RESPONSES TO UNITED STATES POSTAL SERVICE INTERROGATORIES TO JOINT PARTIES WITNESS ANTOINETTE CROWDER (USPS/JP-NOI3-1-7)

USPS/JP-NOI-1. Please refer to your testimony at page 10, line 14, through page 11, line 2. You state that coverage-related load time "can be interpreted as the non-elemental load time which **includes** the fixed time incurred as a result of the need to make a load, e.g., fixed time to open and close the satchel and mail box." (Emphasis added).

(a) Do the words "includes the fixed time" in this excerpt indicate that, in your view, coverage-related load time is entirely fixed time? Alternatively, do these words indicate that, in your view, coverage-related load time equals fixed time plus some other time increment or increments that are not fixed? If you confirm the latter, please define these other time increments.

(b) Within the context of the excerpt just quoted, do you view fixed time at a stop as time at a stop that is fixed with respect to volume loaded at the stop? If not, what is your definition of fixed time?

RESPONSE:

(a) No. Coverage-related load time on a stop is the non-elemental portion of the point estimate of stop load time predicted by the LTV stop load time models. System-wide coverage-related load time is the stop-level coverage-related load time multiplied by the system number of actual stops. Elemental load stop time is volume-variable stop load time, measured using the point estimates from the LTV stop load time models of (1) stop load time and (2) stop load time volume variability. System-wide elemental load time is the stop-level elemental load time multiplied by the system number of actual stops. For each shape volume, elemental time is that volume's marginal time multiplied by the relevant volume.

If stop load time is subject to scale and scope economies and/or has a fixed time component, then marginal stop load time is less than average stop load time. It may also

be less than average *variable* stop load time. If so, then coverage-related load time, which is the difference between average stop load time and marginal stop load time, includes both fixed and variable (infra-marginal) load time. To see this, consider Proposition 1 in the Presiding Officer's Notice of Areas of Likely Inquiry (February 25, 1998). Stop-level coverage related load predicted from the stop load time model is [(1-Ev)g], where (g) is the point estimate of stop load time predicted from the model and Ev is the associated point estimate of elemental or stop load time variability for volume (v). If there are no fixed time or scale/scope economies reflected in the stop load time model, then Ev would equal 1.0. This means there would be no coverage-related load time. A more complete description of this phenomenon is in response to NAA/JP-NOI3-1(a) which is incorporated into this response.

(b) "Fixed-stop" time included within the point estimate of stop load time predicted from the LTV model is time incurred during the LTV preparation, load, and customer times but is unaffected by the amount of volume to be delivered at that stop. Please note that there are two portions of fixed-stop time which are discussed in my testimony: I would like to clearly distinguish between them now:

- Fixed-stop time which is included within the point estimate of stop load time from the LTV models (*e.g.*, time to open and close receptacles, open the satchel, etc.). This is fixed time that was measured in the LTV data and is, therefore, fully reflected in the LTV modeled stop load time and in the LTV elemental variability which is derived from the point estimate of the LTV modeled stop load time.

- The difference between (1) the LTV modeled stop load time multiplied by system-wide number of actual stops and (2) the STS-estimated accrued load time. The excess of the STS load time over the LTV load time is considered "fixed stop" time, because, on a per stop basis, it was not measured in the LTV data and is not, therefore, reflected in either the LTV modeled stop load time or the elemental variability derived from that modeled load time.

The distinction between these two portions of fixed-stop time is extremely important. Please consider Proposition 2 of the Presiding Officer's Notice. LTV modeled stop load time is (g) and modeled system-wide load time is (gS), where S is the system-level number of actual stops. Within (g) is the fixed-time that was included within the LTV data and is therefore reflected in the stop load time predicted as a point estimate from the LTV models. The LTV modeled elemental variability applies only to (g) and the correct amounts of elemental and coverage-related load times are identified by that variability. (Contrary to the incorrect assumption in Proposition 2, no time was eliminated from the LTV modeled time after the LTV elemental variability was measured. The LTV modeled time and the LTV elemental variabilities match completely.)

