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

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POSTAL PATE COMMISSION OFFICE OF THE SECRETARY

Docket No. R2000-1

POSTAL RATE AND FEE CHANGES, 2000

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS XIE TO INTERROGATORIES OF THE FLORIDA GIFT FRUIT SHIPPERS ASSOCIATION (FGFSA/USPS-T1-1-9, 11-29)

The United States Postal Service hereby provides the responses of witness Xie

to the following interrogatories of the Florida Gift Fruit Shippers Association:

FGFSA/USPS-T1-1-9, 11-29, filed on March 23, 2000. Interrogatory FGFSA/USPS-T1-

10 was redirected to the Postal Service.

Each interrogatory is stated verbatim and is followed by the response.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

By its attorneys:

Daniel J. Foucheaux, Jr. Chief Counsel, Ratemaking

K h Hollin

Kenneth N. Hollies

CERTIFICATE OF SERVICE

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

K 2 Hallie

Kenneth N. Hollies

475 L'Enfant Plaza West, S.W. Washington, D.C. 20260–1137 (202) 268–3083 Fax –5402 April 6, 2000

FGFSA/USPS-T1-1. Identify all changes which have been made in the statistical sampling system for TRACS highway subsystem since the description was provided in Docket No. R97-1, and explain the reason for each change.

RESPONSE.

Following are the changes between BY96 and BY98:

1) We changed the estimation methodology to make it more consistent with

the cost driver and the statistical design.

2) We changed sample allocations for Intra-BMC and Intra-SCF. See my

response to MPA/USPS-T1-3.

3) We changed the sample selection algorithm. See my response to

UPS/USPS-T1-61 (j).

4) We modified the production programs to incorporate Y2K changes.

5) We automated numerous manual steps in the TRACS production process,

which impacted programs for sample selection, data editing, expansion, and

distribution key calculation

6) We revised the variance estimation methodology to properly account for correlation among mail categories.

FGFSA/USPS-T1-2. Refer to pages 4 and 5 of T1, and explain what factors are applied to the percent of vehicle floor space occupied to establish the cubic feet utilized and explain how those factors were developed.

RESPONSE.

Please refer to USPS-LR-I-52, sections VII (1), (2), and (3) for a precise

explanation for all the factors used in the process and the exact formulas used in

the calculation.

FGFSA/USPS-T1-3. Refer to page 5 of T1: (a) Explain haw (sic) the "total cubic-foot-miles" used to calculate the distribution keys are developed from the test data recorded. (b) Confirm that the "total cubic-foot-miles" is the sum of all cubic-foot-miles for all of the mail for which data is recorded. If you do not confirm, please explain fully. (c) Explain whether or not, and if so, how, the "total cubic-foot-miles" includes the unutilized space in the vehicle.

RESPONSE.

- (a) See my response to FGFSA/USPS-T1-2.
- (b) Confirmed with clarification: The "total cubic-foot-miles" is the total

expanded cubic-foot-miles summed across all the mail categories.

(c) Please refer to USPS-LR-I-52, sections VII (1), (2), and (3) for a precise

explanation and the exact formulas used to calculate the "total cubic-foot-miles".

FGFSA/USPS-T1-4. Refer to page 5, fn (sic) 8 of T1: Explain the "minor program error" that was detected for the Inter-BMC cost and the Intra-BMC cost in the Cost Segment 14B workpapers and what corrections were applied.

RESPONSE.

In the costs included in the Cost Segment 14B Workpapers, a constant value for vehicle capacity was inadvertently used instead of the variable value representing vehicle capacity. The program error was revised. The program was re-run, and the corrected numbers are incorporated in Tables 1-4 of my Testimony. The numbers included in the Cost Segment 14B Workpapers are also provided in Table 10 for reference purposes. For Inter-BMC and Intra-BMC, the net effect for parcel post was about \$11,000 dollars, which is less than one-tenth of one percent of the cost.

FGFSA/USPS-T1-5. Confirm that the distribution key for highway transportation cost is based on the ratio of cubic-foot-miles for each class/subclass of mail tested in the TRACS program to the total cubic-foot-miles for all mailed so tested. If you do not confirm, please fully explain.

RESPONSE.

Confirmed with clarification. The distribution keys for highway transportation

costs are based on the ratio of expanded cubic-foot-miles for each

class/subclass of mail to the total expanded cubic-foot-miles summed across all

the classes.

