



July 27, 2010

KELLY SIGMON  
VICE PRESIDENT, ENGINEERING

SUBJECT: Audit Report – Flats Sequencing System: Program Status and Projected Cash Flow (Report Number DA-AR-10-007)

This report discusses the Flats Sequencing System (FSS) program status and its projected financial impact and addresses both operational and financial risks (Project Number 09YG052DA000). The objective of this audit was to assess procedures for reporting of FSS performance and program savings shortfalls. See [Appendix A](#) for additional information about this audit.

In December 2006, the U.S. Postal Service approved a [REDACTED] project to develop, purchase, and deploy 100 FSS machines, which are designed to sort flat mail in the precise order in which it is delivered. The first two contract requirements tests of FSS machines (designed to ensure functionality, quality, and compliance with specifications) have shown shortfalls in expected performance. Typically, when there is a First Article Test (FAT) failure, Postal Service acquisition guidelines call for retests before beginning deployment. However, in this case, the Postal Service has decided to deploy FSS machines despite major performance shortfalls in order to capture savings earlier; however, deploying FSS machines that do not meet contract requirements could reduce expected savings. Although the Postal Service has adjusted its savings expectations and project assumptions have changed, it has remained optimistic when communicating expected financial outlooks.

### [Conclusion](#)

The Postal Service's revised performance projections in Quarter 1 (Q1) of fiscal year (FY) 2010's *Investment Highlights* report do not use current actual machine performance and its projection of a gain of at least \$872 million from FSS appear optimistic. In addition, there have been significant changes in assumptions for FSS machines and measurement criteria since the 2006 approval of the original investment. For example, flats volumes have decreased significantly, expected throughput rates have not been met, planned FSS sites have increased, the program schedule has changed by a year, and additional savings for transitional employees (TE) have been introduced to the investment return. These changes make it challenging for the Postal Service to measure project success as initially defined.

Particularly, we believe adding TE savings to the evaluation of FSS program success is questionable for several reasons. First, these savings were never considered as part of the original investment decision. Second, 44 percent of TEs are not in districts that will eventually host FSS machines. Lastly, management claimed these savings prior to FSS deployment and has the option of reducing TE complements for volume declines irrespective of the FSS program's success. Thus, much of the savings from these employees will likely not be associated with FSS deployment.

The Postal Service's Q1, FY 2010 *Investment Highlights* report shows a projected gain for the FSS program of at least \$872 million and a return of at least 27 percent. Using current actual performance data for the highest performing machine and operational target metrics, we calculated four financial scenarios for measuring program status and progress against program goals. These scenarios were at least \$431 million lower than the scenarios the Postal Service presented. Such a large difference exists because the Postal Service used more optimistic performance assumptions rather than actual machine performance or operational target results.

Our analysis shows that using current FSS performance data to calculate projected savings results in a net present value (NPV) of \$215 million (a rate of return of 14.49 percent). If we remove the questionable TE savings, the NPV decreases to a negative \$311 million (a rate of return of 5.18 percent). Assuming the FSS machines reach the operational target metrics, we calculate gains from FSS to be \$441 million (rate of return of 19.26 percent). If we remove the questionable TE savings, there is a projected NPV of a negative \$85 million (a rate of return of 8.54 percent).

The Postal Service's Handbook F-66<sup>1</sup> requires accurate analysis and reporting of program impact. One purpose of the *Investment Highlights* report is to show the progress of large-scale programs within the Postal Service. Reporting program performance based on actual and operational target data is critical so that key decision-makers (such as the Board of Governors) have sufficient information to monitor program progress on projects of significant duration. See [Appendix B](#) for our detailed analysis of this topic.

We recommend the vice president, Engineering:

1. Use actual machine performance and operational target data to more accurately report the progress of the Flats Sequencing System program's financial outcomes in compliance reports such as the *Investment Highlights* report.

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<sup>1</sup> *General Investment Policies and Procedures* (November 2005, updated with *Postal Bulletin* revisions through October 11, 2007) provides a single source overview of investment projects.

## Management's Comments

While management agreed with the recommendation to use actual machine performance data for compliance reports, they took exception to certain findings and our recommendation to use operational target data. Specifically, the Postal Service will include an additional FSS financial scenario when reporting outcomes in *Investment Highlights* reports. Management will take this action in time for the Q3, FY 2010 *Investment Highlights* report. The reported scenario will represent the Postal Service's most current assessment of actual machine performance. In reference to using operational target data, the Postal Service does not believe they are representative of long-term expectations and elected not to present them in future *Investment Highlights* reports.