However, the STS-based system-wide load time (L) contains more than (gS). L includes not only (gS) but also some additional fixed stop time which was *not* measured in the LTV data and is *not* reflected in the LTV stop load time models. Thus, $L = [(g + a)S]$, where (a) is the STS fixed time per stop which is not in the LTV. As Proposition 2 clearly demonstrates, the elemental variability must match the load time from which it was

evaluated. In this case, the LTV-modeled variability, (Ev) applies only to (g), *not* to (g + a). To adjust (Ev) to correctly match the STS load time amount, [(g + a)S], requires that it be adjusted *downward* to Ev* = Ev [g/(g + a)]. When that is done, LEv* = g S Ev and the correct amount of elemental load time is identified for purposes of ratemaking. Relative to not correctly adjusting Ev to Ev*, elemental load time appropriately decreases by [g/(g + a)].

Concomitantly, as Proposition 3 demonstrates, when the elemental variability adjustment is[g /(g + a)], the residual, non-elemental STS time is then (aS) which is variable with stops-coverage. Accordingly, relative to not correctly adjusting Ev to Ev*, coverage-related load time appropriately increases by the (aS) amount and volume-variable coverage-related load time increases by [(aS)Es].

RESPONSES TO UNITED STATES POSTAL SERVICE INTERROGATORIES TO JOINT PARTIES WITNESS ANTOINETTE CROWDER (USPS/JP-NOI3-1-7)

USPS/JP-NOI-2. Please again refer to your testimony at page 10, line 24 through page 11, line 2. You state that "like access time," coverage-related load time "is variable to the same extent as stops coverage is considered variable."

(a) Please confirm that accrued access time satisfies the criterion of being fixed-time in the sense that it will only change as the number of actual stops changes, and that, holding coverage constant, it will not be affected by the amount of mix of volumes loaded at the existing actual stops?

(b) If you do not confirm, do you believe that accrued access time will vary as volume loaded at existing stops varies, even if the number of these actual stops remains constant?

(c) If you confirm, do you believe that accrued coverage-related load time should also satisfy the criterion stated in part (a)?

(d) Regardless of whether you confirm or do not confirm part (a), do you believe that your measurement of coverage-related load time does satisfy the fixed-time criterion defined in part (a)?

RESPONSE:

(a) I confirm that properly calculated accrued access time per actual or covered stop, for any specific stop, may be considered fixed stop time because it does not change regardless of the amount or mix of volume delivered at the stop.

(b) N/A

(c) I do not confirm that volume-variable coverage-related load time should include *only* the amount of fixed stop load time that varies with volume. Coverage-related load is different from access. Volume-variable coverage-related load time is a marginal concept just as is elemental load time. System-wide load time, estimated as the modeled stop load time multiplied by system-level number of actual stops, is a function of two factors: (1)

average stop load time and (2) number of actual stops. A marginal piece may be added to either an already covered or new stop.

In either case, there is a volume variable load time impact that can be separated into the following two components:

- Elemental load time recognizes the change in system-wide load time when a marginal piece is either added to (or eliminated from) the system-average stop. When a piece is added to an already covered stop, it marginally increases average stop load time and thus system-wide load time. Elimination of a piece on the stop does not uncover the system-average stop.

- Volume-variable coverage-related load time recognizes the change in system load time when a marginal piece causes a change in the number of covered or actual stops. If a marginal piece is added to a previously uncovered stop, the system-wide average stop load time declines because the new one-piece stop causes average volume and load time per stop to decline. With scale and scope economies in stop load time, a decline in average stop volume decreases average stop load time but increases average stop load time per piece. Thus, an increase of one stop may impact total system-wide load time in two ways: (1) it adds the fixed time for the new stop plus (2) it increases variable (*i.e.*, marginal plus infra-marginal) load time due to greater system-wide average stop load time per piece. Of course, the reverse occurs if the marginal volume change eliminates a stop.

The sum of correctly calculated elemental and volume-variable coverage-related load times constitutes the stops-coverage variability weighted sum of both impacts identified above.