FGFSA/USPS-T1-6. Confirm that the primary objective of the TRACS Highway Subsystem is to develop quarterly distribution keys to distribute the total of the volume variable costs of purchased highway contracts to the classes and subclasses of mail actually using the transportation service for the quarter. If you do not confirm, please fully explain.

RESPONSE.

Confirmed.

FGFSA/USPS-T1-7. Explain the rationale and justification for the expansion of the test data to: (a) the capacity of the container, (b) the capacity of the unloaded vehicle.

RESPONSE.

Redirected to Witness Bradley.

FGFSA/USPS-T1-8. Assume that the vehicle has unused capacity of 80% at the last stop on the outbound trip, and that on the same trip, there was no unused capacity at the first stop. If the TRACS sample is made at the last stop, will the recorded data reflect the same cubic feet of sampled mail as would be recorded if the sample is made at the first stop, and the sampled mail is identical? If not, please fully explain.

RESPONSE.

The recorded data would reflect different vehicle utilization, but reflect the same

mail information if the sampled mail is identical.

FGFSA/USPS-T1-9. Assume a round-trip in Intra-BMC covering 150 miles in each direction, with only a single stop - the destination of the outbound trip and the origin of the inbound trip. At the destination of the outbound trip, the vehicle was 10% empty. At the destination of the inbound trip, the vehicle was 80% empty. Also, there is a single bed-loaded parcel, having 1 cubic feet, included in the TRACS sample at each destination. (a) Will the recorded cubic-foot-miles for each of the two parcels be the same? If not, please explain. (b) Will the cubic-foot-miles for each of the two parcels taken into account in the development of the distribution keys be the same? If not, please explain.

RESPONSE.

(a) TRACS does not record cubic-foot-miles for mail items. It records the weight, the mail category, the item type, and the origin facility where the item was loaded onto the vehicle.

(b) The answer may vary, depending on numerous factors. It depends on the stratum weight (clearly they are in different strata), what else was unloaded from the vehicle, and the way mail was loaded on the vehicle. If we denote 'l' and 'O' as the fully expanded cubic-foot-miles for the inbound parcel and the outbound parcel, respectively, any one of the following three outcomes is possible: (1) 'l' is larger than 'O'; (2) 'l' and 'O' are equal; and (3) 'l is smaller than 'O'. The following table illustrates the third scenario:

	Inbound	Outbound
Stratum Weights	700	1,000
Truck capacity	1,800	1,800
Percent of empty	80%	10%
Percent of loose item unloaded	5%	5%
Cubic-feet of loose parcels unloaded	1	1
Cubic-feet of other loose items unloaded	8	1
Cubic-feet of parcel expanded to unloaded capacity	10	45
Cubic-feet of others expanded to unloaded capacity	80	45
Cubic-feet of loose item expanded to unloaded capacity	90	90
Cubic-feet of parcel expanded to truck capacity	50	50
Parcel cubic-feet expanded to the stratum	3,500	5,000
Miles	150	150
Fully expanded parcel cubic-foot-miles for distribution key calculation	5,250,000	7,500,000

FGFSA/USPS-T1-10. Refer to LR-I-52, page 3. Identify the "Density Study data" used to convert weight to cubic feet. State when this study was completed. Provide a copy of the study.

RESPONSE.

Redirected to the Postal Service.

FGFSA/USPS-T1-11. Confirm that the highway contract accounts for Inter-BMC are recorded in account number 53131 and for Intra-BMC in account number 53127. If you do not confirm, please explain.

RESPONSE.

Confirmed.

FGFSA/USPS-T1-12. In an Inter-BMC trip, assume the vehicle is fully bedloaded with parcels and sacks, and that the TRACS sample occurs at the destination BMC. How many sacks and parcels will be selected for sampling? How is that number determined?

RESPONSE.

The data collector will select a total of eight parcels and sacks, unless fewer than

that are unloaded, in which case they will select all sacks and parcels. The

number for sacks and parcels are selected in proportion to their presence on the

vehicle.

FGFSA/USPS-T1-13. Proved the definition of "item" and "item type".

RESPONSE.

With TRACS terminology, "item" refers to pieces, parcels, bundles, sacks, trays, or tubs. Items that are not in wheeled containers or on pallets are called loose items. "Item type" is the type of the item. Items are classified by the following item type: Express Item, Non-Express Sack or Pouch, Envelop Tray, Half size Envelop Tray, Flat Tray or Box, Loose Parcel or Piece (Non-Express), CON-CON, bundle, and Other.

