

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

EVOLUTIONARY NETWORK DEVELOPMENT  
SERVICE CHANGES, 2006

Docket No. N2006-1

RESPONSES OF THE UNITED STATES POSTAL SERVICE TO  
PRESIDING OFFICER'S INFORMATION REQUEST NO. 3

The United States Postal Service hereby provides responses to Questions 1 through 14 in Presiding Officer's Information Request No. 3, issued on May 16, 2006:

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

Respectfully submitted,

UNITED STATES POSTAL SERVICE

By its attorneys:

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1. This question is intended to ascertain what operational factors underlie the END model predictions that result from consolidating mail processing operations in the future network.
  - a. Please state whether the END model assumes that the current set of 5-digit ZIP Code and 3-digit ZIP Code areas will remain unchanged in the future network.
  - b. Please state whether the END model assumes that the volume by type of mail that originates from each 5-digit ZIP Code and 3-digit ZIP Code area, and the volume that destinate in each 5-digit ZIP Code and 3-digit ZIP Code area, is assumed to remain the same in the future network.
  - c. Please state whether the number of facilities where single-piece mail currently receives an incoming sort would remain unchanged in the future network.
  - d. Under the assumption that the set of 5-digit ZIP Codes, 3-digit ZIP Codes, 3-digit ZIP Code pairs and the volumes traveling between each of these elements remain unchanged in the future network, please state whether the number of separate incoming sort schemes that would be run on an average processing day in the future network would be fewer than the existing network, and, if so, why.
  - e. Please state whether the average length of run for the set of incoming sort schemes that is performed on an average processing day in the future network would go up relative to the existing network, and, if so, how.
  - f. Please state whether the average hourly throughput achieved performing the sort schemes for the assumptions made in "d" would go up in the future network, and, if so, how.
  - g. Please state whether average hourly labor productivity achieved performing the sort schemes described in "d" would go up relative to the existing network, and, if so, how.
  - h. Please state whether the number of facilities where single-piece mail currently receives an outgoing primary sort would remain unchanged in the future network.
  - i. Please state whether the number of separate outgoing primary sort schemes that must be run on an average processing day in the future network would be reduced relative to the existing network, and, if so, how.
  - j. Please state whether the average length of run for the set of outgoing primary sort schemes described in "i" would go up relative to the existing network, and, if so, how.
  - k. Please state whether the average hourly throughput achieved performing the sort schemes described in "i" would go up relative to the existing network, and, if so, how.

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**Question 1 (continued):**

- l. Please state whether the average hourly labor productivity achieved performing the sort schemes described in "i" would go up relative to the existing network, and, if so, how.
- m. Please provide the information requested in "h" through "i" above for outgoing secondary sort schemes.
- n. Please provide the percent of total variable mail processing costs for single-piece mail that is accounted for by outgoing sortation operations, and the percent that is accounted for by incoming sortation operations in the existing network and how that would change in the future network.

**RESPONSE:**

- a. The END Model does not assume any changes to 5-Digit or 3-Digit ZIP Codes.
- b. The END Models assume the volume that originates and destinate in each 3-Digit ZIP code remains the same as the period in which the RPW Volumes were derived.
- c. The number of facilities where single-piece mail currently received an incoming sort will not remain unchanged.
- d. The number of incoming sort schedules should reduce because of increased opportunity to pack machines and maximize the machine utilization in a more consolidated environment.
- e. There is presently insufficient information upon which to base a conclusion.
- f. The machine throughput used in the END modeling is not assumed to increase over existing achieved throughputs for the machines existing in the network today.

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**RESPONSE to Question 1 (continued):**

- g. There is presently insufficient information upon which to base a conclusion.
- h. The number of facilities processing outgoing primary sorts will be reduced in the future network.
- i. Yes, given that fewer facilities would be processing outgoing mail.
- j. Possibly, due to increased volume from consolidation; however, critical times will not be adjusted.
- k. Yes. By hour, more volume will be processed throughout the window.
- l. Yes. As a function of having more volume available to presort within the same window, this will allow for better utilization of existing equipment.
- m. Please refer to the answers for "h through l".
- n. In the existing network, the percent of total variable mail processing costs for single-piece mail that is accounted for by outgoing sortation operations is about 35 percent and the percent that is accounted for by incoming sortation operations is about 65 percent. The percents are based on the sortation operations at the plants; they include those for letter automation, flat mechanization, parcel sorters, SPBSs and manual piece distributions. There is presently insufficient information upon which to base a conclusion about the future network.

