

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

EVOLUTIONARY NETWORK DEVELOPMENT
SERVICE CHANGES, 2006

Docket No. N2006-1

RESPONSE OF THE UNITED STATES POSTAL SERVICE
TO OFFICE OF THE CONSUMER ADVOCATE INTERROGATORY
(OCA/USPS-48)

The United States Postal Service hereby files its response to the following
interrogatory of the Office of the Consumer Advocate, dated May 23, 2006:
OCA/USPS-48. The interrogatory is stated verbatim and followed by the response.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

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RESPONSE OF THE UNITED STATES POSTAL SERVICE TO INTERROGATORY OF THE OFFICE OF THE CONSUMER ADVOCATE

OCA/USPS-48 Please review the attached “Management Advisory” Report No. NO-MA-05-001, from the USPS Office of the Inspector General to Paul E. Vogel, USPS Vice President, Network Operations Management, dated March 29, 2005. This report explains how the OIG assisted the Postal Service’s END Independent Verification and Validation (IV &V) team, (Project Number 05YC001NO000). The report indicates one of the purposes of the OIG participation was to ensure compliance with independent verification and validation guidelines. The report points out verification and validation have specialized meanings—verification determines whether the model accurately represents the developer’s conceptual description and specifications; validation determines if the model is built correctly. The process reduces risk in the use of the models and improves the credibility of results. The report states the Postal Service’s IV&V team issued a draft report in January 2005.

- a. Has the IV&V team issued a final report? If so, please provide a copy of that report. If not, please provide a copy of the draft report and please explain why the final report has not been issued.
- b. If a final report has been issued, please summarize the findings of the report and discuss any findings which indicate the model failed the verification and/or validation tests or required improvement.
- c. If the model was modified to meet verification and validation tests, please state when the model was adjusted, corrected, or changed, and whether any further modifications are planned in response the report and findings of the IV&V team.
- d. If further modifications to the END process are required to meet verification and validation tests, please explain the impact the changes will have on the output of the optimization and simulation models, including how the modifications will reduce the risks of using the models and improve the credibility of the models.

RESPONSE

- (a-b) Please see USPS Library Reference N2006-/14. The draft document was deemed sufficiently well-developed for its intended purpose. Accordingly, no “final” version was produced.
- (c) See the attachment to this response.
- (d) Bear in mind that the numerous potential alternative outputs of the optimization and simulation models do not dictate network configuration or operation consolidation decisions. No models precisely replicate every

**RESPONSE OF THE UNITED STATES POSTAL SERVICE TO
INTERROGATORY OF THE OFFICE OF THE CONSUMER ADVOCATE**

RESPONSE to OCA/USPS-48 (continued):

last detail of USPS' mail processing and transportation network due to the scale and complexity involved as well as computational limitations. In any event, the Postal Service has never planned to assume the risks associated with relying exclusively on the END optimization and simulation models to make such decisions. Accordingly, any such risks of doing so are minimized by reliance upon other means for making such determinations.

The IV&V report does not address the role of the AMP review process in determining which operational consolidation opportunities will actually be approved, which facilities will actually be closed, or in developing estimates of potential cost savings or in determining which service standard upgrades or downgrades will actually be implemented.

On the basis of different sets of assumptions, the optimization and simulation models can be used to develop different network configuration scenarios that suggest different numbers of potential Regional Distribution Centers, Local Processing Centers and Destinating Processing Centers. The IV&V report discusses potential roles for certain existing mail processing facilities, potential service standard changes that could be implemented, and potential cost savings that could potentially be realized.

**RESPONSE OF THE UNITED STATES POSTAL SERVICE TO
INTERROGATORY OF THE OFFICE OF THE CONSUMER ADVOCATE**

RESPONSE to OCA/USPS-48 (continued):

In doing so, it provides a snapshot of particular “straw man” network configuration developed in March of 2003 that was not then and has not since been adopted by senior postal management as the optimal network realignment goal.