Management also said the financial outcomes presented in the report do not recognize:

- Throughput improvements demonstrated during tests in November 2009 and April 2010.
- Performance improvements over the 10-year program life and performance levels already achieved by the first article machine.
- Over 17 hours of daily runtime for unconstrained machines.
- The relevance of TEs, their strategic use, and the resulting savings attributable to the FSS program.
- Scheduling adjustments that address lower mail volumes.
- Additional savings related to delivery unit space reductions and vehicle capital investment and maintenance avoidance.

Thus their lower bound outcomes represent the likely worst case scenario. We have included management's comments, in their entirety, in [Appendix D](#).

## Evaluation of Management's Comments

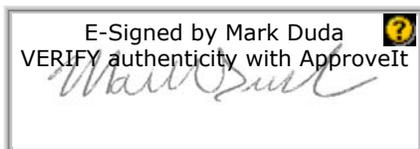
The U.S. Postal Service Office of Inspector General (OIG) considers management's comments responsive to the recommendation and management's corrective actions should resolve the issues identified in the report. In response to management's comments, we believe the presentation of outcomes based on actual machine performance allows the tracking of improvements from program inception and note that interim operational performance data is a performance tracking measure currently in use.

In response to comments that we did not provide sufficient recognition on progress made, we recognize performance improvements in a controlled test environment in Table 1 and note the following:

- The Dulles #2 machine with the most time in operations has yet to meet key performance metrics stated in the DAR and has twice failed the FAT for its inability to meet performance test requirements. As such, we believe it is premature to assume operational performance improvements throughout the 10-year investment life.
- The *FSS Daily Report* dated July 19, 2010 highlights that unconstrained machines, on average, are operating less than the 17 hours per day that management asserts.

In reference to TEs, we reiterate that the inclusion of associated savings is questionable for the stated reasons and add that carrier complements had been declining before the advent of the FSS program. Combined with volume losses, we believe management would have been prudent to have seized the opportunity to reduce complements even without an FSS program. We do not disagree that scheduling changes were made to address volume declines and encourage management to include any additional savings it can directly attribute to the FSS program. We believe our report presents a fair and conservative view of financial outcomes based on actual operational performance demonstrated to date and the interim or short-term operational goals used by management.

We appreciate the cooperation and courtesies provided by your staff. If you have any questions or need additional information, please contact Miguel Castillo, director, Engineering and Facilities, or me at 703-248-4546.



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Attachments

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## APPENDIX A: ADDITIONAL INFORMATION

### BACKGROUND

In December 2006, the Postal Service approved a [REDACTED] Phase I Decision Analysis Report (DAR) to develop, purchase, and deploy 100 FSS machines. With this budget, the FSS program is currently the Postal Service's largest mail automation investment. The Postal Service initially expected it to generate a NPV<sup>2</sup> of \$1.85 billion with a Return on Investment (ROI) of 27.7 percent.

The Postal Service contracted with Northrop Grumman Systems Corporation to develop and field FSS systems that sort flat mail (mailpieces that exceed one of the maximum dimensions of letter-size mail, such as large envelopes) in delivery order. To date, the FSS system has twice failed contract requirements testing, known as FAT. The Postal Service conducted the original FAT from November 23 to December 20, 2008 and a second FAT (2A) from April 26 to May 9, 2009. The agency also planned, but later postponed, a third FAT (2B) scheduled for October 2009. In the interim, the Postal Service evaluated software and hardware upgrades to the FSS machine located at the Dulles Processing and Distribution Center (P&DC) in April 2010.

### OBJECTIVE, SCOPE, AND METHODOLOGY

The objective was to assess the reporting of FSS performance and program savings shortfalls. To accomplish our objective, we reviewed the revised DAR sensitivity analysis the Postal Service's Program & Financial Performance and System Engineering groups provided to us. We also reviewed year-to-date system performance data from the 12 FSS systems presently deployed and in operation. We also reconciled the Postal Service's cash flow model to the Q1, FY 2010 *Investment Highlights* report and made updates based on available system data. Additionally, we conducted interviews with management regarding projected returns and their short-term solutions to ensure FSS systems will meet contract performance requirements. We also recalculated DAR sensitivity analyses based on actual field performance and established Postal Service operational target performance metrics.