FGFSA/USPS-T1-14. Refer to page 6 of LR-I-52. Explain how the percentage of a container occupied by each item type is determined. If the percentage is determined by estimation, explain the basis of making the estimate without the benefit of an actual count.

RESPONSE.

The data collector determines the percentage based on his/her observation of

the proportion of container space taken by each item type. TRACS data

collectors are trained to making such estimates. Since it is the space taken by

the mail items, not the number of the items, that drives the transportation cost, it

makes more sense to record the percentage than to record the pieces.

FGFSA/USPS-T1-15. (a) Confirm that, for Intra-BMC contracts, the samples allocated to each stratum are:

Inbound BMC	41%	
Inbound SCF	8%	
Inbound Other	2%	
Outbound SCF	41%	
Outbound Other	8%	
(b) Confirm that, for In	ter-BMC conti	acts, the samples allocated to each stratum
are:		
BMC	75%	
SCF	23%	
Other	2%	
(c) Explain how each	percentage wa	as determined.

(d) Explain the extent to which the total mail volume each direction was taken into account in selection of the samples allocated to each stratum.

RESPONSE.

(a) Confirmed for PQ3 and PQ4.

(b) Confirmed.

(c) These percentages are based on historical precedent. We changed the Intra-BMC allocation to alleviate a concern expressed in R97-1 about the imbalance in sample sizes between the inbound and the outbound routes. The Inter-BMC allocation is the same as was used in BY96. The allocation of tests between strata only affects the precision (variance or coefficients of variation) of the estimates, and does not affect the accuracy (bias) of the estimates. The Horvitz -Thompson type of estimator we used properly reflects the selection probabilities, and produces unbiased estimates for the cubic-foot-mile numbers used in the distribution key calculation.

(d). I am uncertain of the extent to which mail volume moving in each direction was taken into account in the original, historical allocations took the amount of mail available for sampling into consideration. See my response to USP/USPS-T1-36 (d) for an explanation on the small percent of samples allocated to the strata that are composed of non-BMC and non-SCF stops.

FGFSA/USPS-T1-16. (a) Confirm that mail sampled from a wheeled container is expanded to the cubic capacity of the container. If you do not confirm, please explain.

(b) Explain why the cubic feet of the actual contents of the container is properly expanded to determine the cubic-foot-miles traveled by the sampled mail.
(c) If the container is partially filled with several mail categories, explain how the actual number of mail pieces of each category is determined.

RESPONSE.

(a) Confirmed.

(b) See response to FGFSA/USPS-T1-7 (a).

(c) TRACS does not count the actual mail pieces by mail category for mail in a container, it sub-samples the container instead. If a container is partially filled with loose mail pieces (assuming non Express Mail), the data collector will record the percent of the container taken up by these mail pieces and sample one mail piece from them. The actual number of mail pieces of each mail category is neither recorded nor calculated in this case. It's also possible that the data collector actually counts the total number of the loose mail pieces, in case it is easier for him/her to count the number of items than to estimate the percent. Again, only one piece will be sampled. See my response to FGFSA/USPS-T1-18 (b) for the expansion algorithm used in that case.

FGFSA/USPS-T1-17. Refer to LR-I-52, page 3. For Inter-SCF contracts it is noted that "these contracts usually do not serve BMCs'. Explain the justification for having 5% of the samples for Inter-SCF contracts taken at BMCs.

RESPONSE.

Although the Inter-SCF contracts usually do not serve BMCs, they do

occasionally have BMC stops. We sample them since they are part of the target

population; failure to sample them would result in biased estimates. The percent

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of sample allocated to this stratum is the same as it was in BY96.



FGFSA/USPS-T1-18. Refer to LR-I 52, page 6 relating to the third stage sample. (a) Explain the criteria by with the data collector decides whether to count the number of items in the container or to estimate the percentage of each item type. (b) Explain how the cubic feet are "imputed" from the number of items.

(c) Explain how "The item type determines which expansion formula is used."
(d) Explain the source, including the date determined, for each density factor shown in Table 1 of Appendix III

RESPONSE.

(a) The preference is for the data collector to record the percentage of container taken up by item type. In cases when it is easier for the data collector to count the number of items than to estimate the percent, he/she will then record the number.