Evolutionary Network Development Independent Validation and Verification Audit Report Summary: Report and Appendix

Document/ Assumption #	Audit Team Observations	END Response
Appendix: Assumption 4	High variation in PC Miler data that was used in model. This is believed to be caused by use of centroid as opposed to the physical address of facility.	Recommendations Implemented. END model now uses street addresses of every facility when calculating distances.
Appendix: Assumption 6	Recommend review of specific facilities to account for workload disparity between optimization and simulation. Also site specific planning should be used to further validate workload disparity.	Recommendation Implemented. Simulation calculations were adjusted to align with Optimization workload.
Appendix: Assumption 6(g)	Optimization/simulation is overestimated for APPS throughput. Revalidate APPS requirements based on capacity requirements of volumes not processed on a PSM, and project tertiary handlings from mixed volumes and cross-flows between sort plans. Continue development of integrated package and bundling sorting platform without TPSS	END continues to use throughput as specified in the APPS DAR. Rehandling has been accounted for in estimated capacity based on depth of sort requirements at each potential RDC.
Appendix: Assumption 6(h)	Need to further validate Priority volumes at the ZIP3/RDC level for both originating and destinating mail flows.	Volume is validated on a site by site by Area and Site representatives.
Appendix: Assumption 6(k)	Reduction assumption of 25% for Letter and Flat MMP and incoming primary workload resulting from the elimination of the ADC/AADC network. However, there is no proof of concept to support this.	Recommendation Implemented. These assumptions were not carried forward.
Appendix: Assumption 6(l)	An assumption is that outgoing secondary and incoming Primary in OF/DFs is eliminated for MANL and MANF. However there is no proof of concept to support this.	Assume no change in manual workload moving forward.

Appendix: Assumption 7	1) AFCS throughput should be calculated by runtime downtime. 2) Simulation model inaccurately assumes operator availability at the facility level.	1) Utilize run time + down time for all throughput calculations. 2) During the facility specific planning, the labor scheduling will be evaluated in order to facilitate maximizing the utilization of the machines
Appendix: Assumption 8	For the HASP model, we will need to validate lanes, transportation needs, capacity requirements, service requirements, arrival profiles at local operating level. Ascertain implications of customer bed loading.	The transportation model develops reasonable approximations for the transportation network associated with a proposed network solution. The optimization and tactical implementation of existing and future transportation networks will be done utilizing other transportation models.
Appendix: Assumption 11	AS-504 provided the standard machine footprint: 1) DBCS bin number was changed to 206, unit square feet increased by 99 square feet. 2) Increased square feet requirements by 34% to account for aisling and staging.	The footprint for all machines continues to be based on the AS504, however, the largest machine footprint for various types of each mail processing equipment is utilized, in addition, a 20% staging factor is added, as well as a 20% aisle factor is added to get the full footprint per machine.
Appendix: Assumption 13	1) Need to identify mailing requirement changes and potential pricing changes. 2) Develop process for mapping the entry points for products and sort levels in well-defined way.	From a modeling perspective, this assumption was carried forward
Appendix: Assumption 9	Associate Office Arrival Times: (a) Need to verify if they correct based on model assumptions? (b) Need to verify if they realistic?	The associated office arrival times are provided as inputs into the model, and can be adjusted as a variable
Appendix: Assumption 18	Structure dock door optimizer to simulate optimized peak loading periods and consider timeframes such as holidays.	We estimate dock capacity and requirements based on information from both simulation and transportation modeling output.
Appendix: Assumption 20	Optimization volumes are adequate for contingencies. Simulation workload is less than optimization volumes and possibly not adequate for variations and unpredictabilities.	Simulation workload has been adjusted to ensure that it mirrors the optimization workload.
Appendix: Assumption 4	Evaluate model responsiveness to changes in throughputs. Run site specific, closely validating volume input.	Simulation model was adjusted to include site and operation specific machine throughputs
Appendix: Assumption 6	Volume Arrival Profiles: (a) How did END develop input information? (b) Do they represent what is implied to have been modeled? C) Are they correct/realistic based on all other inputs and assumptions, i.e. transportation times, capacities, etc..	Leveraged available sources of 5-digit transportation to refine volume arrival profiles.
Appendix: Assumption T6	Assumption of readily available transportation in any quantity without price effect	The cost of the proposed transportation network is included within the optimization model
Appendix: Assumption C011	Manual letter linearization did not follow the procedures; errors were found in spreadsheet	Error was fixed, model was rerun and no significant variation was identified.
Appendix: Assumption OTT3	Zip to OFDF costs-transport cost per mile: Spot checked increases in costs from one cell to the next and found errors.	Error was fixed, model was rerun and no significant variation was identified.

