September 30, 2009

STEVEN J. FORTE
SENIOR VICE PRESIDENT, OPERATIONS

SUBJECT: Audit Report – Fuel Management Consumption Strategies for Surface Network Operations (Report Number NL-AR-09-010)

This report presents the results of our self-initiated review of Fuel Management Consumption Strategies for Surface Network Operations[1] (Project Number 08XG029NL001). The objective was to assess the effectiveness of the U.S. Postal Service's consumption strategy for reducing the use of fuel within surface network operations. This report addresses strategic, financial, and operational risks. See Appendix A for additional information about this audit.

Conclusion

The Postal Service has taken positive steps to implement a strategy to reduce fuel consumption within surface network operations mainly by eliminating excess transportation capacity. Additionally, the Postal Service undertook a significant initiative to reduce capacity further by realigning its network[2] and added to its strategy by exploring the expanded use of alternative fuel vehicles.

However, the Postal Service could implement a more effective fuel strategy by adopting some key industry best practices to increase fuel efficiency and reduce overall fuel use. These best practices include the following: adding aerodynamic equipment; ensuring proper tire pressure, and limiting truck speeds. If these practices are implemented, we estimate the Postal Service could reduce fuel use by more than 25 million gallons annually, saving about $364.2 million in fuel costs.

More Effective Fuel Consumption Strategy Needed

The Postal Service has primarily focused on eliminating excess transportation capacity and the exploration of alternative fuel vehicles as its fuel management strategy, because management believed those areas had the most significant fuel reduction

[1] Surface network operations include two categories of transportation — contracted transportation furnished by highway contract route (HCR) suppliers, and transportation using Postal Service vehicles and employees.
[2] The Postal Service has recently undertaken the Network Distribution Center (NDC) initiative, which management states will significantly reduce excess capacity in surface transportation.

potential. Consequently, management has not focused on other key industry best practices for fuel reduction. Specifically, we found

- The Postal Service does not require that postal-owned, leased, and contractor-furnished trailers be equipped with industry recommended fuel-efficient aerodynamic equipment. This could decrease diesel fuel consumption by more than 19.6 million gallons annually and potentially save $335.9 million over a 10-year period.

- The Postal Service does not have maintenance and contract requirements consistent with industry best practices to ensure that postal-owned, leased, and contract-furnished vehicles maintain proper tire inflation. This could decrease fuel consumption by more than 5.7 million gallons[3] annually and potentially save $28.3 million over a 2-year period.

- The Postal Service does not require contractors to drive vehicles at limited speeds when feasible, which would reduce fuel consumption by as much as 6 percent.[4]

Implementation of these key industry best practices will facilitate further achievement of fuel consumption goals as outlined in the Postal Service's Strategic Transformation Plan.[5] See Appendix B for our detailed analysis of this topic, Appendix C for a summary of estimated savings on aerodynamic equipment, and Appendix D for a summary estimated savings on proper tire inflation practices.

We recommend the Senior Vice President, Operations:

1. Revise the fuel consumption strategy for surface network operations covering Postal Service and highway contract route transportation to ensure that it is comprehensive and implements the industry best practices identified in our audit.

2. Assess and implement all opportunities for owned, leased, and contracted vehicles to use technology to reduce wind resistance and identify the most viable advanced aerodynamics options consistent with industry best practices and adjust contracts as appropriate to account for the reduced fuel need.[6]

[3] We only included fuel consumption related to postal owned heavy-duty vehicles (trucks and cargo vans), as well as leased and contracted vehicles in our calculation of potential savings.
[4] While studies show fuel consumption can be decreased by as much as 6 percent, we were unable to determine the monetary impact associated with implementing this best practice because doing so would require extensive, detailed review of all contracts to determine the impact of speed reduction on service.
[5] *The United States Postal Service's Strategic Transformation Plan 2006–2010* (updated in December 2007), addresses reducing energy use in transportation operations by optimizing the postal-owned fleet and seeking out the best value available in contract transportation.
[6] The Postal Service should consider first adopting advanced trailer aerodynamic equipment on those trailers used for long distance trips to generate the greatest savings opportunity and quickest return on investment.

3. Establish and implement tire inflation maintenance requirements for postal-owned heavy-duty vehicle fleet, as well as postal leased, and contracted vehicles consistent with industry best practices and adjust contracts as appropriate to account for the reduced fuel need.

4. Assess the feasibility of implementing tire inflation requirements in accordance with industry best practices for postal light-duty vehicles (delivery and administrative vehicles).

5. Evaluate highway contract routes, and where feasible, implement speed limit requirements consistent with industry best practices, and adjust contracts as appropriate to account for the reduced fuel need.

Management's Comments

Management generally agreed with recommendations 1, 2, 3, and 5, but disagreed with recommendation 4. Management also disagreed with our monetary impact calculations.

Management responded that a major challenge facing the Postal Service is to reduce energy use and costs as much as possible without adversely impacting operational capabilities or work environments. Management noted that fuel management consumption strategies would be prioritized in fiscal year (FY) 2010 and implemented with other planned cost reduction initiatives where it is most beneficial to generate the greatest savings opportunity and the quickest return on investment. Further, management stated they will establish a cross-functional working group in FY 2010 that will structure an implementation approach for adopting aerodynamic equipment to reduce wind resistance by initially targeting contracted vehicles operating long-haul transportation routes; evaluate tire inflation maintenance requirements for leased and contracted vehicles; and revisit the current speed limit policy for highway contract routes.

