

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

ANNUAL COMPLIANCE REVIEW, 2017

Docket No. ACR2017

RESPONSES OF THE UNITED STATES POSTAL SERVICE TO  
QUESTIONS 1-2 OF CHAIRMAN'S INFORMATION REQUEST NO. 4

The United States Postal Service hereby provides its responses to the above-listed questions of Chairman's Information Request No. 4, issued on January 16, 2018. Each question is stated verbatim and followed by the response.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

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**RESPONSES OF THE UNITED STATES POSTAL SERVICE  
TO CHAIRMAN'S INFORMATION REQUEST NO. 4**

1. With respect to the methodology for estimating performance for First-Class Mail Presort Letters/Postcards, the presort portion of First-Class Mail Flats, USPS Marketing Mail, Periodicals, and Bound Printed Matter Flats, the Postal Service states that “[t]he application of the last mile profile was changed from stratification by the type of final processing operation which occurred to stratification by the number of days remaining to meet service standard after final processing occurred.”<sup>1</sup>
  - a. Please describe in detail the methodology for application of the last mile profile. In the response, please thoroughly explain the difference between “stratification by the type of final processing operation” and “stratification by the number of days to meet service standard after final processing occurred.” FY 2017 Service Performance Report at 8, 14, 17-18, 22.
  - b. For each affected class of mail, please provide the month and year that the modification was implemented.
  - c. Please describe in detail how the modification “improve[s] the accuracy of the performance estimates as the new methodology better accounts for the relationship between time spent in last mile and time spent in processing.” *Id.* at 8, 14-15, 18, 22.

**RESPONSE:**

a. Service performance estimates for First-Class Mail Presort Letters/Postcards, the presort portion of First-Class Mail Flats, USPS Marketing Mail, Periodicals, and Bound Printed Matter Flats are comprised of processing and last mile performance estimates. Processing performance is estimated using the transit-time duration, in days, of Full Service Intelligent Mail data from “Start-the-Clock” to Anticipated Date of Delivery (ADD). The ADD is calculated using the final processing date/time compared to a clearance time. Currently pieces having last processing on APPS/APBS or similar equipment are assigned a clearance time of 5 AM and all other pieces are assigned

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<sup>1</sup> Library Reference USPS–FY17–29, December 29, 2017, pdf file “FY17-29 Service Perf Report,” at 8, 14, 17-18, 22 (FY 2017 Service Performance Report).

**RESPONSES OF THE UNITED STATES POSTAL SERVICE  
TO CHAIRMAN'S INFORMATION REQUEST NO. 4**

10:30 AM clearance time. Pieces last processed on a postal delivery day prior to the clearance time will have the ADD of that day. Pieces processed after the clearance time or on a non-delivery day will be assigned the ADD of the next delivery day.

Processing transit time for the piece is the difference in days between the ADD and the Start-the-Clock Date, adjusted for non-delivery days immediately preceding the ADD.

Processing Profiles show the overall mail volume for each reporting category-service standard combination (e.g., Two-Day Presort First-Class Letters/Cards, 5-Day Destination Entry High-Density/Saturation Marketing Mail Flats, etc.) and the number of pieces with 0, 1, 2, etc. days in transit. An example Processing Profile is shown below.

Product	Destination District	Service Standard	Days Left Group	Processing Transit Days				
				0 Days	1 Day	2 Days	3 Days	>=4 Days
FCM Letters	Example	Two-Day	2 or More	431,063	-	-	-	-
FCM Letters	Example	Two-Day	1	-	10,354,298	-	-	-
FCM Letters	Example	Two-Day	0	-	-	10,809,553	-	-
FCM Letters	Example	Two-Day	-1 or less	-	-	-	208,933	-
FCM Letters	Example	Two-Day	-1 or less	-	-	-	-	186,940

Last Mile Profiles are calculated using Full-Service pieces received by third-party reporters who scan the IMb on mail received and provide the delivery date for these pieces. For each sampled piece, the external contractor calculates the days in last mile, which is the difference between the delivery date and the ADD minus any non-delivery days in between. Each piece is placed into a last mile category made up of the sampling group, destination district, and the days remaining in processing to meet

