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

MAIL PROCESSING NETWORK RATIONALIZATION
SERVICE CHANGES, 2012 DOCKET NO. N2012-1

DIRECT TESTIMONY OF MICHAEL D. BRADLEY ON BEHALF OF THE UNITED STATES POSTAL SERVICE

(USPS-T-10)

TABLE OF CONTENTS

AUTOBIOGRAPHCIAL SKETCH

My name is Michael D. Bradley and I am Professor of Economics at George Washington University. I have been teaching economics there since 1982 and I have published many articles using both economic theory and econometrics. Postal economics is one of my major areas of research and my work on postal economics has been cited by researchers around the world. I have presented my research at professional conferences and I have given invited lectures at both universities and government agencies. I also have extensive experience directing research as I have served as the primary or secondary advisor on over fifty dissertations.

Beyond my academic work, I have extensive experience investigating real-world economic problems, as I have served as a consultant to financial and manufacturing corporations, trade associations, and government agencies.

I received a B.S. in economics with honors from the University of Delaware and as an undergraduate was awarded Phi Beta Kappa, Phi Kappa Phi and Omicron Delta Epsilon for academic achievement in the field of economics. I earned a Ph.D. in economics from the University of North Carolina and as a graduate student I was an Alumni Graduate Fellow. While being a professor, I have won both academic and nonacademic awards, including the Richard D. Irwin Distinguished Paper Award, the American Gear Manufacturers ADEC Award, a Banneker Award and the Tractenberg Prize.

I have been studying postal economics for over twenty-five years, and I have participated in many Postal Rate Commission proceedings. I have studied and presented testimony on the costs of all of the major areas of Postal Service activity: retail, transportation, processing and delivery. In Docket No. R84-1, I helped in the preparation of testimony about purchased transportation and in Docket No. R87-1, I testified on behalf of the Postal Service concerning the costs of purchased transportation. In Docket No. R90-1, I presented rebuttal testimony in the area of city carrier load time costs. In the Docket No. R90-1 remand, I presented testimony concerning the methods of city carrier costing.

I returned to transportation costing in Docket No. MC91-3. There, I presented testimony on the existence of a distance taper in postal transportation costs. In Docket No. R94-1, I presented both direct and rebuttal testimony on an econometric model of access costs. More recently, in Docket R97-1, I presented three pieces of testimony. I presented both direct and rebuttal testimony in the area of mail processing costs. I also presented direct testimony on the costs of purchased highway transportation. In Docket No. R2000-1, I again presented three pieces of testimony. I presented direct testimony on the theory and methods of calculating incremental cost, and I presented direct and rebuttal testimony on the econometric estimation of purchased highway transportation variabilities. In Docket No. R2001-1, I presented testimony on city carrier costs. In Docket No. R2005-1, I presented three pieces of testimony. I presented direct and rebuttal testimony in the area of city carrier costs and I presented direct

testimony that covered the analytical foundations of the attribution of both purchased transportation costs and window service costs.

In Docket No. R2006-1, I again presented three pieces of testimony. I presented two pieces of direct testimony, one on window service costs and one on transportation costs and piece of rebuttal testimony on window service costs.

Finally, in Docket No. N2010-1 I presented testimony that calculated and presented the cost savings created by moving to five-day delivery in the areas of city carrier delivery, rural carrier delivery, and transportation.

In addition to my appearances before the Commission, I have presented testimony on postal matters to the President's Commission on the United States Postal Service, to the Canada Post Mandate Review, to the NAFTA Tribunal on Claims by United Parcel Service against the Government of Canada, and to United States District Court.

The following is a sampling of my published research on postal economics:

"Measuring Canada Post's Costs: Lessons from the U.S. Experience," Canadian Transportation Research Forum, May 1988, with A. R. Robinson

"Measuring Product Costs for Ratemaking: The U.S. Postal Service," in Regulation and the Evolving Nature of Postal and Delivery Services, M. Crew and P. Kleindorfer, eds. Kluwer Academic Publisher, 1992, with J. Colvin and M. Smith

"Measuring Performance of a Multiproduct Firm: An Application to the U.S.Postal System," Operations Research, June 1993, with D.M. Baron

"An Econometric Model of Postal Delivery," in Competition in Postal and Delivery Services: National and International Perspective, M. Crew and P. Kleindorfer, eds. Kluwer Academic Publisher, 1995, with J. Colvin.

"Issues in Measuring Incremental Cost in a Multi-Function Enterprise," in Managing Change in the Postal and Delivery Industries, M. Crew and P. Kleindorfer, eds. Kluwer Academic Publisher, 1997 with J. Colvin and J.C. Panzar

"On Setting Prices and Testing Cross-Subsidy with Accounting Data," Journal of Regulatory Economics, July 1999, with J. Colvin and J.C. Panzar

"The Role of the Monopoly Product in the Cost of Universal Service," Future Directions in Postal Reform, M. Crew and P. Kleindorfer, eds. Kluwer Academic Publisher, 2001 with J. Colvin

"Testing for Anti-Competitive Behavior in Public Enterprises," in Topics in Regulatory Economics and Policy, Vol. 46, November 2004, pp 159-171., with J. Colvin

Should We Teach an Old Economy Dog New Economy Tricks? The Role of the Postal Service in the New Economy," in The New Economy: How New? How Resilient?, Edward Elgar, 2006, 174-196 with D.W. Jansen.

"Measuring Scale and Scope Economies with A Structural Model of Postal Delivery," in Liberalizing the Postal and Delivery Sector, Advances in Regulatory Economics Series, 2007, with J.Colvin

"An Economic Model of the Regulatory Structure Created by the Postal Accountability and Enhancement Act of 2006," in Handbook of Worldwide Postal Reform, 2008, with J Colvin and M.K. Perkins

"Estimating the Impact of a Uniform Price Rule in a Liberalized Postal Environment: the Case of the United States Postal Service," in Advances in Regulatory Economics: "Heightening Competition in the Postal and Delivery Sector" Michael Crew and Paul Kliendorfer, (eds.), 2010, with J Colvin, N. Nieto, and D.Tobias.

Do Volume Increases and Decreases Have the Same Effect on Labor Hours?* in Multi-Modal Competition And The Future Of Mail, M Crew and P. Kliendorfer, (eds.), forthcoming, 2012, J Colvin and M.K. Perkins.

PURPOSE AND SCOPE

The purposes of my testimony are to discuss the methodology the Postal Service will employ in identifying the changes in cost that would be caused by the proposed change in service standards, to calculate the resulting cost changes in the areas of mail processing labor and transportation and to compute and to present the overall change in cost.

ASSOCIATED LIBRARY REFERENCES

I am sponsoring the following Library References which are associated with this testimony:

USPS-LR- N2012-1/20	Calculating Mail Processing Labor Cost Savings
USPS-LR- N2012-1/21	Calculating Air Transportation Cost Changes (Public Version)
USPS-LR- N2012-1/22	Calculating Highway Transportation Cost Changes
USPS-LR- N2012-1/NP6	Calculating Air Transportation Cost Changes (Non-Public Version)

I. DETERMINING THE METHODOLOGY FOR MEASURING THE COST CHANGES CAUSED BY A CHANGE IN SERVICE STANDARDS

As explained by witnesses Williams, Martin, and Neri, the proposed service standard changes will instigate a substantial restructuring of the Postal Service's mail processing and transportation networks.[1] These structural changes will allow the Postal Service to gain efficiencies and reduce cost in some areas, but will cause it to incur additional cost in other areas. When making these structural changes, the Postal Service will be changing its organization and use of the various activities required to sort and transport mail and, as a result of these changes, the cost of sorting and transporting that mail will change.