We conducted this performance audit from October 2009 through July 2010 in accordance with generally accepted government auditing standards and included such tests of internal controls as we considered necessary under the circumstances. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and recommendation based on our audit objective.

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<sup>2</sup> NPV compares the value of a dollar today to the value of that same dollar in the future, taking inflation and returns into account. If the NPV of a prospective project is positive, it should be accepted. However, if the NPV is negative, the project should probably be rejected because cash flows will also be negative.

We also obtained actual FSS performance data as of May 2010 from Postal Service Engineering. We agreed with management to use performance results from the FSS system operating with the most current upgrades. We assessed the reliability of FSS data by comparing performance results to prior periods and interviewing agency officials knowledgeable about the data. We determined that the data were sufficiently reliable for the purposes of this report. We discussed our recommendation with management officials on April 29, 2010, and included their comments where appropriate.

**PRIOR AUDIT COVERAGE**

Report Title	Report Number	Final Report Date	Report Results
<i>Effects of the Flats Sequencing System on Delivery Operations – Northern Virginia District</i>	DR-AR-09-011	9/28/2009	The audit determined that, due to flats volumes decreasing by more than 50 percent during the test period, the Postal Service could not determine which operational gains were due to FSS implementation. We did not find any adverse effects on delivery operations and did not make any recommendations in this report.
<i>Flats Sequencing System: First Article Retest Results</i>	DA-AR-09-012	9/4/2009	The audit determined FSS machine performance improved from the original FAT test but the system failed to meet several key performance parameters. The Postal Service attributed FSS performance shortcomings to the supplier's inability to incorporate additional hardware and software solutions into the FAT 2A system. We recommended the Postal Service install and test only one additional FSS until the system demonstrates operational stability and successfully passes the field acceptance test. Management partially agreed with the finding and recommendation.
<i>Flats Sequencing System: Program Status</i>	DA-AR-09-001	12/23/2008	The audit determined that program management was attentive to system performance and schedule risks. However, declines in mail volume introduced a substantial new deployment risk to the program that requires management to develop a mitigation plan. Management agreed with the finding.
<i>Flats Sequencing System: Production First Article Testing Readiness and Quality</i>	DA-AR-08-006	6/4/2008	The audit determined the Postal Service needed to focus more attention on workload, FAT schedule, and critical deliverables. Management generally agreed with the findings and recommendations.

## APPENDIX B: DETAILED ANALYSIS

### Investment Assumption Changes

The Postal Service tracks investments requiring a DAR throughout the progress of the investment using the *Investment Highlights* report. Schedule modifications, changes in approaches to deployment, elimination of requirements, or potential expansion or elimination of any aspect of the investment defined in the DAR require notification to the Board of Governors or other approving authority. The notification may appear in the special issues section of the *Investment Highlights* report or in a letter to the Board, or as a DAR modification. The approving authority must review, validate, and approve DAR modification requests before the sponsor departs from the approved DAR. Processes to notify the Board of Governors and senior management are available so business decisions can be made based on changes in the environment that were not expected or anticipated when the DAR was originally drafted.

Since initial program approval, various assumptions influencing investment outcomes have changed. For example:

- Flat volume is continuing to decline, making it a challenge to operate under the approved assumption of 280,500 pieces per day, per machine with a throughput of 16,500 pieces per hour. Our review of the year-to-date actual flats volume processed on the current FSS systems reveals an average of 127,100 flats processed per FSS system, well below the approved assumption.
- The average throughput rate for the unconstrained<sup>3</sup> machines is lower than the original assumption. The average throughput is 9,958 pieces per hour which is significantly below the DAR assumption of 16,500.
- Sites for the 100 FSS machines increased from 32 to 47. Management made this decision to redirect additional machines to sites that can process required FSS mail volumes.
- The program schedule is 1 year behind. The DAR called for completion of deployment by September 2010 while the current schedule indicates a deployment date of September 2011.
- In Q1, FY 2010 the Postal Service introduced TE savings and its impact on returns.

The Postal Service has not formally sought investment modification but has communicated changes in the *Investment Highlights* report. In a future effort, the U.S. Postal Service Office of Inspector General (OIG) plans to review the Postal Service's process for changing and reporting investment project assumptions, and will evaluate whether greater transparency and governance are needed.