Regarding recommendation 4, management stated that during informal report discussions with the U.S. Postal Service Office of Inspector General (OIG), they noted numerous challenges associated with implementing tire pressure requirements for Postal Service light-duty vehicles (delivery and administrative vehicles), such as possible restrictions on letter carriers being required to perform tire inflation checks. Since the meeting with the OIG, management's assessment of the feasibility of this recommendation found a reference to a 1983 grievance decision specifying full-time regular carriers will not be required to use a tire gauge to check tire inflation. Management further stated that tire pressure for light-duty vehicles is checked twice a year during scheduled maintenance, and there is not a feasible means to accomplish monthly tire pressure maintenance for light-duty vehicles without incurring additional operating costs.

Regarding our monetary impact methodology, management noted that the methodology does not consider all associated costs with implementing best practices. Further, management stated that our methodology does not determine the return on investment period, and that cost savings for adopting aerodynamic equipment would potentially change if a full analysis incorporated all fleet variables for owned, leased, and contracted trailers. Additionally, management stated the assumptions for capturing potential savings associated with maintenance and contract requirements to maintain tire inflation are broad and will add costs, noting that calculations assume the Postal Service can compress maintenance schedules on the heavy-duty fleet down to a monthly cycle. However, management stated that there may be an opportunity to require suppliers to maintain tire pressure to meet the best practices standard, and the proposal would require additional assessment including whether some suppliers already perform routine inspections of their tire pressure. Management's comments, in their entirety, are included in Appendix E.

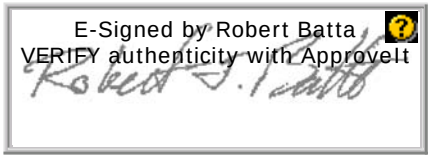
Evaluation of Management's Comments

The OIG considers management's comments responsive to the recommendations in the report, and their corrective actions should resolve the issues identified. Regarding management's disagreement with recommendation 4, we discussed the operational environment and other challenges relating to tire pressure maintenance for light-duty vehicles before issuing the draft report. Further, we modified our draft report and recommendation 4 accordingly in light of these concerns and the operational environment, and recommended that management "assess the feasibility" of requiring more frequent tire pressure maintenance for light-duty vehicles. In their response, management addressed the recommendation by stating they have already assessed the feasibility and determined it not to be cost effective.

Regarding management's comments on our monetary impact calculations, we believe our approach and methodology to be sound. Further, we agree with management that savings could potentially change if a full analysis is performed with all fleet variables considered. Our assumptions were based on the most conservative research and data, such as applying an 8 percent savings range to aerodynamic equipment when the research supports a range of 8 to 16.5 percent, or using 2 percent for savings from tire pressure maintenance when research supports a range of 2 to 15 percent. Further, we considered and offset purchase and installation costs for aerodynamic equipment totaling over $98 million, but recognize that the Postal Service might obtain better pricing through negotiations and volume purchases. We also noted in the report, as the cost of fuel increases, the opportunity for the Postal Service to save fuel costs increases proportionately. Finally, our report does address return on investment, and we advised management during the audit that they are in the best position to determine actual return on investment and payback period after assessing viability of the options and determining actual costs related to adopting advanced aerodynamic equipment.

The OIG considers recommendations 1, 2, 3, and 5 significant, and therefore requires OIG concurrence before closure. Consequently, the OIG requests written confirmation when corrective actions are completed. These recommendations should not be closed in the Postal Service's follow-up tracking system until the OIG provides written confirmation that the recommendations can be closed.

We appreciate the cooperation and courtesies provided by your staff. If you have any questions or need additional information, please contact Jody Troxclair, Director, Transportation, or me at (703) 248-2100.



Robert J. Batta
Deputy Assistant Inspector General
for Mission Operations

cc: Patrick R. Donahoe
Joseph Corbett
Jordan M. Small
Linda J. Welch
Susan M. Brownell
Samuel M. Pulcrano
Cynthia F. Mallonee
Wayne Corey
Carolyn C. Cole
Bill Harris

APPENDIX A: ADDITIONAL INFORMATION

BACKGROUND

The Postal Service operates the largest civilian ground transportation fleet in the world, with approximately 221,000 delivery, transportation, and other vehicles. Further, the Postal Service has highway transportation contracts with more than 10,500 suppliers, covering more than 17,600 highway contract transportation routes.[7] As a result, it is one of the largest consumers of fuel in the United States, spending about $1.6 billion on fuel for their ground transportation network during FY 2008. The postal-owned and contracted surface transportation travels about 3 billion miles per year to transport and deliver mail and uses more than 400 million gallons of diesel fuel and gasoline annually. In FY 2008, HCR suppliers used approximately 255 million gallons of fuel (primarily diesel fuel) totaling more than $962 million. Additionally, drivers of postal-owned vehicles, including delivery, transportation, and administrative vehicles, used the remaining 146 million gallons of fuel (primarily gasoline) totaling more than $633 million.