This is formally demonstrated in Attachment B to the testimony and a graphic representation of the coverage-related load phenomenon is described in the response to NAA/JP-NOI-1(a) which is incorporated into this response.

(d) Coverage-related load time includes fixed stop load time, as described in (a) above, and coverage-related load time is considered volume-variable to the same extent as stops-coverage. For that reason, the fixed stop load time is treated exactly in the same way as fixed access time. Please also see responses to (c) above and to USPS/JP-NOI3-1.

RESPONSES TO UNITED STATES POSTAL SERVICE INTERROGATORIES TO JOINT PARTIES WITNESS ANTOINETTE CROWDER (USPS/JP-NOI3-1-7)

USPS/JP-NOI-3. Please refer to your testimony at page 12, lines 3-4. You state that "the difference between the LTV and STS load times appears to be relatively fixed stop time included in the STS data but excluded from the LTV data." Please specify what you mean by the word "relatively."

RESPONSE:

The adjective "relatively" could be left out of that sentence and the meaning of the sentence would remain the same. The adjective was intended to indicate that access time is entirely fixed while load time, as defined by the LTV data collection, is only partially fixed. Accordingly, access time is relatively more fixed than load time. No other meaning should be ascribed to that term.

RESPONSES TO UNITED STATES POSTAL SERVICE INTERROGATORIES TO JOINT PARTIES WITNESS ANTOINETTE CROWDER (USPS/JP-NOI3-1-7)

USPS/JP-NOI-4. Please refer to table 1 of your testimony.

(a) Please confirm that the average FY 1996 city carrier wage rate of 24.75, you estimate of $273,903,000 in SDR coverage-related load time cost implies a total FY 1996 system-wide coverage-related load time of 11,066,788 hours. If you do not confirm, please provide your estimate of total FY 1996 system-wide SDR load time.

(b) Please confirm that at the $24.75 wage rate, your estimate of $428,719,000 in SDR elemental load time cost implies a system-wide total of 17,321,980 elemental load time hours. If you do not confirm, please provide your estimate of total system-wide elemental SDR load time.

(c) Assuming your answer to both part (a) and part (b) is "confirmed," please answer the following:

i. Did the estimated 11,066,788 hours of coverage-related load-time constitute fixed time, or was this time amount dependent upon the amount and mix of volume loaded at the SDR stops?

ii. What were carriers doing during these 11,066,788 hours? What activities were they performing? Please include in your description of these carrier activities an explanation of whether the time required to complete the activities was dependent upon the amount and mix of volume loaded at the SDR stops.

iii. What were carriers doing during the estimated 17,321,980 hours of elemental load time? What activities were they performing? How did these activities differ from the activities performed during the 11,066,788 hours of coverage-related SDR load time?

(d) If your answers to part (a) and or part (b) above, provided alternative measures of ystem-wide SDR coverage-related load time and system-wide SDR elemental load time, please substitute those alternatives for coverage-related and elemental load time hours of 11,066,788 and 17,321,980, respectively, that are cited in parts (c)(i) through (c)(iii) of this question. After doing so, please answer the questions posed in parts (c)(i) through (c)(iii) with respect to your alternative measures of system-wide coverage-related and elemental load time hours.

RESPONSES TO UNITED STATES POSTAL SERVICE INTERROGATORIES TO JOINT PARTIES WITNESS ANTOINETTE CROWDER (USPS/JP-NOI3-1-7)

RESPONSE:

(a) Confirmed.

(b) Confirmed.

(c) This question appears to assume that a marginal analysis can be performed simply by determining the number of hours carriers were "handling" volume as opposed to not "handling" volume. That is not correct. The activity being analyzed (*e.g.*, stop load time) may have both variable and fixed aspects; but that does not mean the entire variable time should be considered volume-variable (*i.e.*, marginal time multiplied by volume). And, it does not mean that fixed stop time (non-handling time) cannot vary with volume changes. The response to USPS/JP-NOI-2(c) explains that when a new stop is covered as a result of a marginal volume increase, there can be a system-wide change in both fixed stop time and variable stop time. That change is part of the marginal system-wide load time.

i. No. Coverage-related load time can include both fixed and variable (infra-marginal), but not elemental, load time.

ii. The carriers were delivering volume at the stop and their activities would have been, in part, dependent upon the amount and mix of volume loaded at the stop.

iii. The carriers were delivering volume at the stop and their activities would have been, in part, dependent upon the amount and mix of volume loaded at the stop.