Because changes in these activities are the source of the cost changes, it is appropriate to begin the cost change measurement with an analysis of the activity changes. The reorganization of the mail processing and transportation networks and the activities within them were carefully studied by the Postal Service. The study process is described by witness Rosenberg and the operational changes are described in detail by witnesses Bratta, Martin, and Neri.[2]

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[1] See, "Direct Testimony David E. Williams on Behalf of the United States Postal Service," Docket No. N2012-1,USPS-T-1, at Section IV, "Direct Testimony Frank Neri on Behalf of the United States Postal Service," at Sections V and VI, Docket No. N2012-1, USPS-T-4, and "Direct Testimony Cheryl D. Martin on Behalf of the United States Postal Service," Docket No. N2012-1, USPS-T-6, at Sections II and III.

[2] See, "Direct Testimony Emily R. Rosenberg on Behalf of the United States Postal Service," Docket No. N2012-1, USPS-T-5, at Section III, Direct Testimony Dominic L. Bratta on Behalf of the United States Postal Service," Docket No.

It is important to note that this operational analysis also serves as the basis for the actual planning and implementation of the realigned networks. This means that the operational analysis is not just a speculative "what if," but is developed with actual implementation in mind. As a result, it must be accurate, reasonable, and feasible.

An important part of an overall analysis of the proposed change in service standards is the calculation of the cost changes caused by the resulting activity changes. For this costing exercise, as well as the operational analyses described above, the volume of mail being sorted and transported is held constant.[3] This approach is essential to avoid confounding two potential sources of cost changes, the change in service standards and volume reductions.

More generally, a methodology must be formulated that will guide the calculation of cost changes. This methodology should reflect sound economic costing principles and should be based upon the operational reality that guides the Postal Service's use of resources. Fortunately, there is a well established set of costing principles and methods that have been developed and can be applied to this costing exercise. This set of principles and methods were originally developed by the Postal Service and Postal Rate Commission, under the Postal Reorganization Act, in a series of rate cases. More recently they have been refined and improved by the Postal Regulatory Commission (PRC) through a

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N2012-1, USPS-T-5, at Section IV, "Direct Testimony Frank Neri on Behalf of the United States Postal Service," Docket No. N2012-1, USPS-T-4 at Sections IV-IX, and "Direct Testimony Cheryl D. Martin on Behalf of the United States Postal Service," Docket No. N2012-1,USPS-T-6, at Sections II and III.

[3] The FY2010 volumes are used at the basis for calculating the cost savings.

series of rulemakings in its Annual Compliance Determination (ACD) process.

These principles are followed by the Postal Service in calculating the cost changes caused by the proposed change in service standards. In some instances, the application is straightforward because the change in activities falls within the types of costing changes routinely contemplated by the ACD process. In these cases, the established ACD costing relationships can be directly applied. However, the ACD process is focused on product costing, not operational costing, so there are some instances in which an anticipated operational change falls outside the costing relationships employed in the ACD. In these instances the ACD structure and principles can be applied, but they must be refined and adapted to appropriately analyze the activity changes. Nevertheless, in all instances, the Postal Service has been guided by the Postal Regulatory Commission's established costing principles and assumptions when analyzing cost changes.

Finally, the calculated cost savings represent the reduction in processing and transportation costs that the Postal Service would achieve once the network restructuring was fully implemented. As such, it does not include transition or adjustment costs.

II. MAIL PROCESSING LABOR COST CHANGES ARISING FROM A CHANGE IN SERVICE STANDARDS

As explained in the testimonies of witnesses Rosenberg and Neri, the proposed change in service standards will have a significant impact on the organization of mail processing.[4] These include both changes in where mail processing activities take place and how those activities are operated.

Among other changes, the change in service standard permits the Postal Service to extend many of its operating windows and, as a result, transfer workload among facilities.[5] More generally, these operational changes will provide an opportunity for the Postal Service to increase the efficiency of its resource use, better plan and schedule for the workload, and reduce the mail processing labor costs of handling a given amount of volume.[6]

Clearly, improvement in the efficiency of resource use will provide the Postal Service with the opportunity to reduce the cost of sorting a given volume of mail. Witness Smith addresses the facility and equipment cost savings and the workload reduction cost savings created by the operational changes flowing

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[4] See, "Direct Testimony Emily R. Rosenberg on Behalf of the United States Postal Service," Docket No. N2012-1, USPS-T-3 at Section III, and "Direct Testimony Frank Neri on Behalf of the United States Postal Service," Docket No. N2012-1,USPS-T-4, at Sections V and VI.

[5] See, "Direct Testimony of Emily R. Rosenberg on Behalf of the United States Postal Service," Docket No. N2012-1,USPS-T-3 at Section III.

[6] See, "Direct Testimony Frank Neri on Behalf of the United States Postal Service," Docket No. N2012-1,USPS-T-4, at Section VIII.

from the change in service standard.[7] I address the mail processing labor cost savings.

Mail processing labor cost savings will arise because of a set of specific operational changes. That set includes:

- Transfer of workload
- Productivity gains
- Restructuring of management, supervision, and technical support
- Reduction in premium pay
- Reduction in indirect costs

In this section of my testimony, I describe each of these operational changes, present the methodology for calculating the cost change caused by the operational change, and calculate the resulting change in cost. The baseline for calculating cost changes is the Postal Regulatory Commission's Mail Processing Cost Pools for MODS offices excluding Network Distribution Centers (NDCs) and International Service Centers (ISCs) for FY 2010.[8] The total cost included in these costs pools, for all operations, is $7.516 billion.

A. Transfer of Workload

The increase in the size of operating windows means that the Postal Service has more time to sort the mail. With more time available, the Postal

[7] See, "Direct Testimony Marc A. Smith on Behalf of the United States Postal Service," Docket No. N2012-1,USPS-T-9, at Sections V, VI, and VII.

[8] See, USPS-FY10-7 Part1.xls at the tab entitled "Cost Pool Summary Table1-Links." The costs are found in the column entitled "PRC Mail Processing Pool Costs excluding Migrated."

Service can consolidate its workload and increase its machine run times.[9] Longer machine run times means the Postal Service needs fewer machines to sort the same amount of mail, and, consequently, fewer facilities to hold those machines.

As a result of this reorganization, the Postal Service will be transferring workload from a larger number of facilities to a smaller number of facilities. This means that it will be sorting the mail at a smaller number of locations across the country. In other words, within each mail processing technology, (e.g. Delivery Barcode Sorter(DBCS), Small Parcel and Bundle Sorter (SPBS), Cancelling) the Postal Service will be reducing the number of places at which and the amount of equipment on which operations are run, but will be running those operations longer. The reduction in the number of locations, by technology, has implications for the cost of sorting mail.

In calculating the cost impact of this workload transfer, I utilized the existing ACD methodology. Specifically, when analyzing mail processing costs, the PRC has determined that certain costs in individual cost pools (e.g. DBCS operations, AFSM 100 operations, pouching operations) are “institutional costs” and thus not related to the amount of workload handled in the cost pools. Because the institutional costs are associated with the establishment of an operation at a location, not the workload in the operation, a reduction in the total number of locations will reduce the total institutional cost for the associated cost

[9] See, “Direct Testimony of Emily R. Rosenberg on Behalf of the United States Postal Service,” Docket No. N2012-1,USPS-T-3, at Section III.

pool. The transfer of workload to a smaller number of sites thus reduces the amount of institutional cost that is incurred by the Postal Service. Moreover, because institutional cost is not related to workload, the transfer of workload from inactive sites to active sites will not increase the amount institutional costs in those active sites. Taken together, these two characteristics of institutional costs combine to create a cost saving from a workload transfer of this type.

