
Office of Inspector General

Technical Support Services Contract:
Better Management Oversight and Sound
Business Practices Are Needed

Federal Aviation Administration

Report Number: AV-2000-127
Date Issued: September 28, 2000





**U.S. Department of
Transportation**

Office of the Secretary
of Transportation

Office of Inspector General

Memorandum

Subject: ACTION: Report on the Technical Support Services Contract: Better Management Oversight and Sound Business Practices Are Needed
AV-2000-127

Date: September 28, 2000

From: Alexis M. Stefani
Assistant Inspector General for Auditing

Reply to JA-10:X60500
Attn of:

To: Federal Aviation Administrator

In response to requests from Senators John McCain and Wayne Allard, the Office of Inspector General reviewed the Federal Aviation Administration's (FAA) contract administration oversight on the \$875 million Technical Support Services Contract (TSSC). We found that FAA has not exercised effective management oversight or followed its own guidelines on TSSC to ensure that support services are efficiently meeting FAA requirements and are cost-effective.

The weaknesses found in FAA management oversight of the TSSC undercut the primary objective of acquisition reform, which was to provide more timely and cost-effective acquisitions and improve the quality of equipment and services acquired by operating more like a business. For example, we found that FAA did not develop *reliable* cost estimates or analyze significant variances between its cost estimates and the contractor's proposed cost estimates. Without reliable cost estimates, FAA, like any business, cannot make an informed decision as to whether the contractor's cost estimate is fair and reasonable, and is at risk for paying for inflated and overpriced services. FAA could go a long way in achieving benefits of acquisition reform if it promptly applied the lessons learned from this audit to future TSSC work and to other system and support service type contracts.

During our review, we periodically met with members of your staff regarding the findings and recommendations in this report. In addition, we considered FAA's

September 12, 2000 comments to our draft in preparing this report. An executive summary of this report follows this memorandum.

FAA agreed to implement all eight recommendations and believes significant improvements have been made since our audit to strengthen management oversight to ensure that support services are effectively meeting FAA requirements and are cost-effective. Based on actions taken and planned on recommendations related to preparing cost estimates and customer satisfaction surveys, managing TSSC fund balances, and improving contract administration, we consider six recommendations resolved. These recommendations are subject to the follow-up provisions of Department of Transportation Order 8001.C.

FAA did not respond to Recommendation 4 to implement contract administration procedures to ensure that contractor personnel meet education requirements and experience standards identified in the TSSC. The response did not indicate what procedures FAA intended to implement or when. In addition, regarding Recommendation 2, FAA did not provide a milestone date for completing its revision of the TSSC Handbook to clarify its guidance on analyzing variances between FAA's and the contractor's cost estimates. Please provide us with the additional information on these two recommendations within 30 days.

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

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EXECUTIVE SUMMARY

Technical Support Services Contract: Better Management Oversight and Sound Business Practices Are Needed

Federal Aviation Administration

Report No. AV-2000-127

September 28, 2000

Objective and Scope

The objective of this audit was to determine whether the Federal Aviation Administration (FAA) has adequate management oversight and contract administration procedures over the Technical Support Services Contract (TSSC). The audit was made in response to requests by Senator John McCain and Senator Wayne Allard to evaluate concerns over the adequacy of FAA's contract administration procedures on the TSSC.

The audit was performed at FAA Headquarters and the Southern, Northwest Mountain, and Southwest Regions. These 3 regions accounted for approximately 45 percent of the TSSC work releases¹ issued as of July 1999.

Background

The TSSC provides technical services to supplement FAA's efforts to modernize the National Airspace System. Specifically, TSSC provides the resources to (1) analyze, recommend, and provide cost-benefit considerations for facility site selection; (2) develop or adapt site-specific or standard designs for construction; (3) ensure compliance with environmental laws; and (4) install and test electronic equipment and cables.

In June 1995, FAA entered into the TSSC with Raytheon Support Services Company. TSSC is a 7-year contract for approximately 8.9 million direct labor hours (approximately 4,300 staff-years) at a potential cost of \$875 million. As of March 31, 2000, FAA had issued 1,161 national and regional TSSC work releases funded by approximately \$423 million from its Facilities and Equipment appropriation.

