

ORDER NO. 650

UNITED STATES OF AMERICA
POSTAL REGULATORY COMMISSION
WASHINGTON, DC 20268-0001

Before Commissioners:

Ruth Y. Goldway, Chairman;
Mark Acton, Vice Chairman;
Dan G. Blair;
Tony L. Hammond; and
Nanci E. Langley

Periodic Reporting

Docket No. RM2010-10

ORDER CONCERNING ANALYTICAL PRINCIPLES
FOR PERIODIC REPORTING
(PROPOSAL TWO)

(Issued January 14, 2011)

I. SUMMARY

On June 25, 2010, the Postal Service filed a petition requesting that the Commission establish an informal rulemaking proceeding to consider two proposals to change the analytical principles approved for periodic reporting of its financial information to the Commission.¹ Since both proposals involve reducing the size of the probability sample currently used to collect revenue, piece, and weight information in its Origin-Destination Information System—Revenue, Pieces, and Weight (ODIS-RPW) data collection system, the Postal Service included both in the same Petition and designated

¹ Petition of the United States Postal Service Requesting Initiation of a Proceeding to Consider Proposed Changes in Analytic Principles (Proposal Two), June 25, 2010 (Petition).

them Proposal Two-A and Proposal Two-B. The Commission approves Proposal Two-B and does not approve Proposal Two-A.

Proposal Two-A is a resubmission of the Postal Service's proposal in Docket No. RM2009-5. There, it proposed to reduce the size of the probability sample used to collect ODIS-RPW data by 20 percent. The proposal was described as part of an organization-wide policy to lower administrative expenses in response to its recent financial difficulties² rather than as a re-evaluation of its technical needs for data of a particular quality. According to the Postal Service, this reduction would have directly saved the Postal Service \$6 million annually.

In Docket No. RM2009-5, the Commission recognized the fundamental role that ODIS-RPW data play in both Postal Service management decision making and much of the analytical work for which the Commission is responsible. It noted that the Postal Service uses ODIS-RPW data in a wide variety of diagnostic, planning, research, and monitoring applications that represent an investment far greater than the \$6 million that it would save by cutting the ODIS-RPW sample size by 20 percent.³ The value of this investment could be jeopardized by the potential loss of precision of ODIS-RPW data that would result from the proposed reduction in sample size.

Through a number of chairman information requests, the Commission asked the Postal Service to quantify the loss in the precision that its proposal would cause in ODIS-RPW data at various levels of disaggregation in terms of increases in the relevant coefficients of variation (CVs). The Postal Service claimed that producing the requested estimates would be too expensive, too time consuming, or technically too difficult.⁴

² See Docket No. RM2009-5, Petition of the United States Postal Service Requesting Initiation of a Proceeding to Consider Proposed Change in Analytic Principles (Proposal One), June 22, 2009, at 1.

³ See Docket No. RM2009-5, Order Concerning Analytical Principles for Periodic Reporting (Proposal One), January 21, 2010, at 6-14 (Order No. 396).

⁴ See Docket No. RM2009-5, Responses of the United States Postal Service to Chairman's Information Request No. 1, August 13, 2009, questions 4, 5, and 7 (Response to CHIR No. 1); see also Responses of the United States Postal Service to Chairman's Information Request No. 3, September 22, 2009, questions 2 through 7 (Response to CHIR No. 3).

The Commission concluded that the need to preserve the integrity of the data underlying vital Postal Service activities outweighed the potential savings. Without credible estimates of the impact of the loss of data quality on the many management studies and data reporting systems that require reliable ODIS-RPW data, the Commission could not approve the proposal. Two Commissioners issued Concurring Opinions that encouraged the Postal Service to support their proposal with the requested quantification of the loss in data quality that would ensue from the proposed reduction in sample size.

In this docket, the Postal Service did not provide the requested quantification of the impact of its proposal on ODIS-RPW data quality. Instead, it offered new sensitivity analyses that estimate the effect that imprecision in ODIS-RPW data would have on two uses to which the data are put—calculating the rate cap, and modeling the cost of flats. These analyses did not address the impact of reducing the ODIS-RPW sample size by 20 percent would have on other critical uses made of ODIS-RPW data that the Commission previously identified and for which quantification was requested. The Postal Service did, however, file Proposal Two-B concurrently with Proposal Two-A.

Under Proposal Two-B, the Postal Service would study an alternative, potentially more reliable ODIS-RPW sampling method. This new sampling method would be implemented and tested with funds made available from a 10 percent reduction in the size of the current sample. In Proposal Two-A, only half of the savings resulting from the 20 percent reduction in sample size would be used to reduce total Postal Service expenses. The other half of the savings would be used to fund the test of the alternative sample design proposed in Proposal Two-B. The Postal Service suggested that the alternative sample design could be tested either as a component of Proposal Two-A, or it could be tested by itself if the Commission did not accept Proposal Two-A. Proposal Two-B would allow the Postal Service to investigate improvements in the ODIS-RPW sample without impacting the amount of money spent while leaving the reliability of the current ODIS-RPW sample data essentially intact.