Measurement of this cost saving can be formalized by considering the equations that generate the accrued costs for the "j^{th}" cost pool (e.g. DBCS) for both the proposed active sites and the proposed inactive sites.

Following the PRC's methodology and assumptions, the accrued mail processing labor cost for a specific cost pool in the active sites can be decomposed into the institutional cost for that cost pool at those sites [which is the product of the wage rate (ω) and the institutional hours (α_{Aj})], and the volume variable cost for those sites [which is the product of the wage rate (ω) and the volume variable hours ($\beta_{Aj}WL_{Aj}$)]. Note that this latter type cost directly depends upon the amount of workload (WL_{Aj}), to be processed.[10] The accrued cost for the j^{th} cost pool for the active sites is given by:

$$C_{Aj} = \omega_j[\alpha_{Aj} + \beta_j(WL_{Aj})]$$

A similar equation describes the accrued cost for the proposed inactive sites:

[10] The linear functional form embodies the Commission's assumption that there are no economies of scale in mail processing operations. See, for example, PRC Op., Docket No. R2006-1, at 53.

$$C_{Ij} = \omega_j[\alpha_{Ij} + \beta_j(WL_{Ij})]$$

These equations can be combined to produce the equation for the cost pool's accrued mail processing labor cost required for handling the cost pool's FY2010 workload in the current network:

$$C_j = \omega_j[\alpha_{Ij} + \beta_j(WL_{Ij}) + \alpha_{Aj} + \beta_j(WL_{Aj})]$$

Note that this cost just equals the Commission's accrued cost for the cost pool in the FY2010 ACD model.

The cost of handling the same FY 2010 workload in the realigned network is the cost that will occur at active sites. This is the sum of the cost pool's institutional costs at the active sites plus the cost pool's volume variable costs at active sites. This latter cost includes the hours required to handle both the workload that was already at the active sites plus the workload transferred from the inactive sites. In sum, a cost pool's total cost of handling the FY2010 workload in the realigned network is given by the following equation.

$$\widetilde{C_j} = \omega_j[\alpha_{Aj} + \beta_j(WL_{Aj} + WL_{Ij})]$$

The workload transfer change in cost is the difference between the cost of handling the workload in the current network and the cost of handling that same workload in the realigned network. The cost saving equation is therefore the difference between the two previously presented equations:

$$\text{Cost Saving}_j = C_j - \widetilde{C_j}$$

$$= \omega_j\left[\alpha_{Ij} + \beta_j\left(WL_{Ij}\right) + \alpha_{Aj} + \beta_j\left(WL_{Aj}\right)\right] - \omega_j\left[\alpha_{Aj} + \beta_j\left(WL_{Aj} + WL_{Ij}\right)\right]$$

$$= \omega_j\alpha_{Ij}$$

Table 1 presents the Commission defined cost pools, the institutional and volume variable costs for both active and inactive MODS sites in those cost pools in the current network, and the cost of handling the same workload in the realigned network.[11] The Commission's cost pool costs are split between active and inactive sites based upon the sites' relative FY 2010 MODS hours within each cost pool.[12] While the split varies considerably across cost pools, in total, about two-thirds of FY 2010 MODS hours were in active sites and one-third of those hours were in inactive sites. The table shows that the Postal Service will save approximately $82.6 million through workload transfer.

[11] Note that two PRC cost pools are omitted from the table. That is because there are no cost savings anticipated for these cost pools, LDC 15 and Express Mail. LDC 15 costs are primarily for remote encoding, which is done offsite, and not affected by workload transfer. The Express Mail operation is excluded because the Postal Service anticipates continuing to handle Express Mail in an expedited manner and does not anticipate any costs savings in that cost pool.

[12] The list of active and inactive MODS sites is presented by witness Rosenberg. See, Library Reference USPS-LR-N2012-1/34. The MODS hours by cost pool for both active and inactive sites are presented in Library Reference USPS-LR-N2012-1/20.

Table 1
Cost Saving from Workload Transfer

Cost Pool	PRC Costs	PRC Variability	Active Sites: Institutional Cost	Active Sites: Volume Variable Cost	Inactivate Sites: Institutional Cost	Inactivate Sites: Volume Variable Cost	Realigned Network Cost	Cost Saving From Workload Transfer
BCS/DBCS	$1,843,600	0.9942	$7,151	$1,225,783	$3,542	$607,124	$1,840,059	$3,542
OCR	$9,574	0.9937	$44	$6,898	$17	$2,616	$9,557	$17
AFSM100	$662,558	0.9874	$5,971	$467,902	$2,377	$186,307	$660,180	$2,377
FSM 1000	$45,860	0.9798	$379	$18,378	$547	$26,556	$45,313	$547
Mechanized Parcels	$7,079	0.9619	$120	$3,026	$150	$3,784	$6,929	$150
SPBS - Non Priority	$285,340	0.9773	$4,471	$192,504	$2,006	$86,358	$283,334	$2,006
SPBS - Priority	$270,033	0.9832	$2,924	$171,121	$1,613	$94,376	$268,421	$1,613
Mechanical Sort - Sack Outside	$30,546	0.9290	$1,695	$22,178	$474	$6,199	$30,072	$474
Mechanical Tray Sorter / Robotics	$276,061	0.9556	$9,433	$203,017	$2,824	$60,787	$273,236	$2,824
Manual Flats	$194,531	0.9869	$1,719	$129,522	$829	$62,460	$193,702	$829
Manual Letters	$483,827	0.9833	$5,822	$342,817	$2,258	$132,930	$481,569	$2,258
Manual Parcels	$35,971	0.9525	$954	$19,137	$754	$15,126	$35,217	$754
Manual Priority	$246,013	0.9622	$5,861	$149,189	$3,438	$87,525	$242,574	$3,438
Cancellation	$276,200	0.9837	$3,151	$190,171	$1,351	$81,526	$274,849	$1,351
Dispatch	$153,265	0.9812	$2,007	$104,760	$874	$45,624	$152,391	$874
Flats Preparation	$83,581	0.9978	$119	$54,054	$65	$29,343	$83,516	$65
Mail Preparation - metered	$21,605	0.9716	$448	$15,337	$165	$5,655	$21,440	$165
Opening Unit - BBM	$101,762	0.9809	$1,279	$65,681	$665	$34,137	$101,097	$665
Opening Unit - Preferred Mail	$304,410	0.9784	$4,124	$186,819	$2,451	$111,016	$301,959	$2,451
Opening - Manual transport	$75,496	0.9616	$2,057	$51,502	$842	$21,095	$74,654	$842
Platform	$1,336,239	0.9200	$71,457	$821,756	$35,442	$407,584	$1,300,797	$35,442
Pouching Operations	$60,259	0.9656	$1,107	$31,060	$966	$27,126	$59,292	$966
Presort	$77,934	0.9727	$1,726	$61,495	$402	$14,311	$77,532	$402
Manual Sort - Sack Outside	$56,584	0.9648	$1,262	$34,588	$730	$20,004	$55,854	$730
Air Contract DCS and Incoming/SWYB	$62,743	0.9891	$452	$40,990	$232	$21,069	$62,511	$232
Business Reply / Postage Due	$21,404	0.9587	$629	$14,608	$255	$5,912	$21,150	$255
Registry	$92,191	0.6135	$23,231	$36,875	$12,401	$19,684	$79,790	$12,401
Damaged Parcel Rewrap	$16,182	0.9643	$427	$11,528	$151	$4,076	$16,031	$151
Empty Equipment	$31,605	0.9948	$108	$20,621	$57	$10,819	$31,548	$57
Miscellaneous	$88,042	0.9568	$2,451	$54,281	$1,353	$29,958	$86,689	$1,353
Mail Processing Support	$71,611	0.8571	$6,904	$41,410	$3,329	$19,967	$68,282	$3,329
TOTAL	**$7,322,105**		**$169,483**	**$4,789,007**	**$82,559**	**$2,281,055**	**$7,239,546**	**$82,559**