Appendix: Assumption FP03	Differences between PC Milier and Mapquest mileage ranges are up to 9.5 miles per feasible path. Some feasible paths were affected by miscalculated longitude/latitude and subsequent mileages.	Adjusted PC Milier methodology to include street addresses as referred to in assumption 1. In addition, adjusted feasible paths, reran the model and no significant changes were observed.
Appendix: Assumption FP05	No TTI study to validate that no zip centroid was more than 2 hours from a OF/DF or 3 hours from an NCP	The most recent TTI study was released in 2005 with 2004 data, which provides the velocity reductions for a given metro area.
Appendix: Assumption CA06	Fix Employees per machine and average productivity. Model used FY2001 data for NMOs instead of FY2002-03, which would have reduced savings.	Most recently available workload, cost and volume data is utilized in the models.
Report: Page 23	Continued validation of change in service (overnight to 2 day, and vice versa)	This is an implementation issue and will be managed in accordance with existing procedures for changing service standards.
Report: Page 24	The modeling assumption regarding a standardized fleet for each equipment type needs further evaluation to ensure the correct types of equipment are in place. Site specific modeling at the facility level should resolve these discrepancies during implementation.	Site specific analysis will be performed prior to any implementation.
Report: Page 23	Devise a means for determining density flows between 3 digit ZIP pairs by product	Given existing data sources, the current methodology of using ODIS, PERMIT, RPW and DSAS is still the best approximation of 3-Digit to 3-Digit volume flows, this approach will be updated continuously as new data comes available.
Appendix: Assumption 8	An integrated HASP model should be developed and a thorough analysis of the outputs should be conducted at the local operational level.	The transportation model design for use within END was to develop a reasonable transportation solution, other models are being developed in order to optimize the USPS transportation network.
Report: Page 18	Revised latitude and longitude that corrects original problems with the original latitude and longitude calculations used to determine the feasible paths.	Error was fixed, model was rerun and no significant variation was identified.
Report: Page 18	Revised average throughput of 6,784 (not 6,694) for the APPS machine in the capacity calculations; also revised square feet of 24,196 (not 24,916) for the APPS (this second revision results in total square footage for the Alps of 29,035 (not 29,899).	Error was fixed, model was rerun and no significant variation was identified.
Report: Page 18	Revised Average throughput per labor hour of 86.3 (not 100) for NMOs (the development team derived its average throughput per labor hour of 100 from 2001 data. To be consistent with the methodology used to calculate throughputs for other equipment, the NMO throughput should be calculated using data for the same time period as the other equipment.	Error was fixed, model was rerun and no significant variation was identified.

Report: Page 18	In response to SAS errors pointed out, the square feet required for manual parcel and Priority Mail sortation was recalculated. The recalculation resulted in an additional 14,333 sq ft being required for this sortation; the problem arose because the original SAS program's results overstated the number of situations where parcels would be sorted to sacks and understated the number where parcels would be sorted to containers.	Error was fixed, model was rerun and no significant variation was identified.
Report: Page 18	Volumes for Optimization model: In the development of the pounds per piece and cubic feet per piece conversion factors, the development team used year-old pounds for periodicals. The value used was 4,318,459. The correct value is 3,992,416.	Error was fixed, model was rerun and no significant variation was identified.
Report: Page 18	Volumes for Optimization model: In the development of cube per piece conversion factors for certain products such as other letters, First-Class single piece and presort letters, First-Class flats, Standard parcels, and Standard letters uses pounds as a weighting factor. This deviates from the density study methodology which used the inverse of pounds as a weighting factor. The input development process should use the same weighting process as found in the TRACS density study.	Error was fixed, model was rerun and no significant variation was identified.
Report: Page 18	Volumes for Optimization model: The cubic feet per piece factor for standard flats was based on a hard coded value of weight per cubic foot. It should have pulled the weighted values for pounds per cubic feet from the appropriate spreadsheet in the work book.	Error was fixed, model was rerun and no significant variation was identified.
Report: Page 18	FedEx Day Turn: The development team provided a spreadsheet with a FedEx rate per cubic foot of \$X.XX. The rate they developed and claim to have used is \$X.XX. It is clear from supporting documentation provided by the development group that the \$X.XX is the one they intended to use.	Error was fixed, model was rerun and no significant variation was identified.