If the tested sampling method proves to be reliable, it could lead to a more flexible and less costly ODIS-RPW data system. Proposal Two-B has the potential to generate long run savings without putting the current reports that depend on the ODIS-RPW at risk. It is therefore a worthwhile course of action.

For reasons explained more fully below, the Commission accepts Proposal Two-B, but rejects Proposal Two-A.

II. PROPOSAL TWO-B

A. Background

Proposal Two-B is a proposal to reduce the size of the ODIS-RPW probability sample by 10 percent and use the money saved to test an alternative ODIS-RPW sampling frame. Currently, the sample frame unit is defined as an entire mailstream of a given shape (letter, flat, or parcel) exiting from a specific destination delivery unit (DDU). The shape-mailstream is sampled prior to distribution to individual carriers. Since Delivery Point Sequenced (DPS) letters and flats sequenced on the Flat Sequencing System (FSS) arrive at the DDU late in the morning, this leaves an increasingly narrow window for the ODIS-RPW data collector to conduct sampling. The proposed alternative sampling frame would treat individual city and rural carrier routes as sample frame units. All shapes of mail would be sampled after they arrive at an individual carrier case. Sampling of cased mail would begin before the arrival of DPS and FSS mail. The alternative sampling frame would also combine mail exiting the system by means other than street delivery (postal box, firm hold out, caller service, parcel post route) into a single, aggregate sampling unit.

The Postal Service expects the alternative sampling frame to give the data technician a wider window in which to conduct sampling, be less disruptive of the

operations of the DDU, and more adaptable to a 5-day-per-week delivery environment.⁵ It also expects it to produce a modest improvement in the reliability of the sample data due to the similarity in volumes across sampled routes on a given day,⁶ and the opportunity to use End-of-Run machine counts as control totals for route level volumes to improve the statistical precision of the sample data. Petition, Proposal Two-B at 1-2.

B. Commission Analysis

The Postal Service states that if Proposal Two-B is approved without approving Proposal Two-A, that “the ODIS-RPW sample test reduction in the special study sample areas will equal the required test study allocation” (*id.* at 2) so that the precision of ODIS-RPW data outside the special study areas would remain as it currently is. Although collected under a different sample frame, the special study data would be used to supplement the data collected under the established sample frame within the special study areas. This should result in “equivalent mail piece distributional data” in the impacted special study areas. *Id.* at 3.

Proposal Two-B provides an opportunity for improving the quality of the ODIS-RPW data in a number of different ways if it proves successful and is adopted systemwide. It has the potential to widen the window available to data collectors to collect sample data at the redefined Mail Exit Points (MEPs), better adapting the ODIS-RPW data collection system to the DPS/FSS environment. If, in fact, there is less variation in the characteristics sampled across the redefined MEPs, and if it is easier to apply control totals from End-of-Run reports to the redefined MEPs, Proposal Two-B will improve the precision of the sample data. Proposal Two-B should also allow the Postal

⁵ See Petition, Proposal Two-B at 1-2; Response to CHIR No. 1, question 2. In a 5-day-per-week delivery environment, at least on Saturdays, a data technician would need to be able to distinguish mail destined for delivery on the street from mail delivered by other modes in order to separately estimate transit time for the former and the latter. See Response to CHIR No. 1, question 4.

⁶ See Response to CHIR No. 1, question 1; Responses of the United States Postal Service to Questions 1-7 of Chairman’s Information Request No. 2, August 26, 2010, question 6.

Service to adapt to a 5-day delivery environment if that becomes necessary. Of particular significance is the prospect that the Postal Service can implement Proposal Two-B without sacrificing precision in the ODIS-RPW sample data outside the special study areas or inside the special study areas, with no net increase in expense. For these reasons, the Commission approves Proposal Two-B.

III. PROPOSAL TWO-A

A. Background

The ODIS-RPW system is perhaps the most basic information system on which the Postal Service relies to develop rates and manage its business. The Postal Service relies on ODIS-RPW to

develop proposals for new postal rates and fees, assist in budget and workload preparation, conduct management studies, and inform or support management decisions concerning mail flow and transit times in transportation and operations.

See Docket No. R2006-1, Direct Testimony of Bradley V. Pafford, May 3, 2006, at 3.

Like the Postal Service's original proposal in Docket No. RM2009-5, Proposal Two-A would reduce the size of the ODIS-RPW sample by 20 percent and reduce the precision of the sample data accordingly. The Commission issued Order No. 396 in that docket and denied the requested sample size reduction, because the Postal Service did not quantify the reduction in precision and the impact it would have on critical analyses of service performance, costs and rate setting. In an attempt to remedy these problems in this docket, the Postal Service provides a sensitivity analysis to estimate the impact that imprecise ODIS-RPW revenue and volume data might have on two of the many uses of those data. It also argues that some studies that rely on ODIS-RPW data would not be significantly impaired by cutting the size of the sample, or that impairment could be mitigated by analyzing the data at a higher level of aggregation than it currently does (for example, at the level of area offices rather than at the 3-digit ZIP Code level). The

Postal Service further asserts that data from full service Intelligent Mail barcodes (IMb) could eventually reduce its dependence on ODIS-RPW data.