Source: Library Reference USPS-LR-N2012-1/20, Dollar figures in Thousands of Dollars

B. Productivity Increases

As discussed above, the change in service standards will allow the Postal Service to run its mail processing operations longer. Not only will this permit a reduction in the number of locations at which the operations are run, but also it will permit a better utilization of both machine and labor resources within those operations. As explained by witness Neri, a smoother workflow will allow the Postal Service will have fewer "stops and starts," less waiting for volume to process, and a better utilization of mail processing labor[13]

This better utilization implies that labor productivity will increase in certain mail processing operations. This productivity increase has important implications for the cost of handling the mail processing workload. In mail processing operations, labor productivity is measured by the ratio of workload handled to the labor hours need to perform the required activities. This can be expressed as:

$$Productivity_j = \frac{Work\ Load_j}{Hours_j}$$

Absent consideration of any change in productivity caused by the service standards change, the productivity for a mail processing operation after the workload transfer has taken place, $\widetilde{P_j}$, is given by the ratio of the operation's workload to its accrued hours. This would be the productivity that would occur in an operation if the Postal Service transferred workload but did not have any

[13] See, "Direct Testimony Frank Neri on Behalf of the United States Postal Service," Docket No. N2012-1, USPS-T-4, at Section VIII.

productivity change within the operation due to the change in service standards. Its equation is given by:

$$\widetilde{P_j} = \frac{WL_{Aj} + WL_{Ij}}{\alpha_{\mathrm{Aj}} + \beta_{\mathrm{j}}\left(\mathrm{WL_{Aj}} + \mathrm{WL_{Ij}}\right)}$$

However, relaxation of service standards allows significant changes in the way the Postal Service conducts its mail processing operations. As explained by witness Neri, these changes lead to productivity improvements.[14] This means that the Postal Service will be able to handle the same workload with fewer hours. The resulting labor productivity after these operational changes take place, $\widehat{P_j}$, is given by the following equation:

$$\widehat{P_j} = \frac{WL_{Aj} + WL_{Ij}}{\gamma_{\mathrm{Aj}} + \delta_{\mathrm{j}}\left(\mathrm{WL_{Aj}} + \mathrm{WL_{Ij}}\right)}, \quad \gamma_{\mathrm{Aj}} \leq \alpha_{\mathrm{Aj}}\ ,\ \delta_{\mathrm{j}} \leq \beta_{\mathrm{j}}$$

Postal Service experts studied the resulting changes in operational structure and, based upon the changes, witness Neri was able to estimate the percentage gain in productivity, by operation (ρ).[15] Table 2 presents the productivity gains the Postal Service expects in LDCs 11 through 14.

[14] Id.

[15] Id.

Table 2 Expected Productivity Gains in Cost Pools in LDCs 11-14	
BCS/DBCS	22%
OCR	22%
AFSM100	15%
FSM 1000	15%
Mechanized Parcels	8%
SPBS Non Priority	8%
SPBS Priority	8%
Mechanical Sort - Sack Outside	15%
Mechanical Tray - Sorter / Robotics	15%
Manual Flats	3%
Manual Letters	3%
Manual Parcels	3%
Manual Priority	3%

Source: USPS-T-4, Section VIII

The productivity gains are largest in the automated letter operations, which are most subject to service standard constraints, and smallest in manual operations, where the longer operating windows do not generate as much productivity gain. Table 3 presents the expected productivity gains in LDC 17 and 18. Because of the nature of the operation, the Postal Service expects large productivity gains in the registry operation, more modest productivity gains in platform and cancellation operations and no productivity gains in either metered mail or flats preparation.

Table 3 Expected Productivity Gains in Cost Pools in LDCs 17-18	
Cancellation	15%
Dispatch	20%
Flats Preparation	0%
Mail Prep - Metered	0%
Opening Unit - BBM	15%
Opening Unit - Preferred Mail	15%
Opening - Manual Transport	15%
Platform	20%
Pouching Operations	25%
Presort	25%
Manual Sort - Sack / Outside	25%
Air - Contract DCS and Incoming/SWYB	0%
Business Reply / Postage Due	0%
Registry	50%
Damaged Parcel Rewrap	0%
Empty Equipment	10%
Miscellaneous	10%
Mail Processing Support	25%

Source: USPS-T-4, Section VIII

Because the Postal Service measured the expected productivity gains in percentage terms, the relationship between the new and old productivities is given, in percentage terms, by the following equation:

$$\widehat{P_J} = (1 + \rho)\, \widetilde{P_J}$$

The cost implications of these productivity gains can be derived from the analytical framework discussed above. The Postal Service accomplishes productivity gains by reducing the number of hours required to sort a given workload. This comes about through a reduction in the amount institutional and/or volume variable hours required to handle a given workload. Because

these institutional and volume variable hours are also the basis for the accrued labor cost in a cost pool, the increase in productivity is consonant with a reduction in cost.

The formula for calculating the cost reduction implied by a given productivity increase can be found by substituting from the respective formulas for productivity before and after the productivity improvement caused by the service standard change. This substitution provides the expression for the productivity gain for a specific cost pool:

$$\frac{WL_{Aj} + WL_{Ij}}{\gamma_{\mathrm{Aj}} + \delta_{\mathrm{j}}\left(\mathrm{WL_{Aj}} + \mathrm{WL_{Ij}}\right)} = (1+\rho)\,\frac{WL_{Aj} + WL_{Ij}}{\alpha_{\mathrm{Aj}} + \beta_{\mathrm{j}}\left(\mathrm{WL_{Aj}} + \mathrm{WL_{Ij}}\right)}$$

This equation can be solved for the new amount of hours required to process the existing workload at the new level of productivity:

$$\gamma_{\mathrm{Aj}} + \delta_{\mathrm{j}}\left(\mathrm{WL_{Aj}} + \mathrm{WL_{Ij}}\right) = \frac{1}{(1+\rho)}\left[\alpha_{\mathrm{Aj}} + \beta_{\mathrm{j}}\left(\mathrm{WL_{Aj}} + \mathrm{WL_{Ij}}\right)\right]$$

These hours are also the basis for the cost pool's accrued labor cost after the productivity increase:

$$\widehat{\mathrm{C}}_{\mathrm{j}} = \omega_{\mathrm{j}}\left[\gamma_{\mathrm{Aj}} + \delta_{\mathrm{j}}\left(\mathrm{WL_{Aj}} + \mathrm{WL_{Ij}}\right)\right] = \omega_{\mathrm{j}}\left[\frac{1}{1+\rho}\right]\left[\alpha_{\mathrm{Aj}} + \beta_{\mathrm{j}}\left(\mathrm{WL_{Aj}} + \mathrm{WL_{Ij}}\right)\right]$$

