

United States General Accounting Office

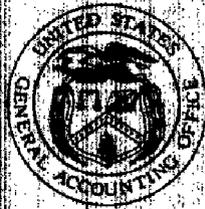
GAO

Briefing Report to the Chairman and
Ranking Minority Member,
Subcommittee on Transportation and
Related Agencies, Committee on
Appropriations, U.S. Senate

June 1994

AVIATION SAFETY

FAA's Assessment of Pre-flight Service Technology Options





United States
General Accounting Office
Washington, D.C. 20548

Accounting and Information
Management Division

B-257450

June 20, 1994

The Honorable Frank R. Lautenberg
Chairman
The Honorable Alfonse M. D'Amato
Ranking Minority Member
Subcommittee on Transportation
and Related Agencies
Committee on Appropriations
United States Senate

The Federal Aviation Administration's (FAA) mission is to provide safe, secure, and efficient airways within which commercial, military, and private aircraft can fly. In fulfilling its mission, FAA requires that all pilots have pre-flight weather information and that pilots flying under certain rules file flight plans.¹ To aid pilots, FAA provides weather information and flight plan filing services, at no direct cost to pilots. FAA provides these services through (1) direct contact with FAA Flight Service Station (FSS) staff, either in person or via a toll free number, and (2) the Direct User Access Terminal System (DUATS), an automated system that pilots can access via personal computers and modems. DUATS allows pilots to file their flight plan electronically and receive weather briefings on screen and in hard copy.

As part of its budget reduction efforts, FAA eliminated fiscal year 1994 funding for DUATS. However, Senate Report 103-150 directed FAA to (1) restore DUATS funding for fiscal year 1994 and (2) work with GAO in reviewing DUATS. FAA subsequently established a Flight Service Technology Subcommittee consisting of user, FAA, and industry experts to review a range of issues pertaining to pre-flight weather and flight plan filing services. This subcommittee's report was delivered today to the FAA Administrator.

In response to your request, we briefed your respective offices on June 13, 1994, on the results of our work. (See appendix I for the briefing slides used at the briefing.) As agreed with your offices, this report documents the results presented at that briefing. On the basis of discussions with your offices, our objectives were to determine (1) whether FAA's subcommittee's report is responsive to the fiscal year

¹Pilots fly under two different sets of rules depending on certain factors, such as aircraft equipment and altitude of flight. Pilots flying under Visual Flight Rules generally are not under the direct control of FAA. Pilots flying under Instrument Flight Rules (IFR) are required to provide positive identification to FAA who directly controls the flight. Flight plans must be filed with FAA for each IFR flight.

1994 Senate report requirement, and (2) the statistical validity of a contractor survey of DUATS users that FAA used in its decision to terminate fiscal year 1994 funding for DUATS.

Background

While commercial and military pilots have organizations that provide basic and value-added flight information (for example, graphic weather displays), general aviation pilots tend to rely primarily on the government—traditionally FSSS—for this information. However, in the late 1980s, FAA chose to provide pilots with direct computer access to aviation weather information. Such access was expected to lessen the delays that pilots experienced in reaching FSS specialists, thereby expediting the flow of weather information to users and ultimately reducing the number of weather-related accidents. In 1989, FAA awarded contracts to GTE Contel and Data Transformation Corporation to provide DUATS service.²

According to FAA data, which we did not independently verify, GTE Contel and Data Transformation Corporation operate DUATS at a combined cost of about \$8 to \$10 million per year, and since 1990, its first year of operation, DUATS use has almost tripled to about 6 million transactions. FAA data also show that in 1993 the average cost for a DUATS transaction was about \$1.67. Based on information made available to the Flight Service Technology Subcommittee, the average cost of an FSS transaction is between \$5.00 and \$9.00.

FAA's fiscal year 1994 budget submission proposed eliminating funding for DUATS. One of FAA's justifications for eliminating DUATS was FSS/DUATS duplication. FAA cited the results of a DUATS user survey by Data Transformation Corporation that showed that 84 percent of DUATS users also contact FSSS. FAA officials said they anticipated that DUATS vendors would continue offering DUATS service and that charges for the service would be paid by users. FAA also noted that other similar commercial services existed. The Aircraft Owners and Pilots Association, National Business Aircraft Association, and other users were opposed to FAA's decision.

In January 1994, FAA established a Flight Service Technology Subcommittee under the auspices of their Research, Engineering, and

²Private companies also offer automated flight and weather information services for a fee, and 11 states provide automated means for disseminating some forms of pre-flight services information.