(b) The item cubic feet is imputed based on the mail in the sampled item, the number of the item in the container, other items in the container, and the container cubic-feet. The first step is to calculate the cubic-feet for the sampled item, based on the recorded mail weight and the density factor. The result is then multiplied by the number of items in the container to obtain the unadjusted cubic-feet for all the items with the same item type. This, together with the cubic-feet for all other item types, is again adjusted to the container cubic-feet.

(c) See page 20 of USPS-LR-I-52 for formulas used to calculate gross cubicfeet for various item types.

(d) See response to FGFSA/USPS-T1-10.

FGFSA/USPS-T1-19. Refer to LR-I-52, page 5, concerning the second stage sample. (a) If the TRACS test is made where 10 pallets are unloaded, how many pallets are selected? (b) If the TRACS test is made where 10 wheeled containers are unloaded, how many containers are selected? (c) If the TRACS test is made where 20 loose sacks are unloaded, how many sacks are selected? (d) If the TRACS test is made where 20 loose parcels are bedloaded, how many parcels are selected?

RESPONSE.

- (a) Two.
- (b) It could be three or four, depending on the random start.
- (c) It could be any number from one to eight. It depends on how many, if

any, other non-containerized loose items were unloaded.

(d) It could be any number from one to eight. It depends on how many, if

any, other loose items were unloaded.

FGFSA/USPS-T1-20. Refer to LR-I-52 at page 11. In the first paragraph reference is made to mail "downloaded" from the vehicle. Confirm that this refers to mail "unloaded" from the vehicle. If you do not confirm, please fully explain.

RESPONSE.

Confirmed.

FGFSA/USPS-T1-21. Refer to LR-I-52. Explain the meaning and method of determining the numbers shown in the columns headed "WT" and "TOTWT". Are these numbers actual weights from a scale measurement, or computed weights? If the latter, explain what weight factor is used to calculate the weight for each mailcode.

RESPONSE.

The variable "TOTWT" is the gross weight of a mail item (such as a letter tray, a

flat tub, a sack, a parcel, etc.) and the variable "WT" is the net weight of the mail

in the item for a particular mail category. These are actual weights, typically

recorded from an electronic scale attached to the data collector's computer.

FGFSA/USPS-T1-22. Confirm that the TRACS data are used to estimate on a quarterly basis the percentage of capacity utilized with respect to each of the highway accounts.

(a) Provide the highway utilization factors developed for Account 53127 and 53131, for each quarter of the year covered by LR-I-52, with separate factors for the inbound and outbound movements in account 53127.

(b) Provide comparable capacity utilization data for each subsequent fiscal year.

RESPONSE.

Not confirmed. TRACS data are used to estimate on a quarterly basis

distribution keys for purchased highway contracts. The data collected from

TRACS can be used to estimate the requested percentage.

(a) and (b) The following table provides the requested utilization factors for

each quarter in BY98 and FY99.

CONTRACT TYPE	VEHICLE UTILIZATION				
BY98	FACCAT	PQ 1, 98	PQ 2, 98	PQ 3, 98	PQ 4, 98
INTER-BMC	1	65	62	64	63
INTER-BMC	2	74	64	68	60
INTER-BMC	3	66	74	68	53
INTRA-BMC	1	38	44	38	40
INTRA-BMC	2	76	61	56	47
INTRA-BMC	3	55	39	41	53
INTRA-BMC	4	76	74	75	73
INTRA-BMC	5	55	58	63	59
FY99	FACCAT	PQ 1, 99	PQ 2, 99	PQ 3, 99	PQ 4, 99
INTER-BMC	1	66	65	61	57
INTER-BMC	2	63	62	57	56
INTER-BMC	3	45	44	37	63
INTRA-BMC	1	36	45	39	37
INTRA-BMC	2	49	53	58	48
INTRA-BMC	3	41	69	36	57
INTRA-BMC	4	75	69	70	71
INTRA-BMC	5	62	50	58	49

FGFSA/USPS-T1-23. With respect to intra-BMC highway transportation, please confirm that, under TRACS, if the capacity utilization on the initial leg out from the BMC is twice the capacity utilization on the return portion of the trip back to the BMC, then, in the development of the distribution key, the key for the return portion of the trip will be twice the per cubic feet of actual mail as on the initial leg outbound from the BMC. If you do not confirm, please fully explain.

RESPONSE.

Not confirmed. Since these two legs belong to different strata, this will be true

only if both strata have the same sampling weights.