With this equation, it is straightforward to calculate the pure productivity-induced cost saving, as it is just the difference in cost generated under the two different productivity regimes. Note that the workload is the same in both instances. The productivity-induced cost saving equation for a given cost pool is given by:

$$\text{Cost Saving}_j = \widetilde{C}_j - \widehat{C}_j$$

Substituting the expressions for the costs for each level of productivity yields:

$$\text{Cost Saving}_j = \omega_j\left[\alpha_{Aj} + \beta_j\left(WL_{Aj} + WL_{Ij}\right)\right] - \omega_j\left[\frac{1}{1+\rho}\right]\left[\alpha_{Aj} + \beta_j\left(WL_{Aj} + WL_{Ij}\right)\right]$$

This can be simplified to:

$$\text{Cost Saving}_j = \omega_j\left[1 - \frac{1}{1+\rho}\right]\left[\alpha_{Aj} + \beta_j\left(WL_{Aj} + WL_{Ij}\right)\right]$$

The cost savings associated with productivity increases, by operation, are presented in Table 4 below.

Table 4
Cost Changes by Operation Caused by Increases in Productivity

Cost Pool	Realigned Network Cost Before Productivity Gain	Productivity Induced Cost Saving	Realigned Network Cost After Productivity Gain	Productivity Induced Cost Change
BCS/DBCS	$1,840,059	18.0%	$1,508,245	$331,814
OCR	$9,557	18.0%	$7,834	$1,723
AFSM100	$660,180	13.0%	$574,070	$86,110
FSM 1000	$45,313	13.0%	$39,402	$5,910
Mechanized Parcels	$6,929	7.4%	$6,416	$513
SPBS - Non Priority	$283,334	7.4%	$262,346	$20,988
SPBS - Priority	$268,421	7.4%	$248,538	$19,883
Mechanical Sort - Sack Outside	$30,072	13.0%	$26,150	$3,922
Mechanical Tray Sorter / Robotics	$273,236	13.0%	$237,597	$35,640
Manual Flats	$193,702	2.9%	$188,060	$5,642
Manual Letters	$481,569	2.9%	$467,543	$14,026
Manual Parcels	$35,217	2.9%	$34,191	$1,026
Manual Priority	$242,574	2.9%	$235,509	$7,065
Cancellation	$274,849	13.0%	$238,999	$35,850
Dispatch	$152,391	16.7%	$126,992	$25,398
Flats Preparation	$83,516	0.0%	$83,516	$0
Mail Preparation - metered	$21,440	0.0%	$21,440	$0
Opening Unit - BBM	$101,097	13.0%	$87,910	$13,187
Opening Unit - Preferred Mail	$301,959	13.0%	$262,573	$39,386
Opening - Manual transport	$74,654	13.0%	$64,916	$9,737
Platform	$1,300,797	16.7%	$1,083,997	$216,799
Pouching Operations	$59,292	20.0%	$47,434	$11,858
Presort	$77,532	20.0%	$62,026	$15,506
Manual Sort - Sack Outside	$55,854	20.0%	$44,683	$11,171
Air Contract DCS and Incoming/SWYB	$62,511	0.0%	$62,511	$0
Business Reply / Postage Due	$21,150	0.0%	$21,150	$0
Registry	$79,790	33.3%	$53,194	$26,597
Damaged Parcel Rewrap	$16,031	0.0%	$16,031	$0
Empty Equipment	$31,548	9.1%	$28,680	$2,868
Miscellaneous	$86,689	9.1%	$78,809	$7,881
Mail Processing Support	$68,282	20.0%	$54,625	$13,656
TOTAL	**$7,239,546**		**$6,275,387**	**$964,159**

Source: Library Reference USPS-LR-N2012-1/20, Dollar figures in Thousands of Dollars

C. Restructuring of Management, Supervision, and Technical Support

The transfers of workload and mail processing labor hours from inactive to active sites imply that the Postal Service will also have to restructure their use of plant management, supervision, and technical support. Each of these types of labor will see changes in its structure as a result of the change in service standards and those structural changes will lead to cost changes.

First, the transfer of mail processing hours to active sites will create a need for additional supervision at these sites. In calculating how much more supervision will be needed, it is useful to recognize that the Postal Service generally keeps a constant ratio between mail processing supervisory hours and the amount of direct labor being supervised. Moreover, this relationship between supervisors and clerks and mail handlers is embodied in an assumption used by the PRC (and thus the Postal Service) in the ACD process. Supervisor costs are assumed to vary in proportion to direct labor costs

Finally, to check the appropriateness of this assumption for calculating the effects of the change in service standards on supervisory hours, I investigated its empirical relevance for both active and inactive sites. Specifically, I examined the ratio of mail processing supervisory hours (LDC10) to the mail processing hours being supervised (LDCS 11-18) for both active and inactive sites in FY2010. Table 5 presents the results, which shows that the ratio is virtually identical for the groups of sites.

Table 5
Ratio of LDC 10 Hours to LDC 11-18 Hours

Type of Facility	Ratio
Active Facilities	6.35%
Inactive Facilities	6.33%
All Faculties	6.35%

Source: Library Reference USPS-LR-N2012-1/20

This table provides empirical support for the assumption of a constant supervisor ratio in the current cost saving analysis. Therefore, to calculate the amount of mail processing supervisory hours required in the realigned network, I assume a constant supervisory ratio will be maintained.

The formula for determining the supervisory cost in the current network structure, S, uses the fixed ratio:

$$S = \ 0.0635 * \sum_{j=1}^{m} C_j$$

The formula for supervisory cost in the realigned network, $\hat{S}$, uses the same ratio:

$$\hat{S} = \ 0.0635 * \sum_{j=1}^{m} \widehat{C_j}$$

This means that the formula for calculating the supervisor cost saving is thus just the supervisory ratio times the change in LDC 11 through LDC 18 cost pool costs:

$$Supervisor\ Cost\ Saving = \ 0.0635 * \sum_{j=1}^{m} C_j - \widehat{C_j}$$

This formula was applied to calculate the mail processing supervisor cost savings and the results are presented in Table 6. It shows that the Postal Service will save over $66 million in supervisor cost as a result of the proposed service standard changes.

Table 6
Calculating Supervisor Cost Savings In Thousands of Dollars

Labor Cost Change in LDCs 11 -18	$1,046,718
Supervisor Labor Cost Change	$66,423

Source: Library Reference USPS-LR-N2012-1/20

While a facility's supervisor costs are directly proportional to the amount of direct hours being supervised, the hours for a plant manager are not. Each facility has only one plant manager regardless of the number of employees working in the facility, and a reduction in the number of facilities necessarily implies a reduction in the number of plant managers. This also means that there will be a reduction in total plant manager hours.

The cost savings caused by this change in the structure of plant management are calculated by first identifying the amount of plant management hours (LDC 80) in the inactive sites and then multiplying those hours by the appropriate wage rate. Witness Smith explains that the wage that should be

used to value plant manager hours is $51.97.[16] Table 7 shows that applying the recommended wage yields a plant manager cost saving of just over $18 million dollars.