The TSSC is a cost-plus-fixed-fee type contract that provides for reimbursement of all allowable costs and the payment of a negotiated fee. A cost-plus-fixed-fee type contract provides FAA with the needed flexibility in

¹ A work release specifies the required services and provides technical direction for the work to be accomplished.

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determining the cost and scope of work required. *However, a cost-plus-fixed-fee contract provides only minimal incentive to the contractor to effectively and efficiently control costs because the fee is not dependent upon the contractor's ability to control its costs.* Therefore, it is imperative that FAA ensure that the support services provided are efficient and cost-effective.

Results

In November 1995, Congress exempted FAA from many of the existing Federal procurement laws and regulations to address the unique needs of the agency. In addition, it directed FAA to develop a new Acquisition Management System to provide more timely and cost-effective acquisitions and improve the quality of equipment and services acquired. Although acquisition reform gave FAA more flexibility in how it acquires equipment and services, it did not alleviate the responsibility to implement sound business procedures to ensure that FAA is receiving goods and services that meet its needs at a reasonable cost.

Although TSSC was issued 6 months prior to acquisition reform, it is administered under FAA guidelines which included sound business practices. However, we found that FAA has not exercised effective management oversight or followed its own guidelines on the \$875 million TSSC to ensure that support services are efficiently meeting FAA requirements and are cost-effective. We found that FAA does not:

- Control the cost of TSSC projects by developing *reliable* cost estimates for proposed projects or analyze significant variances between its project estimates and the TSSC contractor's proposed estimates (some of which varied by as much as 200 percent). For example, one FAA cost estimate valued the required work at \$167,200, and the contractor estimated the cost to be approximately \$394,000. FAA accepted the contractor's estimate without questioning the additional costs.
- Close out completed work releases, assess inactive projects for idle funds, and follow correct procedures for obligating and deobligating funds to ensure that Facilities and Equipment funds are used efficiently and effectively. For example, FAA allowed Facilities and Equipment funds to remain idle for up to 2 years on TSSC work release projects that were either completed or not started.
- Evaluate the TSSC contractor's work performance throughout the life of the project or upon completion, and ensure that all contractor personnel meet education and experience qualifications specified in the contract.

EXECUTIVE SUMMARY

Approximately 10 percent of 211 contractor personnel reviewed did not meet contract standards for the skill levels charged.

- Provide effective program reviews of the contract administration on the TSSC. Although FAA Headquarters officials responsible for TSSC management also found the deficiencies cited above during regional program reviews, regions were given **Excellent** ratings for their "management and operation of the TSSC program." In our view, these ratings were not consistent with what FAA officials observed.

In this review, along with work from our Office of Investigations, we found that FAA has not followed sound business practices for administering contracts. For example, the Independent Government Cost Estimate (Government cost estimate) is designed to describe FAA's resource needs and anticipated costs necessary to complete a proposed project. The Government cost estimate is a key document used to analyze the contractor's proposed work plan and cost estimates to ensure that requested work is understood and that proposed costs are fair and reasonable. However, in our opinion, FAA personnel responsible for developing the Government cost estimate treat it as an unnecessary paper exercise. For example, we found that Government cost estimates on the TSSC were:

- ❖ prepared by FAA engineers then ignored; and
- ❖ prepared using unreliable resource and cost data.

We also found that for other acquisitions, FAA's Government cost estimate was:

- ❖ prepared by the contractor (a direct conflict of interest), or
- ❖ not prepared at all.

As a result, FAA is at substantial risk for inflated and overpriced contract services. To continue such practices, undercuts the objective of acquisition reform. Without reliable cost estimates, FAA, or any business, cannot make an informed decision as to whether the contractor's cost estimate is fair and reasonable. FAA could go a long way in achieving the benefits of acquisition reform if it promptly applied the lessons learned from this audit to future TSSC work and to other system and support service type contracts.

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FAA Does Not Control Costs of Projects Using TSSC Resources

FAA does not develop reliable estimates for proposed TSSC projects. In addition, FAA does not consistently evaluate the contractor's work release proposals to determine why there are significant variances between FAA's estimated number of labor hours and costs and the contractor's estimates. Without a reliable estimating procedure and a thorough analysis of the contractor's proposed costs, FAA cannot ensure that the \$10 million initially budgeted for the 49 work releases represent fair and reasonable costs for providing technical/engineering services to complete assigned tasks.