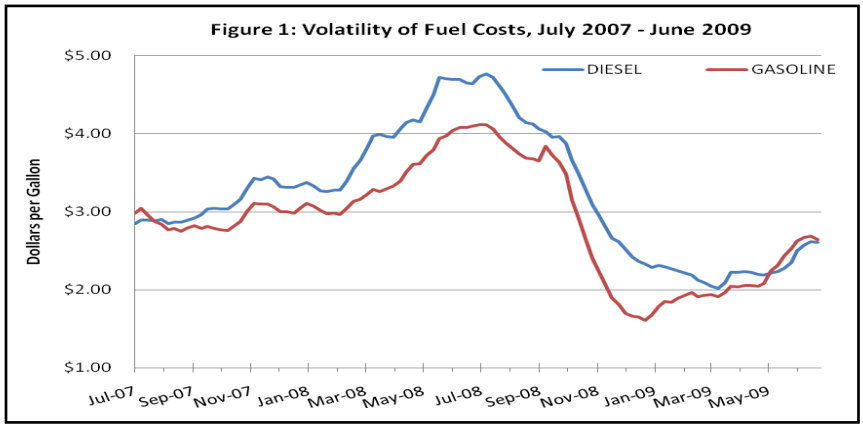
A major challenge for the Postal Service is to reduce fuel consumption and costs as much as possible without adversely impacting operational capabilities. The fact that diesel and gasoline prices have been extremely volatile over the past 24 months has added to the challenge. Diesel and gasoline peaked at $4.76 per gallon and $4.11 per gallon, respectively, in mid-2008 before dropping to a low of $2.02 per gallon and $1.61 per gallon, respectively, in late 2008 and early 2009 as reflected in Table 1.

Table 1: Fuel Prices

	Diesel Fuel	Regular Gasoline
High Cost		
Retail Price per Gallon	$4.76	$4.11
Week ending	July 14, 2008	July 7, 2008
Low Cost		
Retail Price per Gallon	$2.02	$1.61
Week ending	March 16, 2009	December 29, 2008

The postal fuel costs in FY 2008 increased more than $500 million over fuel costs in FY 2007 because of volatile fuel prices, making transportation the fastest growing cost segment in the Postal Service's budget. Figure 1 reflects the volatility of fuel prices over the past 24 months.

[7] HCRs cover the transportation of mail and equipment, and "box delivery" covers the delivery and collection of mail to and from homes and businesses. The services provided by the HCR box delivery carrier are identical to those provided by postal rural route carriers.



National Energy Management Strategy. In November 2008, the Postal Service developed a National Energy Management Strategy (NEMS) to manage energy use and help achieve its goal of enhancing sustainability as outlined in its 2006-2010 Strategic Transformation Plan.[8] Specifically, the purpose of the NEMS is to establish an energy management strategy that focuses on reducing consumption and costs, while supporting continuity of operations. The NEMS identifies energy goals, objectives, and strategies for all aspects of operations, and identifies five strategic target areas: fuel management, fleet management, facility energy management, utility management, and energy awareness. The responsibility for managing fuel consumption falls on several organizations, including the nine Postal Service geographical Areas, Network Operations, Delivery and Postal Operations, and Engineering.

OBJECTIVE, SCOPE, AND METHODOLOGY

Our objective was to assess the effectiveness of the Postal Service's consumption strategies for reducing the use of fuel within surface network operations. To accomplish our objective, we interviewed Postal Service Network Operations, Delivery and Post Office Operations, Supply Management, Sustainability, and Vehicle Maintenance Facility officials and staff to obtain an understanding of the fuel management consumption strategy and its history. Additionally, we contacted HCR suppliers and companies within the transportation and logistics industry to discuss current fuel consumption best practices. We reviewed the Postal Service's fuel consumption policies, including NEMS and other relevant policies and procedures. Additionally, we researched best practices for reducing fuel consumption costs and compared them with the Postal Service's consumption strategy and current practices to determine whether the Postal Service considered all feasible options to reduce fuel consumption in its surface network operations.

[8] The *United States Postal Service Strategic Transformation Plan 2006–2010* (updated in December 2007), addresses reducing energy use in transportation operations by optimizing the postal-owned fleet and seeking out the best value available in contract transportation.

We conducted this performance audit from December 2008 through September 2009, 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 conclusions based on our audit objective. We relied on purchasing and consumption data obtained from Postal Service officials and data systems. We did not test controls over the Postal Service data systems. We performed limited data integrity reviews, including discussions with officials to support our reliance on the data.

We discussed our observations and conclusions with management on August 26, 2009, and included their comments where appropriate.

PRIOR AUDIT COVERAGE

The OIG and Government Accountability Office (GAO) issued two reports related to fuel management, within the past 3 years.

Report Title	Report Number	Final Report Date	Report Results
Fuel Management Initiatives for Surface Network Operations – Fuel Purchasing Strategy	NL-MA-09-001	August 5, 2009	The Postal Service has taken positive steps in developing a fuel purchasing strategy to promote efficiencies and realize cost savings in acquiring fuel. However, the Postal Service did not fully plan and implement their fuel purchasing strategy to ensure that the desired outcomes were accomplished in a timely manner. Because of the implementation delays, the Postal Service incurred about $20 million in unnecessary fuel acquisition costs.
Vulnerability to Fluctuating Fuel Prices Requires Improved Tracking and Monitoring of Consumption Information	GAO-07-244	February 16, 2007	The Postal Service's actions to control fuel costs were generally consistent with industry procurement and consumption practices, but the Postal Service could improve in a couple of areas. First, the Postal Service was highly vulnerable to fuel price volatility, in part because its fuel purchasing process involved buying fuel as needed, particularly at retail locations. In addition, the Postal Service had incomplete data on its fuel procurement programs, because it did not have an effective system to track or monitor fuel use.

