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*Cost and Flight Data  
for Aircraft Overflights*

*Federal Aviation Administration*

*Report Number: FE-2000-024  
Date Issued: December 17, 1999*

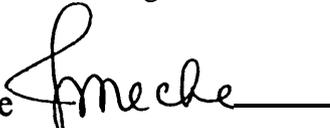


# Memorandum

U.S. Department of  
Transportation  
Office of the Secretary  
of Transportation  
Office of Inspector General

Subject: **INFORMATION:** Report on Cost and Flight  
Data for Aircraft Overflights, FAA  
FE-2000-024

Date: December 17, 1999

From: John L. Meche   
Deputy Assistant Inspector General  
for Financial and Information Technology

Reply To  
Attn Of: Meche:x61496

To: Federal Aviation Administrator

This report is one in a series of reports on implementation of a cost accounting system within the Federal Aviation Administration (FAA). In this phase, we concentrated our review on FAA's efforts to implement the cost accounting system within Air Traffic Services. Our audit objective was to review the process used to determine costs and aircraft activity for "overflights." For this report, overflights represent aircraft that fly in U.S.-controlled airspace, but do not take off from or land in the United States. Within FAA, overflights are handled by En Route and Oceanic centers, of which overflights represent slightly over one percent of all En Route and Oceanic flights.

FAA is calculating its costs based on the existing system and historical experience. However, FAA is currently in the process of modernizing its oceanic system, which may significantly impact FAA's overflight fees. The cost to modernize and operate the new and significantly different oceanic air traffic control system is unknown at this time, but it is likely to affect FAA's costs and its future fees. FAA is seeking vendors to demonstrate operational systems and tentatively expects to award a contract by October 2000. Due to the pending decision on this, FAA cannot determine at this time whether its costs will increase or decrease when the new system is implemented.

## **RESULTS-IN-BRIEF**

FAA is making reasonable progress working toward the development of a cost accounting system. FAA determined costs related to overflights were about \$32 million for Fiscal Year (FY) 1998. These costs represented about 1.3 percent of the \$2.5 billion of En Route and Oceanic Air Traffic Services FY 1998 costs. FAA estimated about 242,000 overflights occurred within U.S.-controlled airspace for

**FY 1998**, which represented slightly over one percent of the **17.4** million En Route and Oceanic flights monitored by FAA. Before FAA establishes overflight fees, it should develop costs using the more current and accurate **FY 1999** cost and flight data., and improve its methods for collecting these data.

We found improvements were needed in the cost accounting system and the procedures used to estimate overflight costs. These issues materially affect the accuracy and integrity of the cost accounting system, the resulting overflight fees, or both. We discussed the need for more current, accurate, and comprehensive overflight data with the FAA Administrator and the Department of Transportation Assistant Secretary for Budget and Programs. They agreed with our findings. Summarized below are the problems we found and corrective actions FAA has initiated.

- FAA planned to use **FY 1998** cost data, rather than the more current and accurate **FY 1999** data in its implementation of user fees. **FY 1999** data should be used because FAA had significant accounting weaknesses in **FY 1998**, which resulted in a disclaimer of opinion on the accuracy of its financial statements. FAA initiated corrective actions to improve the accuracy and reliability of its **FY 1999 financial** data, and is now planning to use **FY 1999** data for determining overflight costs.
- FAA used a limited and statistically biased sample of flight data, rather than annual data, to estimate the number of overflights and flight miles. For example, FAA selectively picked **39** days of data for its sample. FAA has now collected a full year of flight data to use instead of the sample data.
- FAA used only 2 or 3 days of data and outdated maintenance standards to distribute **\$424** million of annual costs for air traffic controller and maintenance technician labor and other costs between En Route and Oceanic services. FAA is currently expanding its sample of air traffic controller labor by conducting a work-study of **40** randomly selected days. FAA also is developing updated and more reliable standards for its maintenance labor, and is developing long-term solutions for providing more reliable methods of accounting for controller and maintenance labor.
- FAA distributed about **\$70** million of telecommunication and utility costs using the results of a study from only one of its nine regions. FAA is working on an improved method in which FAA-wide databases, containing actual telecommunication and utility information for all regions, will be input into the cost accounting system.

- Although FAA wanted to remove all costs classified as overhead from overflight costs, it had not removed **\$5.7** million of overhead costs. Although this **amount** is not considered material since overflights represent about one percent of En Route and Oceanic services, FAA should treat these costs consistently. FAA is addressing this by removing all overhead costs **from** overflight costs.

