



Cost of Service Standards

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Overview

Introduction

The Postal Service's network was designed for the high-speed transmission of First-Class Mail correspondence and transactions for individuals and businesses. The diversion of much of this mail to electronic alternatives raises the question of whether the high speed service that some postal products receive is still worth its cost. The overnight First-Class Mail service standard requires the Postal Service to maintain processing plants that operate through the night and on Sundays. In addition, stringent service standards for First-Class Mail and Priority Mail are the primary factors that determine if mail travels by ground or by the more expensive air transportation. Figure 1 outlines service standards in the 48 contiguous states for major mail classes.¹

Figure 1: End-to-End Service Standards by Major Mail Class



Source: U.S. Postal Service Service Standards for Continental United States

Some of the Postal Service's largest business mailers have stated that they value consistency over speed and they would tolerate slightly slower service to save costs.²

¹ U.S. Postal Service, "Modern Service Standards," <https://ribbs.usps.gov/index.cfm?page=modernservice>.

² These mailers have stated a preference for service that is consistent, reliable, and cost-effective with reasonable speed. (See U.S. Postal Service Office of Inspector General, *A Strategy for a Future Mail Processing & Transportation Network*, Report No. RARC-WP-11-006, July 6, 2011.) Further, given the diversion of letter writing and bill payments to electronic communications, the public may also be less sensitive to a relaxation in the highest speed service standards, particularly the overnight standard.

Given these views and the recent and forecasted declines in First-Class Mail,³ the Postal Service may want to explore a reasonable relaxation of service standards as one alternative for saving costs. To provide the Postal Service and policymakers with more information on this option, the U.S. Postal Service Office of Inspector General (OIG) Risk Analysis Research Center (RARC) contracted with Christensen Associates (Christensen) to conduct basic research to identify and measure service-related costs.⁴

The attached paper by Christensen examines the costs that could be avoided by relaxing service standards by 1 day. Christensen found significant service-related cost savings for preferential mail. Preferential mail products include First-Class Mail, Priority Mail, and Periodicals. They incur additional costs because of their higher speed service standards. We selected 1 day for several reasons. First, we consider it to be a reasonable relaxation that should have a low impact on customer demand given mailers' stated preference for consistency over high speed.⁵ Second, it would still maintain the differentiation in service between preferential and non-preferential mail products.⁶

Scope and Methodology

The paper assesses the sources of service-related costs in the Postal Service's mail processing, transportation, and delivery functions. Christensen examined four areas for potential costs savings when service is relaxed by 1 day:

- Premium Pay is paid for work at night and on Sundays.⁷ Relaxing service standards by 1 day permits mail processing to take place during the following day, avoiding the bulk of night (6 p.m. to 6 a.m.) and Sunday processing cost premiums.
- Other Mail Processing Costs include any additional labor the Postal Service might use to meet higher service standards.⁸ Christensen estimates this indirectly by comparing the unit cost of the preferred product category to the unit cost of the closest comparable Standard Mail product category by presort level.
- Transportation Cost is the cost difference between ground and air transportation. Ground transportation is usually less costly than air, but requires longer end-to-

³ Notably, Boston Consulting Group forecasted that First-Class Mail volume would be about 50 billion pieces in FY 2020, about 28 billion fewer pieces than in FY 2010. Standard Mail was forecasted to remain relatively flat with total mail volume falling to 150 billion pieces.

⁴ Christensen has expertise on Postal Service cost models, accounting systems, and operations. Although Postal Service costing systems do not measure the direct relationship between costs and service performance, the data are necessary to develop estimates of service-related costs.

⁵ Christensen did not attempt to measure the demand effects of relaxing service standards.

⁶ Destination entry non-preferential products can receive 2-day service, so there would be some overlap for worksharred mail.

⁷ Night shift differential is a premium paid at a specified dollar rate for all hours worked between 6 p.m. and 6 a.m. Sunday premium is paid at 25 percent extra for work scheduled on Sunday. The overnight standard for First-Class Mail means that the bulk of mail processing occurs during the night hours, including most nonpreferential mail.

⁸ The Postal Service's In-Office Cost System (IOCS) measures the amounts of labor time associated with handling mail products. This should indirectly capture any additional work effort provided for service performance.

end transit times for longer haul shipments. Relaxing service standards by 1 day allows the Postal Service to shift mail that is transported longer distances from air to ground.

- Overtime Pay is a potential source of service-related costs. An extra day of service could allow the Postal Service to smooth peaks in labor usage during the week and avoid some overtime costs.

In addition, there are other potentially significant areas for cost savings that were outside the scope of Christensen’s analysis. If service standards were relaxed, processing plants could cover larger service areas, allowing the Postal Service to have fewer plants. A longer service window would give plants additional time to process the mail. This extra time would allow the Postal Service to schedule employees more efficiently and run fewer pieces of equipment for longer periods.

Results in Brief

Table 1 presents the service-related mail processing costs that are avoided by extending service standards for preferential mail classes by 1 day. Overall, the research identifies savings of up to \$1.5 billion in premium pay and other mail processing costs.⁹ This is a lower bound estimate as it excludes potentially significant sources of cost savings from network restructuring and consolidation.

Table 1: Service-Related Avoided by 1 Day Relaxation of Service Standards (in Millions)

Savings Opportunity	Amount
Premium Pay	\$ 336
Other Mail Processing Costs	\$ 1,139
Total	\$ 1,475

The attached Christensen paper provides the technical details of the research and analysis. We provide here some highlights:

1. Premium pay for night-shift and Sunday mail processing for First-Class Mail, Priority Mail, and Periodicals in FY 2010 had a total cost of \$336 million. Relaxing service standards could allow mail processing to be scheduled largely during day shifts and away from Sunday, avoiding premium pay costs.
2. Other mail processing cost differences were more than \$1 billion in FY 2010. At least some, if not all, of these differences are due to high cost levels in outgoing mail processing and elevated staffing levels needed to meet preferential mail service standards.

⁹ The research also identifies \$120 to \$197 million in transportation costs, although these are not likely achievable at the same time as the mail processing savings.

3. Relaxing service standards by 1 day allows the Postal Service to meet end-to-end service standards for zones 3-6 Priority Mail using ground transportation. The difference between ground and air transportation for these zones was between \$120 and \$197 million in FY 2010.¹⁰ Similar savings may be available for First-Class Mail, but data are not available to estimate middle-zone air transportation costs.
4. In FY 2010, overtime premium pay was \$811 million.¹¹ Overtime is only slightly more expensive than straight time hours with benefits and can often provide more flexibility. Overtime can be cheaper than incurring minimum guaranteed workhours of 4 or 8 hours. The Postal Service often uses overtime to cover normal staffing requirements for a given day. Nevertheless, extending service standards should allow the Postal Service to smooth its labor usage and avoid some overtime workhours caused by Monday peaks in workload.¹² The specific overtime costs related to meeting service standards, however, are not measurable using existing data.
5. Relaxing service standards provides for longer processing and transportation windows. This provides additional substantial benefits to the Postal Service including reducing the number of trips between Post Offices and plants for collection and delivery,¹³ improving plant operation schedules that more fully utilize 8 hour shifts,¹⁴ and lengthening machine runtime requiring fewer machines, less floor space, and less maintenance labor. Relaxing service standards also allows plants to have geographically larger service areas. This is an opportunity for the Postal Service to realign its network and capture additional, significant cost savings; however, assessing network consolidations was beyond the scope of this study and would require extensive network modeling. Our recently published paper, *A Strategy for a Future Mail Processing & Transportation Network*, assessed the potential savings from network consolidations given the current service standards.¹⁵
6. Current Postal Service cost models and accounting systems are not designed to measure service-related costs. Further, the Postal Service lacks important

¹⁰ The range is based on different assumptions of how ground transportation costs vary with respect to longer distances. The low end estimate assumes a constant cost per cubic-foot mile. The high end estimate assumes the cost per cubic-foot mile decreases the longer the distance traveled.

¹¹ The Postal Service pays clerks, mail handlers, and city carriers overtime at 1.5 times base hourly rates for hours 8-10 of a workday and for hours exceeding 40 in a workweek. Penalty overtime at twice the base hourly rate is paid essentially for hours exceeding 10 per regularly scheduled workday.

¹² Mail volume is 29 percent higher on average on Monday than the average for Tuesday through Saturday. Total work hours for mail processing clerks and mail handlers and overtime hours for city carriers exhibit some peaking associated with Monday volumes. Friday and Saturday show high overtime usage, but this is partly due to overtime early in the week leading to workhours exceeding 40 hours later in the week.

¹³ Currently there are multiple trips to pick up collection mail so that the plant can begin operations. Similarly, there are multiple trips to delivery units in the morning so that carriers can begin casing the mail as the plant completes its automated sortation.

¹⁴ The overnight service standard results in some operational windows that are less than a full shift. Lengthening processing windows may allow the Postal Service to better process workloads in full shifts.

¹⁵ U.S. Postal Service Office of Inspector General, *A Strategy for a Future Mail Processing & Transportation Network*, Report No. RARC-WP-11-006, July 6, 2011, http://www.uspsoi.gov/foia_files/RARC-WP-11-006.pdf.

service-related data including reliable origin-destination mail volumes. If widely adopted, the Intelligent Mail barcode (IMb) can provide the necessary data to compute more precise service-related costs.

7. Past concerns of requiring labor intensive manual processing to meet service standards due to insufficient machine capacity should no longer be an issue since with the declines in mail volumes, the Postal Service now has an excess of machine capacity. As the service-related costs associated with manual labor are much less than they once were, they should not be a significant source of savings.
8. Non-preferential, deferrable mail products such as Standard Mail do not have significant service-related labor or transportation costs.

Conclusion

As the Postal Service, the postal community, and policymakers explore how to cut postal costs, adjusting service standards should be considered. The following paper estimates the Postal Service could save up to \$1.5 billion by relaxing service standards by 1 day. This is almost certainly a lower bound estimate as this paper presents preliminary results, and additional opportunities for savings exist from restructuring and consolidation.



Cost of Service Standards in the United States Postal Service

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Executive Summary

The goal of the Postal Service is to collect, sort, transport, and deliver mail within the service standard targets for each class of mail. National service standards by class were first established in 1971. These service standards remain mostly unchanged for Standard Mail, Package Services, and Priority Mail, while some changes have been implemented for First-Class Mail and Periodicals. Under the Postal Accountability and Enhancement Act, the Postal Regulatory Commission is charged with reviewing the Postal Service's quality of service and requires service performance reporting. However, the cost impact of these service standards has not been studied. This is a first step in answering the question, what would the savings be from a one-day change in service standards for each class of mail?

This report describes sources and causes of service-related costs in the Postal Service's mail processing, transportation, and delivery functions. While postal products have various service characteristics, we focus on standards for end-to-end days from acceptance to delivery. Where possible, this report aims to quantify costs that could be avoided with a one-day extension of end-to-end service standards for major products. For example, First-Class Mail currently offering delivery in 1-3 days would instead receive 2-4 day service; Standard Mail would move from 3-10 days to 4-11 days.

The purpose of this report is not to recommend any specific service changes or related operational changes. Rather, the goal is to identify areas of potential cost savings—quantifying if possible with existing data—for a hypothetical one-day service standard change. Further research is needed if any changes are to be implemented. Here are the key findings:

1. There are approximately \$2.5 billion in annual costs (based on FY2010 cost levels) in mail processing, transportation, and delivery functions that are at least partly service-related. But, the entirety of these costs are not available as potential cost savings from extending service standards by one day because of the interrelation of functions. For example, lengthening transit times by substituting ground for air transportation may foreclose savings from deferring mail processing or delivery activities. Also, the organizational changes required to obtain cost savings in certain service-related components may be substantial.
2. The Postal Service pays premiums to employees for working Sunday shifts and from 6 P.M. to 6 A.M., defined as night hours. In FY2010, the service-related cost of premium pay was \$389 million under the current cost methodology. A one-day extension of service standards could allow premium pay costs to be largely avoided, since that would be sufficient to allow processing windows to occur during day shifts and to minimize the need for Sunday processing.

