

**Automated Flight Service Stations: Significant  
Benefits Could be Realized by Consolidating AFSS  
Sites in Conjunction with Deployment of OASIS**

***Federal Aviation Administration***

***Report Number: AV-2002-064***

***Date Issued: December 7, 2001***



# Memorandum

**U.S. Department of  
Transportation**

Office of the Secretary  
Of Transportation

Office of Inspector General

Subject: **ACTION:** Report on Automated Flight Service  
Stations: Significant Benefits Could Be Realized  
by Consolidating Sites in Conjunction With  
Deployment of OASIS, AV-2002-064

Date: December 7, 2001

From: Alexis M. Stefani   
Assistant Inspector General for Aviation

Reply to  
Attn of: JA-10:x60500

To: Federal Aviation Administrator

This report summarizes the results of our audit on the deployment of the Operational and Supportability Implementation System (OASIS). We found that the Federal Aviation Administration (FAA) has an opportunity to significantly reduce costs by incorporating a strategy for consolidating automated flight service stations in conjunction with OASIS deployment. Consolidating the existing 61 automated stations is possible without degradation to safety or service for several key reasons.

- Services provided by flight service specialists are increasingly being replaced by on-line flight services accessed directly by users - the improved technology of OASIS will enhance on-line access to services such as better weather displays and automatic flight plan processing;
- FAA has already consolidated over 315 flight service stations into the current 61 sites with no adverse impact to safety or service;
- Internal FAA studies have concluded that 61 sites are not necessary to meet current and future demand for flight services and recommended reducing the number of automated flight service stations by over half;
- Critical in-flight services, such as enroute weather briefings, would be maintained under a consolidation strategy; and
- Users have stated that they do not object to consolidation, provided there are automated technologies, such as OASIS, in place to maintain existing levels of service.

*We estimate that FAA could realize cost savings of nearly \$500 million over the 7-year OASIS lease by making a consolidation decision now while OASIS is in the early stages of deployment. Those savings could then be allocated to other agency missions that have become more critical in light of the events of September 11.*

## ***Background***

FAA's automated flight service stations provide general aviation pilots with aeronautical information and services necessary to promote safe flight operations. These services include pre- and in-flight weather briefings, flight planning assistance, aeronautical notices, and emergency assistance. Unlike other Air Traffic facilities, such as towers and centers, automated flight service stations do not control air traffic. According to FAA cost accounting data, the agency spent approximately \$505 million in fiscal year (FY) 2000 to operate its 61 automated flight service stations. That figure includes all associated costs including labor, overhead, and utilities.

FAA's current flight service automation system is 1970's technology that is increasingly difficult and costly to support because of increasing maintenance needs and a lack of replacement components. FAA plans to replace the existing automation system with OASIS at all 61 automated flight service stations. OASIS will include all the functions of the existing system but will also have greater automated and graphic capabilities, thus providing easier access for users.

For example, OASIS will include the Direct User Access Terminal Service (DUATS). DUATS is an automatic weather briefing and flight plan processing service that allows pilots to obtain weather data and file flight plans via personal computer. DUATS is currently a contracted service that has been certified for adequate computer security, which will be tested and re-certified by FAA for system security before it is integrated into OASIS. The combined system will enhance on-line services by providing better weather displays and aeronautical information.

FAA originally planned OASIS as a leased system using commercial-off-the-shelf products. However, by May 1999, FAA had identified a number of significant human factors concerns, such as inadequate weather graphics, that eliminated a commercial-off-the-shelf procurement as a viable option. Accordingly, FAA modified its leased service contract to include system development. FAA estimates that total OASIS program costs will be approximately \$349 million.

As a result of the change in FAA's procurement strategy, the scheduled deployment of OASIS has been pushed back. FAA originally planned to have the first site operational in July 1999 and the last site operational in August 2001. By March 2000, FAA twice modified these dates and now plans to begin deployment of OASIS in June 2002 with the last site operational in May 2005.

## ***Objective and Scope***

The objective of the audit was to evaluate FAA's strategy for deploying OASIS, including supportability of the existing system, and its strategy for reducing support costs by delivering earlier system benefits. In examining the supportability of the current system and the need for earlier system benefits, we reviewed the opportunity to consolidate flight service station sites in conjunction with deployment of OASIS.