B. Commission Analysis

The record in this docket continues to demonstrate that the Postal Service's proposed reduction in the size of the ODIS-RPW sample would not unduly impair the precision of ODIS-RPW sample data at the national level for major products. The Commission reviewed the evidence that the Postal Service presented in this docket and agrees that the effect of imprecision in ODIS-RPW-based billing determinants on class price cap calculations would be *de minimis*. However, the Postal Service's new sensitivity analyses and arguments do not mitigate the rest of the problems identified in Order No. 396. The problem of imprecision in the disaggregated ODIS-RPW data remains. Disaggregated ODIS-RPW data are relied on by the EXFC delivery performance measurement system, studies of the value of the monopoly and the cost of the Universal Service Obligation, the Transportation Optimization Planning and Scheduling models, and cost models that are used in determining workshare discounts, such as the Postal Service's flats cost models. Although the Postal Service argues that the need for precise and reliable disaggregated ODIS-RPW data could be circumvented by conducting analyses at a level of aggregation higher than the 3-digit ZIP Code or district office levels, the Postal Service has not demonstrated that doing so would be feasible, or would yield comparable results. Similarly, relying on full service IMb as an alternative data source is not realistic for the near term, given the current stage of IMb implementation. These issues are discussed in more detail in the attachment to this Order.

At the national level, for major products, the ODIS-RPW sample produces revenue, volume, and mail characteristic estimates that are precise and, therefore, reliable with some margin of safety. Although cutting the ODIS-RPW sample size by 20 percent would yield savings without significantly degrading the value of the national

estimates obtained for management and regulatory purposes; the same is not true of the estimates that the ODIS-RPW sample produces when it is disaggregated along the dimensions of geography, time, or mail characteristic. Reliable data at those disaggregated levels is necessary for the Postal Service and the postal community if they are to understand how the components of the postal network generate revenue, incur costs, or provide service.

Currently, disaggregated ODIS-RPW data is generally not precise or reliable according to customary measures of statistical precision, such as CVs. At disaggregated levels, there is no margin of safety to absorb additional error. Cutting the size of the ODIS-RPW sample, as Proposal Two-A would do, is likely to significantly degrade the quality of data that already approaches or exceeds the threshold of unreliability. The aggregation strategies that the Postal Service often applies in an effort to rehabilitate disaggregated ODIS-RPW data are generally not successful because these efforts obscure the behavior of the network components that the various studies and reports are intended to capture.

Proposal Two-A would cause a loss of precision and reliability in the output of as much as \$40 million worth of annual studies and reports that use disaggregated ODIS-RPW data. The Postal Service has not estimated the extent of the loss. Instead, it has offered either an analysis purporting to demonstrate that the output of a given study is not sensitive to the quality of the disaggregated ODIS-RPW data. In the majority of instances,⁷ the Postal Service's sensitivity analyses demonstrated that study output would be insensitive to degradation of *aggregated* data, rather than *disaggregated* data. However, it does not address the initial concern of losing precision in disaggregated ODIS-RPW data. For some studies, the Postal Service cites statements by its employees who use the study that the output would be insensitive to

⁷ As explained above, the Commission accepts the Postal Service's analysis that class price cap calculations are insensitive to imprecision in billing determinant data.

degraded ODIS-RPW data. These assurances are made without explanation or support.

With respect to most of the uses of disaggregated ODIS-RPW data, the Postal Service emphasizes the possibility that it could, eventually, develop indirect or partial substitutes of various kinds for disaggregated ODIS-RPW data. A more appropriate sequence of events would be to first develop the alternative sources of disaggregated data, verify that these alternatives provide reliable substitute inputs to the affected studies and reports, and then seek a reduction of the size of the ODIS-RPW sample. Once adequate alternative sources of data have been developed, the Commission would be receptive to proposals to make substantial cuts in the size of the ODIS-RPW sample.

In Docket No. RM2009-5, the Commission found that the Postal Service must demonstrate that reducing the ODIS-RPW sample size by 20 percent would not make the disaggregated data significantly less functional. For the most part, the Postal Service did not demonstrate in this docket what the Commission sought in Docket No. RM2009-5.⁸ It also has not quantified the loss of precision that would result from reducing the ODIS-RPW sample size by 20 percent as requested by the Commission and emphasized in the Concurring Opinions in Docket No. RM2009-5. Consequently, the impact of Proposal Two-A on the integrity of data vital to Postal Service activities cannot be determined. For this reason, the Commission does not approve Proposal Two-A.

⁸ See the attachment to this Order. In Docket No. RM2009-5, the Commission listed possible effects of the Postal Service's proposal on calculation of the class price cap and the LogicNet Plus models among its concerns. In this docket, in addition to accepting that class price cap calculations are insensitive to imprecise billing determinant data, the Commission accepts the Postal Service's representation that it no longer uses ODIS-RPW ZIP Code pair data as an input to the LogicNet Plus models.