3. While the direct costs of eliminating night and Sunday pay premiums are modest, shifting processing windows could enable significant long-term savings from mail processing network realignment, since there could be additional time to transport mail between post offices and mail processing plants. In FY2010, the Postal Service incurred \$4.7 billion in annual costs related to mail processing facility space and equipment. A recent OIG study (RARC-WP-11-006) concluded that a new 135-plant network would cost around \$2 billion less per year to operate than the current network, excluding transition costs. This new plant structure extends plants' service radii by around 50 miles, and the required travel time between plants and outlying post offices may be more feasible to accommodate with a one-day relaxation of service standards.
4. Overtime pay totaled \$811 million for clerks, mail handlers, and carriers in FY2010. The service-related portion of overtime costs cannot be determined from available data, in part because the causes of overtime incurred in low-volume periods are ambiguous, and in part since costs of straight-time benefits may offset some of the overtime premium. However, there is a substantial portion of overtime that appears to coincide with the Monday delivery workload peak, which may be partly avoidable by additional workload deferral. Overtime use has declined sharply as volume has declined over the recession.
5. By using 2-4 day ground transportation in lieu of air transportation, the Postal Service could reduce Priority Mail air transportation cost by approximately \$120-\$197 million per year, or approximately [REDACTED] percent of Priority Mail air transportation costs. Data are insufficient to estimate corresponding savings for First-Class Mail, but would likely be (relatively) lower because of lower air shares in zones 3-5.
6. There appear to be substantial service-related costs of handling First-Class Single-Piece mail, which has mail processing costs approximately \$1.13 billion per year higher than bulk mail benchmark costs at FY2010 cost levels. The available cost data cannot isolate the service-related component of the difference, but the data do suggest that a major cause may be high staffing levels used to clear outgoing mail at mail processing plants. In contrast, there is little evidence of substantial additional labor being provided for First-Class Presort mail and Periodicals, relative to Standard Mail, for service reasons.
7. Mail volumes for delivery exhibit a strong Monday peak, with Monday pieces (summed over all products) 29 percent higher than the average of the other five delivery days. Standard Mail letter and flat peaks coincide with the overall Monday peak, which may indicate unused opportunities for shaving the Monday demand peak within existing service standards. First-Class Single-Piece mail has a late-week (Thursday-Friday) peak.

8. Issues that have figured prominently in discussions of service-related costs in the past, such as automation capacity constraints, may be less relevant in light of recent volume declines and the advanced state of the Postal Service's automation programs.
9. Cost savings from service reductions may be offset by loss of mail volume because demand for postal products would be lower, other things equal, under reduced service standards. A one-day extension of service standards would not affect all preferential products identically. Curtailing one-day service would have the largest effects on First-Class Single-Piece letters, where half of the volume is subject to the one-day standard. However, since service is not explicitly priced and retail mailers have limited choice over postal service characteristics, the sensitivity of postal demand to service performance is not easily measured. In some cases, we expect product features such as service reliability or visibility may be more valuable than end-to-end speed. Analysis of these demand-side effects is beyond the scope of this paper.

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1. Introduction

Service standards such as the time in transit from acceptance to delivery are major features of U.S. Postal Service products. The overnight standard for local First-Class Mail and the 2-3 day service standard for nonlocal Priority Mail are widely publicized. Under the Postal Accountability and Enhancement Act, the Postal Regulatory Commission is charged with reviewing the Postal Service's quality of service and requires service performance reporting. While service standards for Postal Service products may be well known, measuring service-related costs in isolation from other cost-causing factors has not been a major focus of Postal Service cost development. Issues that have figured prominently in discussions of service-related costs in the past, such as automation capacity constraints, may be less relevant in light of recent volume declines and the advanced state of the Postal Service's automation programs.

This report describes sources and causes of service-related costs in the Postal Service's mail processing, transportation, and delivery functions. While postal products have various service characteristics, we focus on standards for end-to-end days from acceptance to delivery. Where possible, it aims to quantify costs that could be avoidable with a one-day extension of end-to-end service standards for major products with "preferential" standards (First-Class Mail, Priority Mail, Periodicals) and for "non-preferential" products (Standard Mail, Package Services).¹ That is, preferential mail currently offering delivery in 1-3 days would instead receive 2-4 day service; currently deferrable mail could be deferred an extra day as needed. This would constitute a substantial service change, but for the purposes of this exercise we retain the major distinctions between preferential and non-preferential products. We are not recommending any service changes or related operational changes. Rather, the additional-day concept is intended to allow costs that may vary with service standards to be identified.

In terms of report layout, we first briefly review issues with peak-load and similar service-related costs. Since the existence of peak-load cost issues depends on the convergence of demand variations and cost inflexibility, we describe available data on volume and workhour profiles by day of the week and by season, and on mail processing costs and workhours by time of day. We examine premium pay, overtime, and air transportation costs as service-related cost components, and discuss the potential for cost savings in those components from relaxing service standards. To investigate costs that may result from assigning additional labor to

¹ While the "preferential" and "non-preferential" terminology is obsolescent and does not reflect finer details of service standards for specific postal products, we employ it as useful shorthand to refer collectively to groups of products with higher and lower service standards.

preferential products to meet service standards, we examine mail processing cost differentials between preferential and comparable non-preferential products.

Existing Service Standards

The Postal Service’s Origin-Destination Information System (ODIS) provides a snapshot of the service-standard profile of retail mail products. As evidenced in Table 1, the FY2010 service standard for over half (55%) of all First-Class Single-Piece letters is one day (overnight), as is a plurality of First-Class Single-Piece flats; those products would see a large impact from converting one-day to two-day mail. However, preferential volumes constitute a relatively small share of flat-shaped mail overall. One-day mail constitutes much smaller shares of parcel-shape products. The service standard for most First-Class Single-Piece parcels and Priority Mail is 2 to 3 days, and the service standard for most Package Services Mail is 3 to 4 days or more. Pieces in which the service standard is unknown (e.g., with no clear origin ZIP code on the mail piece) have been excluded.²

Table 1. FY2010 Volumes, Selected Mail Products by Service Standard (ODIS)

Volume (Millions of Pieces)

Product	Service Standard				Total
	1-Day	2-Day	3-Day	4-Day +	
FCM Single-Piece Letters	15,200	6,314	5,929	71	27,514
FCM Single-Piece Flats	795	461	495	6	1,757
FCM Single-Piece Parcels	53	84	204	2	344
Priority Mail					
Package Services Single-Piece	2	0	28	12	42

Percent of Volume by Service Standard

Product	Service Standard				Total
	1-Day	2-Day	3-Day	4-Day +	
FCM Single-Piece Letters	55%	23%	22%	0%	100%
FCM Single-Piece Flats	45%	26%	28%	0%	100%
FCM Single-Piece Parcels	16%	25%	59%	1%	100%
Priority Mail					100%
Package Services Single-Piece	5%	1%	66%	29%	100%

² Unknown service standard volumes are small fractions of ODIS volumes for First-Class Mail and Priority Mail, but are a majority of Single-Piece Package Services.

Causes of Service-Related Costs

Service-related costs can be caused by a variety of factors. First, the Postal Service may need to undertake costly actions to meet service standards that would be unnecessary if the standards were relaxed. For example, the Postal Service provides next-day service for local First-Class Mail in part by scheduling mail-processing activities for night and Sunday shifts for which the Postal Service must pay wage premiums to clerks and mail handlers. Also, the Postal Service must purchase air transportation instead of slower, but less-costly, ground transportation to meet service standards for First-Class Mail and Priority Mail traveling longer distances. Second, day-to-day or seasonal variations in demand for preferential products can give rise to “peak load” problems when costs are inflexible relative to demand. Third, the Postal Service’s network may be organized in part around preferential products’ service standards, particularly next-day service for local First-Class Mail. Relaxing service standards could enable network realignment with potentially substantial reductions in facility space and equipment costs.

Existing accounting system and cost model methods provide a basis for measuring some service-related costs, such as costs of shift differentials and air transportation cost premiums, but are insufficient to develop comprehensive measurements of service-related costs. Existing data and methods are intended to estimate the total (or average) costs “attributable” to products and only secondarily to provide information on the causes of those costs. Both the costs of providing certain levels of end-to-end service and the potential cost savings from relaxing service standards would be expected to depend critically on the operational details of the standards’ implementation. Not all service-related costs will necessarily be avoidable under specific approaches to relaxing standards. For instance, lengthening en route times by substituting ground for air transportation may foreclose savings from deferring mail processing or delivery activities.

Volume Loss and Implementation Costs

Demand-side considerations are beyond the scope of this paper, but would be an important factor for determining the net effects of actual service standard changes on Postal Service finances. In general, service reductions would reduce demand for the affected products (other things equal), so lower net revenues would offset some of the potential cost savings. The relative magnitude of revenue losses was a matter of contention in the 5-day delivery proceeding before the Postal Regulatory Commission (Docket No. N2010-1), where Postal Service and Postal Regulatory Commission estimates of prospective revenue effects varied widely and were each subject to considerable uncertainty.³ For service standard changes, the

³ See, e.g., Postal Regulatory Commission, Docket No. N2010-1, Advisory Opinion on Elimination of Saturday Delivery, p. 33.

central unknowns include the extent to which customers specifically demand an X-day standard, and customers' willingness to pay for X-day delivery instead of (say) X+1 day delivery. Insofar as the service performance for the products we consider is not guaranteed, it would stand to reason that postal customers are at least somewhat flexible in their service requirements.

In addition, while we have considered whether savings in certain cost components may be possible under relaxed service standards, we have not attempted to assess operational details of implementing service changes, including potential network adjustment costs or benefits. Any such effects, though they are potentially large relative to "direct" effects presented here, would be purely speculative absent very substantial additional research and analysis. Based on the experience of Docket No. N2010-1, estimation of savings from consolidating Postal Service facilities and evaluation of other consequences of prospective service changes would be highly controversial.

Summary of Main Findings

Here are our main findings regarding potential costs savings:

- Mail processing premium pay expenses for night and Sunday work have been treated as largely constituting a service-related cost of preferential mail. FY2010 mail processing premium pay treated as service-related cost is \$389 million, \$336 million of which is associated with preferential mail service under the current cost methodology. A one-day extension of service standards could allow premium pay costs to be largely avoided, since that would be sufficient to allow processing windows to occur during day shifts and non-Sundays. While the direct costs are modest, shifting processing windows could enable large long-term savings from mail processing network realignment, since there could be additional time to transport mail between post offices and mail processing plants.
- By using 2-4 day ground transportation in lieu of air transportation, the Postal Service could reduce Priority Mail air transportation cost by approximately \$120-\$197 million per year, or approximately [REDACTED] percent of Priority Mail air transportation costs. Data are insufficient to estimate corresponding savings for First-Class Mail, but would likely be (relatively) lower because of lower air shares in zones 3-5.
- Overtime pay totaled \$811 million for clerks, mail handlers, and carriers in FY2010. The service-related portion of overtime costs cannot be determined from available data, in part because the causes of overtime incurred in low-volume periods are ambiguous, and in part since costs of straight-time benefits may offset some of the overtime premium. However, there is a substantial portion of overtime that appears to coincide with the Monday

delivery workload peak, which therefore may be partly avoidable by additional workload deferral. Overtime use has declined sharply as volume has declined over the recession.