Development Advisory Committee.³ The Subcommittee was charged with reviewing a range of issues pertaining to pre-flight weather and flight plan filing services.

The Flight Service Technology Subcommittee was composed of 15 members representing users, industry, and government, and was chaired by a former FAA Administrator. (Appendix II provides a list of the Subcommittee members.) In satisfying its charge, the Subcommittee held three executive sessions that were open to the public, and it arrived at its final conclusions and recommendations by membership consensus.

The Subcommittee's report was delivered today to the FAA Administrator. The report concludes that (1) increased use of DUATS-like service through the year 2000 provides the potential for significant cost savings, (2) basic pre-flight information provided at no cost to users is a good practice because it enhances aviation safety, (3) the FAA-funded DUATS provides fast and simple access to basic pre-flight information, and DUATS vendors provide pre-flight services at a lower cost than FAA does through its FSSs, and (4) the next generation FSS program will likely incorporate DUATS-like technology. The Subcommittee recommended that, in view of the correlation between safety and knowledge of weather, FAA should make available as many means as possible to obtain pre-flight weather information, including direct user access to weather services, such as DUATS. Further, the Subcommittee recommended that FAA should continue to provide basic pre-flight service at no direct cost to the user.

Results in Brief

The results of FAA's Flight Service Technology Subcommittee deliberations are responsive to Senate Report 103-150. The Subcommittee reasonably reviewed the DUATS program and explored short- and long-term technology alternatives to flight plan filing and weather information services for pilots. The Subcommittee arrived at its conclusions and recommendations under tight time constraints through consensus, and it recognized limitations in existing pre-flight information services cost and use data that precluded any detailed comparative analysis of alternatives. Moreover, the Subcommittee's membership appears to have fairly represented a diverse DUATS-related constituency and to have possessed considerable subject matter expertise. The Subcommittee also appears to have provided ample opportunity for those affected by its deliberations to voice their thoughts.

³FAA's Research, Engineering, and Development Advisory Committee was established in 1988 as a vehicle to allow external organizations to participate in FAA's research, engineering, and development program. It consists of members representing a broad spectrum of aviation-oriented organizations, associations, and academic interests.

The results of a recent DUATS user survey are not statistically valid. This 1992/1993 survey, conducted by one of the two DUATS contractors at FAA's request, provides the best data available on DUATS user patterns and satisfaction. According to Data Transformation Corporation and FAA officials, the survey consisted of a voluntary questionnaire that could be completed whenever users accessed the DUATS system operated by Data Transformation Corporation. However, the results of the survey, which are the compilation of over 10,000 DUATS user responses, are not statistically valid. According to Data Transformation Corporation officials, the survey was never intended to be either statistically valid or deterministic of DUATS versus FSS usage. In fact, what portion of the total DUATS user population the respondents represent is not known because the total number of DUATS users is unknown. Moreover, users were not precluded from responding to the questionnaire more than once. Further, the statistic that FAA cited in justifying its decision was erroneously treated as conclusive evidence of FSS and DUATS duplication. Thus, the survey's results should not have been used by FAA as justification in its decision to not fund DUATS in fiscal year 1994.⁴

Scope and Methodology

To address our objectives, we attended Flight Service Technology Subcommittee executive sessions and reviewed its draft reports. We also discussed the DUATS user survey objectives, approach, and methodology with the DUATS contractor that conducted the survey and with FAA officials. In addition, we interviewed (1) the Flight Service Technology Subcommittee Chairperson and Designated Federal Official regarding the Subcommittee's composition, taskings, progress, and issues identified during deliberations, and (2) the Aircraft Owners and Pilot Association, FAA, DUATS contractors, and industry officials on DUATS' costs, benefits, and utilization. Lastly, we collected available FAA data on the cost and utilization of FSSS and DUATS; however, we did not attempt to verify the data's accuracy.

Our work was performed between December 1993 and June 1994, in accordance with generally accepted auditing standards. We performed our work at FAA headquarters in Washington, D.C. We did not obtain written comments on a draft of this report. However, we discussed its contents with FAA officials and representatives from the Flight Service Technology Subcommittee. We have incorporated their comments as appropriate.

⁴The Congress subsequently restored fiscal year 1994 funding for DUATS.