APPENDIX B: DETAILED ANALYSIS

More Effective Fuel Consumption Strategy Needed

The Postal Service has taken positive steps by implementing some opportunities to reduce fuel consumption within surface network operations. We determined the Postal Service's fuel consumption strategy primarily focuses on the elimination of excess transportation capacity and the exploration of alternative fuel vehicles. The Postal Service reported that it eliminated 7.7 million miles from its transportation contracts in FY 2008.

In addition, the Postal Service undertook the NDC initiative to reduce capacity further by realigning its network. The Postal Service also has more than 36,000 ethanol-capable vehicles and is currently testing and monitoring the performance of a variety of fuel alternatives, including biodiesel, compressed natural gas, propane, electric vehicles, hybrid technologies, clean diesel vehicles, and fuel cell vehicles.

However, the strategy does not include key industry best practices[9] to increase fuel efficiency and reduce overall fuel use as follows.

Adopting Advanced Trailer Aerodynamics. In its Transformation Plan, the Postal Service proposes to reduce energy use and acknowledges that wise investments in energy efficient equipment today will pay dividends continuously over time. However, postal management did not consider fuel-efficient advanced aerodynamic equipment for trailers in the Postal Service's fuel strategy for reducing fuel consumption. We found the Postal Service does not require postal-owned, leased, and contracted trailers be equipped with industry recommended fuel-efficient advanced aerodynamic equipment.

Our review of industry best practices for trailers identified several opportunities to reduce vehicle wind resistance and save fuel for trailers. Side fairings (trailer skirts) and gap fairings are two advanced aerodynamic opportunities that are not currently used on postal-owned or leased trailers and are not required contractually for HCR suppliers.

[9] The Postal Service has implemented some of these opportunities to varying degrees on some components of its surface network operations, which includes postal-owned, leased, and contracted vehicles.

Figure 2: Example of side fairing (trailer skirt): a durable, flexible, and lightweight wind deflector. Freight Wing product shown.

Figure 3: Example of a gap fairing to reduce drag space between the tractor and the trailer. Freight Wing Gap Fairing product shown.

As shown in Table 2, at 60 miles per hour (mph), 21 percent of the total energy expended by tractor-trailers is used to overcome wind resistance.

Table 2: Energy Use in Tractor Trailers[10]

Vehicle Part/Effort	Energy Expended
Engine	56 percent
Aerodynamics	21 percent
Tires	13 percent
Engine idling & auxiliary equipment	8 percent
Transmission	1 percent
Driveline	1 percent
Total	**100 percent**

Recent studies have shown that with existing technologies, opportunities exist to increase the average fuel efficiency for tractor-trailers from about 7 miles per gallon (mpg) to 11.5 mpg. A significant portion of the projected fuel efficiency increases is from aerodynamics specifically related to trailers. Based on industry studies, side and gap fairings can conservatively provide fuel consumption savings of 6 percent and 2 percent, respectively.[11] Based on an average of various manufacturers' estimated wholesale prices and manufacturers' estimated installation costs, the addition of these

[10] Rocky Mountain Institute, "Transformational Trucks: Determining the Energy Efficiency Limits of a Class-8 Tractor-Trailer," July 2008.

[11] As documented in studies by the U.S. Department of Energy (DOE), U.S. Environmental Protection Agency (EPA), and the California Air Resource Board (CA ARB). It is also supported by Society of Automobile Engineers -certified studies performed by aerodynamic equipment producers.

two items would cost the Postal Service approximately $1,878 per trailer.[12] During our review, we were able to obtain only approximate pricing. The Postal Service, however, might obtain better pricing through negotiations with the manufacturers.

Table 3 shows the associated consumption savings rate and the estimated cost of adding side and gap fairing equipment on trailers.

Table 3: Aerodynamic Equipment and Increased Fuel Economy

Modification	Fuel Consumption Savings Rate	Estimated Cost of Equipment per Trailer
Side fairings (trailer skirts)	6 percent	$1,233
Gap fairings	2 percent	$ 645
Total	**8 percent**	**$1,878**

See Appendix C for a summary of the estimated savings the Postal Service can realize by implementing side and gap fairings on postal-owned, leased, and contracted trailers.

Maintaining Proper Tire Inflation. The Postal Service's maintenance and contract requirements are inconsistent with industry best practices to ensure that postal-owned, leased, and contractor-furnished vehicles maintain proper tire inflation that results in efficient fuel consumption. Recent studies from government agencies and tire manufactures support that improper tire pressure will result in decreased fuel efficiency, which can be as much as 0.4 percent for every pound per square inch (PSI) a tire is underinflated.[13] Studies also show that fuel-efficient tire inflation practices can improve fuel consumption from 2 percent to 15 percent,[14] as shown in Table 4.

[12] The CA ARB's comprehensive study, supported by the industry, concluded the return on investment achieved by adopting advanced aerodynamic equipment for trailers averaged about 18 months. The "payback" period range was from a few months to 3 years depending on the nature of fleet operations and the miles driven. The Postal Service must determine its actual equipment costs and the number of trailers that warrant application of the advanced aerodynamic equipment to calculate the actual payback period.