IV. ORDERING PARAGRAPHS

It is ordered:

1. Proposal Two-B contained in the Petition of the United States Postal Service Requesting Initiation of a Proceeding to Consider Proposed Changes in Analytic Principles (Proposal Two), filed June 25, 2010, is approved.
2. Proposal Two-A contained in the Petition of the United States Postal Service Requesting Initiation of a Proceeding to Consider Proposed Changes in Analytic Principles (Proposal Two), filed June 25, 2010, is not approved.

By the Commission.

Shoshana M. Grove
Secretary

PROPOSAL TWO-A

As stated in the body of this Order, the Commission finds that increasing the imprecision of disaggregated Origin Destination Information System-Revenue, Pieces, and Weight (ODIS-RPW) data by cutting the size of the ODIS-RPW sample by 20 percent would impair the value of many important studies and reports that rely on those data. This attachment goes into greater detail on the issues raised in Docket No. RM2009-5 that still remain despite some new analyses provided in this docket by the Postal Service in support of Proposal Two-A.

1. Postal Service Response to Commission Decision in Docket No. RM2009-5

As the Postal Service emphasized in Docket No. RM2009-5 when it first proposed to cut the size of the ODIS-RPW sample by 20 percent, the precision of the volume data collected under the current size of the ODIS-RPW sample produces precise estimates at the national level, at least for the nine major categories of single-piece mail. This precision is estimated to remain high if the sample size were reduced by 20 percent. The same is true of unit volume variable cost estimates that employ those volume data.¹ The Postal Service, however, has many requirements for reliable revenue, volume, and weight data below the national level, and below the level of the nine major categories of single-piece mail.²

In Docket No. RM2009-5, the Postal Service did not quantify the loss of precision (the amount by which coefficients of variation (CVs) will be increased) that reducing the size of the ODIS-RPW sample by 20 percent would cause in various kinds of

¹ See Prop.2.A.Redacted.Tables.1.2.3.xls, June 25, 2010.

² See Docket No. RM2009-5, Order Concerning Analytical Principles for Periodic Reporting (Proposal One), January 21, 2010 (Order No. 396). Included in Order No. 396 is a description of Postal Service applications that would be put at risk by a reduction in sample size. *Id.* at 12.

disaggregated ODIS-RPW data, nor did it quantify the loss of precision that would result in various reports and studies that use disaggregated ODIS-RPW data. Instead, it offered a “rule of thumb” that cutting the size of the ODIS-RPW sample by 20 percent would cause CVs for ODIS-RPW volumes at the 3-digit ZIP Code level to increase by 12 percent.³ The Postal Service conceded, however, that using this rule of thumb requires one to disregard the ODIS-RPW sample design, and, in addition, requires one to assume that volume in the sampled ZIP Code is “moderately large.” For ZIP Codes whose volume was not “moderately large,” it conceded that CVs would increase by more than 12 percent, and would not be consistently estimated. It offered no way of identifying which ZIP Codes have volumes that are “moderately large” and which do not.⁴

The Commission cited grounds for inferring that the loss of precision that the Postal Service’s proposal would cause would significantly degrade the value of many of the uses that are made of disaggregated ODIS-RPW data. The Commission noted that a CV of 10 percent is a customary threshold of maximum acceptable imprecision in sample data. Data above that threshold are generally considered unreliable. Order No. 396 at 5. It noted that under the current sample size, ODIS-RPW volume estimates are below that threshold for most Districts, at least for single-piece First-Class mail. For other single-piece mail (Bound Printed Matter, Library and Media, single-piece Parcels, and Priority Mail), ODIS-RPW volume estimates are above that threshold for a large number of Districts (e.g., 23 percent for Priority Mail and 41 percent for Parcel Post). The Commission then applied the Postal Service’s rule of thumb that reducing the ODIS-RPW sample size as proposed would inflate District-level CVs by 12 percent. It found that for single-piece First-Class Mail, ODIS-RPW CVs would remain below the

³ The Postal Service said that this “rule of thumb” could also be applied to ODIS-RPW volumes at the District level.

⁴ See Docket No. RM2009-5, Responses of the United States Postal Service to Chairman Information Request No. 1, August 13, 2009, question 5 (Response to CHIR No. 1).

threshold of unacceptable imprecision for most Districts, while non-First Class single-piece mail, the percent of Districts with unacceptably large CVs rose substantially (e.g., from 23 to 29 percent for Priority Mail and from 41 to 50 percent for Parcel Post). *Id.* at 9-10.

The Commission concluded that implementing Proposal One would unreasonably impair the reliability of disaggregated ODIS-RPW data:

[T]he ODIS-RPW data disaggregated either below the National level, or below the Product level, have many important business and regulatory uses. ...[T]hese include estimates of the profitability of numerous products—both market dominant and competitive, service performance—both single piece and bulk, class-specific caps, the costs of flats, the value of the monopoly and the USO, mail processing network optimization, and transportation network planning, routing and scheduling. It appears that implementing Proposal One would make the disaggregated data significantly less suitable for those uses, and would put at risk Postal Service investments in measurement systems and analytical studies that are much larger than the \$6 million that it would save by implementing Proposal One. Until the Postal Service can demonstrate that this will not occur, the Commission will not accept Proposal One. The true cost associated with sample error is not just the cost of obtaining accurate data, but the cost of basing decisions on inaccurate data.