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2. On page 3, USPS Library Reference N2006-1/9 states that "one scenario within END requires a predefined Distribution Concept."
- a. Was the model run without a predefined distribution concept? If so, what did the resulting network look like?
  - b. How many predefined distribution concepts were optimized using the END optimization model and what were the results of these runs?
  - c. If these results differ from the current distribution concept please explain how and why the decision to forgo pursuit of these results in favor of a predefined distribution concept was made.
  - d. Please describe in detail how the distribution concept on which the future network is based was determined.
    - i. Indicate what other concepts were considered and why they were rejected.
    - ii. Discuss what foreign postal networks or other industries were studied in developing a theory of best practices.
    - iii. Provide any relevant documentation that supports the use of the RDC concept as a best practice.

**RESPONSE:**

- a. Yes, but the resulting network was operationally infeasible and impractical to implement.
- b. There has been one primary distribution concept with multiple sensitivities.
- c. There has been no change.
- d. The feasible results with different sensitivities are consistent with today's current distribution concept. (i) Operational feasibilities were considered. (ii). The Energy, Retailing and Telecommunications industries were reviewed since they have some network similarities. (iii) The RDC concept is a combination of many best practices used in the current environment.

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3. Page 5 of USPS Library Reference N2006-1/9 provides a crosswalk between the current and future network. Please explain in detail:
- a. What is required in terms of equipment changes, building modifications, workforce restructuring, mail flow rerouting, and any other significant changes, to convert:
    - i. a P&DC to a RDC;
    - ii. a P&DC to a LPC or DPC;
    - iii. a BMC to a RDC;
    - iv. a L&DC to a RDC; and
    - v. HASPs to STCs.
  - b. Will any BMCs or L&DCs be converted to LPCs or DPCs?
  - c. Will all annexes be closed?
  - d. Will any HASPs remain outside of the STC network?
  - e. Will all STCs be located at RDCs?
  - f. Describe in detail the difference between an AMC and an ATC.
    - i. Will there be fewer ATCs than the current number of AMCs?
    - ii. Will the ATCs be in different locations than the current AMCs?
  - g. Will all, some, or no LPCs and DPCs be co-located in the same building?
  - h. Confirm that no outgoing sorts will be performed at DPCs. If you cannot confirm, please explain fully.
  - i. Where will inbound and outbound international mail be processed in the future network?
  - j. Will the future network include the same number of DDU's as the current network?

**RESPONSE:**

- a. (i-v) Each conversion is unique. A site-specific plan will be drawn up to ensure an effective transition for each RDC.
- b. No.
- c. No.
- d. No.
- e. Yes.

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**RESPONSE to Question 1 (continued):**

- f. AMCs today are non-standardized across the country. They may or may not have mail processing equipment. An ATC is a pure tender and receipt operation to and from air carriers. (i-ii) There has been no final plan developed at this time.
- g. All LPCs will have a DPC role within the facility. By definition, no DPC will have an LPC role collocated.
- h. Confirmed.
- i. The current network plans are to integrate inbound and outbound domestic mail with the current domestic network.
- j. DDUs remain an important node in our network vision. The exact number is not known at this time.

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4. In the future network will any mail travel directly between Origin and Destination LPCs? If so, under what circumstances?

**RESPONSE:**

Yes, Overnight mail and Origin/Destination Pairs with enough volume will warrant direct trucks.

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5. Refer to page 18 of USPS Library Reference N2006-1/9. Please explain fully the meaning of the phrase "[e]ach item simulated is time-and-place traced in the model."

**RESPONSE:**

Within the simulation model, mail pieces are assigned attributes that define where that mail is from, what type of mail, and the characteristics of that mail piece. The characteristics of the mail piece are stored throughout the simulation model, from origin to destination through time. Therefore, at any point in time you can determine what is happening and where it is happening for each mail piece.

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6. Refer to pages 28 and 29 of USPS Library Reference N2006-1/9. The definition of volume given there is “[t]otal individual mail pieces entered into the mail stream during the specified time frame.” Please provide a step-by-step explanation of how these volumes are derived including:
- a. how ODIS data are used;
  - b. how DSAS appointments are used;
  - c. how permit volume from the PostalOne system is used; and
  - d. how the volumes are scaled to match RPW volume.