FAA Has Not Analyzed Historical Cost Data or Developed Baseline Cost Data to Estimate Project Costs. Guidelines for administering the TSSC require that FAA prepare a Government cost estimate defining FAA's resource needs and the anticipated costs necessary to complete a proposed project. The Government's cost estimate should then be used to analyze the contractor's proposed work plan and cost estimates to ensure that requested work is understood and that proposed costs are fair and reasonable. In addition, because FAA is not required to use TSSC exclusively for the type of services requested, the above analysis is needed to determine whether it would be cost-effective to pursue the accomplishment of the work through other channels, such as FAA staff or other contractors.

To help prepare the Government cost estimate, FAA is required to analyze resources utilized and actual costs of similar projects accomplished by TSSC in other regions, by other contractors, or by FAA's in-house work force. This analysis should provide FAA with baseline data that can be used by all project engineers in developing Government cost estimates.

However, FAA had not analyzed historical cost data from completed projects on like systems to establish baseline data for estimating future project costs. To illustrate, we reviewed a non-statistical sample of TSSC work releases in FAA's Southern Region, Northwest Mountain Region, and Southwest Region that requested engineering support services for the installation/construction of the Precision Approach Path Indicator.² We found wide variances in the development of Government cost estimates for the engineering labor hours and costs necessary to complete each project.

² The Precision Approach Path Indicator is a runway lighting, visual aid system for pilots on final approach to an airport.

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Government Cost Estimates for Installation of the Precision Approach Path Indicator System Lacked Consistency

Region	Number of Systems Per Work Release	Estimated Engineering Labor Hours Per System	Estimated Engineering Labor Cost Per System
Northwest Mountain	1	473	\$17,953
Southern	3	242	\$16,181
Southwest	2	0	\$41,987

As the chart shows, the project engineer in the Southwest Region did not estimate the number of engineering labor hours required to perform the project. Further, this project engineer combined all costs (travel, labor, and other direct costs) together, which prevented an accurate comparison to the contractor's proposed engineering costs. In addition, although the Southern and Northwest Mountain Government cost estimates were based on similar statements of work, the number of engineering hours estimated per system varied by almost 100 percent without the required justification.

Government cost estimates are the key estimates required for cost evaluations. However, project engineers from the three regions stated that they were not adequately trained in estimating procedures and were not comfortable relying on their Government cost estimates as an accurate estimation of required TSSC resources. In fact, one project engineer stated that the development of the Government cost estimate was a waste of time because the contractor was going to get paid what it spent.

Large Variances Between FAA's and the Contractor's Estimates Are Not Adequately Analyzed. Guidelines for administering the TSSC require FAA to conduct a Quantitative and Qualitative Analysis on every proposed TSSC project to ensure that the proposed costs are appropriate. In the analysis, FAA is required to address any variance in direct labor hours and dollars between the Government's cost estimate and the contractor's estimate. For those work releases issued after June 1998, FAA is required to address any variance that is greater than 10 percent, and any variance greater than 15 percent is considered to be significant.

However, we found that despite variances greater than 10 percent between FAA's Government cost estimate and the contractor's estimates, FAA accepted the contractor's estimate without proper analysis. FAA's reliance on cost estimates prepared by the contractor places it at substantial risk for inflated and overpriced contract services.

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On 43 of 49 work releases reviewed, we found that FAA used the TSSC contractor's estimates for direct labor hours and project costs to set the original project budget, even though the contractor's estimates varied widely from FAA's cost estimates. In fact, on 34 of the 43 work releases, the contractor's estimates contained variances of up to approximately 200 percent in direct labor hours or costs, but FAA provided no explanation of why the contractor's estimates were accepted over FAA's.

FAA needs to follow its guidelines and establish baseline data based on historical cost data that will enable project engineers to develop reliable and accurate Government cost estimates. Further, FAA project engineers must follow guidelines to analyze all variances in labor hours and cost estimates of 10 percent or more between the contractor's estimates and FAA's cost estimates.