Id. at 14.

In this docket, the Postal Service provides a sensitivity analysis to respond to the Commission's concern about the consequences of unreliable billing determinant data. An Excel file accompanying its Petition includes Table 3,⁵ which shows revenues at the national level for all the categories of single-piece mail for which the ODIS-RPW sample provides data. For major products, the Postal Service has provided CVs to show the loss of precision that cutting the ODIS-RPW sample would cause.⁶ The Postal Service

⁵ See Prop.2.A.Redacted.Tables.1.2.3.xls, June 25, 2010.

⁶ These are First-Class Mail letters, cards, flats, parcels, Priority Mail, Parcel Post, Bound Printed Matter, and Library/Media Mail.

subtracts the revenue generated by those major products from the total revenue for all single-piece mail. The revenue that remains (\$138 million) the Postal Service characterizes as the only revenue that would be “impacted” by its proposal to cut the size of the ODIS-RPW sample.⁷

The Postal Service offers Table 3 to rebut the Commission’s conclusion in Docket No. RM2009-5 that the imprecision of billing determinant data is already a serious problem which would be made worse by cutting the ODIS-RPW sample by 20 percent. Table 3, however, does not address that issue. The Postal Service has estimated the loss of precision that Proposal Two-A would cause for major *whole single-piece products*. Table 3 adds up revenues for those products and deducts them from the revenues of all single-piece mail, leaving a relatively small residue.

The concern is not about the imprecision of ODIS-RPW data for whole products, but imprecision of those data *at the very detailed level of billing determinants*. The imprecision of those data is already so high that it runs the risk of becoming unusable. Their imprecision is certain to be increased by Proposal Two-A, which would increase the risk that billing determinants will not provide a reliable basis for predicting the revenue consequences of adjusting rate elements within products.

As an example in Docket No. RM2009-5, the Postal Service estimated the inflation of CVs that Proposal Two-A would cause for Parcel Post as a whole. It has not estimated CVs for the various weight and zone elements of Parcel Post for which ODIS-RPW provides sample data. These data must be reasonably reliable if they are to provide useful indications of how a different set of rate and zone charges would affect Parcel Post revenues. The single-piece products whose revenues depend to a large extent on the design of detailed rate elements of this kind include Priority Mail, Parcel Post, and Media/Library Mail. Together, these products have annual revenue of over

⁷ See Petition, Proposal Two-A at 7. The \$138 million remnant consists almost entirely of miscellaneous administrative fees that it charges for a variety of single-piece mail.

\$5 billion. The current ODIS-RPW sample is already so thin that the reliability of billing determinants is in doubt before any sample reduction is made. Selecting or changing the rate elements within these products without a reliable basis for estimating what the revenue consequences will be risks endangering the revenue from these products. It is uncertain how much Proposal Two-A would increase this risk. No margin of safety is built into the Postal Service's billing determinant estimates. Increasing the unreliability will hinder the Postal Service's ability to set appropriate prices for rate elements within products.

Flats cost models. In Docket No. RM2009-5, the Commission also found that reducing the ODIS-RPW sample size by 20 percent would reduce the reliability of the estimates of the Postal Service's flats cost models. It noted that ODIS-RPW volumes at the 3-digit ZIP Code level are used to calculate a Flats Coverage Factor.⁸

At the time that the Postal Service submitted its Flats Coverage Factor methodology to the Commission for approval, it described how it uses ODIS flats volumes at the 3-digit ZIP Code level to capture differences in Flats Coverage Factors at processing plants.⁹ The ratios on which a Flats Coverage Factor is based differ from one processing plant to the next. To reflect this fact, and because processing plants correspond generally to 3-digit ZIP Codes, "ODIS flats volumes were weighted across 3-digit zones" (*id.*) by the Postal Service to capture these differences.

The Postal Service in this docket asserts that it does not "specifically" use ODIS flats volumes at the 3-digit level. It claims instead, that it only uses ODIS flats volumes when they are aggregated above the District level, where imprecision of the data is

⁸ See Order No. 396 at 11. A Flats Coverage Factor is the ratio of the volume of flats of a particular product to the flats sorting equipment of various kinds used in the plants that process flats mail.

⁹ See Docket No. RM2010-4, Petition of the United States Postal Service Requesting Initiation of a Proceeding to Consider Proposed Changes in Analytic Principles (Proposals Twenty-two—Twenty-five), October 23, 2009 at Proposal Twenty-five, Appendix A (Petition, Proposal Twenty-five).

much less.¹⁰ It provides an Excel file (Prop.2.Coverage.Factors) that, illustrates “the impact of the ODIS volumes varying by +/- 40 percent.” *Id.*

The Postal Service’s assertion in this docket that it does not use 3-digit ZIP Code ODIS volumes in a way that affects its calculation of a Flats Coverage Factor is difficult to reconcile with its description of the Flats Coverage Factor methodology that was approved in Docket No. RM2010-4. There it states that “ODIS data are used to measure the relative volumes processed *at each facility*,” and “ODIS flats volumes were weighted *across 3-digit zones*.” (Emphasis added.) Petition, Proposal Twenty-five, Modification, Appendix A.