- Costs for First-Class Single-Piece mail are substantially higher than mixed AADC (or mixed ADC) benchmark costs from Standard Mail and First-Class Presort mail. The effect, approximately \$1.13 billion per year at FY2010 costs, is too large to be the result of known non-sampling errors in mail processing costs. Cost data suggest at least a portion of the difference reflects staffing levels intended to clear outgoing preferential mail, mostly First-Class Single-Piece mail, to meet service standards. In contrast, there is little evidence of substantial additional labor being provided for First-Class Presort mail and Periodicals for service reasons. Cost differences between those products and Standard Mail benchmarks are driven by premium pay costs and product features other than end-to-end service standards.
- Mail volumes for delivery exhibit a strong Monday peak, with Monday pieces (summed over all products) 29 percent higher than the average of the other five delivery days.
- Standard Mail letter and flat peaks coincide with the overall Monday peak, which may indicate unused opportunities for shaving the Monday demand peak within existing service standards. First-Class Single-Piece mail has a late-week (Thursday-Friday) peak.

2. The “Peak Load” Issue and Volume and Workhour Profiles for the Postal Service

Definition of “Peak Load”

“Peak load” costs are a potential source of service-related costs for postal products. As described in detail by Kleindorfer, the peak load problem involves the following “critical elements”:

- a) The product is economically non-storable
- b) Demand must fluctuate periodically over time with resulting peaks and valleys

- c) Capacity must be inflexible so that the idle capacity implied by (a) and (b) is not costless (i.e., once committed the capacity must be paid for, whether used or not).⁴

Under these circumstances, efficient prices are based on short-run marginal costs within demand periods; short-run marginal costs in off-peak periods will tend to be low. In the postal context, this reasoning was used to argue that capacity costs were incurred in service of peak preferential demands and were excessively assigned to non-preferential products. This argument was strongly countered by prominent regulatory economists in 1980s rate cases. The current structure of the labor cost methods used by the Postal Service and the Postal Regulatory Commission largely reject this view. As a result, there is relatively little cost directly treated as service-related costs associated with preferential mail demand peaks. The notable exception relates to costs associated with shift differentials, discussed in section 3, below.

Kleindorfer observed that conditions in the Postal Service's mail processing system differ from the traditional peak-load problem in a number of important ways. Notably, postal products—particularly deferrable products, but in some cases also preferential products—are storable within limits. It is, therefore, possible both to shave demand peaks and to fill in demand troughs to some extent. Finally, postal resources are not totally inflexible. While the Postal Service faces certain labor and capacity cost rigidities, at least some labor and/or capacity costs are avoidable if they are unneeded. Kleindorfer considered a number of scenarios for deferrable volume availability and technological rigidity and concluded that measured mail processing costs were unlikely to diverge greatly from actual marginal costs considering the residual peak-load problem.

A related issue is that certain postal operations or functions serve as bottlenecks and may be saturated at peak volume periods. The stock of mail processing equipment is relatively fixed in the short term, so the maximum processing capacity of a plant is a function of the number of machines in place, machine throughput, and the length of available processing windows. Then, if peak preferential volumes saturate automation capacity and marginal preferential mail is not deferred, service-related costs arise through the provision of alternative manual handling (at higher cost). Similarly, on peak delivery days, preferential mail delivery volumes may require more than an eight hour shifts' work to sequence and deliver, and resulting payments of overtime premiums are service-related.

⁴ Postal Rate Commission, Docket No. R87-1, Direct Testimony of Paul R. Kleindorfer on behalf of the United States Postal Service (USPS-T-4), p. 6.

Increased Automation and Deferrable Mail Volume Growth

Since the peak-load issue was litigated over several rate cases in the 1980s, the Postal Service has undergone significant structural changes, including expansion of automated processing capacity and growth in deferrable Standard Mail volumes relative to preferential products' volumes for letters and flats. We would expect these, particularly in combination with recent volume declines, to provide considerable relief from bottlenecks and capacity constraints that may have existed at the Postal Service's volume peak.

For example, automated letter and flat equipment deployments were scaled for much higher volume levels than currently prevail, so automated processing capacity is less likely to be constrained at peak periods. Within relatively narrow processing windows, the Postal Service sorts nearly 100 billion letter-size pieces to delivery point sequence (DPS); outgoing processing, which uses the same equipment for a much smaller volume of First-Class Single-Piece letters and mixed AADC letters in First-Class Presort and Standard Mail, therefore is unlikely to face binding capacity constraints. Automated delivery point sequencing of letters has served to reduce carriers' in-office workloads, which would tend to be sensitive to volume fluctuations, and to increase street time, which includes relatively less variable route-running costs. However, since DPS involves commingling of mail classes, effectively upgrading Standard Mail mixed with First-Class Mail, it may limit the usefulness of Standard Mail deferability in managing delivery workloads.

Preferential versus Non-Preferential Volumes

The availability of deferrable non-preferential volumes also is important in determining the effect of preferential volumes on costs. If sufficient deferrable volume is available in the system, the Postal Service should have considerable flexibility to avoid service-related costs arising through capacity-related cost premiums. Indeed, in FY2010, aggregate Standard Mail volume (82.5 billion pieces) exceeded First-Class Mail volume (77.9 billion pieces). For flat-shape mail, the overwhelming majority of volume is deferrable (including Periodicals and Standard Mail)—34.8 billion Standard Mail and Periodicals flats versus fewer than 3 billion First-Class Mail and Priority flats.⁵ Deferrable flats volumes are potentially significant for delivery workload leveling since flats generally need to be sorted to delivery point sequence by carriers, at least pending widespread automation of flat-shape delivery point sequencing on Flat Sequencing Sorters (FSS).

⁵ Periodicals are treated as preferential mail for some purposes, but as stated in DMM 707 28.1, "The USPS does not guarantee the delivery of Periodicals within a specified time. Publications authorized or pending authorization for Periodicals entry receive, *where practicable*, expeditious distribution, dispatch, transit handling, and delivery" (emphasis added).

Mail Volumes by Day of Week

Figures 1-3 show profiles of average daily volumes for letters, flats, and parcels by day of week and month, based on sample data from ODIS. Monday peaks are observable for all three shapes; in total, Monday volume (pieces) is 29 percent higher than the Tuesday-Saturday average. Letter and parcel volumes also show lower secondary peaks later in the week. Only parcel volumes have a notable December peak.