FAA's current plan is to have better estimates and more current data on overflights by January 2000 based on FY 1999 **financial** and air traffic information.

### ***BACKGROUND***

The Federal Aviation Reauthorization Act of 1996 (the Act) requires FAA to **develop** a cost accounting system. When fully implemented, the cost accounting system **should** allow FAA to benchmark and monitor the performance of its air traffic control system, establish accountability for the cost of operations, and provide a basis to **support** the calculation of user fees.

The Act authorized FAA to recover up to **\$100** million in overflight fees, and required that user fees be directly related to the cost of services provided. FAA began **charging** overflight fees on March 20, 1997, but was challenged in court. Several airlines **filed** a joint petition to the court on the basis that overflight fees were not based on the **actual** costs directly associated with each flight. On January 30, 1998, the U.S. Court of Appeals for the District of Columbia ruled that FAA's method for **calculating** overflight fees was based on the value of services, which was prohibited by the Act. For example, commercial airlines were charged greater fees than general **aviation** users for the same service.

As a result of the court ruling, FAA stopped billing for overflights, and **refunded** the collected amounts. FAA then began to focus its efforts on completing its cost accounting system requirements for Air **Traffic** Services. FAA collected the cost data for En Route and Oceanic services, and made that information available to the **aviation** industry on July 29, 1999. This information **would** then be used as a **basis** for computation of overflight fees.

### ***PRIOR AUDIT RECOMMENDATIONS***

In August 1998, we issued our initial report' on FAA's implementation of its cost accounting system. We concluded that, although FAA had made progress, more needed to be done before FAA could begin accounting for the **full** cost of its

<sup>1</sup> Report on Implementation of Cost Accounting System, FAA, Report Number: FE- 1998-186, August 10, 1998.

operations. At that time, FAA had yet to establish systematic methods to **address**: (1) the costs **from** accounting adjustments, (2) costs for development projects, (3) costs incurred by other agencies for air **traffic** services, and (4) the correct labor costs charged to appropriate projects.

Since then, FAA has made significant progress correcting these deficiencies by making systemic improvements to its automated system to minimize accounting **adjustments** and ensure labor costs are assigned to correct projects. FAA also has **complied** with the guidance furnished by the **Office** of Management and Budget regarding the methods to account for costs incurred by other agencies. In regard to the recommendation related to costs for development projects, FAA is formulating accounting procedures for capturing labor and other costs for development projects. FAA expects these procedures will be available by September 30, 2000, **pending** implementation of changes to the labor distribution system.

### ***SCOPE AND METHODOLOGY***

We performed our audit between May and October 1999 at FAA Headquarters in Washington, D.C. Our audit included verifying the accuracy of, and analyzing the underlying assumptions, analyses, and studies used to develop FAA's FY 1998 cost accounting data for Air **Traffic** Services. We validated FAA's cost input **data** for En Route and Oceanic services and reviewed the data collection process. We also reviewed the air **traffic** activities and associated costs, and assessed the flight data used to determine the number of overflights and air **traffic** flight miles. Our audit **included** interviewing appropriate FAA officials, reconciling data, performing analytical procedures, testing accounting and adjusting entries, and reviewing relevant **Federal** accounting standards and legislative actions applicable to FAA's cost accounting system. The audit was conducted in accordance with Government Auditing Standards prescribed by the Comptroller General of the United States.

### ***ANALYSES AND RESULTS***

Before FAA can compute **overflight** fees that are directly related to the **costs** of services as required by the court, it had to accumulate total costs for the En Route and Oceanic services, and then determine the amount that was attributed to providing overflight services. FAA choose to use the cost accounting system as the **basis** for overflight fees. We found the cost accounting system could not adequately **identify** some costs associated with **overflights**. So FAA developed special procedures enabling the cost accounting system to estimate these costs. We identified several important issues with the accuracy of the cost and flight data for overflights, which FAA is now correcting, as discussed in the following paragraphs.

### *Use of FY 1998 Cost Data*

FAA used FY 1998 cost and flight data in **determining** overflight costs. We found inaccuracies in both the cost and flight data. Our audit of FAA's FY 1998 financial statements and the Statement of Net Cost resulted in a disclaimer of opinion because we were unable to determine the reliability of amounts reported for significant cost elements. We also found material internal control weaknesses that contributed to accounting deficiencies. For example, FAA significantly understated property asset values and associated depreciation expense.