We conducted our audit between May 2000 and July 2001 at two automated flight service stations and FAA's William J. Hughes Technical Center. We also met with representatives from various organizations including the Aircraft Owners and Pilots Association and the National Association of Air Traffic Specialists. Details regarding the scope and methodology of our review are described in Exhibit A.

## ***Results in Brief***

FAA has an opportunity to significantly reduce costs by incorporating a strategy for consolidating its 61 automated flight service stations in conjunction with OASIS deployment. The reduced number of sites would allow FAA to have OASIS operational at all remaining locations before 2005, while decommissioning the increasingly unsupported existing automation system in an earlier timeframe. Consolidating sites would accelerate OASIS deployment because the number of OASIS workstations needed would be reduced by at least 20 percent, which in turn would significantly reduce installation time.

We estimate that FAA could realize cost savings of approximately \$500 million over the 7-year OASIS lease by making a consolidation decision now while OASIS is in the early stages of deployment. Consolidating the existing 61 automated flight service stations is feasible without degradation to safety or service for several key reasons.

- ***Demand for automated flight service station services continues to decline, while demand for on-line services is increasing.*** Demand for flight services provided by flight service specialists has been declining steadily since the 1980's when FAA began consolidating over 315 flight service stations into the current 61 sites. Services provided by flight service specialists are increasingly being replaced by on-line flight services accessed directly by users. For example, the use of DUATS, an automatic weather briefing and flight plan processing service that allows pilots to obtain weather data and file flight plans via personal computer, is becoming more prevalent as a replacement to contacting flight service specialists.

Between FYs 1998 and 2000, the number of flight services provided by flight service stations decreased by over 10 percent, while the number of DUATS transactions increased by almost 21 percent.

- ***FAA studies support consolidating automated flight service station locations.*** Between 1996 and 1998, FAA conducted three studies that concluded that 61 automated flight service stations were not needed to meet the current and future demand for flight services and recommended reducing the number of sites in the continental United States by over half. FAA's 1998 study concluded that the existing 61 locations could be consolidated into 23 to 27 locations. This conclusion was based on an estimate that assumed each flight service specialist would handle an average of 16,000 transactions per year. During FY 2000, 57 of the 61 sites had significantly less than 16,000 average transactions per specialist.
- ***OASIS offers improved technology.*** OASIS has greater automated capabilities that provide easier system access and use for both pilots and flight specialists. For example, OASIS consolidates 17 separate weather-monitoring systems into one integrated system that allows users to simultaneously display flight plans and current weather. The additional automated capabilities will likely increase the use of on-line services and should allow FAA to meet demand for flight services using fewer sites. User groups, such as the Aircraft Owners and Pilots Association, have stated that they do not object to further consolidation, provided it is preceded by automation capable of preserving equivalent capacity and service levels (i.e., OASIS deployment).
- ***Reducing the number of OASIS systems is contractually feasible.*** The OASIS lease is structured as a series of options, allowing FAA to lease as many or as few systems as necessary. As a result, FAA can develop a consolidation strategy based on the number of sites needed to meet projected demand for automated flight service station services and adjust the OASIS lease accordingly.
- ***An initial version of OASIS is operating successfully.*** Although OASIS development experienced significant early delays, development has progressed and a limited version of OASIS is currently in operation. The automated flight service station in Seattle, Washington, has been successfully using an initial version of OASIS since September 2000. FAA plans to begin deploying the completed version of OASIS in June 2002.

*We estimate that FAA could realize cost savings of approximately \$500 million over the 7-year OASIS lease by making a decision now to consolidate automated flight service stations while OASIS is in the early stages of deployment.*

These savings would be realized primarily through reductions in personnel compensation and benefits, overhead, and acquisition costs. However, nearly 68 percent (\$335 million) of the estimated savings would be a result of reduced labor requirements. Those reductions could be accomplished entirely through retirements and without a reduction in force since nearly half of the flight service specialist workforce is currently eligible to retire.

Our cost savings estimate is based on a model of consolidating the 61 existing automated flight service stations into 20 sites in the continental United States that are also responsible for providing in-flight services, such as weather updates to airborne pilots plus 5 locations in Alaska, Hawaii and Puerto Rico that present unique geographical and topographical considerations. This model ensures that those safety-critical services remain intact. However, this is one of many possible consolidation scenarios FAA could consider, since it is ultimately the agency's decision to determine which facilities should be consolidated.