[13] Industry research has shown that underinflated tires are prevalent throughout the industry. For example, industry studies show that 56.7 percent of all vehicle tires are not inflated within 5 PSI of proper air pressure. Given the Postal Service's current maintenance practices and the lack of HCR contract requirements for tire pressure maintenance, postal--owned and contracted vehicles would also be significantly underinflated. Further, as time passes, absent a fuel-efficient tire pressure maintenance program, all tires can become underinflated at different rates depending on time and multiple external factors that affect the tire pressure. As such, the goal of monthly or more frequent tire pressure inspections and maintenance is to keep the fleet as a whole closer to proper tire pressure levels, which result in more fuel efficiency for the fleet as a whole.

[14] Fuel savings rates for instituting fuel-efficient tire inflation practices are based on industry leading practices and research published by various government agencies, private companies, and academic institutions.

Table 4: Fuel Consumption Savings Rates Derived from Industry Studies for Fuel-Efficient Tire Inflation Practices- Light-Duty Vehicles[15] and Heavy-Duty Vehicles[16]

Source	Vehicle Class	Fuel Consumption Savings Rate
PressureGuard	Heavy-Duty	2 percent
DOE	Light-Duty	2.5 percent
California Energy	Light-Duty	3 percent
DOE/EPA	Light-Duty	3 - 3.3 percent
Peterbilt Motors Company	Heavy-Duty	3.3 percent
Etrucker.com	Heavy-Duty	5 percent
Tirelyna.com	Heavy-Duty	5-10 percent
University of Illinois	Heavy-Duty	6 percent
Reuters	Light-Duty	10 percent
Goodyear Tires	Light-Duty	10 percent
Toyo Tires Corp.	Light-Duty	10 -15 percent
Minimum		**2 percent**
Maximum		**15 percent**

To ensure fuel-efficient inflation levels, the U.S. Department of Transportation, Federal Motor Carrier Safety Administration, and tire manufacturers recommend that trucking fleets check tire pressure monthly. Some large trucking fleets require monitoring of their vehicles' tire pressure on a more frequent basis, including weekly. However, tire inflation checks for the Postal Service fleet are performed during the vehicles' scheduled maintenance, and there are no contract requirements covering tire inflation checks for HCR vehicles. Current maintenance requirements for Postal Service vehicles include tire inflation checks that range from 6 to 26 weeks[17] depending on the type of vehicle, as shown in Table 5. However, the frequencies of the tire inflation checks are inconsistent with the industry best practices of monthly checks to improve fuel efficiency.

[15] According to the EPA, Office of Transportation, and Air Quality (OTAQ), a light-duty vehicle is defined as having a curb weight of 6,000 pounds or less, which would include the Postal Service's delivery vehicles.
[16] According to the EPA, OTAQ, a heavy-duty vehicle is defined as having a curb weight rating greater than 6,000 pounds, which would include postal-owned and contractor-furnished tractor-trailers.
[17] Per Handbook PO-701, *Fleet Management*, Section 341.44, March 2001.

Table 5: Postal Fleet Maintenance Schedule

Vehicle Type	Miles Driven per Month	Frequency
Cargo Vans (7 and 11 Ton)	Less than 1,000	26 weeks
	1,000 - 4,000	13 weeks
	More than 4,000	6 weeks
Intermediate Delivery (1 and 2 Ton)	500 - 2000	17 weeks
	More than 2,000	13 weeks
Light Delivery	Less than 500	26 weeks
	More than 500	17 weeks
Light Delivery Minivans	Less than 500	26 weeks
	500 - 1,000	17 weeks
	1,000 - 1,500	13 weeks
Mack Truck Tractor (Cab Over Engine)	Less than 2,000	13 weeks
	More than 2,000	6 weeks
Mack Truck Tractor (Cab Behind Engine)	Less than 7,000	13 weeks
	More than 7,000	6 weeks
Wabash Trailer		26 weeks
Texas Spotter Tractor		200 hours

See Appendix D for a summary of the estimated savings the Postal Service can realize by implementing fuel-efficient tire inflation practices.

Establishing a Speed Limit for Contracted Vehicles. We found Postal Service contract requirements do not adequately specify speed limits that would result in more efficient fuel consumption.

Studies show that for every 1 mph increase above 50 mph, fuel mileage is reduced by 0.1 mpg.[18] Further, studies show a 6-percent improvement in fuel consumption can be realized by reducing speed from 65 to 60 mph, as shown in Table 6.

[18] SmartWay Partnership Studies by the EPA

Table 6: Impact of Speed on Fuel Economy[19]

Operating Speed	More Fuel Efficient Speed	Estimated Savings Rate
65 mph	60 mph	6.4 percent
70 mph	60 mph	10.9 percent
75 mph	60 mph	17.3 percent

Industry best practice within the motor carrier industry is to limit speed to approximately 62 mph.[20] Further, the Postal Service limits speed to 62 mph on their postal-owned transportation with the use of computerized vehicle controls or speed governors. However, HCR supplier contracts do not include a speed limit requirement to conserve fuel. Industry best practices[21] emphasize that limiting speed results in reduced fuel consumption.

While speed control can save significant amounts of fuel, we could not determine the impact of reduced speed on Postal Service fuel consumption because each individual contract highway route must be reviewed extensively to determine the feasibility of limiting speed. In assessing feasibility, the Postal Service must consider geographic area, route of travel, service requirements, additional labor costs incurred, and other operational factors.