During FY 1999, FAA initiated an analysis of personal property assets, which identified an additional \$4 billion of assets that should have been recorded in prior years, including FY 1998. As a result, about \$200 million of depreciation expense was not included in FY 1998 costs, but they will be included in FY 1999 costs. To overcome the FY 1998 financial statement deficiencies, FAA took significant corrective actions to improve the accuracy and reliability of its FY 1999 financial data.

In our opinion, FAA should compute overflight costs using FY 1999 cost and traffic data on a consistent basis because the FY 1999 data are more current, accurate, and comprehensive. FAA is revising its estimate of flight activity using FY 1999 data. By using FY 1999 data, FAA will be able to identify overflight costs more accurately because it is closer in time to when the activity occurred.

### *Flight Activity*

Once the costs associated with En Route and Oceanic services were known, FAA needed to know the total number of flights and associated miles. After these amounts were determined, a unit cost for services was developed and this number would be applied to overflight miles to compute user fees for overflights. FAA was using a sample of FY 1998 flight data to determine the average number of daily En Route and Oceanic overflights and associated overflight mileage. From the 'flight data, FAA excluded some flight records as "extraneous" or "incomplete," thus **invalidating** the statistical sample. FAA then selectively picked data related to 39 days. We concluded that FAA statistically biased its sample using this method. FAA has now collected a full year of flight data to use instead of the sample data. The use of annual flight data will result in a supportable basis for computing user fees.

### *Air Traffic Controller Labor*

The FAA cost accounting system assigned about \$154 million of FY 1998 air traffic controller labor costs to En Route and Oceanic services at the four FAA centers that provide both services. Air traffic controllers do not record the actual time spent on specific services. Therefore, FAA had to estimate the portion of their time used on

Oceanic services. To do this, FAA collected the data for a 2 or **3-day** period **from** two of the four centers. Using these data, FAA estimated that portion of controller 'labor that should be assigned to the Oceanic service.

In collecting the data, FAA excluded the New York center, which handles the most Oceanic traffic. Because data were limited to either 2 or 3 days, FAA **did** not adequately account for variations in weekend or seasonal flight schedules, which further diminishes the reliability of data. We concluded the summary data were too limited to be considered representative of controller activity for a year.

To arrive at a reasonable distribution of controller labor costs, FAA will **have** to improve its accounting for air **traffic** controller labor. In our opinion, the most appropriate method to accumulate and assign controller labor costs by services would be through a labor distribution system. In this manner, controllers would record their time by the activity and service they perform.

We recommended that FAA develop a more representative basis for allocating labor costs to overflights. FAA agreed that this is needed as its long-term solution. In the interim, FAA is currently conducting a work-study of **40** randomly selected days using **FY 1999** data. This work-study should result in a more accurate representation **of** air **traffic** controller labor costs by activity and service.

#### *Telecommunication and Utility Costs*

FAA allocated about **\$70** million of **FY 1998** telecommunication and utility **costs** by determining the share of costs to assign to En Route and Oceanic services for the Southern Region and applying the results to the other eight FAA regions. We concluded the analysis **from** one region was not representative of variations among the different regions. FAA is currently working on an improved method in which FAA-wide databases, containing actual telecommunication and utility **information** for all regions, will be input into the cost accounting system. FAA then can assign telecommunication and utility costs directly **and** more accurately to services and centers.

#### *Airway Facilities Labor and Related Costs*

FAA assigned about **\$270** million of **FY 1998** maintenance labor (Airway **Facilities** labor) and other costs, such as **office** supplies, to En Route and Oceanic **services**, including overflights, based on labor standards. FAA's method results in assigning an "approximation" of costs to services. Use of labor standards is an acceptable **method** of estimating costs, provided that the labor standards are updated to **reflect** work method changes and actual work time.

FAA managers responsible for staffing stated that some standards have not changed for many years. At the time these standards were developed, hours were estimated based on hands-on maintenance work. However, hands-on maintenance work is **declining** due to the introduction of new and more reliable technology. Accordingly, **staffing** standards should be updated to ensure that labor is reliably assigned to appropriate services. FAA also does not accumulate actual maintenance labor time for **comparison** to the standard time. FAA is developing updated and more reliable standards. The completion date for these revised standards depends both on funding for the project and on a decision regarding implementation of a labor distribution system.