**RESPONSE:**

- a. ODIS is a destinating sampling system. Within that sampling system, information is stored concerning the place of origin for the mail pieces collected. The distribution of O-D pairs across three years of ODIS data provides the origin-distribution key. There are some key unknown origin-destination pairs, caused by two events: (1) the mail piece is a dropship piece, hence, there is no origin ZIP associated with that mail piece or (2) the mail piece has an “unknown” origin due to insufficient information on the mail piece during data collection. These two events are addressed with additional analysis described in section b and c.
- b. DSAS is used to determine the correct amount of dropship at a given destinating ZIP code.
- c. PERMIT volume from the PostalOne system is used to determine the unknown origin volume and how that mail volume is distributed at origin.
- d. The OZIP-DZIP volume flow percentages are multiplied by the total RPW volume for the year required.

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7. At page 7 of USPS-T-1, it is stated that two of the primary objectives of END are to reduce overall transportation costs and reduce redundancy in the current transportation network. Please explain:
- a. the specific transportation elements that are optimized within the END optimization model;
  - b. which transportation elements are predetermined inputs to the END optimization model (i.e. the location of STCs.); and
  - c. the transportation elements that are addressed outside of the END model, and how cost savings for these elements will be achieved.

**RESPONSE:**

- a. The nodes are optimized. The END models identify and optimize the future transportation nodes.
- b. The input is the volume to be transported in the nodes of the network.
- c. The tactical cost savings through reduction in excess transportation capacity and better cubularization is to be modeled using a new software system called TOPS, which is in the process of development.

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8. On page 19 of USPS Library Reference N2006-1/9, it states that the objective of the simulation model is to test the feasibility of the solutions suggested by the optimization model.
- a. Has the simulation model been run on the future network as a whole?
  - b. If so, please provide the results, including the geographical location (i.e., metropolitan area, urban cluster or rural area) of all RDCs, LPCs and DPCs that were deemed to be part of the future network.
  - c. If not, please explain the extent to which the simulation model has been used to identify the future network and provide the results obtained for all simulation model runs that resulted in feasible solutions to date.
  - d. Does execution of the simulation model ultimately determine what service standards will exist in the future network? Please explain in detail.

**RESPONSE:**

- a. Yes.
- b. The results of the Simulation model specifically do not provide geographic location in the network.
- c. The simulation model does not identify or make decisions about the future network design.
- d. No. The simulation model only recalculates change in a given network's performance against a proposed service standard matrix.

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9. Page 16 of USPS Library Reference N2006-1/9 states that the model will “reassign ZIP Codes within the feasible assignments to maximize utilization and minimize costs.” Please explain in detail how the model minimizes costs. For example,
- a. In step one of the optimization—as shown on pages 14 through 16—are ZIP Codes assigned to facilities based on mileage alone, regardless of facility costs?
  - b. How, and at what point, are the cost functions discussed on pages 37 through 40 used in the optimization or simulation models?
  - c. Where in the optimization or simulation model are facility-specific costs considered?

**RESPONSE:**

- a. Yes.
- b. The cost function is used within optimization as the model evaluates various possible ZIP code and role assignments and specific facilities.
- c. They are considered as the core cost functions are developed.

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10. Slide 40 of USPS-LR-N2006-1/9 states that the cost model used in the END analysis uses direct cost functions for small, medium, and large operations for each mail shape and that these cost functions “match actual productivities in small, medium, and large operations.” Slide 41 shows a graph of these cost functions. The attachment to this POIR shows the productivities for five major mail processing operations expressed in terms of TPH per labor hour. The productivities are separated into three groups according to the scale of the operation (measured as a level of FHP performed by that operation).
- a. The data in the attachment show that hourly labor productivity generally declines as the scale of the operation increases. Please explain how estimated cost functions matching these productivities result in unit costs that generally decline as the scale of the operation increases.
  - b. Does the Postal Service believe that the correlation of increasing scale with decreasing productivities is coincidental, rather than caused by the scale of the operation?
  - c. If so, please list the factors that account for the MODS data showing that productivities decline as the scale of the processing operation increases, e.g., multi-floor plants, age of plants, traffic congestion, difficulty of supervising large workforce, skill level of workforce, etc.
  - d. Of the factors listed in your response to “c,” please state which the Postal Service believes will not affect the costs at the plants to which volume is shifted in the future network, and why.