Table 7
Calculating Plant Manager Cost Savings

LDC 80 Hours at Inactive Sites	347,488
Wage	$51.97
Cost Saving	$18,058,847

Source: Library Reference USPS-LR-N2012-1/20

A similar situation exists for in-plant support labor, in the sense that the closing of the inactive sites will reduce the Postal Service's need for in-plant support and, consequently, save it cost. Witness Neri presents a staffing analysis for in-plant support and finds that the Postal Service will be able to reduce its need for in plant support hours by 29.7 percent as a result of the change in service standards.[17] The cost savings associated with this staffing reduction can be found by first identifying the implied reduction in hours and then multiplying that hours reduction by the appropriate wage.

In-plant support hours are found in LDCs 01 through 09. Table 8 presents the hours, by LDC, for in-plant support In MODS facilities in FY 2010.

[16] See, "Direct Testimony Marc A. Smith on Behalf of the United States Postal Service," Docket No. N2012-1,USPS-T-9, at Attachment 1.

[17] See, "Direct Testimony Frank Neri on Behalf of the United States Postal Service," Docket No. N2012-1,USPS-T-4, at Section IX.

Table 8
In-Plant Support Hours in FY 2010

LDC	Hours
1	284,412
2	537,863
3	1,813,160
4	1,781
5	56,749
8	689,401
9	4,333
Total	3,387,698

Source: Library Reference USPS-LR-N2012-1/20

Witness Smith determined that the appropriate wage rate to value in-plant support hours is $48.48.[18] Table 9 shows that using this wage rate leads to a cost saving of $48.7million.

[18] See, "Direct Testimony Marc A. Smith on Behalf of the United States Postal Service," Docket No. N2012-1,USPS-T-9, at Attachment 1.

Table 9

Calculating In-Plant Support Cost Savings

In-Plant Support Hours in Inactive Facilities	3,387,698
% Reduction in In Plant Support	29.65%
Reduction in Hours	1,004,453
Wage	$48.48
Reduction in Cost	$48,699,678

Source: Library Reference USPS-LR-N2012-1/20

D. Reduction in Premium Pay

The Postal Service pays a premium to clerks and mail handlers that work at night. That premium varies modestly by pay grade and currently averages $1.60 per hour.[19]

Under the proposed new service standards, the time of day that many operations are performed will change. Specifically, with a relaxation of the service standard, more operations can be performed during the day, thus saving the Postal Service some wage costs, as it can reduce the amount of the night differential it must pay.

To project the change in night differential caused by the service standard change, the Postal Service investigated the movement of hours caused by the

[19] See, Library Reference USPS-LR-N2012-1/20.

resulting operational window shift. To do so, the Postal Service examined mail processing labor hours both by operation and hour of the day and divided those into two categories.[20] The first category covered hours from 0600 through1800, the period for which night differential is not paid. The second category included hours from 1800 through 2400 and from 0000 through 0600 during which night differential is paid. Analysis of the current pattern of hours across these two groups, by operation, shows that under the current operating plan 58.6 percent of hours receive the night differential premium.

The Postal Service then examined how the timing of operations will change under the revised operating plan. For example, with the new operating windows, incoming primary operations will shift from night-time work to day-time work. This analysis of the pattern of hours under the revised operating plan resulted in a projection of the proportion of hours by operation that will receive the night differential under the new operating plan.[21] Those ratios are presented in Table 10.

[20] See, "Direct Testimony Frank Neri on Behalf of the United States Postal Service," Docket No. N2012-1,USPS-T-4, at Section VII.

[21] The analysis is presented in Library Reference USPS-LR-N2012-1/20

Table 10
Change in Percentage of Hours Receiving the Night Differential Due to the Service Standard Change

LDC	Current Network % Hours Receiving the Night Differential	Realigned Network % Hours Receiving the Night Differential
10	65.6%	39.8%
11	80.9%	46.0%
12	69.3%	45.4%
13	59.1%	27.7%
14	83.0%	45.8%
17	62.2%	39.4%
18	54.4%	52.2%

Source: Library Reference USPS-LR-N2012-1/20

Because the reduction in premium pay will be taking place in the realigned network, the calculation of any cost savings from reduced night differential pay should be done with reference to the hours required under the new operating plan. Consequently, calculating the cost savings from reduced premium pay should be done by multiplying the new ratio of eligible hours times the smaller amount of hours that will be required under the higher productivities caused by the service standard changes. Use of the current hours, by LDC, would lead to an overstatement of the cost savings.

I calculated the cost savings from the reduced proportion of hours eligible for the night time premium by first multiplying the hours, by LDC, expected under

the new service standard, by the old night differential proportions and then by the pay differential of $1.60 per hour. This calculation provides how large the night differential would have been under the new operating plan if there was no shift in when operations are performed. Next, I multiplied the hours, by LDC, expected under the new service standard by the new night differential proportions and then by the premium of $1.60 per hour. This calculation provides the size of the night differential under the new operating plan in which a higher percentage of the work will take place during the day. The difference between these two calculations is the cost savings.

The results of this analysis are presented in Table 11. That table shows that the Postal Service will save $71.8 million in reduced premium pay.

Table 11

Calculating the Change in Premium Pay Due the Change in Service Standard

LDC	Projected Hours By LDC Under New Service Standard	Night Differential Cost at Current Proportion	Night Differential Cost at New Proportion	Cost Saving
10	9,916,859	65.6%	39.8%	$4,090,386
11	34,932,492	80.9%	46.0%	$19,487,813
12	14,407,865	69.3%	45.4%	$5,510,783
13	18,631,967	59.1%	27.7%	$9,379,249
14	22,463,236	83.0%	45.8%	$13,357,363
17	53,792,543	62.2%	39.4%	$19,632,030
18	9,672,372	54.4%	52.2%	$349,256
Totals	163,817,334	$181,030,732	$109,223,853	$71,806,879

Source: Library Reference USPS-LR-N2012-1/20

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E. Reduction in Indirect Costs

The model used by the Postal Regulatory Commission and the Postal Service in the ACD process links changes in certain indirect costs, such as Supervision, Facility Related Costs, and Service Wide Costs and Miscellaneous Costs to changes in Mail Processing Labor Costs. These links, often referred to as “piggybacks,” are used to ensure that the model produces the overall changes in costs, including both direct and indirect costs, in response to a change in volume.

In contrast, the exercise at hand, that of finding any indirect cost savings caused by the change in service standards, examines an operational change for a fixed amount of volume. Consequently, witness Smith has reviewed each of the components of the "piggyback" costs to identify which should be analyzed directly and which should be included in the linking process.[22] He has determined that the only type of costs that should be linked to changes in mail processing labor costs are Service Wide Costs and Miscellaneous Costs.[23] Moreover, based upon FY2010 data, he has determined that a Service Wide Cost ratio of 0.1115 and a Miscellaneous Cost ratio of 0.0078 should be used.[24]

The change in indirect costs is thus calculated by multiplying the change in mail processing labor costs due to workload transfer, productivity gains, and restructuring of management, supervision, and technical support by the sum of 0.1115 and 0.0078. This multiplication yields a savings in indirect costs of $140.8 million.

[22] See, "Direct Testimony Marc A. Smith on Behalf of the United States Postal Service," Docket No. N2012-1,USPS-T-9, at Section IV.

[23] Id.

[24] Id.