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<sup>3</sup> Unconstrained FSS systems process flat mail on two tours and have no limitations on processing hours.

## Program Status and Performance Results

As of May 2010, management had spent \$831,532,000 [REDACTED] of the program's approved budget. In addition, 12 FSS systems are processing live mail but have yet to pass a FAT. The Postal Service also conducted two evaluation tests in a controlled environment but FSS machines were performing below expectations.

Table 1 presents three key contract requirements and performance results taken in both a controlled and an operational environment. Performance results revealed that the FSS system consistently failed to meet key Statement of Work (SOW) performance requirements.

**Table 1 – System Performance Results**

SOW Performance Metrics	SOW Requirements	Controlled Environment <sup>4</sup>			Operational Environment	
		FAT 1 Results 11/2008	FAT 2A Results 04/2009	Evaluation Test 2 04/2010	Dulles Actual Performance With Upgrades <sup>5</sup>	Actual Performance Averages All Sites 05/2010
<sup>6</sup> Throughput Rate (Pieces/Hour)	16,500	10,601	12,603	14,181	10,315	9,958
<sup>7</sup> Accept Rate	94.60%	89.90%	94.04%	94.66%	94.0%	92.08%
Operational Availability <sup>8</sup>	95.0%	-16.34% <sup>9</sup>	64.75%	82.85%		
Operational Time (Hours)					17.1	12.8

<sup>4</sup> Test conditions in which program management controls mail type, operational environment, and maintenance support.

<sup>5</sup> FSS Report Results, dated May 23, 2010 (results are after the evaluation test of upgrades).

<sup>6</sup> The cumulative throughput rate for all zones is determined by the total pieces fed on pass 1 of all zones, divided by the time elapsing between first piece fed in the first zone to the time the first tray is ejected onto the full tray accumulation conveyor in the last zone, minus non-chargeable time.

<sup>7</sup> The cumulative accept rate for all zones is determined by total pieces accepted, including all machineable mail presented to the system on first pass in each zone, divided by pieces fed on first pass in each zone, minus re-fed pieces.

<sup>8</sup> Percentage of operational time as specified in the SOW.

<sup>9</sup> The negative rate indicates more maintenance time than runtime recorded.

## Reported Financial Outcomes

FSS management reports financial outcomes quarterly in the *Investment Highlights* report. As presented in Illustration 1, the Postal Service’s Q1, FY 2010 *Investment Highlights* report showed returns ranging from 14.3 to 43.3 percent. More favorable returns were associated with scenarios that included savings from TEs. These returns also factored performance assumptions for throughputs ranging from 12,500 to 15,100 per hour with the machine operating 17 hours per day and a 95 percent accept rate.

**Illustration 1 — FSS Q1, FY 2010 Investment Highlights (Special Issues)**

	Approved DAR	Updated Range		
		Lower	Expected	Upper
NPV (billions) without TE savings	\$1.85	\$0.35	\$1.01	\$1.25
ROI without TE savings	27.7%	14.3%	22.2%	25.1%
NPV (billions) with TE savings	\$1.85	\$0.87	\$1.54	\$1.78
ROI with TE savings	27.7%	26.9%	38.9%	43.3%

Lastly, the revised sensitivity analysis included financial outlooks with TE savings. In 2007, the Postal Service negotiated the hiring of 8,000 TEs with the National Association of Letter Carriers. Our analysis of TEs disclosed the following:

- Of 8,000 TEs, 7,330 were on board as of February 2010. Comparing system data to deployment plans shows that only 4,492 TEs were in districts that will eventually host an FSS machine.
- Management claimed savings for all 8,000 TEs in 2008 and 2009 when only 11 FSS systems were deployed and operational.
- Management has the option of reducing TE complements for volume declines irrespective of FSS program success.

Using the Postal Service’s cash flow model, we calculated NPVs and returns using actual and operational target performance metrics. In addition, we presented outlooks with and without TE savings. As depicted in Table 2, the NPV is \$215 million when actual performance and TEs are considered and the associated rate of return is 14.49 percent. Using target metrics (which have not yet been achieved) with TE savings increases the NPV to \$441 million and results in a 19.26 percent ROI that exceeds the approved discount rate.