FAA Does Not Close Out Completed Work Releases, Assess Inactive Projects for Funds That Could Be Put to Better Use, and Follow Correct Procedures for Obligating and Deobligating Funds to the TSSC

FAA allowed Facilities and Equipment funds to unnecessarily remain idle for up to 2 years on TSSC work releases that had already been completed or contained projects that were inactive. In addition, FAA has not provided effective management oversight on procedures for obligating Facilities and Equipment project funds to the TSSC. As a result, FAA has missed opportunities to more effectively use project funds by retasking the funds to other TSSC projects.

Funds Remain Idle on Completed and Inactive TSSC Work Releases. When a project is completed, FAA is required to close out the work release. The close-out process includes (1) issuing a work release revision alerting parties that the close-out process has started, (2) receiving a final invoice from the contractor within 120 days of the revision, and (3) issuing a final close-out revision.

We found that work was completed for 16 of the 49 work releases reviewed. For the 16 work releases, FAA unnecessarily allowed approximately \$300,000 in Facilities and Equipment funds to remain on work releases instead of promptly closing them and putting the funds to better use by making the funds available for other TSSC projects. For these work releases, FAA took an average of 8 months from the project completion date to **begin** the close-out process, plus an average of 8 months to **complete** the close-out process. For example, a Southern Region work release project was completed in September

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1996; however, FAA did not complete the close-out process until October 1998, 25 months later.

Procedures for Obligating Funds Were Not Followed. On July 1, 1999, FAA issued a memorandum to all personnel responsible for using the TSSC on the problem of ineffective management oversight on obligating and expending TSSC funds. The memorandum identified 3 problem areas.

First, FAA noted that approximately \$7 million in expired funds were obligated to the TSSC but had not been allocated to a work release. The memorandum explained that these funds appeared to have been obligated to the TSSC just prior to the expiration of the 3-year obligation authority and therefore were allowed to expire on the contract without being assigned to a work release. The memorandum described this action as “bankrolling” of expiring funds so they would not revert back to the United States Treasury.³

The second problem described in the memorandum was that project funds were left on inactive and completed work releases and not reassigned to other projects where additional funding was needed. This further validated our finding that work release close-out procedures were taking far too long and leaving too much unneeded money on work releases.

The third problem identified \$21 million whose 3-year obligation authority would expire after September 1999, and therefore, the funds would be “locked” on TSSC and unable to be used for other programs.⁴ FAA was concerned whether these funds could be put to better use on other programs before the expiration of their 3-year obligation authority. After expiration, the funds would then become locked on the TSSC.

As of March 2000, FAA has taken actions to reduce approximately \$12.3 million in expired funds from the TSSC contract by (1) identifying and closing out those work releases that were completed, (2) re-tasking/reassigning funds to other higher priority TSSC projects, and (3) reviewing inactive work releases, and where possible, transferring funds to active work releases.

³ FAA has 3 years to obligate appropriated funds. During the 3-year period FAA may, using prescribed guidelines, deobligate the funds from one program and obligate them to another program. If the funds are not obligated to a program within the 3 years, the funds revert back to the United States Treasury. For those funds obligated to the TSSC, FAA has an additional 5 years to expend the funds.

⁴ As of October 1999, the funds’ obligation authority expired, and the funds became locked on the TSSC.

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FAA Does Not Evaluate the TSSC Contractor's Work Performance

While improving the quality of services acquired is a goal of acquisition reform, FAA does not follow its own guidelines to complete customer satisfaction surveys to evaluate the TSSC contractor's work performance. Also, FAA does not ensure that contractor employees meet education and experience qualifications specified in the contract. As a result, FAA has no basis for determining the quality and reliability of the support services received, and paid over \$200,000 for engineering services from contractor employees who do not meet the contract standards for required education and experience levels.

Customer Satisfaction Surveys on the Contractor's Work Performance Are Not Completed. TSSC guidelines require FAA to complete customer satisfaction surveys on each work release. The surveys provide feedback on how effectively the TSSC contractor performed during the project's planning, engineering, implementation, and completion phases. In addition, the surveys request written comments on the overall quality and workmanship of support services provided by the TSSC contractor. Our review of 49 work releases found that customer satisfaction surveys were not completed throughout the life of the work release.