While FAA's labor standards currently provide the best available data for assigning the airway facilities maintenance costs to services, the revised standards should improve the accuracy of these costs. The equipment inventory will be updated and revised standards will be estimated based on existing technology, which should improve the accuracy of labor estimates. However, for the long term, a labor distribution **system** or work order system would provide a better and more appropriate method of accounting for maintenance labor. In this manner, maintenance employees would record their time worked by activity and service. FAA also should establish an adequate **method** for assigning **nonlabor** costs directly to projects.

### *Overhead Costs*

Overhead costs include various types of administrative costs, such as **accounting** and general management expenses, and are normally considered part of the **costs** that would be included in estimates of total costs of services provided. In its **initial** consideration of **determining** costs associated with overflights, FAA decided not to charge overhead costs because it wanted to be conservative in its interpretation of directly related costs. FAA interpreted the FAA Reauthorization Act, case law, and the U.S. Court of Appeals language to indicate that it is authorized to exclude certain costs, such as overhead, from amounts billed for its services.

While FAA intended to remove all costs classified as overhead from overflight costs, it inadvertently included about \$5.7 million of administrative and accounting **costs** as part of En Route and Oceanic services. This amount would not have a **significant** impact on overflight fees, because only about one percent of these costs are associated with overflights. However, because it was FAA's intention to exclude overhead costs, we recommended that all of these costs be identified and removed. FAA is removing all overhead costs associated with overflights. This will result in costs being accounted for on a consistent basis.

## ***RECOMMENDATIONS***

We recommend that the Federal Aviation Administrator:

1. Use **FY 1999** cost, including property depreciation costs, and **FY 1999 flight** data to determine overflight costs and compute user fees.
2. **Update** labor standards as a short-term improvement to estimate airway **facilities** labor costs.
3. Establish a labor distribution system to capture costs for the air **traffic controller** and airway facilities workforce. As part of this process, establish a method to assign **nonlabor** airway facilities costs directly to projects.

## ***MANAGEMENT RESPONSE***

A draft of this report was provided to the FAA Administrator on December 9, 1999. We considered FAA comments in preparing this report. FAA agreed with the **findings** and recommendations, and provided estimated completion dates of February 2000 for Recommendation 1 and June 30, 2000, for Recommendations 2 and 3. The complete text of management comments is the Appendix to this report.

## ***OFFICE OF INSPECTOR GENERAL COMMENTS***

Actions taken and planned by FAA are reasonable. No further response to this report is required.

We appreciate the courtesy and cooperation of FAA representatives. If you **have** any questions, please call Keith **Cosper** or me at **(202) 366-1496**.

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U.S. Department  
of Transportation  
Federal Aviation  
Administration

# Memorandum

**Subject:** ACTION: Response to Draft Report on Cost and Flight Data for Aircraft Overflights, FAA Project Number: 99F3013F000

**Date:** DEC 16 1999

**From:** Assistant Administrator for Financial Services/CFO

**To:** John Meche  
Deputy Assistant Inspector General  
For Financial and Information Technology

Attached is our response to the draft report prepared by your office on our effort to produce cost and flight data in support of the overflight rule. We appreciate the opportunity to comment on this report, and in general, find that it fairly represents the current environment on this important initiative.

We concur with the findings and recommendations in the report. FAA is committed to finishing its work on the findings and to implementing the recommendations. As stated in our comments, some of the recommendations will require funding which may cause some implementation delays. However, let me assure you that our intent is to implement the recommendations.

If you have any questions on our response, please contact Tim Lawler on 267-9778.

A handwritten signature in cursive script, appearing to read "Donna R. McLean".

Donna R. McLean

Attachment

**FAA Response to the Draft Report  
on the Audit of  
Cost and Flight Data  
For Aircraft Overflights  
(Project No. 99F3013F000)**

The FAA recognizes that the recommendations made by the Office of the Inspector General will further strengthen the information in the Cost Accounting System and assist the FAA in its effort to improve cost **and performance** management. We have already been working on implementing the report **findings** and will initiate some new actions to help implement the recommendations in the report.

**STATUS OF FINDINGS**

**Finding 1: Use of FY 1998 Cost Data**

The FAA has agreed to use **FY 1999** cost and traffic data for calculating overflight fees. Using **FY 1999** data rather than **FY 1998** data will involve a minor delay in the issuance of the interim final rule yet significantly improve the quality of the cost **data**. The current schedule for processing the cost data, including any audit corrections generated as a result of the Inspector General's annual audit of the agency financial statements, is February **2000**.