While consolidation would provide large fiscal savings, any consolidation effort should include careful coordination with the National Association of Air Traffic Specialists to ensure that impact on the workforce is minimal and that anticipated savings are fully realized. FAA is currently negotiating a collective bargaining agreement with that union. Those negotiations need to include consolidation issues and ensure that provisions of the agreement do not hinder FAA's ability to reduce the size or locations of the specialist workforce.

*We are recommending that FAA incorporate a strategy to consolidate the 61 existing flight service station facilities in conjunction with deployment of OASIS. However, FAA will need to expedite actions to implement a consolidation strategy, since full deployment of OASIS is currently scheduled to begin in June 2002.*

## ***Principal Finding and Recommendations***

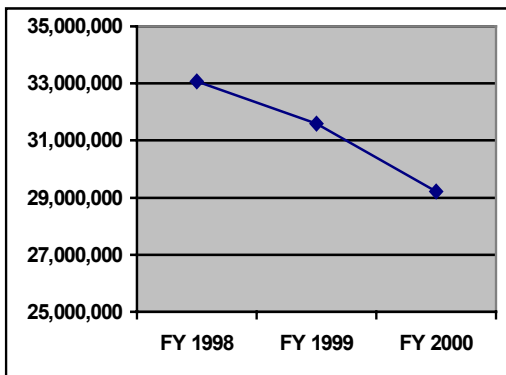
### ***FAA Could Realize Significant Benefits by Consolidating Automated Flight Service Stations in Conjunction with Deployment of OASIS***

FAA has an opportunity to streamline its flight service operations by consolidating its existing 61 automated flight service stations in conjunction with OASIS deployment. The reduced number of sites would allow FAA to have OASIS operational at key sites earlier than the current 2005 timeframe and at significantly less cost, while decommissioning the increasingly unsupportable existing automation system at an accelerated rate. Consolidating sites would accelerate OASIS deployment because the number of OASIS workstations needed would be reduced by at least 20 percent, which in turn would significantly reduce installation time.

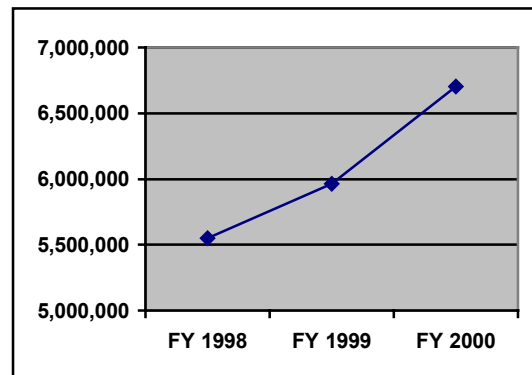
### ***Demand for Automated Flight Service Station Services Continues to Decline While Demand for On-Line Flight Services Is Increasing.***

Demand for flight services station services has been declining steadily since the 1980's when FAA started an extensive program to streamline operations by consolidating over 315 locations into the current 61 facilities. Further consolidation is feasible without degradation to service or safety because flight services provided by flight service specialists are increasingly being replaced by on-line flight services accessed directly by users. For example, the use of DUATS is becoming more prevalent as a replacement to contacting flight service specialists, as general aviation pilots are able to file flight plans and obtain weather data via personal computers from their home or office. As shown on the following graphs, the number of flight services provided by flight service stations decreased by 10 percent between FY 1998 and FY 2000, while the number of DUATS transactions increased by almost 21 percent during the same period.

**Flight Services Provided  
FYs 1998 - 2000**



**DUATS Transactions  
FYs 1998 - 2000**



Current data show an even greater decline in the use of flight service specialists. As of August 2001, FAA data indicated that the number of flight services provided by flight service stations had decreased approximately 30 percent compared to FY 2000 levels while for FY 2001, FAA is projecting DUATS transactions to increase by at least 10 percent.

The improved technology of OASIS will enhance on-line services. OASIS has greater automated capabilities that provide easier access to both pilots and flight specialists. For example, OASIS consolidates 17 separate weather-monitoring systems into an integrated system. The improved technology should also allow users to simultaneously display flight plans and current weather, a feature not available with the existing technology. The additional automated capabilities will likely increase the use of on-line services and allow FAA to meet demand for flight services using fewer flight service stations.

Consolidation is also contractually feasible. The OASIS lease is structured as a series of options, allowing FAA to lease as many or as few systems as necessary. As a result, FAA can develop a consolidation strategy based on the number of sites needed to meet projected demand for flight service station services and adjust the OASIS lease accordingly.