For example, the project engineer for each work release is required to complete a customer satisfaction survey periodically throughout the life of the project. At a minimum, this survey is required every 6 months. We found only 2 customer satisfaction surveys completed by project engineers for the 49 work releases reviewed. Another type of customer satisfaction survey is required at the completion of each work release. Of the 16 completed work releases, only 1 work release had this customer satisfaction survey completed.

Approximately 10 Percent of the Contractor Personnel Reviewed Do Not Meet Contract Standards for Education and Experience. All individuals selected by the contractor must meet or exceed Government skill level, education, and experience requirements contained in the contract for each labor category in which their time was charged.

We found that neither FAA nor the TSSC contractor had met their responsibilities for ensuring that personnel were qualified. We reviewed resumes for 211 contractor personnel who charged direct labor hours as either an engineer or a technician on the 49 work releases reviewed. We identified that 10 percent of the contractor personnel reviewed, charged over 8,500 direct labor hours costing approximately \$200,000 in labor categories for which they did not meet the TSSC's specified education and experience requirements.

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In reviewing the contractor employees' resumes for applicable experience, we found that the contractor counted job experience in fields unrelated to the electronics field. For example, for an electronic technician position, the contractor applied experience for jobs such as a salesman for home improvement products, a telephone operator, and a data entry clerk.

To ensure that FAA is receiving efficient and cost-effective support services, it must consistently evaluate the contractor's work performance and qualifications.

Recommendations

While acquisition reform gave FAA more flexibility in acquiring equipment and services, such flexibility requires a more disciplined management control system through sound business practices to ensure that it acquires goods and services in an efficient and cost-effective manner. FAA has established contract administration procedures that use sound business practices; however, these procedures are not being followed.

Therefore, we recommend that FAA improve its management oversight and contract administration practices on the TSSC by:

- analyzing historical cost data from the TSSC contractor, other contractors, and in-house FAA personnel on like projects and provide baseline data for developing Government cost estimates for TSSC projects;
- complying with its own contract administration procedures requiring the analysis of all variances above 10 percent between FAA's and the contractor's estimates of direct labor hours and costs;
- complying with its own contract administration procedures for submitting and evaluating customer satisfaction surveys, and ensuring that corrective action is taken for all discrepancies;
- instituting contract administration procedures to ensure that contractor personnel meet the education and experience requirements for the labor categories to which their time is charged; and
- complying with its own contract administration procedures to close out work releases when projects are completed, assessing inactive projects for

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funds that could be put to better use, and ensuring Facilities and Equipment funds are correctly obligated on the TSSC.

Agency Comments and Office of Inspector General Response

FAA agreed with all recommendations contained in the report and identified actions either taken or planned to improve management oversight of the TSSC. These actions include (1) using databases and standard forms to develop more accurate Government cost estimates for each project; (2) clarifying guidance regarding analyzing variances in estimated project hours and costs, and providing training to project engineers on documenting these variances; (3) tracking customer satisfaction surveys and following up when they are not received; (4) closing out projects when they are completed and managing funds to reduce expired fund balances; (5) increasing contract administration training for staff charged with TSSC responsibilities; and (6) incorporating performance standards for contract administration into the evaluation criteria of TSSC officials.

FAA also provided specific comments on the report's findings. For several work releases described in the report, FAA provided additional explanations, but this information was not substantiated in work release files that we reviewed during the audit. Further, FAA agreed that its project engineers were not following its documentation procedures and that some work release files were incomplete and confusing. Accordingly, our conclusions are still valid and no changes to the report were made.

FAA also stated that it believes only 6 (3 percent) of the audited personnel did not meet contract qualifications instead of the 20 personnel or 10 percent of the 211 resumes we reviewed. FAA based this on analyses provided by the TSSC contractor that it had classified seven individuals in the wrong labor categories and that the remaining seven did meet contract qualifications. While the TSSC contractor corrected the classification of its employees, the fact remains that these seven individuals were charged in labor categories for which they did not meet qualifications. For the remaining seven individuals that the contractor stated did meet qualifications, no new evidence was provided that would change our determination of their qualifications. As a result, no changes were made to our finding.