III. TRANSPORTATION COST CHANGES ARISING FROM THE CHANGE IN SERVICE STANDARDS

The proposed change in service standards will alter the way the Postal Service configures portions of both its air transportation network and its highway transportation network. These alternations will cause the Postal Service's transportation costs to change and I describe the nature and amounts of those cost changes in this section of my testimony.

A. Cost Changes in Air Transportation.

As explained by witness Martin, an important transportation change is the movement of three-day First Class Mail from highway transportation to air transportation.[25] This change will occur in response to the change in operating windows caused by the service standard changes. Moreover, witness Martin calculated how much additional mail, in pounds, the Postal Service expects to move from surface to air.[26]

However, when paying for air transportation, the Postal Service must also pay for the tare weight of the containers it uses to transport the mail. That is, the Postal Service pays the air carriers for both the transportation of the mail and for the transportation of the containers holding mail. This means to calculate the additional air transportation cost of the mail moving from highway to air, the mail weight must be increased to account for the additional weight of the containers.

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[25] See "Direct Testimony Cheryl D. Martin on Behalf of the United States Postal Service," Docket No. N2012-1,USPS-T-6, at Section III.

[26] Id.

I account for the additional container weight in the following steps.[27] First, the TRACS Inter-SCF distribution key for First Class mail is used to distribute to the additional volume (by weight) to shape. Next, it is assumed that letters and cards will be transported in letter trays, flats will be transported in flat tubs and parcels will be transported in sacks. This assumption is then used to "fill" containers with the additional mail. That is, the average mail weight per container for letter trays, flat trays, and sacks is used to calculate the number of additional containers, by each type that will be needed to transport the additional mail. Finally, the tare weigh for each type of container is multiplied by the number of additional containers to find the additional container weight required to transport the additional mail.

Multiplying the additional pounds, including tare weight for each carrier by the rate per pound for that carrier produces the additional air transportation cost. Moving the mail from surface transportation to air transportation will cause the Postal Service to incur an additional $124.9 million dollars in air transportation cost.

B. Cost Changes in Highway Transportation.

As explained by witness Martin, two portions of the highway network will be affected by the proposed change in service standards, the "plant-to-plant" network that moves mail among P&DCs and the "plant-to-post office" network

[27] The details of this calculation are presented in the non-public Library Reference USPS-LR-N2012-1/NP6. The public version is presented in Library Reference USPS-LR-N2012-21.

that moves mail among the post offices and other local facilities within each plant's service area.[28] The former part of the network has sometimes been referred to as the "Inter-SCF" network and the latter part has sometimes been referred to as the "Intra-SCF" network.[29] Note that transportation involving NDCs will not be affected and the "Inter-BMC" and "Intra-BMC" portions of the transportation network will not be included in this analysis.

1. Cost Changes in the Plant-to-Plant Highway Network

Witness Martin has analyzed the impact of the change in service standards in the plant-to-plant potion of the HCR network and has determined that the longer operating windows and reduction in mail processing facilities will have an impact on plant-to-plant transportation.[30] These two changes will allow the Postal Service to more efficiently utilize its transportation and thus carry the same amount of mail with less capacity. Witness Martin estimates that through better utilization, the Postal Service will be able to reduce its capacity in the plant-to-plant portion of the network by 24.7 percent and still transport the same volume of mail.[31]

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[28] See, "Direct Testimony Cheryl D. Martin on Behalf of the United States Postal Service," Docket No. N2012-1,USPS-T-6, at Section II.

[29] The "Inter-SCF" portion of the network is actually made of three types of highway transportation accounts: Inter-Area transportation, Inter-Cluster transportation, and Inter P&DC transportation. The "Intra-SCF" portion of the network is covered by the Intra P&DC account.

[30] See, "Direct Testimony Cheryl D. Martin on Behalf of the United States Postal Service," Docket No. N2012-1,USPS-T-6, at Section II A.

[31] Id.

This reduction in transportation capacity can be used to find the reduction in cost. The relationship between cost and capacity has been studied both by the Postal Regulatory Commission and by the Postal Service and the result of this research is an established methodology that is used in the ACD process to determine attributable costs. I apply this established methodology here to calculate the cost savings created by the capacity reduction.

The established methodology specifies that the relationship between cost and capacity is given by:

$$\%\Delta \text{ Cost}_i = \varepsilon_i \%\Delta \text{ Capacity}_i,$$

where ε is known as the "capacity variability" and capacity is measured by cubic foot-miles of provided transportation. Capacity variabilities have been estimated by the Postal Service and approved by the Postal Regulatory Commission.[32] With this formulation the annual cost savings are given by the following equation:

$$\underset{Savings_i}{Cost} = \varepsilon_i * [\%\,\Delta\, CFM] * \underset{Cost_i}{Baseline}$$

The baseline cost for the plant-to-plant portion of the HCR network is accrued cost in the three contract types that make up that part of the network, Inter-Area, Inter-Cluster, and Inter-P&DC. Table 12 provides the baseline costs, variabilites

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[32] In the approved methodology in the ACD process, the capacity variabilities for inter-Area, inter-Cluster, and inter-P&DC are the cost-weighted averages of the variabilities for tractor-trailer and van contract cost segments within those accounts. See Appendix A: Calculation of Variabilities for Split Cost Accounts, Direct Testimony of Michael D. Bradley on Behalf of the United States Postal Service, Docket No. 2000-1, USPS-T-18.

and cost savings for each of those three accounts. Taken together, they provide a total cost savings for the plant-to-plant portion of the network of $193 million.

Table 12

Calculation of Cost Savings in Plant to Plant Portion of HCR Transportation

Contract Type	FY10 Accrued Cost	Capacity Reduction	Capacity Variability	Savings
INTER AREA	$574,497,637	24.7%	91.3%	$129,607,988
INTER CLUSTER	$187,231,606	24.7%	90.4%	$41,823,497
INTER P&DC	$103,481,909	24.7%	84.1%	$21,504,689
TOTAL	$865,211,153			$192,936,174

Source: Library Reference USPS-LR-N2012-1/22

2. Cost Changes in the Plant-to-Post Office Highway Network

There are two potential cost changes in the plant-to-post office network, a change in the amount of capacity required to transport the mail and a conversion of Postal Vehicle Service sites to highway contract sites. Both of these changes are discussed in this section of my testimony.

Network transportation using Postal Service vehicles and employees is called Postal Vehicle Service (PVS). The Postal Service employees who drive the vehicles are called Vehicle Service Drivers (VSD). As a result, this part of the transportation network is sometimes call “PVS” transportation and sometimes called “VSD” transportation.

The Postal Service has identified 40 PVS sites that will close when their associated P&DC is closed.[33] It has also determined that this transportation responsibility will be transferred to Highway Contract Routes (HCR) instead of other PVS transportation. To the extent the HCRs can provide the needed transportation at a lower cost than PVS transportation, the Postal Service will save cost through this transfer. To calculate the change in cost associated with this conversion, one must calculate both the reduction in cost associated with closing the PVS sites and the addition of cost from adding the new contract transportation.

PVS costs arise in two areas, labor costs and vehicle costs. Labor costs are tracked in three different activities, LDC 30 which records hours for the supervision for vehicle service drivers, LDC 31 which records hours for the administration of vehicle service drivers, and LDC 34 which records hours for vehicle service drivers. The total labor cost saved by closing the 40 PVS sites is just the sum of the LDC 30, 31, and 34 hours for those sites, with each multiplied by its respective wage.[34] The following table presents the labor cost that would be saved by closing the 40 PVS sites.