**FAA Studies Support the Need for Further Consolidation.** FAA studies have also found that a continued decline in demand for flight services provided by flight service stations supports a need to further consolidate. Between 1996 and 1998, FAA conducted three studies that reflected a further downturn in the need for flight service specialists or stations. These studies concluded that 61 automated flight service stations are not needed to meet the current and future demand and recommended reducing the number of sites in the continental United States by over half. FAA's 1998 study suggested that the existing 61 sites could be consolidated into 23 to 27 locations. (Exhibit C contains a summary of the three FAA studies.)

FAA's conclusion was based on an estimate that assumed each flight specialist would handle an average of 16,000 transactions per year. During FY 2000, the average number of transactions actually handled by each flight specialist at the 61 sites ranged from 3,706 transactions at the slowest location to 20,570 transactions at the busiest. It is important to note, however, that 57 of the 61 sites had significantly less than 16,000 average transactions per specialist.

**An Initial Version of OASIS Is Operating Successfully.** Although OASIS development initially experienced delays, development has progressed and currently a limited version of OASIS is in operation. The automated flight service station in Seattle, Washington began using an "initial daily use" version of OASIS



in September 2000. This “initial daily use” system, which has between 70 and 75 percent of OASIS software capabilities, provides similar functions to the current automated system.

It also contains additional features such as simultaneous display of weather graphics and flight plan information. Flight service specialists at the Seattle location have been satisfied with this version of OASIS and pointed out the benefits of having overlays of weather and flight plans – a feature not available with the current system.

**FAA Needs to Expedite Deployment of OASIS.** FAA’s current flight service automation system is 1970’s technology that is increasingly difficult and costly to support because of increasing maintenance needs and a lack of replacement components. As early as 1996, FAA identified that the maintenance issues associated with the current system would increasingly degrade system reliability and eventually lead to service outages. In September 1999, Compaq, the maintenance contractor performing hardware and software support, declared the system obsolete.

Between FYs 1996 and 1998, service calls to support the current system increased over 250 percent from 113 per year to 399 per year. Although this did not adversely affect operations, Compaq advised FAA that maintenance costs for FY 2001 could exceed \$4 million compared to an estimated \$2.8 million in FY 2000. Because of the proposed contract cost increases, FAA did not renew the maintenance contract with Compaq and, in October 2000, assumed responsibility for all hardware maintenance associated with the current system.

However, FAA has found it increasingly difficult to locate spare parts for system components. Since assuming maintenance responsibility in October 2000, FAA has searched hospitals and schools for key spare parts such as tape drives, disk controllers, and power supplies. As of April 2001, FAA had spent over \$320,000 to purchase spare parts. FAA anticipates that these costs will continue to rise as the current flight service automation system is maintained well beyond its expected life span.

**Consolidation Would Produce Significant Savings to Fund Other Critical Missions.** Consolidating the 61 automated flight service stations would result in significant savings that FAA could allocate to other agency missions. To estimate the potential savings associated with consolidating flight service station locations, we used a scenario developed in a 1998 FAA study that proposed consolidating the 61 sites into 23 to 27 locations in the continental United States.

We refined FAA’s scenario by developing a model where the 61 sites would be consolidated into the 20 automated flight service stations that are also responsible for in-flight services (see Exhibit B for a list of these locations) plus 5 locations in Alaska, Hawaii, and Puerto Rico that present unique geographical and topographical considerations.