We are sending copies of this report to the Secretary of Transportation; the Administrator, FAA; the Director, Office of Management and Budget; and interested congressional committees. We will also make copies available to others upon request. Please call me at (202) 512-6253 if you or your staff have any questions concerning the report. Other major contributors are listed in appendix III.

A handwritten signature in cursive script that reads "Joel Willemsen".

Joel C. Willemsen
Director, Information Resources Management/
Resources, Community, and Economic Development

Contents

Letter	1
Appendix I Briefing Charts	8
Appendix II Flight Service Technology Subcommittee Membership List	24
Appendix III Major Contributors to This Report	26

Abbreviations

DUATS	Direct User Access Terminal Service
FAA	Federal Aviation Administration
FSS	Flight Service Station
FSTS	Flight Service Technology Subcommittee
IFR	Instrument Flight Rules

Briefing Charts

GAO Accounting and Information Management Division

Briefing to Senate Appropriations Committee,
Subcommittee on Transportation

on
FAA's Assessment of Pre-flight Service Technology Options

June 13, 1994

GAO Briefing Agenda

- GAO objectives
 - Background
 - FAA was responsive to Senate Report 103-150
 - DUATS user survey not statistically valid
 - Summary remarks
-

GAO Objectives

As agreed with the requesters' offices, our objectives were

- Determine whether FAA was responsive to the requirements of Senate Report 103-150
 - Determine the statistical validity of recent contractor survey of DUATS users
-

GAO Background - FAA Pre-flight Requirements

FAA imposes certain pre-flight requirements on all pilots.
Two are

- Obtain pre-flight weather information
- File flight plans (Instrument Flight Rule flights only)

GAO Background - FAA Pre-flight Services

FAA provides two services free of direct charges to pilots to satisfy pre-flight requirements

- Walk-in and toll-free telephone access to Flight Service Station (FSS) attendants (data show average transaction costs \$5.00 - \$9.00)
- Personal computer access via modem to DUATS (data show average transaction costs in 1993 about \$1.67)

Other available services

- Commercial vendors offer range of tailored services
 - Eleven states offer some services at no charge
-

GAO Background - DUATS

- In 1989, FAA awarded contracts to GTE Contel and Data Transformation Corporation (DTC) to operate DUATS (about \$8 to \$10 million annually)
 - Aircraft Owners and Pilots Association, National Business Aircraft Association, and other users strongly support DUATS
 - DUATS' use has grown to about 6 million transactions in fiscal year 1993
 - FAA's fiscal year 1994 budget submission proposed eliminating DUATS program funding (\$11 million); FSS/DUATS duplication was cited as a primary reason
-

GAO Background - Senate Report 103-150

Senate Appropriations Committee did not support FAA decision;
Senate Report 103-150 directed that

- DUATS funding for fiscal year 1994 be restored
 - FAA work with GAO in reviewing DUATS
-

GAO Background - FAA and GAO Response

In January 1994, FAA established Flight Service Technology Subcommittee (FSTS) to review DUATS

As agreed with requesters' offices, GAO examined

- Whether the FSTS final report was responsive to the requirements of 103-150
 - Whether the contractor-produced survey of DUATS users is statistically valid
-

GAO FAA Was Responsive to Senate Report 103-150

FSTS Membership, Objectives, and Approach

- FSTS consisted of 15 members representing users, industry, and government and chaired by former FAA Administrator
 - FSTS tasking statement addressed all but two Senate Report requirements
 - impact on FSSs should DUATS be terminated
 - validity of the contractor survey of DUATS
 - FSTS held three executive sessions that were open to the public; followed consensus building approach
-

GAO FAA Was Responsive to Senate Report 103-150

Principal FSTS Findings Pertaining to DUATS

- Increased use of DUATS-like service through year 2000 will provide potential for significant cost savings
 - Currently provided, no cost to user, basic pre-flight information enhances aviation safety
 - FAA-funded DUATS provides fast, simple access to basic pre-flight information, at lower cost than FSSs
 - Next generation FSS program likely to incorporate DUATS-like technology
-

GAO FAA Was Responsive to Senate Report 103-150

Principal FSTS Recommendations Pertaining to DUATS

- Basic pre-flight service should be continued at no direct cost to users
 - Means should be established to obtain better pre-flight services cost and utilization data
 - As many means as possible should be made available to obtain pre-flight weather information, including direct user access to weather services, similar to DUATS
-