**Finding 2: Flight Activity**

We are pleased that the Inspector General report reflects concurrence that our flight activity data provides a supportable basis for user fees. The FAA has already processed the entire year of flight data, thereby closing out the work required to complete this finding. The **FY 1999** flight data will be incorporated with the **FY 1999** cost data for issuance of the rule.

**Finding 3: Air Traffic Controller Labor**

The FAA has already completed the revised work sampling of air traffic labor to determine how to split out oceanic costs from **enroute** costs. Based on a **40** day sample (of which **39** days were used) of randomly selected days from **FY 1999** data, the **new** percentages have already been computed and adjustments made to the Cost **Accounting** System to appropriately split out those costs. The work required to close out this finding has been completed. The FAA is now working with the Inspector General's **office** on how the Cost Accounting System was modified based on this new **sampling** of labor data.

#### **Finding 4: Telecommunication and Utility Costs**

In **FY 2000**, the FAA will be implementing an automated interface with operational systems to accurately distribute telecommunication and utility costs. This interface will replace labor intensive manual methods for relating these costs to the appropriate services.

For **FY 1999**, an improved approach was performed to appropriately link these costs to the correct Air Traffic service and service delivery point. The approach involved developing, testing, and implementing off-line prototypes using the **FY 2000** specifications for cost distribution. **Actual** data sets for the entire **FY 1999** period were used as the basis for processing. The resulting statistical records were validated by Air Traffic Services, then loaded into the Cost Accounting System to be used as the basis for distributing **FY 1999** costs. The cost data will be significantly improved in **FY 1999** and improved **permanently** in **FY 2000** with the automated interface.

#### **Finding 5: Airway Facilities Labor and Related Costs**

The FAA concurs with the Inspector General that the Airway Facilities Staffing Standards are the best available data for distributing labor costs. To improve our labor costing approach, the FAA has decided to move to systems that track actual labor throughout the entire workforce. The method for tracking this labor may vary from work sampling to a full labor distribution system where each employee tracks his/her time on projects and activities.

In addition, the Air Traffic Services (**ATS**) line of business is in the second phase of a three phase project for improving the current Airway Facilities Staffing Standards System. The second **phase** will provide options for a new and/or improved methodology for performing staffing standards. The third phase would implement the option chosen as **best** meeting **ATS** business requirements. Unfortunately, this project is currently on hold due to staffing and budget constraints.

For the purpose of the Cost Accounting System, the FAA **will** continue to use the existing Airway Facilities Staffing Standards System. When either an enhanced Staffing Standards System or a labor distribution system is put in place, the Cost Accounting System will be modified to accept this new labor data.

**For** both labor and non-labor costs, the FAA will examine alternatives to improve the cost distribution **methods** currently in place. This initial analysis will be performed by June 30, 2000.

#### **Finding 6: Overhead Costs**

As stated in the report, the FAA has taken a conservative approach to the fee calculation by excluding overhead costs. To assure consistency in the exclusion of all

overheads, the FAA will modify its approach to assure overhead costs are not included. This will be accomplished prior to issuance of the interim **final** rule.

## STATUS OF RECOMMENDATIONS

### **Recommendation 1: Use FY 1999 cost, including property depreciation costs, and FY 1999 flight data to determine overflight costs and compute use fees.**

As stated in the response to Finding 1, the FAA will use **FY 1999** data to calculate overflight costs and compute user fees. This d&a will be available in February **2000**.

### **Recommendation 2: Update labor standards as a short-term improvement to estimate airway facilities labor costs.**

As stated in the response to Finding 5, the FAA recognizes the need to improve the airway facilities labor costs. When either an enhanced **Staffing** Standards System or a labor distribution system is put in place, the Cost Accounting System will be modified to accept this new labor data. The FAA will examine alternatives to improve this cost distribution method by June 30, **2000**.

### **Recommendation 3: Establish a labor distribution system to capture costs for the air traffic controller and airway facilities workforce. As part of this process, establish a method to assign non-labor airway facilities costs directly to projects,**

Again, as stated in the response to Finding 5, the FAA will implement a capability for tracking the actual labor of **all** employees. For both labor and non-labor costs, the **FAA** will examine alternatives to improve the cost distribution methods currently in place. This initial analysis will be performed by June 30, **2000**.