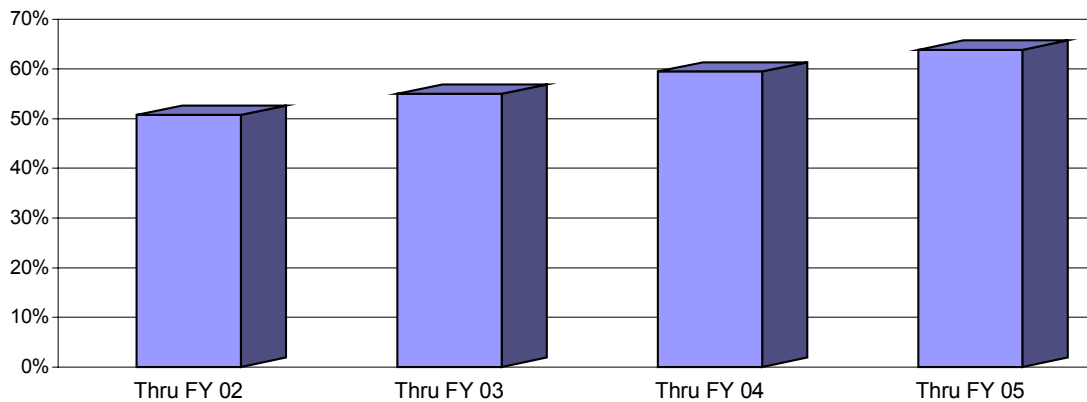
These 20 locations, known as Enroute Flight Advisory Services or EFAS, provide en route aircraft with timely weather advisories pertinent to the type, route, and altitude of their flight. This model would not compromise flight safety because in-flight communication would be maintained and the new OASIS technology will provide the same or increased levels of flight services. We stress, however, that this is one of many possible consolidation scenarios FAA could consider and that there will be advantages and disadvantages associated with any consolidation strategy. Further, it is FAA’s responsibility to determine how many and which facilities should be closed or relocated.

We estimate that FAA could realize savings of approximately \$500 million over the 7-year OASIS lease by consolidating the 61 existing automated flight service stations into 20 locations within the continental United States. As shown in the table below, these savings would be realized primarily through reductions in personnel compensation and benefits, overhead, and acquisition costs. Details concerning each cost category follow the table and additional methodology on our calculations is provided in Exhibit A.

<b>POTENTIAL COST SAVINGS FROM FLIGHT SERVICE STATION CONSOLIDATION (in millions)</b>	
<b>COST CATEGORY</b>	<b>TOTAL</b>
Personnel Compensation and Benefits	\$335.0
Overhead	\$67.8
Acquisition	\$11.9
Implementation	\$9.2
Other Investment	\$70.6
<b>Total</b>	<b>\$494.5</b>

***Personnel Compensation and Benefits.*** Under our consolidation model, we estimate that FAA could reduce operating costs by about \$335 million over the 7-year OASIS lease by reducing staffing from 2,855 to about 2,300 flight service specialists (a reduction of about 20 percent). This reduction could be accomplished solely through retirements without a reduction in force because approximately 50 percent of the current flight service station workforce is eligible for retirement by the end of FY 2002. As shown below, this figure increases to over 60 percent by FY 2005, FAA’s current estimated completion date for OASIS deployment.

### Flight Service Specialists Retirement Eligibility



Although these savings are based on anticipated retirements, FAA would incur a one-time expense to relocate those specialists who elect not to retire and relocate from closed flight service station locations to consolidated facilities. We estimate that this cost could range between \$16 million and \$32 million, depending on the number of specialists who would choose to relocate. This represents approximately 3 to 6 percent of our total estimated savings. However, since such a large percentage of the workforce is already eligible to retire, it is unlikely that many specialists would choose that option. Accordingly, we offset our projected savings for personnel compensation and benefits by the lowest range of estimated relocation expenses (\$16 million).

**Overhead.** We estimate that overhead costs at flight service station facilities could be reduced by about \$68 million over the 7-year OASIS lease. Overhead costs represent the cost of support services, such as budget and payroll, provided from either FAA's Headquarters or one of FAA's nine regional offices. Overhead costs are based on labor costs - as labor costs decrease a similar decrease occurs in overhead.

**Acquisition.** We estimate that FAA could save approximately \$12 million over 7 years in facilities and equipment costs for the acquisition of OASIS. FAA has determined it would need 1,326 OASIS workstations for the 61 flight service station facilities at an estimated cost of \$135 million. Using our consolidation model, the required number of OASIS workstations would decrease about 20 percent, to 1,087, resulting in a potential savings of \$10 million on OASIS leases and a potential savings of almost \$2 million on installation. Because the

OASIS contract is structured as a series of options, FAA would not be penalized for leasing fewer workstations.

***Implementation.*** This category is primarily made up of the cost to lease the buildings in which flight service station facilities are located. Nearly all of the 61 automated flight service stations are leased facilities. Consolidating the 61 sites to 25 locations would produce savings on building lease costs over the 7-year OASIS lease of at least \$9 million. According to FAA real estate officials, 17 of the 20 facilities in the continental United States used in our consolidation model currently have the additional capacity to accommodate an increase in the number of staff. In determining this potential cost savings, we took into consideration early lease termination penalties and increased square footage requirements.