**RESPONSE:**

- a. The labor demand functions associated with the productivities have two features of note. First, the elasticities of work hours with respect to piece handlings are generally less than 1—i.e., the labor costs are less than 100 percent volume-variable. Thus, adding volume to the system on the margin, other things equal, would tend to increase productivities. Second, the models demonstrate the existence of facility-specific factors (“fixed effects”) that play substantial roles in determining average productivity levels. These features can arise independent of each other: in certain operations, the facility-specific factors are significant

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**RESPONSE to Question 10 (continued):**

even though the workhours in the operation are estimated to be approximately 100 percent volume-variable.

- b. The Postal Service's models separate the effects of processing volumes (piece handlings) from possibly correlated non-volume factors, and demonstrate that the facility-specific shift factors that affect relative productivities are in fact due to non-volume effects.
- c. The factors listed in the question are among the factors that may affect operations' productivity levels and vary little, if at all, with volumes on the margin. Additional non-volume factor that affect costs are discussed in the Docket No. R2006-1 testimonies of witness Bozzo (USPS-T-12) and McCrery (USPS-T-42), as well as previous rate case testimony cited therein.
- d. Shifting volumes to certain plants would not, in itself, be expected to eliminate the effects of non-volume cost-causing factors on operations' costs. Depending on the nature of the shifts, some such factors would be expected to change (e.g., the geographic extent of the plant's service territory) while others would not (e.g., single-level plants would not become multi-story facilities).

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11. Do the scale economies in mail processing indicated by the operation- and/or plant-specific cost functions that are inputs to the END model reflect the economies achieved historically in those plants and/or operations, or do they reflect the economies that the Postal Service assumes will be achieved in the future network?

**RESPONSE:**

The cost model inputs to the END model are empirically estimated. Thus, the implied “economies” are measured rather than assumed.

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- 12.** If the scale economies referred to in "11." reflect economies that the Postal Service assumes will be achieved in the future network, does their achievement depend on an assumption that best practices will be applied to the plant and the operation to which volume is shifted?

**RESPONSE:**

N/A.

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13. Please assume for purposes of this question that "the future network" referred to in witness Williams' response to APWU/USPS-T2-11 is implemented before modification by any AMP review. Provide the best estimate you can of the following:
- a. the mail processing and transportation cost savings that would result from replacing the current network with the future network
    - i. expressed as unit costs by subclass. If this cannot be estimated, then
    - ii. expressed as unit costs by shape. If this cannot be estimated, then
    - iii. expressed as unit costs for all mail. If this cannot be estimated, then
    - iv. expressed in aggregate terms, and
  - b. the changes in service performance that would result from replacing the current network with the future network, expressed as
    - i. a table in the form that the Postal Service used to respond to DBP/USPS-80. If changes of those kind cannot be estimated, then express the changes in terms of
    - ii. the percent of volume for each subclass of mail that would receive an upgrade, and the percent that would receive a downgrade, of its service standard. If that cannot be estimated, then
    - iii. the percent of total 3-digit ZIP Code pairs that would receive an upgrade, and percent that would receive a downgrade, by subclass of mail. If that cannot be estimated, then
    - iv. the percent of volume for each shape of mail that would receive an upgrade, and the percent that would receive a downgrade, of its service standard. If that cannot be estimated, then
    - v. the percent of 3-digit ZIP Code pairs that would receive an upgrade, and the percent that would receive a downgrade, by shape of mail. If that cannot be estimated, then
    - vi. the percent of volume for all mail that would receive an upgraded, and the percent that would receive a downgraded, service standard. If that cannot be estimated, then
    - vii. for all mail, the percent of 3-digit ZIP Code pairs that would receive an upgraded, and the percent that would receive a downgraded, service standard.

**RESPONSE:**

- a-b. There is presently insufficient information available upon which any such estimates could reasonably be based. The cumulative effects will be known when the AMP process has run its course and the transition is complete.

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- 14.** What assumptions were made in the network optimization model or the simulation model concerning the acceptable number of 3-digit ZIP Code pairs or the total mail volume for which service standards could be downgraded in order to reduce costs?
- a. Was the number of downgrades assumed to be acceptable if a similar number of upgrades would also result?
  - b. Was the volume downgraded assumed to be acceptable if an equal volume was upgraded? Explain fully.
  - c. Please respond to parts "a" and "b" separately for each subclass of mail.

**RESPONSE:**

- a-c. There are no assumptions within the END model. Each evaluation is done on a case-by-case basis as AMPs are studied.