Impact of Implementing Best Practices

If the Postal Service implements key fuel-efficient best practices, we estimate drivers could reduce fuel use by more than 25 million gallons annually for postal-owned, leased, and contractor-furnished vehicles. The Postal Service would save about $364.2 million in fuel costs.[22] In addition, implementation of these key industry best practices will facilitate further achievement of fuel consumption goals as outlined in the Postal Service's Strategic Transformation Plan.[23]

[19] Kenworth, *White Paper on Fuel Economy*, August 2008
[20] Optimum speed is influenced by specifications of engine and transmission combinations, and torque to gearing ratios.
[21] Studies show that 40 percent of transportation executives make speed restriction a fuel management practice priority.
[22] Given the recent volatility and current escalation in fuel prices (as detailed in Appendix A), the financial benefits of removing more than 25 million gallons of fuel from its surface network operations can proportionately and significantly increase as fuel costs rise. For example, if fuel prices return to the level reached in the summer of 2008, the value of these savings opportunities could potentially increase to as much as $782 million.
[23] The *United States Postal Service Strategic Transformation Plan 2006–2010* (updated in December 2007), addresses reducing energy use in transportation operations by optimizing the postal-owned fleet and seeking out the best value available in contract transportation.

APPENDIX C: FUEL COST SAVINGS SUMMARY FOR AERODYNAMIC EQUIPMENT

The OIG identified $335,904,461 in funds put to better use over the next 10 years by implementing industry best practices for aerodynamic equipment on postal-owned, leased, and contractor provided trailers. We utilized the following two formulas, summarizing our calculations in Tables 8 and 9.

Calculation of Annual Gallons Saved on Diesel Fuel

Base Fuel × *Savings Rate* = *Annual Savings Diesel Fuel*

245,300,439 gallons × 8 percent = 19,624,035 gallons

Annual Savings Amount for Base Year Calculation

Annual Savings Diesel Fuel × *Current Diesel Price* = *Current Annual Savings Amount*

19,624,035 gallons × $2.50 per gallon = $49,060,088

Table 8: Present Value of Annual Savings

Project Year	0	1	2	3	4	5	6	7	8	9	10	
Fiscal Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total Savings
Escalated Amount[24]	$ 49,060,088	49,648,809	50,244,595	50,847,530	51,457,700	52,075,192	52,700,095	53,332,496	53,972,486	54,620,156	55,275,598	$524,174,655
Present Value[25]	$ 49,060,088	47,969,864	46,903,867	45,861,559	44,842,413	43,845,915	42,871,561	41,918,860	40,987,329	40,076,500	39,185,911	$434,463,779

Table 9: Summary of Net Savings

Present Value of Saved Fuel Costs	$434,463,779
Less: Equipment Implementation Costs[26]	$ 98,559,318
Present Value of Net Savings	$335,904,461

[24] The escalation rate used to calculate the Estimated Amount is the Postal Service's cost escalation rate of 1.2 percent for energy items.
[25] The discount rate used to calculate the Present Value amounts is the Postal Service's borrowing rate of 3.5 percent.
[26] The equipment implementation cost is based on a total of 52,481 postal-owned, leased, and contractor-provided trailers with an estimated equipment and installation cost of $1,878 per unit. The Postal Service might obtain better pricing through negotiations.

Methodology and Assumptions - Calculation of Fuel Cost Savings for Aerodynamic Equipment

We calculated the savings based on the following methodology and assumptions:

- We identified aerodynamic equipment and improvements used by the highway transportation and logistics industries that will improve fuel economy for the postal fleet and highway contractors. We noted various types of equipment currently being considered and implemented in tractor-trailer fleets for the purposes of increasing fuel efficiency. Of the equipment currently used by the industry, we identified two improvements that reduce vehicle wind resistance and are feasible for adoption on postal-owned, leased, and HCR supplier trailers: side fairings (trailer skirts) and gap fairings.

- Based on industry studies, the trailer skirts and gap fairings can provide fuel consumption savings of 6 percent and 2 percent, respectively; a total savings rate of 8 percent. According to industry studies, side and gap fairings savings rates range from 6 to 7.5 percent and 2 to 9 percent, respectively, resulting in a total savings range of 8 to 16.5 percent. We applied the most conservative approach to our impact calculations and used the lower end of the savings range of 8 percent.

- Using the savings rates for side fairings (trailer skirts) and gap fairings, we calculated an estimated annual fuel reduction in fuel gallons for vehicles with HCR and postal-owned and leased trailers by applying the savings rates to FY 2008 actual fuel consumption figures.[27]

- We adjusted the net present value of the estimated savings by deducting an estimated wholesale cost of purchasing and installing the equipment on all postal-owned, leased, and contractor-furnished trailers.

- We did not project future fuel volumes based on historical data, because of fluctuating mail volumes. FY 2008 fuel consumption figures were used throughout the 10-year monetary impact projection.

- Other incidental costs associated with the implementation of this opportunity could not be quantified at this time and should be identified during the development of the strategy by the Postal Service.

[27] Postal Service's "Energy Initiatives, Energy Spend Report, End-of-Year", Supply Management, FY 2008.

APPENDIX D: FUEL COST SAVINGS SUMMARY FOR PROPER TIRE INFLATION PRACTICES

The OIG identified $28,290,622 in funds put to better use over the next 2 years by implementing industry best practices for proper tire inflation for postal-owned, leased, and contractor-provided vehicles. We summarized our calculations in Table 10.