Both flat sorting equipment configurations and flats volumes are known to differ substantially from plant to plant. In addition, the decision to select one flat sorting technology over another on any given processing tour is made by the plant manager. Both of these factors are important aspects of flats processing cost behavior. If, in fact, plant-level data play no role in estimating a Flats Coverage Factor in the Postal Service’s model, the model would seem to be missing important aspects of flats processing cost behavior. If the reason that the Postal Service aggregates the 3-digit ZIP Code volume data from ODIS to a level above the District is to get around to the imprecision of 3-digit ODIS volumes, this would provide an example of the obstacles to effective cost modeling that imprecise ODIS data presents.

Mail class price cap. In Docket No. RM2009-5, the Commission included calculating class price caps in a list of the ways the Postal Service uses disaggregated ODIS-RPW data. Billing determinants are used to weight class revenues to accurately determine the amount by which prices for a particular class have increased over the previous 12 months. The Postal Service provides a spreadsheet to estimate the effect

¹⁰ In its Petition, the Postal Service says “[w]hile it is true that ODIS data by 3-Digit zone are used as an input to the process, the data are not specifically used at the 3-Digit level. The 3-Digit ODIS data are aggregated by technology configuration, which is more aggregated than the district level.” Petition, Proposal Two-A at 6.

of imprecision in billing determinants on class price cap calculations and concludes that it would be *de minimis*. The Commission accepts this conclusion.

2. Affected Studies and Reports Continue to Represent Major Postal Service Investments

In Docket No. RM2009-5, the Commission rejected the Postal Service's proposal to cut the ODIS-RPW sample by 20 percent because of the potential degradation of the output of complex studies and extensive data reporting systems that represent an annual Postal Service investment of over \$40 million.¹¹ These include the Postal Service/IBM studies of the value of the monopoly and the cost of the USO, the Postal Service's TOPS models, and its EXFC service performance measurement system.¹²

These studies and reports rely on disaggregated ODIS-RPW data either to measure base volumes as a step in analyzing how various components of the postal network behave, or in sample design and sample weighting to obtain estimates that are representative of the various components of the network. The monopoly and USO studies rely on ODIS-RPW volumes at the 3-digit ZIP Code level, TOPS relies on them

¹¹ The estimated annual investment of \$40 million is not precise or exhaustive. It is an estimate of the annual expense associated only with the Transportation Optimization Planning (TOPS) models and the External First-Class (EXFC) service performance reporting system. See Response to CHIR No. 1, question 8. It could be adjusted upward as well as downward. For example, the Postal Service notes that some of the functions that the TOPS models perform do not rely on ODIS-RPW data and therefore the \$40 million estimate should be reduced, but it does not indicate what portion does not, or by how much the estimate should be reduced. Petition, Proposal Two-A at 6. The expense of tracking service performance for the bulk mail classes, and of the Postal Service's monopoly and Universal Service Obligation USO modeling, are among the things that could be added to the \$40 million figure.

¹² In Docket No. RM2009-5, the Postal Service described the models and studies that use disaggregated ODIS-RPW data. It included in that description "models for LogicNet Plus Optimization and Area Simulation." See Docket No. RM2009-5, Response to CHIR No. 1, question 6. In this docket, it says that those models no longer use ODIS-RPW data. See Responses of the United States Postal Service to Questions 1-7 of Chairman's Information Request No. 2, August 26, 2010, question 3.a (Response to CHIR No. 2). Since the \$40 million investment figure is an estimate of the annual expense associated only with the TOPS models and the EXFC service performance reporting system, eliminating the LogicNet Plus models from the list of affected studies, therefore, does not affect the estimate that the Postal Service annually invests \$40 million on studies and reports that rely on disaggregated ODIS-RPW data.

at the 3-digit ZIP Code pair level, and EXFC relies on them at the District-pair, and 3-digit ZIP Code-pair levels.

3. Aggregation as a Mitigating Technique Has Not Been Effective

As already noted, the Postal Service has yet to quantify the loss of precision in disaggregated ODIS-RPW data that Proposal Two-A would cause, or the loss of precision that it would cause in the output of the studies and reports that use those data. In Docket No. RM2009-5, the Commission demonstrated that imprecision of ODIS-RPW data at these levels is a major issue under the current sample size.¹³ Because ODIS-RPW sample data at these levels of disaggregation are very imprecise, estimates are reliable only for high-volume products found in high-volume ZIP Codes, very high-volume District pairs, or extremely high-volume ZIP Code pairs.¹⁴ Although the Postal Service has not quantified it, Proposal Two-A would add to this imprecision. In doing so, it would subtract from the portion of the total network that can be successfully modeled or analyzed—whether the level of interest is destinating ZIP Codes, District pairs, or ZIP Code pairs.