Figure 1 – Average Daily Volume Profile – Letters and Cards

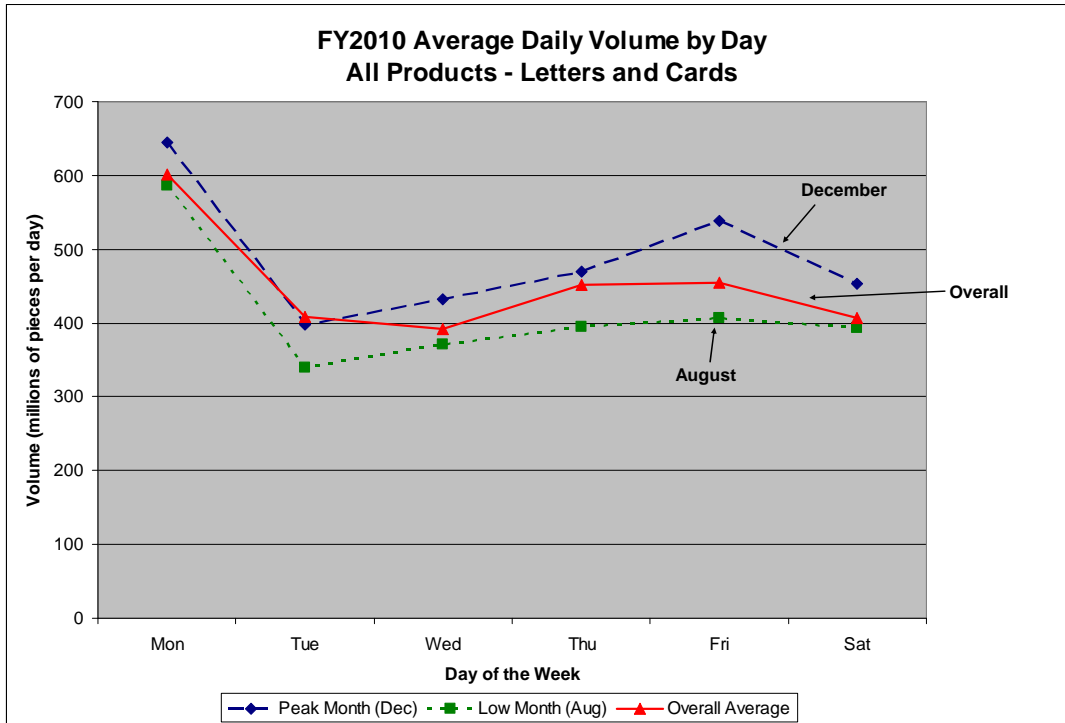


Figure 2 – Average Daily Volume Profile – Flats

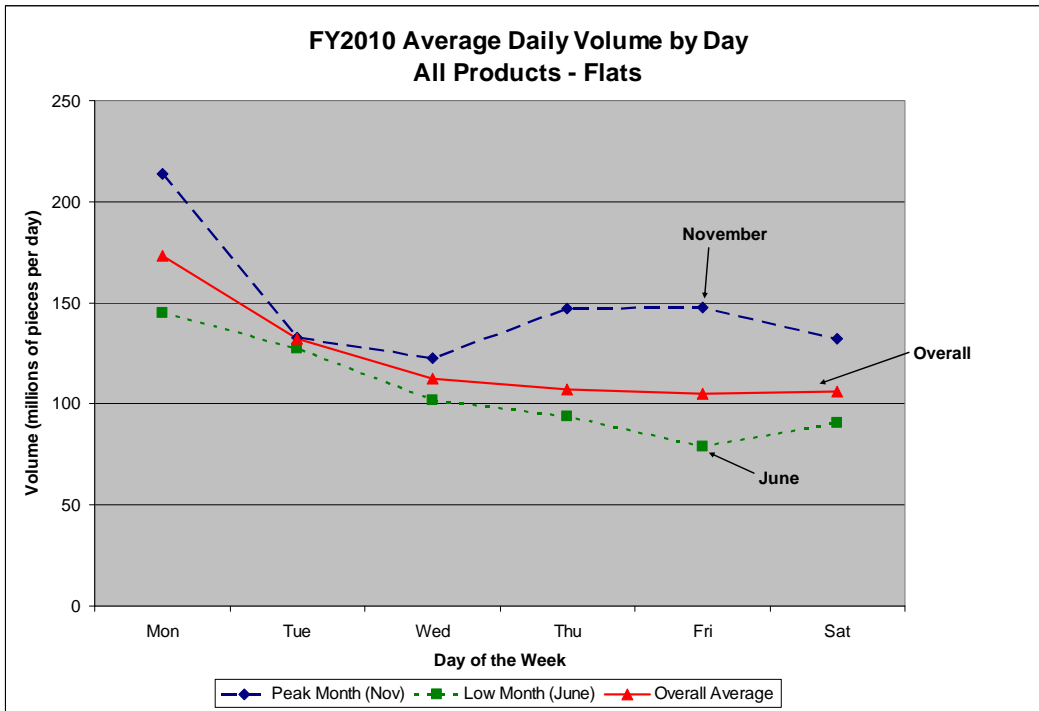
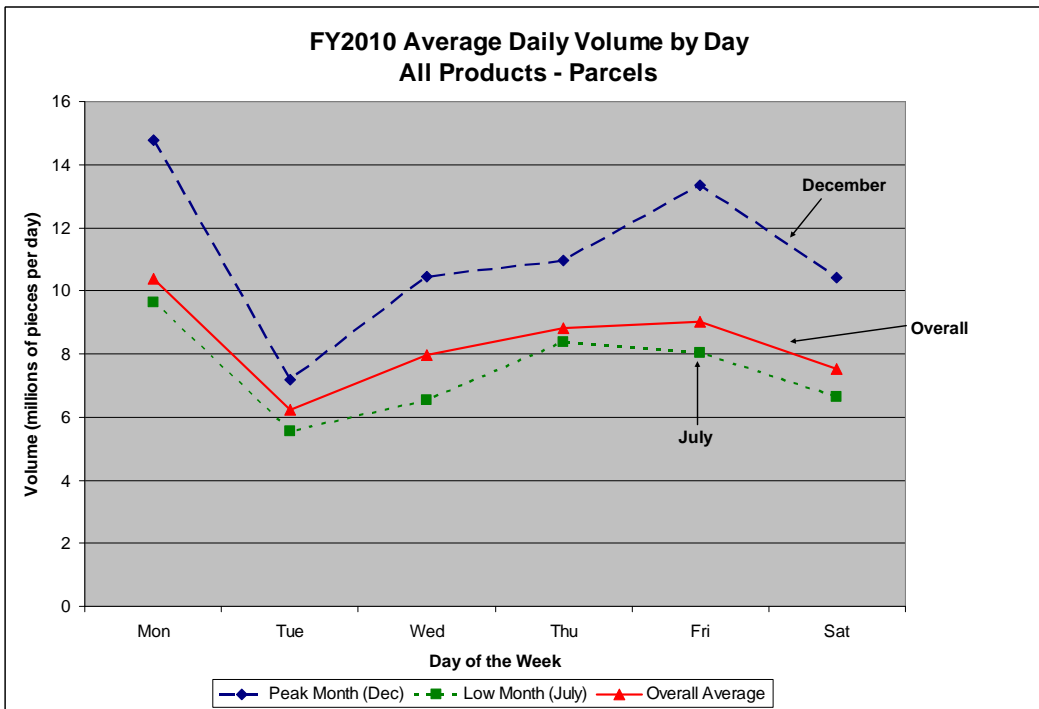
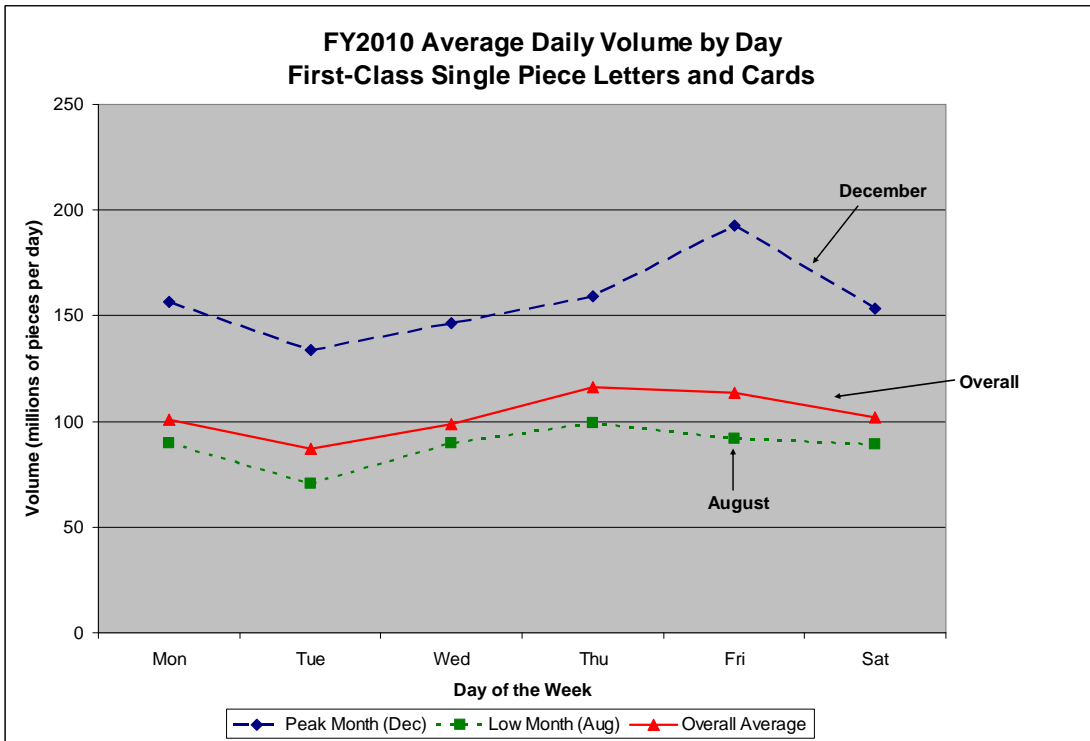


Figure 3 – Average Daily Volume Profile – Parcels



First-Class Single-Piece letters have a distinct volume profile, including late-week (Thursday-Friday) peak and high December volume relative to other months. See Figure 4. The December peak for Single-Piece letters is offset in the overall letter profile by somewhat lower December volumes for other letter-shape products.

Figure 4 – Average Daily Volume Profile – First-Class Single-Piece Letters



First-Class Presort letters sometimes exhibit very sharp Monday volume peaks. See Figure 5. First-Class Presort letter volumes have a distinct Tuesday-Wednesday trough, followed by a late-week plateau. Standard letters (Figure 6) have an overall peak on Monday, but also show Tuesday peaks. Overall, Standard letter volumes are less variable than First-Class Presort letters. This may, in part, reflect some peak-shaving using the deferability of the product.

Figure 5 – Average Daily Volume Profile – First-Class Presort Letters

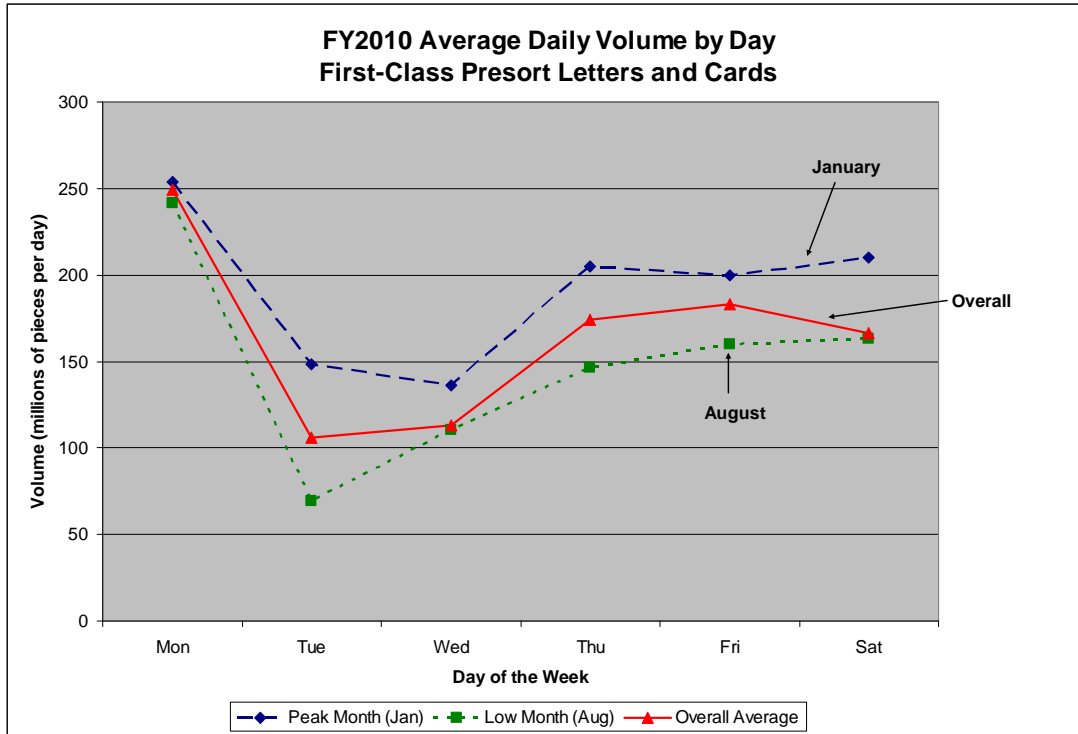
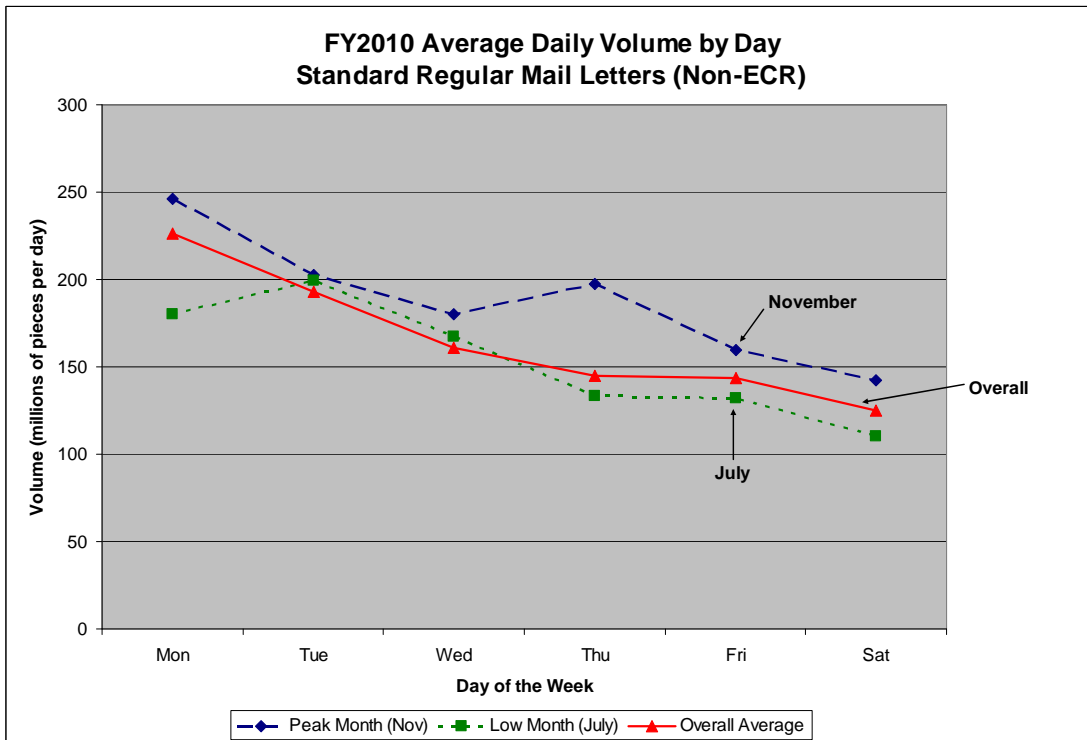


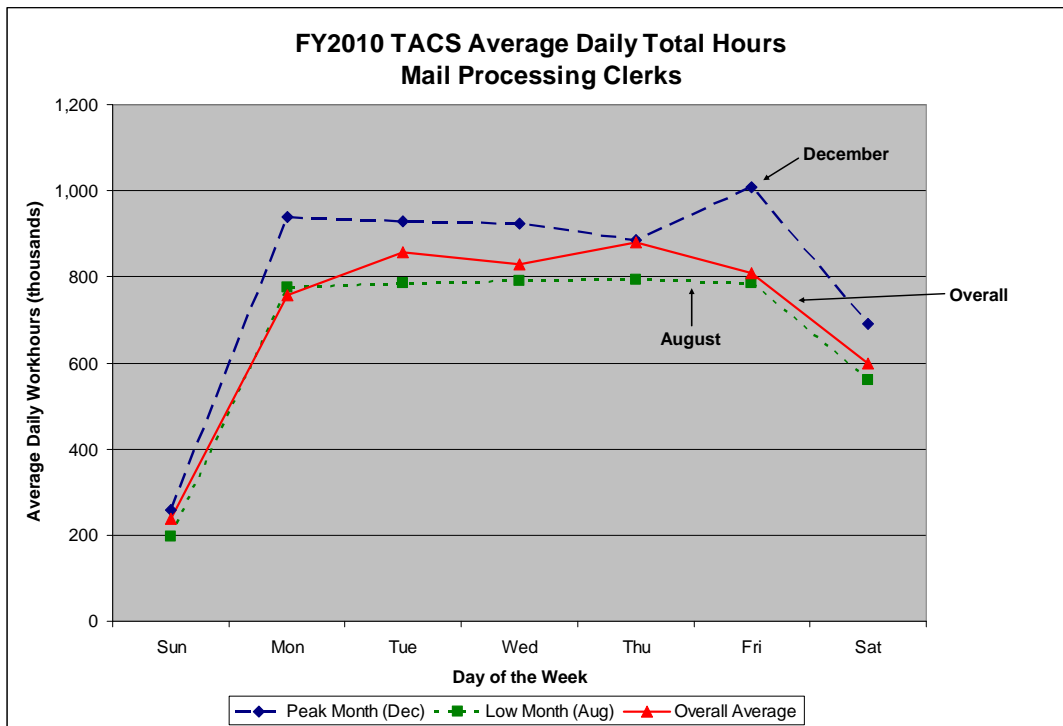
Figure 6 – Average Daily Volume Profile – Standard Regular Letters (non-ECR)



Workhours by Day of Week

Workhours recorded in the Postal Service's Time and Attendance Control System (TACS) can indicate the extent to which peaks of labor utilization correspond to volume peaks. Mail processing clerk and mail handler workhours (Figures 7-8) also exhibit some peaking associated with Monday volumes. While Monday workhours are not especially high for either clerks or mail handlers,⁶ we expect processing of mail scheduled for Monday delivery causes most Sunday workhours.