FGFSA/USPS-T1-24. Identify where in the TRACS data, as in LR-I-52 (a) the actual cubic feet of the mail in each TRACS sample, before there is any expansion, are recorded or computed, and the cubic foot miles for each sample. If this cannot be determined from the Library Reference, please provide this data for each quarter, by transportation mode, accounts 53127 and 53131, for each Testid.

RESPONSE.

TRACS does not record the actual cubic feet of mail for the sample. It records the weight, the mail category, the item type, and the origin facility the item was loaded onto the vehicle. Those data are then used to estimate cubic feet and cubit-foot-miles for each sample. All recorded data that are used in the expansion process, before any expansion, are contained in the ZFILE. See USPS-LR-I-52, Table 8 for variables on each of the data sets in the ZFILE. All the calculations and expansions are performed in the program 'ZEXP'. The program and the SAS logs generated from executing the program for all quarters are provided in the same library reference.

FGFSA/USPS-T1-25. Confirm that TRACS computes the square feet of space occupied by palletized mail. If you do not confirm, please explain. Is there a difference if the pallets are only one high or if the pallets are stacked two high?

RESPONSE.

Confirmed. There is no difference if the pallets are only one high or if the pallets are stacked two high in that computation.

FGFSA/USPS-T1-26. Refer to LR-I-52. The mail sampled is expanded up to the container level. Explain the rationale and justification for this expansion where the volume of mail at the time of the sample is insufficient to fill the container.

RESPONSE.

See the response to FGFSA/USPS-T1-7 (a).

FGFSA/USPS-T1-27. Explain the term "loose item" as used in TRACS. (a) Are bedloaded parcels considered to be loose items?

(b) Are bedloaded sacks of mail considered to be loose items?

RESPONSE.

Loose items are non-containerized items. See my response to FGFSA/USPS-

T1-13 for the definition for 'item'.

- (a) Yes.
- (b) Yes.

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FGFSA/USPS-T1-28. Assume that there are two identical parcels, with the same weight, dimensions, cube, origin and destination, and that these two parcels are transported in Intra-BMC transportation in the same vehicle on the same route, but on different days, and that both parcels are sampled under TRACS at the same destination. The TRACS data reflects that, for the day one trip, the vehicle was 0% empty and for the day two trip, the vehicle was 50% empty. Confirm that:

(a) The measured or computed cubic feet for each of the two parcels will be the same.

(b) In the expansion process, different facts will be taken into account for each parcel to reflect the different "empty" percentages.

(c) The expanded cubic feet of the two parcels will be different.

(d) The computed cubic foot miles of the two parcels will be different. If you do not fully confirm any of the above, please fully explain.

RESPONSE.

- (a) Confirmed.
- (b) Confirmed.

(c) and (d) Not confirmed. There could be a case when the expanded cubic feet and cubic foot miles of the two parcels are the same. It depends on what else was unloaded from the vehicle and the way mail was loaded on the vehicle. The following table illustrates a scenario where the expanded cubic feet of the two parcels are the same, and it is also true for the computed cubic foot miles:

	Day One	Day Two
Stratum Weights	1,000	1,000
Truck capacity	1,800	1,800
Percent of empty	0%	50%
Percent of loose item unloaded	5%	5%
Cubic-feet of loose parcels unloaded	1	1
Cubic-feet of other loose items unloaded	1	3

Cubic-feet of parcel expanded to unloaded capacity	45	22.5
Cubic-feet of others expanded to unloaded capacity	45	67.5
Cubic-feet of loose item expanded to unloaded capacity	90	90
Cubic-feet of parcel expanded to truck capacity	45	45
Parcel cubic-feet expanded to the stratum	45,000	45,000
Miles	150	150
Fully expanded parcel cubic-foot-miles for distribution key calculation	6,750,000	6,750,000

FGFSA/USPS-T1-29. Do you agree that a reasonable distribution key would reflect actual utilization of the Intra-BMC capacity over the entire route? Please fully explain any negative response.

RESPONSE.

I do not agree. I believe that a reasonable distribution key should reflect the

utilization of cubic-foot-miles of vehicle capacity on the Intra-BMC network by the

various classes and subclasses of mail.

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DECLARATION

I, Jennifer J. Xie, hereby declare under penalty of perjury that the foregoing answers are true and correct to the best of my knowledge, information and belief.

ing dee Jennifer

Date: ______Apr. 1 6 2000