The Postal Service is aware that as ODIS-RPW data is disaggregated it becomes less precise, and the percentage of network components that can be

¹³ This was demonstrated in Docket No. RM2009-5 with respect to both District and 3-digit ZIP Code volumes. Since ODIS-RPW data is more finely disaggregated at the District-pair and 3-digit ZIP Code-pair levels, it may be assumed that the imprecision of ODIS-RPW data at those levels is even greater under the current sample size.

¹⁴ ODIS-RPW data is disaggregated into 892 destinating 3-digit ZIP Codes, 7,600 District pairs, and approximately 81,000 e-digit-ZIP-Code pairs. There are grounds for inferring that under the current ODIS-RPW sample size, valid volume estimates can be made only for a minority of the network's ZIP Codes, District pairs, and ZIP Code pairs. Order No. 396 at 7, Table 1 shows that under commonly accepted criteria of acceptable imprecision (CVs under 10 percent), reliable volume estimates are possible only for major single-piece products in a minority of destinating 3-digit ZIP Codes. Table 2, at page 9, shows that the portion of ZIP Codes that have acceptable levels of imprecision is substantially reduced, based on the Postal Service's rule of thumb estimate of the impact of Proposal Two-A on 3-digit level ZIP Code CVs.

successfully analyzed or measured becomes smaller. It claims to have effectively mitigated this problem by aggregating the data until it is deemed sufficiently precise to use. For example, it claims to have overcome the imprecision of ODIS-RPW volumes at the 3-digit ZIP Code level in its models of the value of monopoly and the cost of the USO by aggregating them up to the area level. It claims that this technique for overcoming imprecision would remain effective if the ODIS-RPW sample were cut by 20 percent.¹⁵

As a mitigation technique, however, aggregation generally has not been effective. When data is aggregated above the level of the network components whose behavior the Postal Service is trying to model or measure, it does not capture the behavior that it seeks to measure. For example, the Postal Service's monopoly and USO studies rely on ODIS-RPW estimates of delivered volume data at the 3-digit ZIP Code level—the level most relevant to determining which portions of the postal network deliver sufficient mail volume to be profitable to the Postal Service or to private entrants under various pricing and entry scenarios. Potential competitors would analyze patterns of profitability and consider potential entry at the 3-digit ZIP Code level or below, not at broad geographic areas where mail density ranges widely.

Similarly, the EXFC reporting system estimates service performance for single-piece First-Class Mail by originating-destinating 3-digit ZIP Code pair, which the Postal Service aggregates to originating-destinating District pair before publishing the results. To ensure that the results are representative, ODIS-RPW volumes at the 3-digit ZIP Code level are used to design the EXFC sample and to weight the EXFC sample results. Aware that the ODIS volumes are extremely imprecise at the District-pair and ZIP Code-pair levels, the Postal Service attempts to rehabilitate that data by aggregating quarterly data into a 12-quarter (three-year) moving average. Response to

¹⁵ As discussed previously with respect to the flats cost models, it also claims to have overcome the imprecision of ODIS volumes at the 3-digit ZIP Code level by aggregating it “above the District level.”

CHIR No. 3, question 6. It does the same when using destinating ODIS-RPW volumes to measure service performance for bulk mail classes. *Id.*, question 7.

To be meaningful, performance scores need to reflect a reasonably discrete time period, such as a quarter. This makes managers and the mailing public better able to detect when service performance trends begin or end and to examine their likely causes in time to react. Resorting to three-year moving averages to overcome imprecision in the data undermines the value of performance scores because it obscures, rather than reveals, the direction that service performance is taking.

4. Substitute Sources of Data Have Not Been Developed or Verified

The Postal Service asserts that the needs that are currently filled by ODIS-RPW data could be filled partially or indirectly by other sources of data. With respect to the monopoly and USO models, the Postal Service suggests that Carrier Cost System data could be combined with DOIS and RMCS data to produce a proxy for the 3-digit ZIP Code ODIS-RPW data on which the monopoly and USO models currently rely.¹⁶ Similarly, the Postal Service states that it

will consider alternates to replace ODIS as the sole source for base volume in the Transportation Optimization Planning and Scheduling (TOPS) models. Sources under consideration include Surface Visibility and TIMES, as well as other operations system data.

Petition, Proposal Two-A at 5.

With respect to the ODIS-RPW data at the 3-digit ZIP Code, District-pair, and 3-digit ZIP Code pair level that are currently relied on to measure service performance, the Postal Service states “it is expected that the availability/coverage of full service

¹⁶ See Response to CHIR No. 2, question 2. This suggestion, however, would involve aggregating data above the 3-digit ZIP Code level, which would still be above the level of analytical interest.

Intelligent Mail and other mail processing systems will reduce the reliance on the ODIS-RPW sample estimated volume.” *Id.* at 7.

The data described as potential substitutes for ODIS-RPW data in the TOPS models and the EXFC reporting systems may not offer a means of sampling volumes of single-piece mail.¹⁷ To avoid periods in which needed data is no longer available and there is nothing ready to replace it requires actually developing these partial and indirect substitutes, verifying that they are effective, and then reducing the ODIS-RPW sample. For these reasons, the possibility that partial or indirect substitutes for disaggregated ODIS-RPW data might eventually be developed does not mitigate the concern that Proposal Two-A would impair the value of the many studies and reports that rely on disaggregated ODIS-RPW data.