Figure 7 – Average Daily Workhours – Mail Processing Clerks



City carrier workhours show relatively low variation over the week. Monday workhours average 5.5 percent higher than the average for the other five delivery days. See Figure 9.

⁶ The days shown are calendar days, so Monday workhours include labor used to process incoming mail for Monday delivery and for processing outgoing mail collected or otherwise entered on Monday for delivery Tuesday or later.

Figure 8 – Average Daily Workhours – Mail Handlers

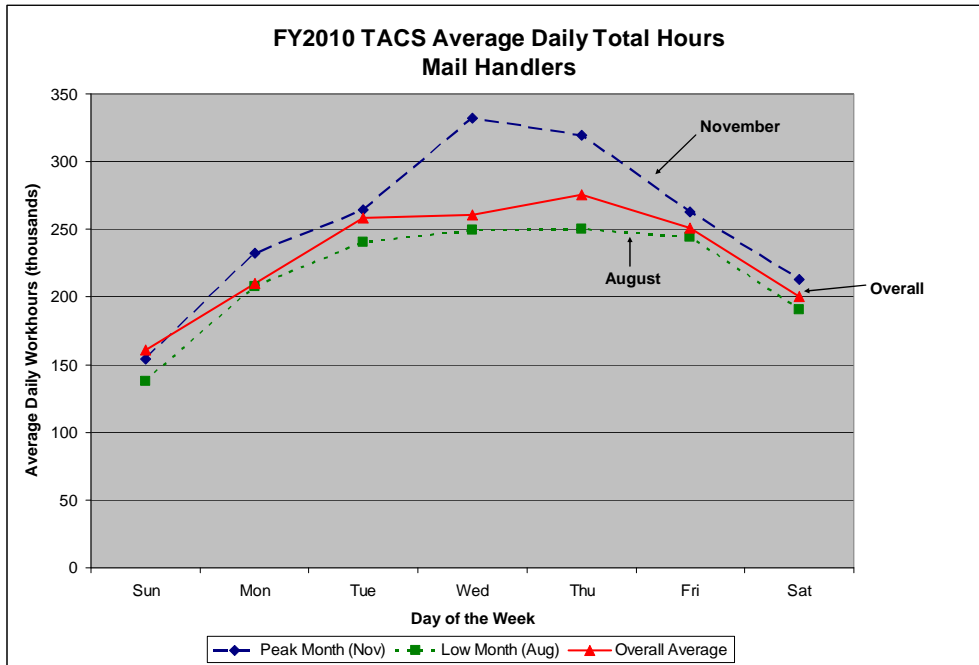
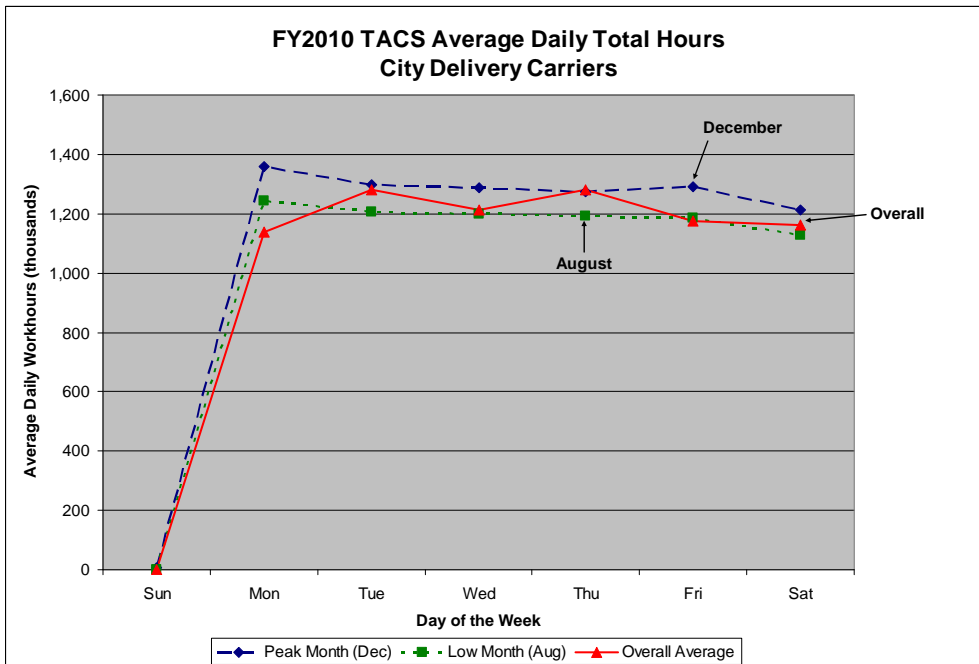


Figure 9 – Average Daily Workhours – City Delivery Carriers



Mail processing overtime hours show December and Monday peaks. Since overtime is earned for hours exceeding 8 per day or 40 per week, Friday and Saturday show relatively high overtime usage, as overtime early in the week leads to “echoes” of overtime hours during end-of-week shifts. See Figures 10-11. Mid-week

off-peak days show some overtime usage. This may be due in part to particular facilities encountering high volumes off of system peaks, but also likely indicates some amounts of overtime usage for routine management needs (e.g. unscheduled leave replacements) rather than meeting volume peaks.

City carrier overtime (Figure 12) shows a particularly high mid-week overtime floor. This may, in part, reflect additional inflexibilities related to carrier route structure as well as the universal service requirement to service routes in their entirety. Nevertheless, the Monday overtime peak for city carriers suggests that delivery workload leveling could reduce carrier overtime.