Table 10: Summary of Savings

Fuel Type	Base Fuel (gallons)[28]	Saving Rate	Fuel Price[29]	Annual Savings[30]	
				Year 1 2011	Year 2 2012
HCR Supplier Vehicles					
Diesel	231,617,372	2 percent	$2.50	$11,580,869	$11,580,869
Gasoline	23,319,279	2 percent	$2.52	$1,175,292	$1,175,292
Postal-Owned Vehicles					
Diesel	10,771,433	2 percent	$2.50	$538,572	$538,572
Other Fuels	19,987,195	2 percent	various[31]	$850,578	$850,578
Annual Savings				**$14,145,311**	**$14,145,311**
Total Savings				**$28,290,622**	

[28] Based on the Postal Service's 2008 Energy Spend Report.
[29] This reflects the weekly average fuel price information published by DOE-Energy Information Agency, updated July 20, 2009.
[30] Annual Savings = Base Fuel times Savings Rate times Fuel Price.
[31] "Other Fuels" consist of 18.6 million gallons of fuel purchased from the Defense Energy Support Center for postal on-site fuel tanks; 1.1 million gallons of mobile fuel delivered directly to postal vehicles at postal facilities; and .3 million gallons of biodiesel. The fuel prices applied to these various categories ranged from $2.08 to $2.94 per gallon.

Methodology and Assumptions - Calculation of Fuel Cost Savings for Proper Tire Inflation Practices

We calculated the savings based on the following methodology and assumptions:

- We gathered data from studies conducted by the DOE, EPA, educational non-profits/scientific foundations, and industry participants to identify a range of proposed fuel consumption saving rates resulting from fuel-efficient tire inflation practices.
- Using the industry's most conservative savings rate of 2 percent,[32] we calculated an estimated annual savings amount by applying the savings rate to the total fuel purchased for postal and HCR vehicles during FY 2008. Fuel figures are based on Postal Service FY 2008 actual fuel consumption[33].
- For postal-owned vehicles, we only included fuel consumption related to heavy-duty vehicles (trucks and cargo vans) in our calculation of potential savings. We did not include fuel consumption savings projections for postal light-duty vehicles (delivery and administrative vehicles) because of operational considerations.
- Using the estimated annual savings, we estimated the dollar amount the Postal Service could potentially realize over a 2-year period by implementing fuel-efficient tire inflation practices. We did not project future fuel volumes based on historical data because of fluctuating mail volumes. FY 2008 figures were used throughout the 2-year monetary impact projection.
- The Postal Service did not track quantity of bulk fuel gallons consumed in FY 2008; therefore, we estimated bulk gallons using historical data.
- There may be incidental costs associated with the implementation of this opportunity that cannot be quantified at this time and should be identified during the development of a strategy by the Postal Service.

[32] Various industry research and studies concluded that companies can reduce fuel consumption by a range of 2 to 15 percent through proper tire inflation maintenance. We applied the low-end of the range of 2 percent.
[33] We obtained base fuel volume figures from the Postal Service's "Energy Initiatives, Energy Spend Report, End-of-Year," Supply Management, FY 2008.

APPENDIX E: MANAGEMENT'S COMMENTS

STEVEN J. FORTE
SENIOR VICE PRESIDENT
OPERATIONS

UNITED STATES POSTAL SERVICE

September 23, 2009

Lucine M. Willis
Director, Audit Operations
1735 N. Lynn Street
Arlington, VA 22209-2020

SUBJECT: Transmittal of Draft Audit Report – Fuel Management Consumption Strategies for Surface Network Operations (Report Number NL-AR-09-DRAFT)

Thank you with providing the Postal Service with the opportunity to review and comment on the draft report titled Postal Service Fuel Management Consumption Strategies for Surface Network Operations (Report Number NL-AR-09-DRAFT

This audit assessed the effectiveness of the Postal Service's consumption strategy for reducing the use of fuel within surface network operations.

More Effective Fuel Consumption Strategy Needed

The Postal Service sustainability strategies have focused on eliminating excess transportation capacity and exploration of alternative fuel vehicles as its fuel management strategy, because management believed those areas had the most significant fuel reduction potential. Consequently, management has not focused on other key industry best practices for fuel reduction. Specifically, we found—

- The Postal Service does not require postal-owned, leased, and contractor-furnished trailers to be equipped with industry recommended fuel-efficient aerodynamic equipment. This could decrease diesel fuel consumption by more than 19.6 million gallons annually and potentially save $335.9 million over a 10-year period.

- The Postal Service does not have maintenance and contract requirements consistent with industry best practices to ensure postal-owned, leased, and contract-furnished vehicles maintain proper tire inflation. This could decrease fuel consumption by more than 5.7 million gallons[3] annually and potentially save $28.3 million over a 2-year period.

- The Postal Service does not require contractors to drive vehicles at limited speeds when feasible, which would reduce fuel consumption by as much as 6 percent.[4]

Postal Service's Sustainability Efforts

A major challenge facing the Postal Service is to reduce energy use and costs as much as possible without adversely impacting operational capabilities or work environments. The Postal Service's energy strategies are aligned with the Energy Policy Act (EPAct) and Energy Independence and Security Act of 2007 (EISA). In response to fuel management consumption strategies, this includes reducing petroleum use 20 percent and increasing alternative fuel use 10 percent by 2015, with a baseline year of 2005 respectively.