With the exception of FAA's response to our recommendation to ensure contractor compliance with education requirements and experience standards, we consider actions taken and planned to be responsive to our recommendations. In response to our recommendation on contractor compliance with education requirements and experience standards, FAA stated

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that the contractor has reviewed all current contract personnel and has processed requests for waivers if education or experience standards were not met. FAA stated that it would look for methods to better eliminate mistakes in the TSSC personnel waiver process and ensure that contractor employees are charged under appropriate labor categories. We requested that FAA provide additional information to explain how and when it will implement contract administration procedures to ensure that contractor personnel meet education requirements and experience standards. We also requested that FAA provide us with the date it expects to complete its revision of the TSSC Handbook to clarify its guidance on analyzing variances between FAA's and the contractor's cost estimates.

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I. INTRODUCTION

Background

The Federal Aviation Administration (FAA) has depended on the Technical Support Services Contract (TSSC) for over 10 years to provide critical agency functions to implement systems under the National Airspace System (NAS) modernization effort. The TSSC provides FAA with professional, technical, and support labor; management; supplies; and material necessary to accomplish efforts in four general work areas: facility site selection; site preparation; environmental remediation; and installation and testing.

FAA and Raytheon Support Services Company entered into the current TSSC in June 1995. The contract is for 7 years at a potential cost of \$875 million. All work under TSSC is initiated and authorized by either a national or regional work release. A work release specifies the required services and provides technical direction for the work to be accomplished. As of March 31, 2000, FAA had issued 1,161 work releases under TSSC funded for about \$423 million from its Facilities and Equipment appropriation. Actual costs incurred were \$362 million.

The following table identifies the funded value of the work releases issued by site and the actual costs of those work releases as of March 31, 2000. The audit was performed in the regions shown in boldface.

FAA Site	Number of Work Releases Issued	Allocated Dollars (Millions)	Actual Costs (Millions)
Alaska Region	75	\$26.5	\$21.7
Central Region	67	\$15.3	\$13.8
Eastern Region	60	\$33.4	\$25.9
Great Lakes Region	194	\$35.7	\$32.1
New England Region	48	\$18.7	\$16.8
Northwest Mountain Region	157	\$33.0	\$30.8
Southern Region	253	\$46.2	\$40.4
Southwest Region	97	\$59.4	\$51.9
Western Pacific Region	161	\$49.3	\$41.9
The Aeronautical Center	6	\$2.6	\$1.7
The Technical Center	28	\$16.1	\$12.0
Washington Headquarters	15	\$86.4	\$72.6
TOTALS	1,161	\$422.6	\$361.6

The TSSC is a cost-plus-fixed-fee type contract that provides for reimbursement of all allowable costs and the payment of a negotiated fee. There are pros and cons to this type of contract. A cost-plus-fixed-fee contract provides FAA needed flexibility in determining specific types and amounts of support services required. However, it provides only minimal incentive to the contractor to effectively and efficiently manage costs, which places significant risks on the Government. This type of contract requires agencies to implement additional management oversight and sound contract administration procedures to ensure that the support services received are efficient and cost-effective.

TSSC responsibilities are widely dispersed among personnel in FAA Headquarters, the nine regions, the Aeronautical Center, and the Technical Center. The TSSC Program Manager at FAA Headquarters has the ultimate responsibility for overall management of the TSSC. The TSSC Program Manager is assisted by the Contracting Officer (responsible for overall contract administration) and the Technical Officer (responsible for technical management). Within the regions and centers, management of the TSSC is the responsibility of a designated Associate Contracting Officer¹ (ACO) and an Associate Technical Officer² (ATO) who provide guidance to the users of the TSSC -- project engineers in the NAS Implementation Program.

Objective, Scope and Methodology

The objective of this audit was to determine whether the FAA has adequate management oversight and contract administration procedures over the TSSC. The audit was based on requests from Senators John McCain and Wayne Allard to evaluate concerns over the adequacy of FAA's contract administration procedures on the TSSC. We performed the audit between February 1999 and March 2000 at FAA Headquarters and the Southern, Northwest Mountain, and Southwest Regions.

We obtained a non-statistical sample of 49 TSSC work releases issued by the 3 regions between June 1995 and July 1999. We conducted the audit in accordance with Government Auditing Standards prescribed by the Comptroller General of the United States and included such tests as we considered necessary to provide reasonable assurance of detecting abuse or illegal acts.