**RESPONSES OF THE UNITED STATES POSTAL SERVICE  
TO CHAIRMAN'S INFORMATION REQUEST NO. 4**

service standard. For example, if a First-Class Mail letter going to District X has service standard of three days, and processing duration of two days, the piece would go into the last mile category: FCM Letters, District X, Days Left Group=1. Once each sampled piece for the quarter is categorized, Last Mile Profiles are calculated showing the percent of pieces with -1, 0, 1, 2, 3, etc. days in Last Mile. An example Last Mile Profile is provided here:

Product	Destination District	Days Left Group	Last Mile Days				
			-1 Day	0 Days	1 Day	2 Days	>= 3 Days
FCM Letters	Example	-1 or Less	0.00%	97.32%	1.92%	-	0.77%
FCM Letters	Example	0	0.00%	98.20%	1.60%	0.12%	0.09%
FCM Letters	Example	1	0.00%	97.79%	1.95%	0.15%	0.11%
FCM Letters	Example	2 or More	0.00%	97.09%	2.18%	0.24%	0.49%

Service performance scores are created by applying the Last Mile Profiles to the Processing Profiles. Every combination of processing days plus last mile days that would result in on-time pieces for that service standard is formed by multiplying processing volume by the percent of mail estimated to have that number of days in last mile. Using the sample Processing Profile and Last Mile Profile provided above, the following table shows the calculations which occur.

**RESPONSES OF THE UNITED STATES POSTAL SERVICE  
TO CHAIRMAN'S INFORMATION REQUEST NO. 4**

**Sample Destination District First-Class Mail Letters/Cards Two-Day Service Standard**

<b>Days Left to Meet Service Standard</b>	<b>Volume</b>	<b>Days in Last Mile</b>	<b>Total Transit Days</b>	<b>% of Mail</b>	<b>Estimated On-Time Volume</b>
2 (Days Left Group=2 or more)	431,063	0 Days	0	97.09%	418,519.1
		1 Day	1	2.18%	9,397.2
		2 Days	2	0.24%	1,034.6
1 (Days Left Group=1)	10,354,298	0 Days	1	97.79%	10,125,468.0
		1 Day	2	1.95%	201,908.8
0 (Days Left Group=0)	10,809,553	0 Days	2	98.20%	10,614,981.0
-1 (Days Left Group=-1 or Less)	208,933	-1 Day	2	0.00%	0.0
-2 or more (Days Left Group=-1 or Less)	186,940	N/A	3 or more	0%	0.0
<b>Total</b>	21,990,787				21,371,308.7
<b>Total On-Time Score</b>					97.2%

The prior methodology grouped pieces according to the type of last processing operation which occurred rather than by the number of days remaining after processing to meet service standard. In the prior approach, if a mailpiece was processed at the expected plant and received the finest depth of sort (e.g., Second Pass DPS for letters, FSS or carrier route sorting for flats, etc.), the piece was categorized as LPO 1. All other pieces with final processing at the expected plant were categorized as LPO 2. Pieces with last processing occurring in an unexpected plant were categorized as LPO 3. Processing Profiles and Last Mile Profiles were calculated for each of the LPO types rather than Days Left Groups. Once these profiles were calculated, the same methodology described above was employed to estimate the number of on-time pieces. That is, each combination of Last Mile Profile with the same LPO type was multiplied by the Processing Volume with that LPO type

**RESPONSES OF THE UNITED STATES POSTAL SERVICE  
TO CHAIRMAN'S INFORMATION REQUEST NO. 4**

and the result of the days in processing plus days in last mile was evaluated to determine whether the combination was less than or equal to the service standard.

b. The modification was implemented in November 2016, retroactive to the beginning of Quarter 1 FY 2017, for all affected classes of mail.

c. The statistical methodology originally developed for calculating on-time estimates made an underlying assumption that time spent in last mile is independent of the time a piece spent in processing, for the given processing and last mile group or "stratum".