Figure 10 – Average Daily Overtime Hours – Mail Processing Clerks

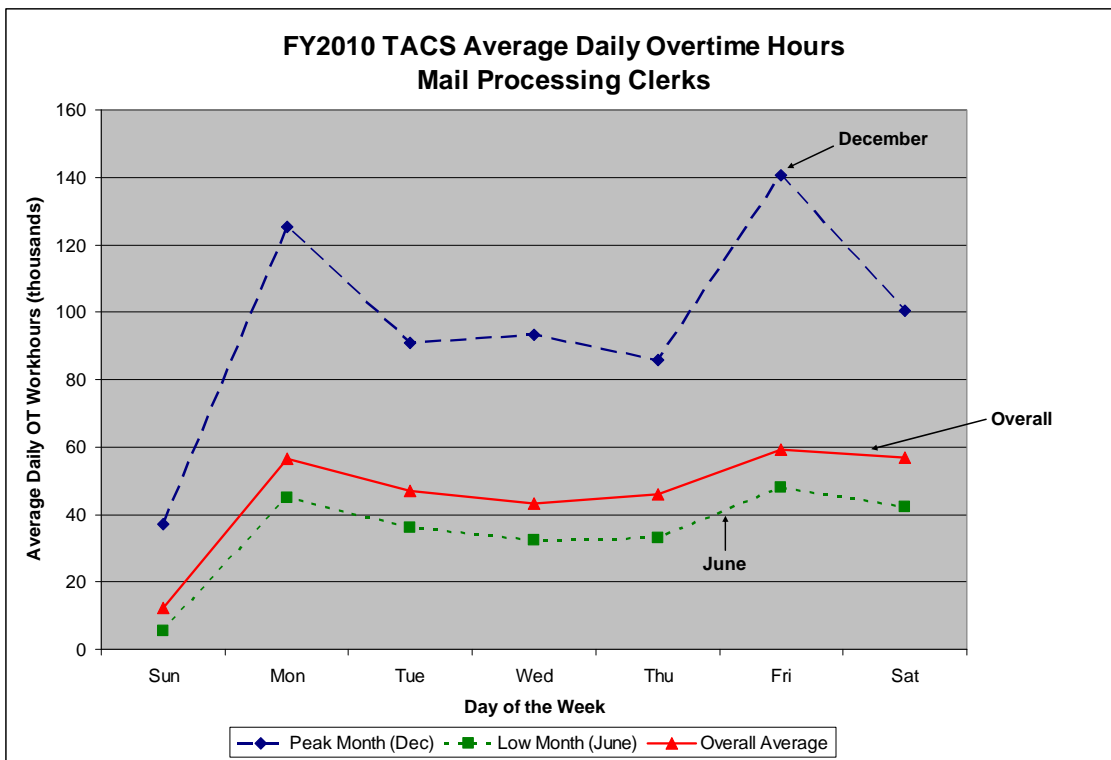


Figure 11 – Average Daily Overtime Hours – Mail Handlers

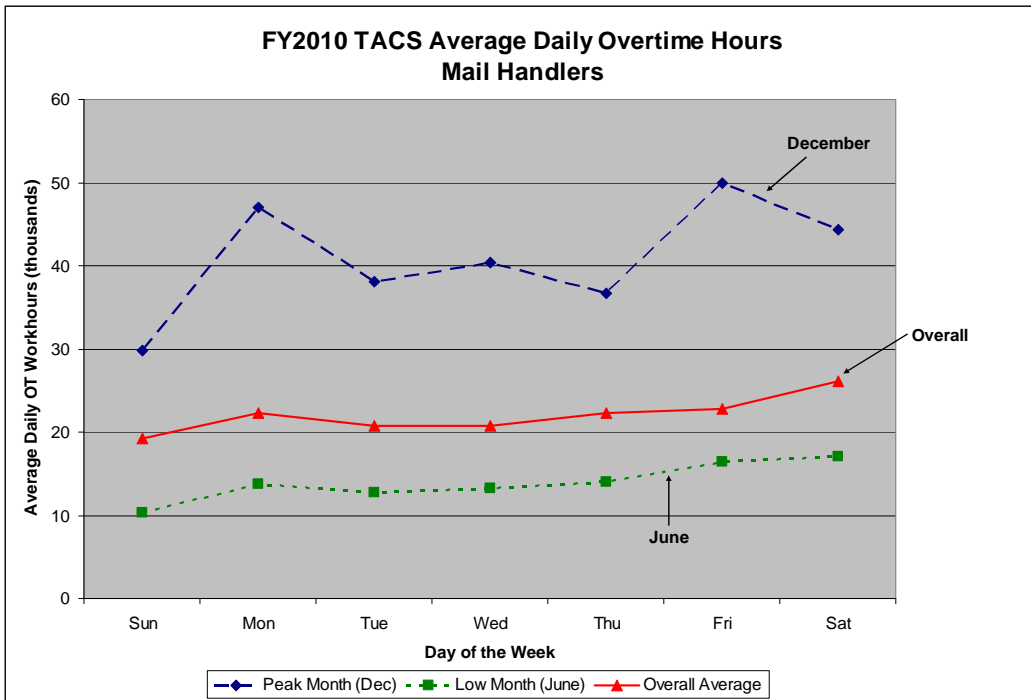
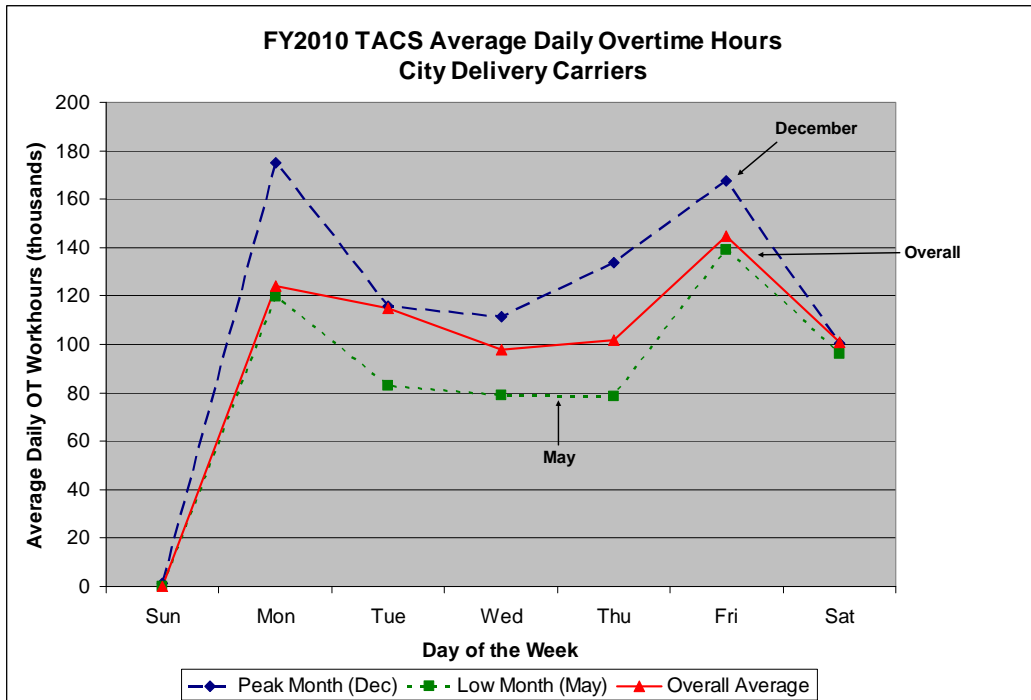


Figure 12 – Average Daily Overtime Hours – City Delivery Carriers



3. Analysis of Service-Related Costs

Premium Pay

The Postal Service pays shift differentials to clerks, mail handlers, and city carriers for work at night (6 P.M.-6 A.M.) and on Sundays.⁷ In FY2010, total costs for night differential and Sunday premium for clerks, mail handlers, and city carriers were \$451 million. Since there is little delivery or retail activity during times when night differential and Sunday premium payments are required, the vast bulk of the associated cost, \$441 million, is treated as being incurred in mail processing activities. The Sunday premium rate is higher than the night shift differential, so Sunday premium accounts for 41 percent of mail processing premium pay costs, though night shift hours account for over 80 percent of the premium workhours.

Premium Pay for Mail Processing

The Cost and Revenue Analysis (CRA) methodology treats most clerk and mail handler premium pay costs as being caused by mail products with preferential service standards. The key assumption is that mail processing labor could be scheduled on day shifts in the absence of the preferential products' service standards.⁸ The major exception is premium pay expenses incurred at Network Distribution Centers (NDCs), which primarily process non-preferential mail.

In the CRA production process, premium pay costs are initially distributed to both preferential and non-preferential products, since the weights for In-Office Cost System (IOCS) tallies—used to assign mail processing costs to products—are not higher in periods where premium pay expenses are incurred. A subsequent adjustment subtracts premium pay costs at mail processing plants—except NDCs⁹—and post offices from all products and reallocates them to preferential products in proportion to IOCS tallies for the products recorded during periods when the

⁷ The Postal Service also incurs small amounts of other premium pay costs, including premium pay for Christmas Day work. Premium pay costs for rural carriers are negligible.

⁸ For additional discussion, see Postal Rate Commission Docket No. R84-1, Rebuttal Testimony of John C. Panzar on behalf of American Newspaper Publishers Association.

⁹ Since NDCs primarily handle non-preferential mail, premium pay costs at NDCs are assumed to be unrelated to preferential mail service provision. The incurrence of premium pay costs at NDCs is assumed to be largely in service of maintaining efficient utilization of NDC equipment.

premium pay is incurred. The non-NDC premium pay adjustment reassigned \$389 million in FY2010, 4.1 percent of mail processing costs excluding premium pay. The difference reflects some premium pay costs in platform activities assigned to non-preferential mail, as well as premium pay expenses related to Express Mail and International Mail. Table 2, below, shows the assignment of costs to the preferential products under consideration in this report. A majority of the cost, \$204 million, is assigned to First-Class letters.

Table 2. Mail Processing Premium Pay Costs by Product, FY2010

Product	Premium Pay Cost (millions of FY2010 dollars)
First-Class Single-Piece Letters	
First-Class Presort Letters	
First-Class Flats	
First-Class Parcels	
Priority Mail	
Periodicals	
Total [1]	389

Source: Docket No. ACR2010, USPS-FY10-7 Part 5;
USPS-FY10-NP18 Part 5

[1] Includes products not listed above

“Piggybacked” Costs

“Piggybacked” mail processing costs include mail processing-related costs such as supervision, mail processing equipment capital and maintenance costs, and costs of mail processing facility space; these represent a large component of total mail processing costs. As a mechanical matter, piggyback costs are assigned to the premium pay portion of mail processing labor costs, and premium pay costs including piggybacked costs totaled \$587 million for the preferential products in Table 2. While it may be reasonable to assign a larger share of mail processing non-labor costs to preferential products by piggybacking premium pay costs, in general the size of the clerk and mail handler shift differentials will not serve broadly as a logical basis for preferential products’ non-labor cost premiums (if any). Some piggybacked costs, such as mail processing supervision, also incur shift differentials that would be avoidable if the supervised mail processing labor occurred during day shifts. However, some other piggybacked cost components, such as equipment

maintenance and custodial labor, would tend to incur higher shift differential costs as they currently tend to be carried out during daytime periods of relatively low mail processing activity.

Workload Shift

Avoiding premium pay costs requires night and Sunday work to be scheduled at times where premium pay is not required—i.e., during day shifts and away from Sundays. Currently, the Tour 2 shift (approximately 7 A.M.-3 P.M.) is a low-activity period in mail processing plants. At least in theory, a one-day extension of preferential mail service standards could permit mail processing to be scheduled largely during day shifts. That is, the extension would allow mail processing currently performed between 6 P.M. and 6 A.M., largely to provide service for local First-Class Mail due to be delivered the next day, to be deferred for 12 hours to the subsequent 6 A.M.-6 P.M. day shift. Notably, overnight First-Class Mail would convert to two-day mail under such a processing schedule; as discussed below, the effect on current 2-3 day mail would depend on the resulting network alignment.

Short of a wholesale reorganization of mail processing into day shifts, there may be cost saving opportunities from reducing Sunday workload, especially for non-preferential mail, since the Sunday premium is relatively large. IOCS data show that a large share of Sunday direct tallies at plants (tallies with an associated product) is for non-preferential products including Standard Mail and Package Services (41 percent in FY2010). Rescheduling 41 percent of FY2010 Sunday plant work into Saturday or other day-shift periods would reduce Sunday premium costs by \$65 million—most of which is borne by preferential products.

Impact on Transportation

In addition to direct savings of shift differential costs, day-shift processing as described above could extend the windows for transporting collection mail to outgoing processing sites and for transporting processed incoming mail to post offices for delivery. Currently, narrow local transportation windows resulting from 1-day service standards limit the Postal Service's ability to consolidate certain mail processing activities, including initial outgoing processing and finalization of mail in automated delivery point sequencing operations. The Postal Service takes limited advantage of longer windows under current standards, such as for Saturday collection mail, by consolidating Saturday outgoing processing in a number of areas. Providing service within narrow processing windows may also limit the Postal Service's ability to align staffing levels with day-to-day variations in workloads.

Longer processing and transportation windows due to extended end-to-end service standards may allow plants to have geographically much larger service territories, possibly for both outgoing and incoming processing, while meeting dispatch requirements for two- and three-day mail (currently one- or two-day mail).

With larger plant service territories, some current two-day mail (e.g. mail for neighboring SCFs under the current network) could remain two-day mail with plants' expanded service territories after network realignment, mitigating the effects of the service standard change.¹⁰ The magnitude of potential cost savings would depend on the extent of facility consolidation. A recent OIG study (RARC-WP-11-006) concluded that a new 135-plant network would cost around \$2 billion less per year to operate than the current network, excluding transition costs. This new plant structure may be more feasible with a one day relaxation of service standards.

Mail Processing Cost Differentials for Preferential and Non-Preferential Products

In addition to using higher-cost resources such as night shift and Sunday labor, the Postal Service might use additional labor to meet service standards for preferential mail. For example, a longstanding claim of Periodicals mailers in regulatory proceedings is that the Postal Service inefficiently provides manual handling of Periodicals, ostensibly for service reasons.¹¹ Since Postal Service mail processing costs are based in part on IOCS sample data which measure the amounts of labor time associated with handling various products, any additional work effort provided for service purposes should be reflected in measured product costs. However, the service-related portion of work effort is not directly observable in IOCS.

In a number of cases, the mail processing costs for preferential products are substantially higher than corresponding non-preferential products (e.g. Standard Mail). However, the measured cost differences between preferential and non-preferential products may reflect not only the effects of end-to-end service standards but also differences in mail mix within products—e.g., presort profile—and differences in bundled ancillary services such as forwarding and return-to-sender processing for undeliverable-as-addressed (UAA) mail. Mail processing unit costs used to develop worksharing discounts also reflect the CRA redistribution of premium pay costs. Identifying appropriate benchmark costs for First-Class Single-Piece mail is particularly challenging since the population of Single-Piece mail varies widely in cost-causing characteristics including automation compatibility and implicit presort and/or destination entry characteristics (from local mail).

¹⁰ In this model, mail that can be transported between plants within 24 hours would have three-day service; this may include some mail currently subject to three-day standards.

¹¹ Postal Regulatory Commission Docket No. ACR2010, Initial Comments of Time, Inc., pp. 7-9. We understand that the Postal Service has responded by eliminating "Hot 2C" processing.

To isolate costs associated with end-to-end service standards from other sources of product cost differences, we control for three major sources of cost differences not related to real labor input: (1) differences in presort level, (2) provision of services for UAA mail, and (3) premium pay cost allocations. We control for presort differences by calculating costs using the preferential product's mail mix combined with the closest corresponding Standard Mail costs. For Single-Piece mail, we use costs for the mixed AADC presort tier as the benchmark (mixed ADC for flats).¹² The result is a hypothetical cost based on Standard Mail product characteristics, but using the preferential product's volume level and presort mix. To control for cost differences due to bundled UAA services, we use IOCS sample data to identify the portions of product costs associated with returned and forwarded pieces and other handling of pieces identified by data collectors as UAA. We subtract the difference in UAA unit costs between the preferential product and the corresponding Standard Mail product to remove the cost of the preferential products' bundled UAA services from the cost difference after presort-level adjustment. Finally, we subtract the premium pay cost distributed to the preferential product. We consider any remaining cost difference as potentially service standard-related.