¹ The ACO is responsible for overall contract administration of the TSSC in the field.

² The ATO is the principal official responsible for the technical management of the TSSC in the field.

We met with or interviewed FAA officials from the Office of NAS Transition and Integration Program (office responsible for the TSSC contract) and officials from the Office of NAS Implementation Program (users of the TSSC contract). In addition, we interviewed officials from Raytheon Support Services Company (the TSSC contractor). Exhibit A contains a list of organizations and individuals contacted during the audit.

On December 23, 1996, FAA issued the Technical Support Services Contract Management/Administrative Handbook (TSSC Handbook), FAA Order 4450.12, to provide requirements for personnel involved in the management and administration of the TSSC. Subsequently, on June 11, 1998, FAA revised the TSSC Handbook to provide additional requirements. We reviewed both TSSC Handbooks to ensure that the requirements we used to evaluate FAA's contract administration procedures were valid during the issue date of the work releases we reviewed.

To analyze the extent to which FAA followed its management and contract administration procedures on the TSSC, we reviewed documentation in the official contract file for each work release in our sample. In addition, we reviewed supporting documentation in the ATOs' files and the project engineers' files. Documentation reviewed included preliminary work releases, Independent Government Cost Estimates, contractor work plans, final work releases, work release revisions, Quantitative and Qualitative Analyses, and contractor invoices. We also evaluated the latest regional reviews on the management and administration of the TSSC contract from the three regions visited.

We also evaluated contractor resumes for technicians and engineers who charged direct labor hours to the 49 work releases reviewed. We obtained and reviewed performance standards for FAA engineers to determine accountability for performing contract administration procedures.

There have been no prior audits of the management and contract administration procedures over the TSSC contract by the Office of the Assistant Inspector General for Auditing or the General Accounting Office. However, the Office of Inspector General's Office of Investigations had identified similar contract administration problems with other FAA contracts.

II. FINDING AND RECOMMENDATIONS

In November 1995, Congress exempted FAA from many of the existing Federal procurement laws and regulations to address the unique needs of the agency. In addition, it directed FAA to develop a new Acquisition Management System to provide more timely and cost-effective acquisitions and improve the quality of equipment and services acquired. Although acquisition reform gave FAA more flexibility in how it acquires equipment and services, it did not alleviate the responsibility to implement sound business procedures to ensure that FAA is receiving goods and services that meet its needs at a reasonable cost.

Although TSSC was issued 6 months prior to acquisition reform, it is administered under FAA guidelines which included sound business practices. However, we found that FAA has not exercised effective management oversight or followed its own sound business practices on the \$875 million TSSC to ensure that support services are efficiently meeting FAA requirements and are cost-effective. We found that FAA does not:

- Control the cost of TSSC projects by developing *reliable* cost estimates for proposed projects or analyze significant variances between its project estimates and the TSSC contractor's proposed estimates (some of which varied by as much as 200 percent). For example, one FAA cost estimate valued the required work at \$167,200, and the contractor estimated the cost to be approximately \$394,000. FAA accepted the contractor's estimate over its own without questioning the additional costs.
- Close out completed work releases, assess inactive projects for idle funds, and follow correct procedures for obligating and deobligating funds to ensure that Facilities and Equipment funds are used efficiently and effectively. For example, FAA allowed Facilities and Equipment funds to remain idle for up to 2 years on TSSC work releases that had already been completed or contained projects that were inactive.
- Evaluate the TSSC contractor's work performance throughout the life of the project or upon completion, and ensure that contractor personnel meet education and experience qualifications specified in the contract. Approximately 10 percent of 211 contractor personnel reviewed did not meet contract standards for the skill levels charged.
- Provide effective program reviews of the contract administration on the TSSC. Although FAA Headquarters officials responsible for TSSC

management also found the deficiencies cited above during regional program reviews, regions were given **Excellent** ratings for their "management and operation of the TSSC program." In our view, these ratings were not consistent with what FAA officials observed.