When TE savings are removed and actual performance is considered, the NPV is a negative - \$311 million and the corresponding rate of return is 5.18 percent. When TE savings are

removed and target performance is considered, the NPV is a negative -\$85 million and the corresponding return is 8.54 percent.

**Table 2 – Summary Financial Outcomes Calculated by the OIG**

Performance Measure	Q1 Investment Highlights Lower Bound	Dulles Actual With Updates <sup>10</sup>	Target Metric <sup>11</sup>
Throughput (pieces per hour)	12,500	10,315	11,500
Accept Rate	95%	94% 93%	
Operational Time (hours)	17	17.1	16
<b>Return (with TE savings)</b>			
Return (with TE savings)	26.9%	14.49%	19.26%
Total NPV (millions)	\$872	\$215	\$441
<b>Return (without TE savings)</b>			
Return (without TE savings)	14.25%	5.18%	8.54%
Total NPV (millions)	\$346	<b>\$(311)</b>	<b>\$(85)</b>

We chose the Dulles P&DC and operational target metrics to recalculate the financial scenarios since:

- The Dulles P&DC hosts the FSS with the latest upgrades, most operational experience, and supplier maintenance support. We believe the Dulles FSS should be the best performing machine considering the level of experience and support.
- The Postal Service’s target metric is a reasonable improvement expectation as operations personnel at P&DCs gain more experience using the machine.

It is important that the progress of a project be accurately reported so that executives have the necessary information for decision-making. The general investment handbook (*Project Compliance and Cost Studies*) highlights that the purpose for tracking an approved program’s DAR is to provide the following assurances:

- Projects are implemented as approved.
- Management reviews metrics (indicators and methods) on an ongoing basis to evaluate achieved benefits and savings.

<sup>10</sup> Dulles actual updates represent the post-evaluation test results after hardware and software solutions are implemented.

<sup>11</sup> Target metrics are operational expectations below the original DAR assumptions.

- Adequate (actual) cost data are captured for compliance reports. Various types of data must be collected, either manually or via an automated tracking system. Collected data includes machine run times, downtimes, idle times, throughput per run hour, and workhour savings for new equipment.

The Postal Service indicated the purpose of the various FSS scenarios presented in the Q1, FY 2010 *Investment Highlights* report was to estimate the potential financial impact over the life of the program after the supplier completes the anticipated hardware/software upgrades. We believe unreported savings deficiencies exist because the Postal Service elected to use performance assumptions rather than available system performance data as called for in the general investment handbook. As a result, we estimate the Postal Service over-reported their financial scenarios' NPVs by at least \$431 million in the Q1, FY 2010 *Investment Highlights* report.

Table 3 shows these amounts are the difference between the OIG's cash flow scenarios and Postal Service's lower bound NPVs. See [Appendix C](#) for detailed cash flow statements.

**Table 3 – Differences in NPV and Return Values**

	1	2	3	4	5
Parameters	Postal Service Lower Bound Projection	OIG Financial Projection Based on Actual Performance at Dulles P&DC	Savings Difference Actual (1– 2)	OIG Financial Projection Based on Target Metrics	Savings Difference Target (1– 4)
NPV Savings With TE (Millions)	\$872	\$215	\$657	\$441	\$431 <sup>12</sup>
<b>Return</b>	<b>26.9%</b>	<b>14.49%</b>		<b>19.26%</b>	
NPV Savings Without TE (Millions)	\$346	\$(311)	\$657	\$(85)	\$431
<b>Return</b>	<b>14.25%</b>	<b>5.18%</b>		<b>8.54%</b>	

<sup>12</sup> Considered capital investment savings shortfall since this amount is less than Postal Service's reported lower bound projection. It anticipates some future performance improvements.

**APPENDIX C: NON-MONETARY IMPACT**

**Postal Service Lower Bound without TE Cash Flow (Excerpts)**

Project year	0	1	2	11	12	13	14	Total
Fiscal Year	(2007)	(2008)	(2009)	(2010)	(2011)	(2012)	(2021)	
Total Capital Investment	██████████	██████████	██████████	██████████	██████████	██████████	█	██████████
Total Expense Investment	\$0	\$0	\$0	██████████	██████████	█	█	██████████
Total Operating Variances	(\$15,560,556)	(\$39,636,741)	(\$42,720,384)	(\$23,204,855)	\$18,674,375	\$348,422,178	\$0	██████████
Net Cash Flow	(\$68,664,278)	(\$289,484,378)	(\$371,723,683)	(\$343,481,819)	(\$313,518,097)	\$139,497,997		██████████
Discounted cash flow @ 9.75%	(\$68,664,278)	(\$263,767,087)	(\$308,610,838)	(\$259,830,523)	(\$216,094,891)	\$87,608,315	\$0	██████████

**NPV @ 9.75%** \$346,000,086  
**ROI** 14.25%

The rate of return exceeds both the discount rate and cost of capital.