The results of the analysis are presented in Table 3, below. The analysis suggests that potential service-related mail processing cost premiums, apart from premium pay cost allocations, are large for First-Class Single-Piece mail and small for First-Class Presort mail and Periodicals. Since the estimates are subject to sampling variability as well as the influence of cost-causing factors we cannot readily incorporate in the analysis, we judge the small positive and negative differences for First-Class Presort mail as providing little evidence of additional "real" mail processing labor input for the preferential products. The FY2010 cost premium for First-Class Single-Piece letters and flats over Standard Mail, adjusted for premium pay and bundled UAA service, is \$1.13 billion, or 25.6 percent of the associated product costs. We additionally compared First-Class Single-Piece letter and flat mail processing costs to mixed AADC First-Class Presort benchmarks (mixed ADC for flats) to help isolate the costs of service features of retail First-Class Mail from those of service features applicable to all First-Class Mail. We found that First-Class Single-Piece letter and flat costs were \$973 million higher than the First-Class mixed AADC benchmark cost, suggesting that the bulk of the cost difference is

¹² We also exclude cancellation and remote barcode system (LDC 15) costs from the Single-Piece First-Class products, since those activities are primarily related to the deposit and entry features of First-Class Single-Piece and are not required for bulk-entered automation-compatible mail. FY2010 RPW data show that the First-Class Single-Piece product is 0.8 percent non-machinable, but we allow for additional manual handling of Single-Piece letters on the margins of machinability by assigning a non-machinable mixed-AADC benchmark cost to 2 percent of letters.

specific to First-Class Single-Piece product characteristics.

Table 3. Estimation of Potential Service-Related Cost Differentials for Selected Products, FY2010.

(Costs in Thousands of FY2010 Dollars)

Product	MP Cost w/ piggybacks	MP Cost@		Premium Pay Cost	UAA [1]	Difference after UAA and Premium
		Standard Unit Costs	Difference			
FCM Presort Letters	2,482,214	2,253,193	229,021	91,636	227,429	-90,044
FCM Presort Flats	255,057	211,548	43,508	7,581	27,538	8,390
Periodicals - Outside County	1,231,048	1,038,671	192,378	37,534	144,953	9,890
FCM Single-Piece Letters [2]	3,436,232	2,120,254	1,315,979	112,104	250,292	953,582
FCM Single-Piece Flats	978,649	704,684	273,966	26,991	68,869	178,107

Notes:

[1] UAA=(RPW vol*(UAA unit cost-Standard UAA unit cost))/100

[2] Assumes 98% of volume automation and 2% non-automation, non-machinable

Our analysis is not capable of isolating the portion of the apparent cost premium for First-Class Single-Piece letters and flats over presorted mixed AADC (ADC) benchmarks that is specifically due to service standards, so the cost premiums for First-Class Single-Piece mail shown in Table 3 cannot be assumed to be entirely related to end-to-end service standards. However, we considered a number of potential confounding factors and consider it likely that a substantial portion of the cost differential is service-related. For instance, most First-Class Single-Piece mail is automation-compatible, and a large fraction is local mail, which should reduce cost differences with the mixed-AADC benchmark volumes. Also, the magnitude of the effect is too large to be an artifact of known non-sampling errors in mail processing costs, such as systematic misidentification of products in IOCS.

Impact of Time of Day

Service performance for First-Class Single-Piece mail—particularly pieces subject to the 1-day standard—is, of course, a major service focus of the Postal Service. Auxiliary evidence points to at least part of the cost difference as being due to high staffing levels in outgoing (Tour 3) mail processing operations aimed at meeting the service standard for 1-day First-Class Single-Piece mail. MODS productivities tend to be relatively low in some operations that primarily serve collection mail, including ISS operations (image lift for barcode application) and outgoing manual processing. Intraday profiles of mail processing costs suggest that Tour 3 costs are high relative to Tour 1, though incoming distribution workloads are much larger. We observe a cost peak for mail handlers and clerks between 10 P.M. and midnight. See Figures 13-14, much of which appears to involve work effort to clear outgoing mail. Figure 15, which shows costs by product and time-of-day for letters and includes mail processing at post offices, shows that First-Class Single-Piece letters have cost peaks coinciding with late-evening dispatch times and in

morning hours when DPS rejects and residual manual mail are sorted to carrier routes. The absence of a net cost differential between First-Class Presort mail and Standard Mail suggests that the late-evening peak does not represent extra labor used to induct incoming First-Class Presort mail volumes for next-day delivery.

Figure 13 – IOCS Costs by Time-of-Day, Clerks at Mail Processing Plants

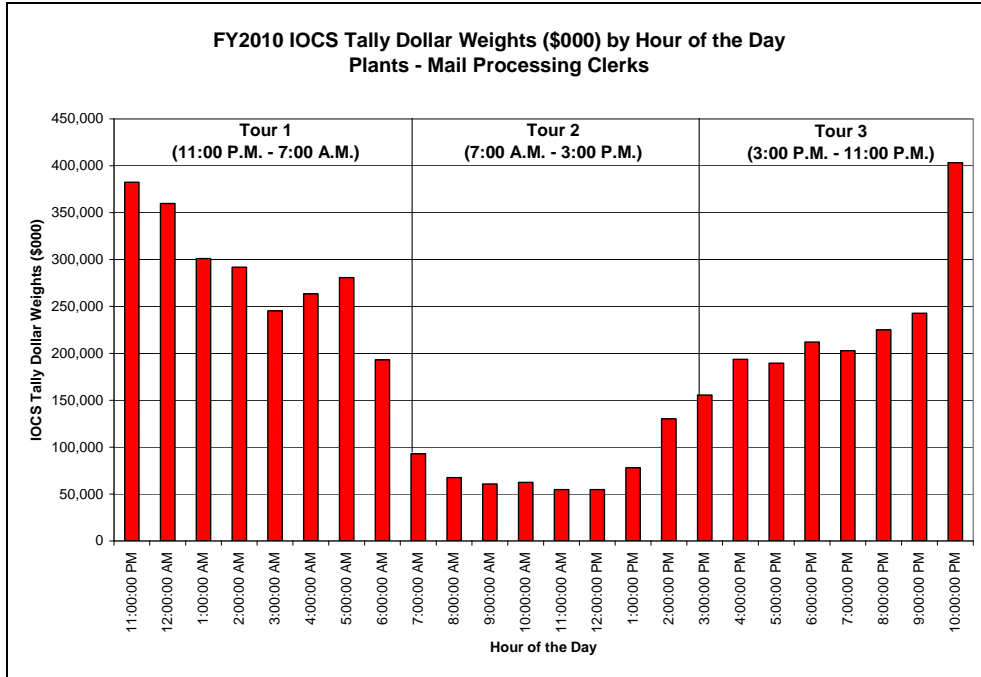


Figure 14 – IOCS Costs by Time-of-Day, Mail Handlers at Mail Processing Plants

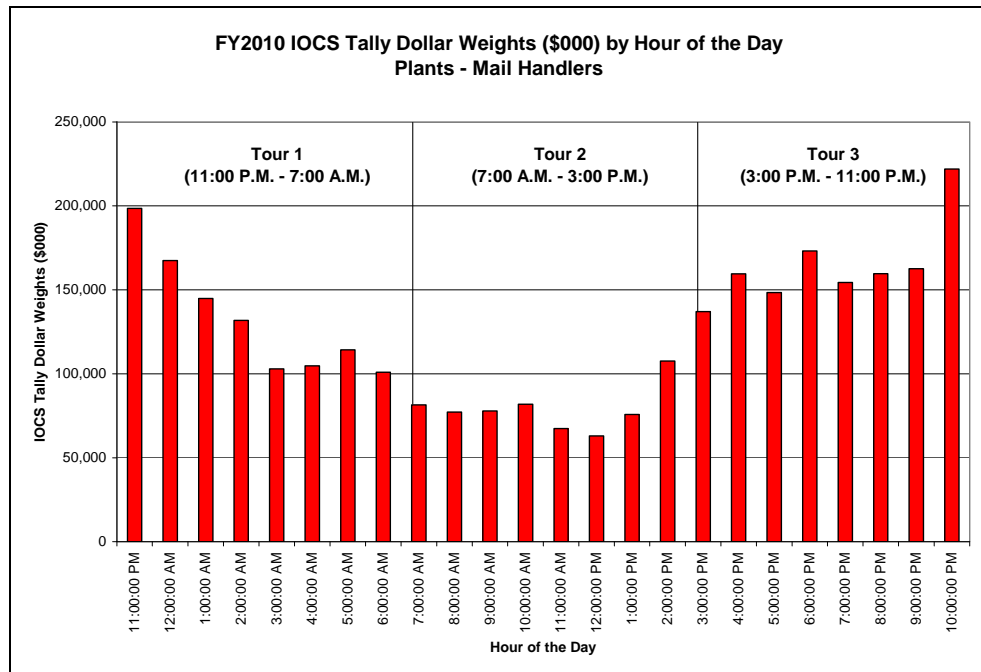
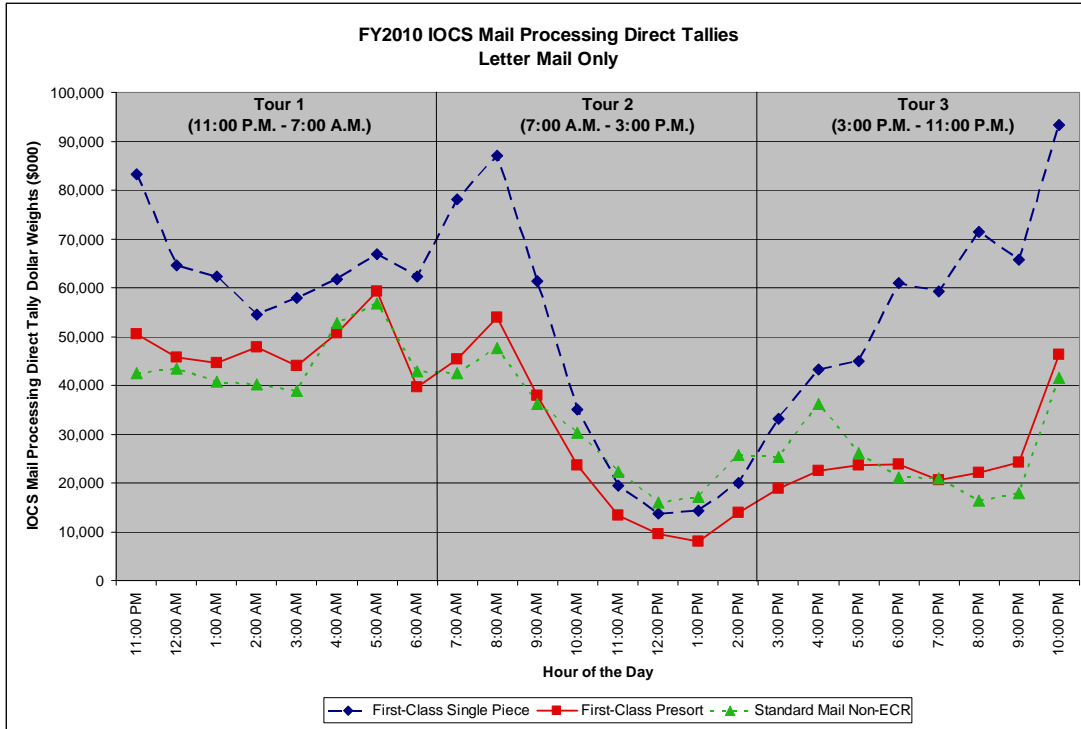


Figure 15 – IOCS Mail Processing Costs by Time-of-Day and Product



Expedited Transportation

The cost of purchased transportation varies widely by mode. Ground transportation is usually less costly than air transportation, but it requires longer end-to-end transit times for longer-haul shipments.

In FY2010, purchased air transportation expenses for the Postal Service totaled \$1.98 billion, including Priority Mail costs of \$[REDACTED] and First-Class Mail costs of \$515 million. The FedEx day turn network accounts for nearly all Priority Mail air transportation cost and a majority of First-Class Mail cost. Relatively little Priority Mail is carried by passenger airlines due to airline security regulations barring packages over one pound from flying as passenger airliners’ belly cargo. FedEx day turn costs are treated as cube-related and non-distance-related in the Postal Service’s transportation cost analyses.¹³ Highway transportation costs are treated as cube-related and distance-related.