5. Assurances That Impacts Will Be Minimal Are Unsupported

With respect to other studies and reports that use disaggregated ODIS-RPW data, the Postal Service simply asserts that the loss of precision in the study output is likely to be “minimal” quoting users of those studies without accompanying support or explanation.¹⁸ However, the Postal Service’s description of the likely effect of its proposal on the value of the IBM/Postal Service study of the value of the monopoly and the cost of the USO illustrates why this may not be the case.

Aware that the precision of ODIS-RPW delivered volumes at the 3-digit ZIP Code level under the current sample size is already below the threshold of what is customarily

¹⁷ The potential sources of alternate data mentioned by the Postal Service include Surface Visibility, TIMES, Delivery Confirmation, and POS data are not adapted to capturing representative flows of single-piece mail. Although the Postal Service holds out the prospect that Intelligent Mail Barcode (IMb) data might eventually capture the majority of single-piece volume (see Response to CHIR No. 2, question 3.c.), the time period for doing so seems quite distant, and there are apparently no plans to track the portion of single-piece mail that does not convert to IMb.

¹⁸ See Petition, Proposal Two-A at 3 (citing Response to CHIR No. 3, questions 6-8, and testimony at technical conference).

considered acceptable in statistical studies, the Postal Service's contractor, IBM, tries to rehabilitate that data by comparing it with DOIS volumes of the same shape at various levels of aggregation (District, SCF, and ZIP Code level). The DOIS data collection system provides a census of mail volume by shape (but not product) that exits delivery units. Because DOIS is a census of shape volume, IBM adopted a subjective rule of thumb that where the discrepancy between ODIS-RPW delivered volumes and DOIS volumes of the same shape is less than 25 percent, the accuracy of ODIS-RPW volumes is sufficiently corroborated to be used as base volumes in its monopoly/USO models. Where the discrepancy is greater than 25 percent, IBM assumes that the 3-digit level ODIS-RPW data is not reliable and discards it. Response to CHIR No. 1, question 1.

Applying the 25 percent discrepancy rule of thumb, the Postal Service discards ODIS-RPW delivered volumes from 9 percent of the ZIP Codes, and assumes that it has reliable data for the remaining 91 percent. According to the Postal Service, if IBM had required that there be less than a 20 percent discrepancy in the two datasets, it would have had to discard ODIS-RPW volumes for 19 percent of the ZIP Codes. *Id.*

Because of their extremely high CVs, there is a strong presumption that ZIP Code level ODIS-RPW volumes are too imprecise to support a statistical study.¹⁹ IBM's validation approach has to overcome that presumption. It is tenuous, at best, to assume that a maximum discrepancy between ODIS-RPW sample data and ODIS census data of 25 percent effectively corroborates the sample data. Since this rule of thumb is entirely subjective, IBM could just as reasonably have selected a maximum discrepancy of 10 percent as one of 25 percent. Under a 10 percent rule, the vast

¹⁹ Currently, CVs for ODIS-RPW volumes at the ZIP Code level for all nine major categories of single-piece mail are well above 50 percent. See Order No. 396 at 7.

majority of ZIP Code level ODIS-RPW volumes would have had to be discarded, and IBM would have had to concede that it had not successfully modeled most of the delivery network.²⁰

The Postal Service describes this validation technique as though it effectively rehabilitates the ODIS-RPW ZIP Code-level volumes and would continue to be effective if the ODIS-RPW sample size were cut by 20 percent. It states that

[f]or an overwhelming majority of ZIP Codes both systems provide comparable data. In a few instances the two estimates cannot be reconciled; if this occurs the ZIP Codes are eliminated from the model.

Petition, Proposal Two-A at 4.

It then states that “the impact on the overall estimate [of] USO costs is likely to be modest...”

These characterizations clearly understate the difficulties that the Postal Service and its contractors currently face when they try to model the value of the monopoly and the cost of the USO based on imprecise ODIS-RPW volumes. The approach that IBM uses to rehabilitate the ZIP Code-level sample data is too lax to provide meaningful validation. The likely effect of a significant reduction in the precision of those data is the inability of IBM and the Postal Service to accurately model the value of the monopoly and the cost of the USO for most of the 3-digit ZIP Codes in the delivery network.

²⁰ The Postal Service states that going from a requirement that ODIS-RPW data be within 25 percent of DOIS data to a requirement that it be within 20 percent of DOIS data to be effectively corroborated doubles the percent of ODIS-RPW ZIP Code data that must be discarded. Intuitively, retightening the allowable discrepancy by the same percentage (tightening it by another 5 percent, going from 20 percent to 15 percent) would redouble the percent of presumptively bad ODIS-RPW data (increasing it from 19 percent to 38 percent). Tightening the allowable discrepancy by yet another 5 percent (from 15 percent to 10 percent) would double the percent of presumptively bad ODIS-RPW data yet again (from 38 percent to 78 percent). This implies that under a 10 percent rule of thumb, under the current sample size, 78 percent of the delivery system cannot be effectively modeled due to imprecise ZIP Code data.