**Postal Service Lower Bound with TE Cash Flow (Excerpts)**

Project year	0	1	2	11	12	13	14	Total
Fiscal Year	(2007)	(2008)	(2009)	(2010)	(2011)	(2012)	(2021)	
Total Capital Investment	██████████	██████████	██████████	██████████	██████████	██████████	█	██████████
Total Expense Investment	\$0	\$0	\$0	██████████	██████████	█	█	██████████
Total Operating Variances	(\$15,560,556)	\$161,642,139	\$179,346,387	\$170,075,544	\$36,974,789	\$348,422,178	\$0	██████████
Net Cash Flow	(\$68,664,278)	(\$88,205,498)	(\$149,656,912)	(\$150,201,420)	(\$295,217,683)	\$139,497,997		██████████
Discounted cash flow @ 9.75%	(\$68,664,278)	(\$80,369,474)	(\$124,247,518)	(\$113,621,482)	(\$203,481,182)	\$87,608,315	\$0	██████████

**NPV @ 9.75%** \$872,589,768  
**ROI** 26.9%

The rate of return exceeds both the discount rate and cost of capital.

**OIG Cash Flow - Actual Performance (Dulles) Without TE (Excerpts)**

Project year	0	1	2	11	12	13	14	Total
Fiscal Year	(2007)	(2008)	(2009)	(2010)	(2011)	(2012)	(2021)	
Total Capital Investment	██████████	██████████	██████████	██████████	██████████	██████████	█	██████████
Total Expense Investment	\$0	\$0	\$0	██████████	██████████	█	█	██████████
Total Operating Variances	(\$15,560,556)	(\$39,636,741)	(\$44,323,927)	(\$40,803,672)	(\$54,540,315)	\$212,674,551	\$0	\$2,163,046,056
Net Cash Flow	(\$68,664,278)	(\$289,484,378)	(\$373,327,226)	(\$361,080,636)	(\$386,732,787)	\$3,750,370		\$669,697,781
Discounted cash flow @ 9.75%	(\$68,664,278)	(\$263,767,087)	(\$309,942,124)	(\$273,143,338)	(\$266,558,709)	\$2,355,329	\$0	(\$311,340,635)

**NPV @ 9.75%** **(\$311,340,635)**  
**ROI** **5.18%**

The rate of return does not exceeds discount rate but exceed cost of capital.

**OIG Cash Flow - Actual Performance (Dulles) With TE (Excerpts)**

Project year	0	1	2	11	12	13	14	Total
Fiscal Year	(2007)	(2008)	(2009)	(2010)	(2011)	(2012)	(2021)	
Total Capital Investment	██████████	██████████	██████████	██████████	██████████	██████████	█	██████████
Total Expense Investment	\$0	\$0	\$0	██████████	██████████	█	█	██████████
Total Operating Variances	(\$15,560,556)	\$161,642,139	\$177,742,845	\$152,476,727	(\$36,239,901)	\$212,674,551	\$0	\$2,797,972,520
Net Cash Flow	(\$68,664,278)	(\$88,205,498)	(\$151,260,454)	(\$167,800,237)	(\$368,432,373)	\$3,750,370		\$1,304,624,245
Discounted cash flow @ 9.75%	(\$68,664,278)	(\$80,369,474)	(\$125,578,804)	(\$126,934,297)	(\$253,945,001)	\$2,355,329	\$0	\$215,243,048

**NPV @ 9.75%** **\$215,243,048**  
**ROI** **14.49%**

The rate of return exceeds both the discount rate and cost of capital.