475 L'ENFANT PLAZA SW
WASHINGTON, DC 20260-2700
202-268-5100
FAX: 202-268-7509
WWW.USPS.COM

Monetary Impact Response

Management contends that the Office of Inspector General's (OIG) monetary impact analysis does not take into account all of the associated costs with implementing best practices and does not specifically determine the length of time for a return on investment. For example, calculations for estimating fuel savings resulting in retrofitting the entire fleet with aerodynamic equipment on vehicles to include leased, contracted and postal owned vehicles would not be entirely beneficial for several reasons. First, the investment in installing aerodynamics on postal-owned trailers would be cost prohibitive due to the age of the fleet. Second, the benefit of reducing fuel consumed from energy efficient technology would be greater on long-haul routes versus trips that operate short distances and are subject to traffic congestion. The preliminary savings estimate would be potentially changed if a full analysis incorporated these and other factors. We disagree with the monetary assessment based on the methodology and assumptions to calculate fuel cost savings.

Assumptions for capturing potential savings associated with maintenance and contract requirements to maintain tire inflation is also broad. This assumes that the Postal Service has the ability to compress maintenance schedules on the heavy fleet down to a monthly cycle which adds costs (additional work hours) to comply. There may be an opportunity to require the supplier to maintain tire pressure to standard by reducing the number of gallons in their contract. This proposal would require future investigation, but would not be fair to apply across the board if we already have suppliers that perform routine inspections of their operations.

Footnote in the OIG report states the inability to conduct a more detailed analysis on speed limits. The majority of transportation schedules developed by transportation planners for negotiation with highway contract suppliers are calculated at speeds lower than 60 mph. This allows drivers to operate the trip with added time for pre- and post- inspection, breaks and relays.

Recommendation 1:
Revise the fuel consumption strategy for surface network operations covering Postal Service and highway contract route transportation to ensure that it is comprehensive and implements the industry best practices identified in our audit.

Response
Management concurs with the recommendation to revise the fuel consumption strategy to implement industry best practices, but only where it is most beneficial to generate the greatest savings opportunity and the quickest return on investment. Fuel management consumption strategies will be prioritized in FY2010 and implemented in conjunction with other planned cost reduction initiatives.

Recommendation 2:
Assess and implement all opportunities for owned, leased, and contracted vehicles to use technology to reduce wind resistance and identify the most viable advanced aerodynamics options consistent with industry best practices and adjust contracts as appropriate to account for the reduced fuel need.

Response
Management concurs with the recommendation to implement opportunities to use technology to reduce wind resistance on the trailer fleet. In FY2010, we will establish a workgroup that will include representatives from Network Operations and Supply Management, who will structure an implementation approach to initially target contracted vehicles operating long-haul transportation routes. We also intend to involve key stakeholders such as highway contract route (HCR) suppliers, since many of our larger suppliers already incorporate many energy efficient techniques and utilize aerodynamic equipment on their trailer fleets.

Recommendation 3:
Establish and implement tire inflation maintenance requirements for postal-owned heavy-duty vehicle fleet, as well as postal leased, and contracted vehicles consistent with industry best practices and adjust contracts as appropriate to account for the reduced fuel need.

Response
Agree in part – the workgroup described above will evaluate tire inflation maintenance requirements for leased and contracted vehicles.

Management does not concur with recommendation 3 for the USPS Vehicle Operations. For USPS vehicles, the OIG auditors affirmed their calculations and recommendations did not include additional labor costs to accomplish the recommendations. In order to measure the total impact, the additional time and cost to perform the recommended increased tire inflation checking frequencies must be part of the equation. The costs to accomplish the recommendations may outweigh the potential fuel savings resulting in higher overall operating costs. Without reviewing all economic considerations, this recommendation will not be adopted

Recommendation 4:
Assess the feasibility of implementing tire inflation requirements in accordance with industry best practices for postal light-duty vehicles (delivery and administrative vehicles).

Response
Management does not concur with recommendation to assess the feasibility of implementing tire inflation requirements in accordance with industry best practices for postal light-duty vehicles (delivery and administrative vehicles).

During the informal report discussions with the OIG auditors, a number of challenges associated with this recommendation were discussed. Among these concerns were the possible work restrictions of letter carriers being required to perform regular tire inflation duties. Since meeting with the OIG auditors, Vehicle Operations investigated this recommendation and has enclosed is a copy of a December 1983 grievance settlement between the Postal Service and the National Association of Letter Carriers. The settlement states "Full-time regular carriers will not be required to use a tire gauge to check tire inflation". Our current vehicle maintenance program calls for light delivery vehicles to have their tire pressures checked twice a year. In the normal stop and go operating environment of a typical delivery vehicle, that interval is thought to be sufficient. During the interim periods, letter carriers are required to perform daily vehicle inspections, including inspecting the tires. If a low tire is found, the carrier is to follow the normal procedures and submit a vehicle repair tag to their immediate supervisor.

The determination has been made there is not a feasible means to accomplish this recommendation or the objective of reducing fuel consumption without incurring higher operating costs as a consequence.

Recommendation 5:
Evaluate highway contract routes, and where feasible, implement speed limit requirements consistent with industry best practices, and adjust contracts as appropriate to account for the reduced fuel need.

Response
Management concurs with this recommendation and will revisit the current speed limit policy as a task for the Network Operations/Supply Management workgroup. Management currently includes speed limit requirements among other criteria when evaluating highway contract routes.

Steven J. Forte