***Other Investment.*** This category represents other costs that are not involved in the OASIS systems acquisition or building leases but would result in additional savings as part of a consolidation plan. Examples of these costs include leases and various contract costs for voice switching equipment and electrical power systems. We estimate FAA could realize savings of about \$71 million in this cost category over the 7-year OASIS lease.

It is important to note that over 67 percent of our estimated savings are associated with reducing personnel compensation and benefits costs, which are part of FAA's operating budget.

***Consolidation Issues Need to be Included in Current Union Negotiations.*** While consolidation would provide large fiscal savings, any consolidation effort should include careful coordination with the National Association of Air Traffic Specialists to ensure that the impact to the workforce is minimized and anticipated savings are fully realized. FAA is currently negotiating a collective bargaining agreement with NAATS. Those negotiations need to address flight service station consolidation to ensure that provisions of the agreement do not hinder FAA's ability to reduce the size or location of the specialist workforce, as has happened in the past.

In agreements with the National Air Traffic Controllers Association and the Professional Airways Systems Specialists union, FAA agreed to maintain minimum staffing levels in the controller and maintenance technician workforces. The agreements effectively prevent FAA from reducing staffing in those workforces. A similar agreement with NAATS would seriously impact any potential savings from consolidation.

## ***Recommendations***

To assist FAA in capitalizing on opportunities associated with deploying OASIS, we recommend that FAA:

1. Develop a strategy, in conjunction with OASIS deployment, to consolidate the 61 existing Automated Flight Service Stations.
2. Ensure that consolidation issues are addressed in the current collective bargaining negotiations with NAATS and that provisions of the agreement do not hinder FAA's ability to reduce and relocate the specialist workforce.

## ***FAA Comments***

We provided FAA with a draft copy of this report on October 31, 2001, and requested that the agency provide formal comments within 15 days. As of December 7, 2001, we had not received FAA's response. However, during the audit, we briefed FAA officials from Air Traffic Planning and Procedures and the Integrated Product Team responsible for acquiring OASIS on our findings and recommendations. In addition, the subject matter of this report is not new. FAA has studied further consolidation of automated flight service stations since 1996 and, as such, we do not understand the delay in providing a response. Accordingly, we have decided not to further delay this report and are issuing it without formal agency comment.

## ***Actions Required***

In accordance with Department of Transportation Order 8000.1C, we would appreciate receiving your response to our recommendations within 30 calendar days. If you concur with the recommendations, please indicate the specific actions taken or planned and the target dates for action. If you do not concur, please provide an explanation of your position. In addition, please indicate whether you agree with our estimate of approximately \$500 million cost savings associated with consolidating AFSS sites.

We appreciate the cooperation and assistance provided by you and your staff during our review. If you have any questions or need further information, please contact me at (202) 366-1992 or David A. Dobbs, Deputy Assistant Inspector General for Aviation, at (202) 366-0500.

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## **Scope, Methodology, and Prior Audit Coverage**

We conducted site visits at two automated flight service stations in Seattle, Washington, and Leesburg, Virginia; and at FAA's William J. Hughes Technical Center in Atlantic City, New Jersey. We also met with officials from Harris Corporation (the OASIS prime contractor) in Melbourne, Florida; the Aircraft Owners and Pilots Association in Frederick, Maryland; and the National Association of Air Traffic Specialists in Silver Spring, Maryland. We conducted the audit in accordance with Government Auditing Standards prescribed by the Comptroller General of the United States.

To determine the status of the maintenance and supportability of the existing automation system, we spoke with maintenance officials at the FAA Technical Center, and reviewed system maintenance records. To determine the feasibility of consolidation, we reviewed three FAA studies on consolidating flight service stations and interviewed officials from AOPA, NAATS, and Harris Corporation. We then developed a consolidation model based on a recommendation included in FAA's 1998 study. To estimate cost savings from consolidating the current 61 flight service stations into 20 locations within the continental United States plus 5 locations in Alaska, Hawaii, and Puerto Rico, we used data provided by FAA through its Cost Accounting System as of July 19, 2001.<sup>1</sup> Based on discussions with FAA Cost Accounting staff, we determined that the following five cost categories would be impacted by a reduction in the number of flight service station facilities: Air Traffic Operations (Personnel Compensation and Benefits), Overhead, and Investment Costs of Acquisition, Implementation, and Other.