**OIG Cash Flow - Target Performance without TE (Excerpts)**

Project year	0	1	2	11	12	13	14	Total
Fiscal Year	(2007)	(2008)	(2009)	(2010)	(2011)	(2012)	(2021)	
Total Capital Investment	██████████	██████████	██████████	██████████	██████████	██████████	█	██████████
Total Expense Investment	\$0	\$0	\$0	██████████	██████████	█		██████████
Total Operating Variances	(\$15,560,556)	(\$39,636,741)	(\$43,062,657)	(\$27,681,352)	(\$3,353,850)	\$253,969,485	\$0	\$2,638,651,190
Net Cash Flow	(\$68,664,278)	(\$289,484,378)	(\$372,065,956)	(\$347,958,316)	(\$335,546,322)	\$45,045,304		\$1,145,302,915
Discounted cash flow @ 9.75%	(\$68,664,278)	(\$263,767,087)	(\$308,894,998)	(\$263,216,817)	(\$231,278,023)	\$28,289,605	\$0	(\$85,088,434)

**NPV @ 9.75%** (\$85,088,434)  
**ROI** 8.54%

The rate of return does not exceeds discount rate but exceed cost of capital.

**OIG Cash Flow - Target Performance with TE (Excerpts)**

Project year	0	1	2	11	12	13	14	Total
Fiscal Year	(2007)	(2008)	(2009)	(2010)	(2011)	(2012)	(2021)	
Total Capital Investment	██████████	██████████	██████████	██████████	██████████	██████████	█	██████████
Total Expense Investment	\$0	\$0	\$0	██████████	██████████	█	█	██████████
Total Operating Variances	(\$15,560,556)	\$161,642,139	\$179,004,114	\$165,599,047	\$14,946,564	\$253,969,485	\$0	\$3,273,577,655
Net Cash Flow	(\$68,664,278)	(\$88,205,498)	(\$149,999,185)	(\$154,677,917)	(\$317,245,908)	\$45,045,304		\$1,780,229,380
Discounted cash flow @ 9.75%	(\$68,664,278)	(\$80,369,474)	(\$124,531,678)	(\$117,007,777)	(\$218,664,314)	\$28,289,605	\$0	\$441,495,249

**NPV @ 9.75%** \$441,495,249  
**ROI** 19.26%

The rate of return exceeds both the discount rate and cost of capital.

## APPENDIX D: MANAGEMENT'S COMMENTS

ENGINEERING



July 23, 2010

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SUBJECT: Draft Audit Report – Flats Sequencing System: Program Status and its Projected Cash Flow (Report Number DA-AR-10-DRAFT)

Thank you for your report detailing the results of your Flats Sequencing System (FSS) audit focusing on financial impact and risk. We appreciate the opportunity we had to jointly review FSS program costs and savings opportunities.

We have periodically recast and published our FSS economic projections to keep all stakeholders apprised of our current performance and investment expectations. In doing so, we have included updates for considerations that have proven to both negatively (i.e., schedule slippage, volume decline, current machine performance shortcomings) and positively (i.e., employment of Transitional Employees, referred to as TEs) impact those expectations. Our goal is to make the FSS economic outlook as credible and as transparent as possible.

Given that, we take exception to some of the claims you have put forth in your report:

1. Your report suggests our lower-bound set of assumptions is overly optimistic. We disagree. The key operating metrics that influence economic performance are volume, operating time, and throughput. We believe our lower-bound assumptions do represent the likely worst-case scenario:
  - The investment returns developed by your office, using our economic model, reflect previously discussed performance levels already achieved by our first article machine – Dulles #2 (machine serial number 1006). However, your returns assume that there are no improvements in these performance levels throughout the 10+ year investment life of the program. We believe this is unrealistically conservative and indeed fails to recognize the normal learning curve experiences with new programs of this magnitude. Moreover, we have many efforts underway to help improve operational use and performance of the system.
  - Because of constraints requested by and negotiated with our supplier, average daily operating times have to date been lower than our originally estimated 17 hours. But we have demonstrated with machines that are not constrained we can average 17 hours per day. Once the operating constraints are eliminated (which should occur in the very near future), FSS sites will ramp-up additional zones, increasing daily operating time. We are confident the operating time for all FSS sites, upon reaching ramp-up maturity, will meet our expectations. (NOTE: We are now in the middle of our low flat volume season, and

it would be unrealistic over the next couple of months to see daily operating windows average 17 hours, our average performance target over the course of a year.)