This assumption was based on analysis of the external reporter mailpieces for which both the processing and last mile times were known. The assumption of independence was tested periodically to validate that it remained an appropriate assumption. Over time, changes to processing operating windows and service standards, additional operating events to enhance visibility, more mail in measurement, and increased operational focus on service led to changes in mail transit times. Analyses of the data led to the conclusion that the last processing operation type was no longer the best stratification method, because the calculation methodology was consistently producing results which underestimated on-time performance compared with calculating performance of the external reporter mailpieces from end-to-end, particularly for flats. Examination of the pattern indicated that time in last mile for flats significantly differed when mail was processed early, compared to when it was processed near the service standard date.

**RESPONSES OF THE UNITED STATES POSTAL SERVICE  
TO CHAIRMAN'S INFORMATION REQUEST NO. 4**

Alternative approaches were developed and evaluated to compare the measurement accuracy. The table below contains results from analyses performed on external reporter mail from Quarter 2 FY 2015 and displays the estimated measurement bias in the on-time score using the Last Mile Profiles stratified by the number of days left in processing to meet service standard ("Days Left") and stratified by last processing operation type ("LPO"). Bias was measured as the on-time estimate derived using each stratification method minus the true on-time score of the reporter mailpieces measured end-to-end. The columns show results of bias for on-time scores for the 67 districts, displaying the ranked values of minimum, 10<sup>th</sup> percentile, 25<sup>th</sup> percentile, 50<sup>th</sup> percentile (median), 75<sup>th</sup> percentile, 90<sup>th</sup> percentile, and the maximum. For example, for Periodicals the LPO method yielded a median bias in the on-time score of -1.1 percentage points, while the Days Left method yielded a median bias of -0.1 percentage points.

**RESPONSES OF THE UNITED STATES POSTAL SERVICE  
TO CHAIRMAN'S INFORMATION REQUEST NO. 4**

**Quarter 2 FY 2015 Last Mile Methodology Bias Comparison**

Category	Stratification	Min	P10	P25	P50	P75	P90	Max
FCM Flats	Days Left	-1.5%	-1.0%	-0.7%	-0.5%	-0.3%	-0.1%	0.4%
	LPO	-2.2%	-1.2%	-0.7%	-0.2%	0.3%	0.7%	1.7%
Periodicals	Days Left	-4.5%	-0.3%	-0.2%	-0.1%	0.0%	0.1%	0.4%
	LPO	-6.1%	-3.0%	-1.9%	-1.1%	-0.7%	-0.3%	0.1%
FCM Letters	Days Left	0.1%	-0.1%	0.0%	0.0%	0.0%	0.1%	0.1%
	LPO	-0.9%	-0.3%	-0.2%	0.0%	0.1%	0.1%	0.4%
Standard Flats	Days Left	-6.5%	-0.2%	-0.1%	0.0%	0.0%	0.1%	0.2%
	LPO	-7.3%	-4.1%	-2.7%	-1.4%	-0.7%	-0.3%	0.4%
Standard Letters	Days Left	-0.5%	-0.2%	-0.1%	0.0%	0.1%	0.1%	0.3%
	LPO	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%

Similar analysis was conducted at the national level for Quarter 4 FY 2016 to validate that the pattern continued. Those results are provided in the following table:

**Quarter 4 FY2016  
National Last Mile Methodology Bias Analysis**

Category	LPO	Days Left
FCM Flats	-1.46%	-0.05%
Periodicals	-1.79%	-0.19%
FCM Letters	-0.11%	0.00%
Standard Flats	-1.26%	-0.20%
Standard Letters	-0.02%	0.00%



**RESPONSES OF THE UNITED STATES POSTAL SERVICE  
TO CHAIRMAN'S INFORMATION REQUEST NO. 4**

2. Please refer to the results for carriers returned by 17:00 on the day of delivery provided in Docket No. ACR2016, Library Reference USPS-FY16-NP30, January 10, 2017, at 7, "USPS-FY16-NP30.Preface.pdf." Please provide updated results that contain the 10 districts with the most failures in meeting the national goal for carriers returned by 17:00 on the day of delivery during FY 2017. For each district identified, please state the number of times that the district failed to meet that national goal during FY 2017, and the corresponding number of times that the district failed to meet that national goal during FY 2016.

**RESPONSE:**

The FY16 and FY17 results are filed under seal as part of USPS-FY17-NP34. The FY15 and FY16 values have been recalculated and are also filed under seal as part of USPS-FY17-NP34.