We obtained FY 2000 costs to operate the 36 automated flight service stations within the continental United States that would be consolidated into other locations. We did not include cost categories for Airway Facilities Operations, Depreciation, or "Other" in determining the total fiscal year cost for these 36 automated flight service stations. We omitted those costs from our cost savings calculations because they may not be affected by consolidation. For example, some Airway Facilities operations costs, such as utilities and telecommunications, would likely experience reductions with the consolidation of flight service stations, the complexity of their accounting treatment precluded including them in our analysis.

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<sup>1</sup> An OIG audit of FAA's flight service segment of the Cost Accounting System is in progress with an anticipated completion date of December 31, 2001. A preliminary finding from that audit indicates that total costs for flight service stations appear to be materially correct although inter-site allocations may be misstated. The results of this audit may affect the OASIS cost savings estimates.

The following information provides details of the methodology we used to analyze reductions associated with each of the five cost categories.

**Reduction of Air Traffic Operations Costs (Personnel Compensation and Benefits).**

Under our consolidation model, labor costs for flight service station specialists would be lowered by reducing staffing requirements. We determined optimal staffing requirements at the 20 consolidated automated flight service station locations, by dividing the number of activities that could an individual specialist could be expected to perform annually (16,000) into the total number of activities actually performed. Two FAA groups, Flight Service Architecture Core Group and the flight service station Restructuring Work Group, independently determined that an individual specialist can perform 16,000 activities per year. We then created a percentage by comparing the consolidated staffing requirements to the current staffing level and applied this percentage to labor costs to determine cost savings.

The following table provides an example of how the reduction factor was applied using our methodology. As shown in the table, under our consolidation model, the Prescott, Arizona, flight service station and the Albuquerque, New Mexico, flight service station would be consolidated into one location. In FY 2000, these 2 sites had a total of 1,168,240 activities performed by 81 flight service specialists. Using the annual average of 16,000 activities per specialist, only 73 staff would be needed, a reduction of 10 percent.

Facility	No. of Activities FY 2000	Optimal Staffing Level	Current Staff	Percent of Staff Required	Reduction Factor
Albuquerque, NM automated flight service station (in-flight)	464,995		34		
Prescott, AZ flight service station	703,245		47		
Total for Consolidated location	1,168,240	$1,168,240 \div 16,000 = 73$	81	$73 \div 81 \times 100 = 90\%$	$(1 - .90) \times 100 = 10\%$

**Reduction of Overhead Costs.** Overhead costs represent the cost of support services provided to workers and relate directly to the costs of labor. As a result, to determine savings on overhead costs, we applied the same reduction factor to overhead costs. Because only Air Traffic labor was considered in our analysis, only overhead associated with Air Traffic labor is affected.

To determine the corresponding decrease in overhead costs for Air Traffic labor, we used the following equation:

$$\frac{\text{Air Traffic Labor} \times \text{Reduction Factor} \times \text{Overhead Cost}}{\text{Total Labor}}$$

**Reduction of Investment Acquisition Costs for OASIS.** Under our consolidation model, fewer OASIS workstations would be needed, thus lowering the investment acquisition and installation costs. We applied the reduction factor developed for Air Traffic labor to the number of OASIS workstations contained in the original contract. Lease savings from the workstations were spread over the 7-year contract period, and installation cost savings were spread over an estimated 3-year installation period.

**Reduction of Investment Implementation Costs.** The investment implementation cost category covers the cost to lease the buildings in which flight service station facilities are located. In determining the potential cost savings associated with changes in building leases, we considered early lease termination penalties and square footage requirements. Several of the flight service station buildings that might be vacated through consolidation have leases that contain early termination clauses. To account for these penalties, we prorated the annual lease expenses by the penalty amounts.

Our consolidation model would also require, in many instances, increases in the number of employees at the consolidated flight service station locations. Therefore, we performed an analysis of the square footage requirements for the 20 automated flight service stations with in-flight responsibilities to determine the additional space that would be required. We determined the increase in facility costs for the additional square footage requirements by dividing annual lease costs by the foot and multiplying the per-foot costs by the additional square foot requirements.

**Reduction of Other Investment Costs.** This cost category represents other investment costs that are not involved in the OASIS systems acquisition or building leases. After reducing the FY 2000 costs by the amounts of the Acquisition and Implementation costs, we reduced the Remaining Investment (other) costs, proportionately by a ratio of the number of current flight service stations over the 20 flight service station locations with in-flight responsibilities and applying that ratio to remaining investment costs.