- Our lower-bound assumption for throughput is 12,500 pieces per hour. But for the duration of the deployment period, our assumption is 85 percent of that value, or 10,625 pieces per hour. Throughput is very sensitive to run volumes. While we were experiencing machine reliability problems in the past, local sites were unable to schedule their operating windows as originally planned. The scheduling adjustments that had to be made resulted in lower run volumes and consequently lower throughput results than we believe are reasonable estimates for future performance.
  - We have already proven the ability to achieve throughput rates much higher than 12,500 pieces per hour during formal evaluations of Dulles machine #2. During the November 2009 evaluation, throughput for Dulles #2 was over 14,000 pieces per hour at an average run volume between 23-24,000 pieces. During the April 2010 evaluation, throughput for Dulles #2 increased even though average run volume for the period was below 20,000 pieces. We have given a great deal of attention and effort to increasing FSS throughput, and the result has been continuous performance improvement. We are confident that our current and future throughput improvement initiatives will result in additional performance gains over the next few years.
  - There are additional benefits from FSS processing that have not been included in our financial updates. While difficult to quantify and representing costs avoided, we believe that they are real and substantial and further support our lower bound estimates as the likely worst case scenario. Flats sequencing will reduce the number of carrier routes otherwise required which, in turn, provides delivery unit space savings and vehicle savings. We previously estimated the value of reduced delivery unit space from flats sequencing at \$38 million annually. Vehicle savings from this program were previously estimated at 5,700 units with avoided capital investment costs and annual maintenance costs of \$130 million and \$13 million, respectively.
2. Your report qualifies our savings resulting from the employment of TEs as *questionable*. We disagree with that characterization. The FSS program is directly and solely responsible for our ability to employ 8,000 additional TEs throughout the Postal Service network. The fact that these TEs are, in some cases, being hired and utilized in locations not explicitly in the service areas of planned FSS deployments is not relevant. But the strategic use of TEs along with the resultant savings are relevant to an FSS investment analysis.
  3. The "Special Issues" section of the Investment Highlights is not the compliance report. Actual machine performance metrics are reported in the quarterly compliance report and the Detailed Capital Investment Report. Actual performance is also considered when calculating the equipment-related slipped savings at conclusion of deployment mentioned in the "Impact of Schedule Changes" section of the Investment Highlights. The scenarios presented in the "Special Issues" section were intended to provide management's expected range of the financial impact for the project at a point in time with the intent of updating as the project progresses.

Our response to your recommendation is detailed below.

**Recommendation:**

*We recommend the Vice President, Engineering:*

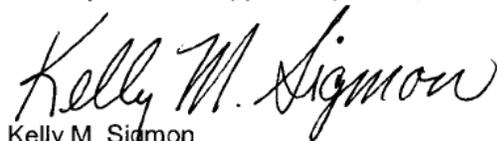
1. *Use actual machine performance and operational target data to more accurately report the progress of the FSS program financial outcomes in compliance reports such as the Investment Highlights.*

**Management Response:**

We agree to include an additional scenario of FSS program financial outcomes in future Investment Highlights Reports. This scenario will represent our most current assessment of actual machine performance and assume that no improvements are achieved throughout the life of the program. For the reasons stated above, we DO NOT believe that this additional scenario will "more accurately" reflect the financial performance expected from this program. As such, we plan to note this opinion as results are reported. Also, we do not believe that including a scenario representing "operational target data" is either necessary or useful and we do not plan to include this scenario in upcoming reports. These are not long-term operational targets, but rather interim targets that we plan to adjust as conditions improve. Consequently, they are not representative of our expectation of actual equipment performance over its 10+ year useful life. Moreover, as your audit indicates, results from these targets would likely fall between our lower bound estimates and those using existing actual machine performance levels.

We consider information pertaining to the Investment Highlights Report, FSS investment costs, financial returns, along with internal postal costs and machine performance to be sensitive in nature and may contain propriety or other business information that may be exempt from disclosure under 39 USC 410(c) (2) of the Freedom of Information Act (FOIA). We have an active FSS contract and this information could affect our contracting strategies and should be redacted in its entirety from the final report in response to any FOIA requests and removed prior to any publication of the report outside the Postal Service, including any electronic internet posting.

Thank you for the opportunity to respond to your report.



Kelly M. Sigmon  
Vice President

cc: Mr. Donahoe  
Mr. Forte  
Mr. Shipe  
Ms. Haring