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[33] See, "Direct Testimony Cheryl D. Martin on Behalf of the United States Postal Service," Docket No. N2012-1,USPS-T-6, at Section II B.

[34] The wages for LDCs 30, 31 and 34 are the FY2010 productive hourly rates used in the ACR for Supervisors, Clerks, and Vehicle Drivers respectively. See, "Direct Testimony Marc A. Smith on Behalf of the United States Postal Service," Docket No. N2012-1,USPS-T-9, at Attachment 1. These wage categories are the same as those used by the Postal Service and accepted by the Commission in the analysis of PVS costs in Docket No. N2010-1. See, PRC Op.,Docket No. N2010-1 at 100.

Table 13

Labor Costs at 40 Inactive Postal Vehicle Service Sites

	LDC 30	LDC 31	LDC 34	Total
Hours	236,823	174,979	2,435,902	2,847,704
Wage	$48.48	$41.04	$43.07	
Direct Labor Cost	$11,481,174	$7,181,141	$104,914,319	$123,576,634
Indirect Cost	$1,370,297	$857,081	$12,521,697	$14,749,075
Total Labor Cost	$12,851,471	$8,038,222	$117,436,017	$138,325,709

Source: Library Reference USPS-LR-N2012-1/22

In addition to labor costs, PVS sites also incur vehicle costs which include fuel costs, parts costs and maintenance costs. In FY2010, these vehicle costs were $19.6 million for the 40 inactive PVS sites.[35] This means that the total Postal Service cost of operating these sites was approximately $158 million. However, the cost savings will be smaller than this amount, because the Postal Service will incur additional cost in HCR transportation.

Because of the nature of transportation involved, PVS transportation will be converted to Intra P&DC HCR transportation. To calculate the additional HCR costs, I took the average cost per mile from that account ($2.05 per mile) and

[35] The costs were derived from the Postal Service's VMAS system. The Vehicle Management Accounting System (VMAS) is a cost-accounting system providing operating costs per vehicle. Also reported is the cost of maintenance and repair, vehicle depreciation, parts, and fuel usage. Additional information is provided on vehicle use and inventories.

multiplied by the number of miles driven at the PVS sites being converted (27,403,820).[36]

Table 14 presents the cost savings from PVS conversion. It shows that the additional HCR costs will be $56.1 million, leading to a cost saving of $101.8 million.

Table 14
Calculating the Cost Savings from Converting PVS Sites to HCR Transportation

Total Labor Costs	$138,325,709
Total Vehicle Costs	$19,630,079
Total Miles	27,403,820
HCR Cost Per Mile	$2.05
Additional HCR Cost	$56,131,910
Cost Savings	$101,823,878

Source: Library Reference USPS-LR-N2012-1/22

The Postal Service also anticipates that the change in service standards will impact the plant-to-post office portion of its HCR network. Witness Martin

[36] The average cost per mile was calculated by dividing the sum of Intra-P&DC accrued costs by the miles driven on the contracts in that account. See, Library Reference USPS-LR-N2012-1/22. The total miles driven at the 40 inactive PVS sites were derived from VMAS.

analyzed the impact of the change in service standard on this part of the network and found:[37]

> By reducing the number of plant-to-Post Office links within a defined geographic area and collapsing two service areas into one, the Postal Service will be able to reduce the number of operating miles within that area. Additionally, an expanded mail-processing window, combined with a reduction in the number of plants, would enable the Postal Service to decrease the number of surface transportation trips required to service a particular area.

Witness Martin estimated that, on balance, these changes would lead to a 13.7 percent reduction in capacity in the plant-to-post office portion of the network. The cost savings associated with this reduction can be calculated by applying the same methodology that I applied to the change in the plant-to-plant portion of the network.

The baseline for calculating these savings is the cost of operating the plant-to-post office part of the HCR network in FY2010. To calculate the baseline I start with the FY 2010 costs for Intra-P&DC transportation, which provides plant-to-post office transportation. That cost is augmented by the additional HCR cost created by the conversion of PVS sites to HCR transportation. The baseline cost is thus the sum of the FY2010 Intra P&DC cost of $991.8 million and the additional HCR cost from conversion of $56.1 million. The cost savings in this part of the transportation network are presented in Table 15.

[37] See, "Direct Testimony Cheryl D. Martin on Behalf of the United States Postal Service," Docket No. N2012-1, USPS-T-6, at 11.

Table 15

Calculating Cost Savings in the Plant-to-Post Office Portion of the HCR Network

Baseline Cost	$1,047,912,940
Capacity Reduction	13.7%
Capacity Variability	70.2%
Savings	$100,664,029

Source: Library Reference USPS-LR-N2012-1/22

IV. CALCULATING THE OVERALL CHANGE IN COST

The Postal Service has analyzed the operational changes that would occur in response to proposed change in service standards. The testimonies of witnesses Brata, Neri, Martin, and Rosenberg have described that response and have provided explanations of how that response would alter the Postal Service's use productive resources. The operational changes will cause changes in the Postal Services use of labor, facilities, equipment, supplies, and utilities as it restructures its mail processing and transportation networks and will cause a change in the cost of handling a given volume of mail. Witness Smith and the earlier portions of my testimony present the cost changes associated with each of the operational changes.

This section of my testimony presents the estimated gross cost savings flowing from the service standard change. Gross cost savings do not account for any changes in mail volume that might occur as a result of the service standard change. They are the "full up" costs savings in the sense they are derived from comparing the cost of handling FY 2010 volume in the existing mail processing and transportation networks with the cost of handling the same volume in the reconfigured mail processing and transportation networks. As such, they do not include any transition or implementation costs.

The baselines for calculating the change in cost are the FY 2010 Annual Compliance Determination costs for mail processing and transportation. The methodology followed in estimating the cost savings is that applied by the Postal Regulatory Commission in ACD process.

The cost changes occur in five areas, mail processing labor cost changes, transportation cost changes, facility related cost changes, mail processing equipment cost changes, and workload reduction cost changes. The cost changes for the first two areas are presented and explained in this testimony; the cost changes for the last three are presented in the testimony of Witness Smith, USPS-T-9. Table 16 presents the cost savings for each of these five areas along with the total cost savings.

Table 16

Cost Savings Flowing from by the Proposed Service Standard Change (In millions of dollars)

Mail Processing Labor Cost Changes	
Workload Transfer	$82.6
Productivity Gains	$964.2
Premium Pay Reductions	$71.8
Supervision and Plant Management Reductions	$84.5
In Plant Support Reductions	$48.7
Indirect Cost Reductions	$140.8
Subtotal	**$1,392.5**
Transportation Cost Changes	
Air Transportation Additions	-$124.9
Plant-to-Plant HCR Network Restructuring	$192.9
PVS to HCR Conversions	$101.8
Plant-to-PO Network Restructuring	$100.7
Subtotal	**$270.6**
Facility Related Costs Changes	
Building Maintenance and Custodial Labor	$231.5
Utilities	$74.4
Supplies and Contractor Costs	$19.4
Rents or Rental Opportunity Costs	$49.5
Subtotal	**$374.8**
Mail Processing Equipment Cost Changes	
Maintenance Labor	$379.9
Parts and Supplies	$82.0
Subtotal	**$461.9**
Workload Reduction Cost Changes	
Reduction in Outgoing Secondary Sorting	$22.8
Replacement of CSBCS and USFM10000	$15.4
Additional DPS Sorting	$36.0
Subtotal	**$74.2**
Total	**$2,574.0**