(d) N/A

RESPONSES TO UNITED STATES POSTAL SERVICE INTERROGATORIES TO JOINT PARTIES WITNESS ANTOINETTE CROWDER (USPS/JP-NOI3-1-7)

USPS/JP-NOI-5. Please refer to Attachment A of your testimony at page 2, lines 4-9. You state that:

> It appears that the LTV load time definition principally encompasses the time that carrier actually handles mail, mail equipment, or customer requirements while the STS definition is broader, possibly to the extent that it may even extend to a portion of access time. Thus, the excess of STS time over LTV modeled time is likely fixed stop-related.

Please respond to the following:

(a) Please explain what you mean by the word "principally" as used in the first sentence of the above excerpt. Specifically, does it mean that LTV load time consists mainly of time spent handling mail, mail equipment, or customer requirements, and that some small remaining portion of LTV load time consists of activities other than time spent handling mail, mail equipment, or customer requirements? If so, what are these other activities? Moreover, what are your estimates - by stop type - of the percentage of time that is spent in these other activities and the percentage of time spent in the activity of handling mail, mail equipment, or customer requirements?

(b) In reference to your statement in the above excerpt that STS time "may even extend to a portion of access time," please answer the following.

i. Do you consider the entire excess of the STS measure of accrued load time over the LTV measure of accrued load time to be access time? Alternatively, if you believe some amount of the excess of STS accrued load time over LTV accrued load time is not access time, how do you define this non-access time component of the excess?

ii. Does any of the excess of STS accrued load time over LTV accrued load time qualify as fixed route time? If so, how much? Please explain the basis for your answer.

(c) In reference to your statement in the above excerpt that "the excess of STS time over LTV modeled time is likely fixed stop-related," please anser the following. Please clarify that you mean by "fixed stop-related." Also, if the excess of STS over LTV time is not "fixed stop-related," what else could it be? Please explain fully.

RESPONSES TO UNITED STATES POSTAL SERVICE INTERROGATORIES TO JOINT PARTIES WITNESS ANTOINETTE CROWDER (USPS/JP-NOI3-1-7)

RESPONSE:

(a) The term "principally" could be left out of the sentence and the meaning of the sentence would not change. The adjective was intended to indicate that the LTV time is the specific mail preparation, load, and customer attend time measured in the LTV data collection. These three LTV time components (from page 39, USPS LR E-4) consists of:

- ". . . time spent handling mail at or adjacent to a stop to prepare it for delivery or after collection. The element begins when the carrier starts handling mail or mail-related equipment and ends when the mail or equipment is appropriately ready for delivery or after collection. (Mail Preparation Time)

- "time at a stop to place mail into or onto a delivery receptacle and/or collect mail from a receptacle and/or perform mail-related customer services. The element begins when the carrier's hand starts moving with delivery mail towards the receptacle (after appropriate mail preparation) or reaching towards the receptacle for collection mail. The element ends when the carrier is ready to leave the receptacle." (Load Time)

- ". . . carrier time spent serving or awaiting a customer with a mail item requiring individual treatment. The element begins when the carrier starts treating the affected piece of mail or customer as an individual item (such as departing from the normal line of travel or waiting for the customer to respond). The element ends when the carrier completes the required individual treatment and resumes routine operations." (Attend Customer Time)

There was no intent to suggest that the industrial engineers who took the LTV data did anything incorrectly. Rather the intent was to distinguish LTV load time, which is almost entirely related to mail or services at the delivery point, from STS load time, which certainly includes more than that LTV load time.