**Prior Audit Coverage**

On December 16, 1996, the Office of Inspector General issued a Management Advisory Memorandum on Acquisitions for Automated Flight Services, AS-FA-7-003. The report concluded that FAA could realize substantial savings through consolidation of flight service station facilities. The report recommended that FAA fully consider further consolidation or co-location of flight service station facilities before making the OASIS contract award. In its response, FAA agreed to complete an analysis to determine the implementation of future flight service station facility consolidation. However, FAA did not agree to perform the analysis before the OASIS contract award because the OASIS acquisition strategy gives FAA the flexibility to stop production of the system at any time. Thus, FAA would not have to commit to 61 OASIS systems at the time of contract award. FAA conducted several studies on consolidation and published three reports between 1996 and 1998. (See Exhibit C.) However, to date FAA has taken no actions to consolidate the existing 61 flight service station sites into fewer locations during deployment of OASIS.

## Exhibit B

### 20 Automated Flight Service Stations with In-Flight Capabilities

The 20 flight service station sites below also have in-flight responsibilities within the continental United States and could absorb flight service station facilities under our consolidation model.

<b>ARTCC REGION</b>	<b>FLIGHT SERVICE STATION FACILITIES WITH IN-FLIGHT (EFAS) CAPABILITIES*</b>
ZAB	1. Albuquerque, NM
ZBW	2. Bridgeport, CT
ZOB	3. Cleveland, OH
ZLC	4. Cedar City, UT
ZKC	5. Columbia, MO
ZHU	6. Conroe, TX
ZDV	7. Denver, CO
ZFW	8. Fort Worth, TX
ZJX	9. Gainesville, FL
ZLA	10. Hawthorne, CA
ZNY	11. Islip, NY
ZME	12. Jackson, TN
ZAU	13. Kankakee, IL
ZDC	14. Leesburg, VA
ZTL	15. Macon, GA
ZMA	16. Miami, FL
ZOA	17. Oakland, CA
ZMP	18. Princeton, MN
ZSE	19. Seattle, WA
ZID	20. Terre Haute, IN

\*Under this consolidation model, five other facilities (located in Alaska, Hawaii, and Puerto Rico) would remain intact due to geographical and topographical considerations.

**FAA Studies of Consolidating Automated Flight Service Stations**

Three FAA studies performed between 1996 and 1998 reflect a downturn in the need for flight service station specialists. These studies concluded that FAA no longer needs all 61 automated flight service stations to meet the demand for flight services and suggested that 23 to 27 facilities in the continental United States would meet current and future demand.

*FAA Flight Service Study – June 1996.* This study was performed by the “Flight Service Future Architecture Workgroup.” The Workgroup looked at current services, identified alternative future architectures, and developed a transition/investment plan. The group identified alternatives for FAA flight service specialists including direct access use, commercializing pre-flight services, and contracting out all functions. Sub-alternatives included facility consolidation and functional consolidation. The Workgroup reached several conclusions, including that the existing automation system was experiencing supportability and maintainability problems and was becoming extremely costly to maintain.

*FAA Flight Service Study – March 1997.* This study was issued by a follow-up workgroup tasked to address specific objectives developed by the previous Workgroup. It questioned the need for 61 facilities because of a declining demand for one-on-one pilot weather briefings, a declining workforce, and availability of the latest technology. The study concluded that FAA no longer needs all 61 automated flight service stations to meet the user demand and efficiently provide flight services, and that closures and/or consolidation could begin after the deployment of OASIS.

*FAA Flight Service Study – April 1998.* This study, performed by a Flight Service Architecture Core Group, addressed reducing hours of operation of flight service station facilities, forming a plan for consolidation, and pursuing recommendations made by the previous workgroups. Based on an analysis of the number of aircraft contacts being handled by the busiest facilities and the range of demand, the study determined that 23 to 27 facilities in the continental United States and 4 to 5 facilities outside the continental United States would adequately support user needs and provide for potential future growth within the system. The report recommends evolving to 26 facilities. The study also suggests that after OASIS is deployed, other locations can reduce hours of operation and, as workforce attrition continues, each facility should be evaluated for cost effectiveness, relocation of functions, and possible closure of flight service station facilities.