GAO DUATS User Survey Not Statistically Valid

Survey Background

- In 1992, FAA asked the two DUATS vendors to perform user satisfaction survey, at no cost to FAA
 - GTE Contel refused
 - DTC agreed
 - Survey consisting of 33 questions, conducted in late 1992 and early 1993 via voluntary questionnaire that could be completed whenever accessing DTC DUATS
 - Survey completed by 10,501 users, total number of DUATS users unknown
-

GAO DUATS User Survey Not Statistically Valid

GAO Analysis of Survey

- Survey not intended to be projectable
 - Survey not designed to determine DUATS versus FSS usage
 - Survey intended only to reflect degree of user satisfaction with DUATS
-

GAO DUATS User Survey Not Statistically Valid

FAA erroneously treated survey results in justifying DUATS funding termination decision

- FAA, based on one DTC survey question, stated that 84% of DUATS users also access FSS service
 - Survey question asked "Do you contact an FSS in addition to DUATS?" 32% responded "yes," 16% responded "no," 52% responded "sometimes, depending on weather conditions."
 - FAA aggregated the yes and sometimes responses to support FSS/DUATS duplication
-

GAO Summary Remarks

- In light of data limitations, FSTS' findings, coupled with our review of contractor survey are responsive to requirements of Senate Report 103-150
 - Impact of DUATS termination on FSSs not addressed by FSTS's report. FSTS did, however, recommend that FAA provide a variety of means for obtaining pre-flight information
-

GAO Summary Remarks

- FAA, according to FSTS, does not maintain precise cost and utilization data. These data are needed to
 - gauge the impact on FSSs should DUATS funding be terminated
 - compare alternative pre-flight services
 - Contractor survey of DUATS users is not, nor was it intended to be, statistically valid. FAA erroneously treated survey results in its rationale for terminating DUATS funding
-

Flight Service Technology Subcommittee Membership List

Chairman

Vice Admiral Donald D. Engen (retired)
Former FAA Administrator

Members

Mr. Phil Boyer
President
Aircraft Owners and Pilots Association

Dr. John J. Fearnside
Senior Vice President and General Manager
The MITRE Corporation

Dr. Elbert W. Friday, Jr.
Assistant Administrator for Weather Services
National Weather Service

Mr. Mark Gildersleeve
President WSI Corporation

The Honorable Najeeb E. Halaby
Former FAA Administrator

Mr. Charles H. Huettner
Associate Administrator for Aviation Safety,
FAA

Mr. Frank Jensen
President
Helicopter Association International

Mr. Steve Kavouras
President
Kavorous, Inc.

Dr. John McCarthy
Manager, Research Applications Program
National Center for Atmospheric Research

Mr. Walter Miller
National Aeronautics Association

**Appendix II
Flight Service Technology Subcommittee
Membership List**

Mr. Robert A. Mutrux, II
Central Regional Director
National Association of Air Traffic Specialists, Inc.

Mr. John Olcott
President
National Business Aircraft Association, Inc.

Mr. William Pollard
Associate Administrator for Air Traffic, FAA

Mr. Edward Scott
Executive Vice President
National Association of State Aviation Officials

Mr. Tom H. Wardleigh
Alaska Aviation Safety Foundation

FAA Sponsor

Mr. Martin T. Pozesky
Associate Administrator for Systems Engineering and Development,
FAA

Ms. Jan Peters
Special Assistant to the Associate Administrator for Systems
Engineering and Development, FAA

Designated Federal Official

Mr. Carl P. McCullough
National Airspace System Engineering Service, FAA

Major Contributors to This Report

**Accounting and
Information
Management Division,
Washington, D.C.**

**Randolph C. Hite, Assistant Director
Marcia C. Washington, Evaluator-in-Charge**

Ordering Information

The first copy of each GAO report and testimony is free. Additional copies are \$2 each. Orders should be sent to the following address, accompanied by a check or money order made out to the Superintendent of Documents, when necessary. Orders for 100 or more copies to be mailed to a single address are discounted 25 percent.

Orders by mail:

**U.S. General Accounting Office
P.O. Box 6015
Gaithersburg, MD 20884-6015**

or visit:

**Room 1000
700 4th St. NW (corner of 4th and G Sts. NW)
U.S. General Accounting Office
Washington, DC**

**Orders may also be placed by calling (202) 512-6000
or by using fax number (301) 258-4066.**

**United States
General Accounting Office
Washington, D.C. 20548-0001**

**Bulk Mail
Postage & Fees Paid
GAO
Permit No. G100**

**Official Business
Penalty for Private Use \$300**

Address Correction Requested