(b) (i)&(ii) Attachment A and the response to USPS/JP-NOI3-1 above clearly explain that the difference between STS and LTV "load" times should not be considered load time, for purposes of applying the LTV elemental variabilities and developing elemental load time.

Based on my analysis of the STS and LTV data collections, it appears that the majority of the STS/LTV difference may be called stop-related. As noted on pages 6 and 7, and footnote 1 of Attachment A, this STS/LTV difference likely includes such activities as fixed-access type activities at MDR and B&M stops, collection at collection boxes, delivery retrace activities, and customer contacts while not at the stop. Given the lack of data to disaggregate these activities further, I treated the STS/LTV time difference as fixed stop time, a conservative assumption that may overstate volume-variable costs. For ease of exposition, and to focus on the fact that the LTV variability should be applied only to the point estimate of the modeled stop load time and not to the STS accrued load time per stop estimate, it was assumed that the non-load, fixed-stop time (column 3 in Tables 1, 2, and 3) was distributed among the stop types to the same extent as the LTV modeled stop load times (see pages 2 and 3 of the testimony). This assumption likely overstates the variability related to such time because the stop-related time is likely to be principally associated with collection boxes, delivery retraces, and fixed access-type activities at MDR and B&M stops. A more detailed analysis would likely assign that time not to SDR but to the activities itemized above.

As the question points out, an alternative treatment for this STS/LTV stop-related difference is to add it to total run time rather than to access time. This also appears to be a legitimate approach which integrates that excess STS "fixed load" time into the whole of run time.

RESPONSES TO UNITED STATES POSTAL SERVICE INTERROGATORIES TO JOINT PARTIES WITNESS ANTOINETTE CROWDER (USPS/JP-NOI3-1-7)

USPS/JP-NOI-6. Please refer to table 1 of your testimony where you show that $273,903,000 out of your estimate of $702,622,000 in LTV accrued SDR load time cost (or about 40.0%) is coverage-related cost. Also refer to Attachment A of your testimony at page 3, lines 2-4, where you state that "LTV load time, because it is more narrowly defined to include principally volume-related time, is considerably less than the STS load time . . ." Do you believe that your view that LTV load time is "principally volume-related time" is consistent with your table 1 result showing that 40% of LTV load time cost for SDR stops is coverage-related cost? Please explain fully.

RESPONSE:

Please refer to the response to USPS/JP-NOI-4(c). There is no inconsistency in the language cited above. Compared to the STS estimate of load time, LTV load time is principally volume-related or variable load time. There can be principally volume-related or variable load time which is not elemental load time. With scale and scope economies, marginal time is less than average time and can also be less than average variable time. Accordingly, some volume-related or variable time may appropriately be included in coverage-related load time. Please also refer to the responses to USPS/JP-NOI3- 1 and 2(c) and NAA/JP-NOI3-1(a) which are incorporated into this response.

RESPONSES TO UNITED STATES POSTAL SERVICE INTERROGATORIES TO JOINT PARTIES WITNESS ANTOINETTE CROWDER (USPS/JP-NOI3-1-7)

USPS/JP-NOI-7. Please refer to Attachment A of your testimony at page 4, lines 5-9, where you state that:

> the LTV definition of load time can be considered a narrower definition which encompasses only the carrier's direct handling of mail, mail-related equipment, and customer requirements at the load point, while the STS definition of load time not only includes the LTV-defined activities but also more general stop-related activities."

Please respond to the following:

(a) In light of your other statement at Attachment A, page 2, lines 4-9 (cited in USPS/JP-NOI-5), is it really your view that the LTV definition of load time includes only the time spent handling mail, mail-related equipment, and customer requirements, or just principally this amount of time?

(b) Please define the "more general stop-related activities" that are included in the STS definition of load time.

RESPONSE:

(a) Please see the responses to USPS/JP-NOI3-1 and 5(a).

(b) Please see the response to USPS/JP-NOI3-5(b).

DECLARATION

I, Antoinette Crowder, declare under penalty of perjury that the foregoing answers are true and correct, to the best of my knowledge, information, and belief.

Dated February 26, 1998