¹³ That is, the Postal Service effectively pays a price per cubic foot for FedEx day turn transportation that does not vary with zone or actual length of haul. The unobserved underlying economic costs to FedEx for providing the day turn service presumably do depend on distance.

Based on transit times for competitors' ground services, it is possible to meet end-to-end service standards of two days up to approximately zone 4, three days to zone 5, and four days to zone 6. Ground service to zone 7 and 8 destinations would require more than four days in transit.

Providing 2-3 day service for First-Class Mail and Priority Mail to some zone 5 and most or all zone 6 (or higher) destinations requires air transportation. With 2-4 day service standards, it is possible to serve zone 5 and 6 destinations using ground transportation. Some zone 5 Priority Mail currently has a three-day standard. For zone 6 mail, four-day service typically would represent a one-day increase in transit time for First-Class Mail but may constitute a two-day increase for Priority Mail compared to current standards.

Cost Differentials for Expedited Transportation

Computing cost differentials between air and ground transportation is complicated by limitations of the Postal Regulatory Commission's currently-accepted volume-variable cost analysis for highway transportation. A feature of some transportation costs is that the cost per ton-mile or cubic foot-mile decreases with the length of haul; this is called a "distance taper." Larger distance taper effects will tend to reduce transportation costs (per pound or per cubic foot) for high-zone shipments and raise them for low-zone shipments, relative to a case where there is no distance taper. As a practical matter, a larger distance taper for highway transportation tends to increase the cost differential between air and ground modes in middle zones. Unfortunately, the existing highway transportation models do not provide empirical estimates of distance taper effects for Postal Service highway transportation. As a result, we provide a range of air-ground cost differentials based on three sizes of a distance taper effect.

We obtained air cubic feet, air costs, and distance-related ground costs for Priority Mail from cost data filed with the Postal Service's 2010 Annual Compliance Report.¹⁴ The distance-related ground costs per cubic foot assume a constant cost per cubic foot-mile (i.e. no distance taper). We also computed the ground costs per cubic foot implied by two sizes of distance taper effects, corresponding to length-of-haul elasticities of -0.2 and -0.3.¹⁵ These are intended to represent modest distance taper effects.

¹⁴ Postal Regulatory Commission Docket No. ACR2010, folder USPS-FY10-NP27.

¹⁵ Specifically, these are the elasticities of cost per cubic foot-mile with respect to length-of-haul. In each scenario, the average cost per cubic foot-mile is the same.

Postal Service data indicate that [REDACTED] was spent in FY2010 to provide air transportation for zone 3-6 Priority Mail.¹⁶ This includes [REDACTED] for zone 3-5 mail, for which 2-3 day ground transit times may be feasible. The estimated savings from substituting highway transportation for air transportation range from \$120 million in the no-distance-taper case to \$197 million in the scenario with a length-of-haul elasticity of -0.3. The potential zone 3-5 savings, which entail relatively little change in existing service standards, range from [REDACTED] in the no-distance-taper scenario to [REDACTED] in the -0.3 elasticity scenario. The remaining savings result from extending zone 6 service standards to four days. See Table 4, below.

Table 4. Air-Highway Cost Differences, Zone 3-6 Priority Mail, FY2010 Dollars

Zone	Air Cubic Ft.	Air Cost	Ground Savings, Distance Taper Scenarios		
			No Distance Taper	Elasticity -0.2	Elasticity -0.3
3 - 5	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
6	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
3 - 6	[REDACTED]	[REDACTED]	\$120,495,788	\$164,282,528	\$196,747,462

Some similar savings may be available for First-Class Mail, though data are not available to indicate the extent of middle-zone air transportation costs. We understand that the middle-zone transportation mix for First-Class Mail has higher utilization of highway transportation, so the relative magnitude of highway transportation savings relative to air is likely to be considerably smaller than for Priority Mail.

Within the framework of a one-day extension of end-to-end service standards, savings from substituting ground transportation and from deferring mail processing will not be available at the same time. Since letter mail, and to a lesser extent flat-shape mail, is not transportation-cost intensive, the results from section 3, above, suggest that transportation cost reductions are likely to be less fruitful than savings from deferring and/or consolidating mail processing. Since parcels (including Priority Mail) are processed in distinct mail streams from letters and flats, it may be possible to obtain transportation cost savings selectively for parcel-shape products.

¹⁶ We exclude some cost for lower-zone air transportation, which we understand includes Alaska and Hawaii mail which receives air transportation in part due to those states' unique geographies and other policy considerations.

Overtime

The Postal Service may provide staffing for peaks of non-deferrable workload in part by extending employees’ shifts; this may trigger overtime wage premiums. Overtime costs may be viewed as a form of service-related costs for non-deferrable workload, since there would normally be little justification for incurring overtime costs for deferrable workload. In contrast to the treatment of premium pay costs for shift differentials, overtime costs are not treated as a cost of preferential mail service in the mail processing or delivery cost methodologies.

Overtime Costs

The Postal Service pays clerks, mail handlers, and city carriers overtime at 1.5 times employees’ base hourly rates for hours 8-10 of a workday or hours exceeding 40 in a workweek. “Penalty overtime” at twice the base hourly rate is paid for hours exceeding 10 per regularly scheduled workday or meeting other contractually specified criteria, but labor contract terms specify that penalty overtime payments are not required in December. Note that overtime paid to full-time employees for working long days early in the workweek—for instance, on Mondays or higher-volume days after holidays—will tend to trigger overtime payments later in the week as portions of end-of-week shifts exceed 40 hours. The secondary end-of-week overtime peaks are clearly visible in Figures 10-12, above.

As shown in Table 5, wage costs of overtime pay (the premium over the straight-time wage) for clerks, mail handlers, and city carriers were \$811 million in FY2010. City delivery carriers account for a majority of overtime pay expenses, and carrier overtime occurs at an above-average rate.

Table 5. Overtime Premium Pay, Selected Crafts, FY2010

Craft	Overtime Hours	Overtime Premium Pay Cost	OT % of Workhours
Clerks	17,946,805	232,967,141	6.40%
Mail Handlers	8,219,239	99,385,304	9.30%
City Carriers	36,713,489	479,082,653	9.70%
Total	62,879,533	811,435,098	8.40%

Source: FY 2010 National Payroll Hours Summary Report

The raw overtime wage premiums may overstate the actual cost of employing overtime hours, depending on the type of straight-time labor that could be employed in the alternative. The economic cost of overtime depends in part on the net difference in benefits costs between overtime and straight-time hours. For instance, overtime use does not increase the Postal Service’s contributions to employee health care and retirement benefits. The alternatives to overtime usage

may be hiring more employees earning straight-time wages plus benefits, or incurring wage guarantees for employees called to work outside their normal work schedules. If fringe benefit costs (apart from social insurance contributions) are allocated to straight-time workhours, then the net cost of overtime over straight-time workhours can be as low as \$1-2 per hour. Since overtime is flexible, it can be cheaper than incurring work guarantees for nonscheduled employees.¹⁷

Other Causes of Overtime

Some portions of overtime may not be caused by mail products' end-to-end service standards. A particular challenge is identifying the cause of overtime usage at "trough" periods. Figures 10-12 show that in the midweek (Tuesday-Wednesday) trough, the Postal Service records approximately 120,000 hours of daily overtime for mail processing clerks, mail handlers, and city carriers. Annualized, this implies a "base" of 36 million overtime hours. Even though the base overtime has little clear connection to system-wide volume peaks, localized volume peaks that are not evident from national data nevertheless may cause some of it. However, other routine management issues such as providing unscheduled leave replacements may also drive a portion of overtime use. Particularly for city carriers, some overtime incurrence may be due to universal service considerations—city carriers cannot effectively curtail portions of their routes after they have left for the street. Existing data cannot identify the relative contributions of these causes.

In all, a substantial portion of overtime, slightly less than 27 million workhours, exceeds the "base" level observed at trough periods and may be reduced by shaving system-wide workload peaks. An indeterminate portion of the "base" overtime may also be due to localized peaks. Limited additional deferral of end-to-end service standard should enable some avoidance of overtime workhours. Indeed, since the peak for largely non-preferential flat volume coincides with the Monday peak for preferential letters, there may be some as-yet uncaptured opportunities for peak shaving within existing service standards.

The Postal Service has sharply reduced overtime usage rates since the onset of the recession, from 12.9 percent of city carrier, clerk, and mail handler hours in FY2007 to 8.4 percent in FY2010. Continued preferential volume declines should reduce the need to incur overtime. Additionally, new labor contract terms providing additional staffing flexibility may contribute to future overtime reductions.

¹⁷Labor contract provisions call for minimum guaranteed workhours (typically 4 or 8 hours), or pay in lieu of work, for employees working outside their normal schedules; these do not apply to cases where the employee continues working into a regular shift. See, e.g., NALC-USPS National Agreement, 2006-2011, Article 8.8.

4. Summary

This paper describes components of service-related costs in the U.S. Postal Service, defined as costs that hypothetically could be avoidable if existing end-to-end service standards were extended by one delivery day.¹⁸ Comprehensive measures of service-related costs are not possible given existing Postal Service data and costing methods, which are geared toward measuring total cost of products and not the cost implications of products' service features. While the Postal Accountability and Enhancement Act charges the Postal Regulatory Commission with monitoring service performance for Postal Service products, those efforts do not encompass measurement of the costs of service performance. Nevertheless, we can identify approximately \$2.5 billion in annual costs (based on FY2010 cost levels) in mail processing, transportation, and delivery functions that are at least partly service-related. Table 6, below, summarizes these costs.

Table 6. Summary of Service-Related Costs

Costs in Millions of FY2010 Dollars

Product	Mail Processing Premium Pay (Plants)	Other Mail Processing Costs	Zone 3-6 Air Transportation	Overtime for Clerks, Mail Handlers, and City Carriers
First-Class Single-Piece Letters		954	[2]	[2]
First-Class Presort Letters		[1]	[2]	[2]
First-Class Flats		186	[2]	[2]
First-Class Parcels		[2]	[2]	[2]
Priority Mail		[2]	120-197 [3]	[2]
Periodicals		[1]	[1]	[2]
Total [4]	389	1,139	120-197 [3]	811

Notes

[1] Potential service-related costs do not appear to be statistically and/or economically significant

[2] Potential service-related costs are not measurable using existing data

[3] Service-related costs depend on "distance taper" for highway transportation; costs cannot be saved in combination with plant premium pay

[4] May include other products not listed above and costs with non-service-related causes

Viewed as potential cost savings from hypothetical service reductions, the costs in Table 6 cannot necessarily be summed. Adding en route transit time by shifting mail from air to ground transportation may foreclose processing or delivery cost reductions that would involve storage of mail in the same time windows. Also,

¹⁸ We are not advocating for any change in service standards.

the organizational changes required to obtain cost savings in certain service-related components may be dramatic. Avoiding premium pay for night and Sunday shifts, for instance, would require reorganizing the vast bulk of current mail processing activities into day-shift work. The direct labor-cost savings from doing so may be modest, though facility consolidation opportunities from extending processing and/or transportation windows could lead to large indirect cost reductions, insofar as the Postal Service incurs some \$4.7 billion in annual costs related to mail processing facility space and equipment.

Finally, demand-side effects of service reductions would tend to partly offset cost savings. A one-day extension of service standards would not affect all preferential products identically. Curtailing one-day service would have the largest effects on First-Class Single-Piece letters, where half of the volume is subject to the one-day standard. However, since service is not explicitly priced and retail mailers have limited choice over postal service characteristics, the sensitivity of postal demand to service performance is not easily measured. Insofar as Standard Mail volumes exceed First-Class Mail volumes, and some existing First-Class Mail is prevented from migrating to Standard Mail due to content or other restrictions on Standard Mail matter, we believe that there is some—possibly considerable—latent demand for service at lower levels than current preferential mail standards.