In this review, along with work from our Office of Investigations, we found that FAA has not followed sound business practices for administering contracts. For example, the Independent Government Cost Estimate (IGCE) is designed to describe FAA's resource needs and anticipated costs necessary to complete a proposed project. The IGCE is a key document used to analyze the contractor's proposed work plan and cost estimates to ensure that requested work is understood and that proposed costs are fair and reasonable. However, in our opinion, FAA personnel responsible for developing the IGCE treat it as an unnecessary paper exercise. For example, we found that Government estimates on the TSSC were:

- ❖ prepared by FAA engineers then ignored; and
- ❖ prepared using unreliable resource and cost data.

We also found that for other FAA acquisitions, the Government estimate was:

- ❖ prepared by the contractor (a direct conflict of interest), or
- ❖ not prepared at all.

As a result, FAA is at substantial risk for inflated and overpriced contract services. Continuing such practices undercuts the objective of acquisition reform. Without reliable cost estimates, FAA, or any business, cannot make an informed decision as to whether the contractor's cost estimate is fair and reasonable. FAA could go a long way in achieving the benefits of acquisition reform if it promptly applied the lessons learned from this audit to future TSSC work and to other system and support service type contracts.

FAA Does Not Control Costs of Projects Using TSSC Resources

FAA does not develop reliable cost estimates for anticipated costs of proposed projects using the TSSC. In addition, FAA does not adequately analyze significant variances in direct labor hours and costs between its estimates and the TSSC contractor's estimates. Consequently, FAA project engineers³ routinely accepted the contractor's estimates rather than determining the

³ Project engineers are responsible for accomplishing a project under TSSC. They are required to develop a statement of work and an independent cost/work hour estimate, and ensure that the contractor's work plan addresses the intent of FAA.

reasonableness of proposed estimates and negotiating when significant variances occurred. Without a reliable estimating procedure and thorough analyses of the contractor's proposed costs, FAA cannot ensure that \$10 million initially budgeted for the 49 TSSC work releases reviewed, provided support services at a fair and reasonable cost.

FAA Has Not Analyzed Historical Cost Data or Developed Baseline Cost Data to Estimate Project Costs. FAA guidelines for administering the TSSC require that project engineers prepare an IGCE for each potential TSSC project. The IGCE will include a description of the engineering skill types and the number of direct labor hours for each skill type the contractor should reasonably be expected to supply in accomplishing the work. The IGCE should then be used to evaluate the validity of the contractor's proposed work and cost estimates. In addition, because FAA is not required to use TSSC exclusively for the type of services requested, the above evaluation is needed to determine whether it would be cost-effective to pursue the accomplishment of the work through other channels, such as FAA staff or other contractors.

To help develop accurate and reliable IGCEs, the Technical and Associate Technical Officers are required to analyze historical cost and resource data from similar projects accomplished by TSSC in other regions, other contractors, and FAA's in-house work force to develop a standardized basis for potential project costs. This analysis should be made available to all project engineers in each region for purposes of developing an accurate and reliable IGCE and to tailor the baseline for any unique characteristics for the project in their region.

However, no analysis has been performed to develop a standardized basis for estimating project costs. In addition, project engineers stated that they were not adequately trained in estimating procedures and were not comfortable relying on the IGCE as an accurate estimation of required resources. One project engineer stated that the development of the IGCE was a waste of time because the contract was a cost-type contract and, therefore, the contractor was only going to get paid what it spent. As a result, cost estimates for the implementation of the same project from region to region contained wide variances in the number of direct labor hours and dollar costs even though statements of work were basically the same.

For example, we reviewed TSSC work releases in FAA's Southern Region, Northwest Mountain Region, and Southwest Region that provided engineering support services for the installation/construction of like systems. We found no common basis for FAA's project estimates that could then be used to tailor projects to specific sites with unique needs. Wide variances existed among the

three regions in their development of IGCEs describing the engineering labor hours and costs necessary to complete the same project. To illustrate, the following table identifies one work release from each region, requesting engineering support services for the installation/construction of the Precision Approach Path Indicator system.⁴

IGCEs for Installation of the Precision Approach Path Indicator
Lacked Consistency

Region	Estimated Engineering Labor Hours Per System	Estimated Engineering Labor Cost Per System
Northwest Mountain	473	\$17,953
Southern	242	\$16,181
Southwest	0	\$41,987 ⁵

We found that the project engineer in the Southwest Region did not identify the number of estimated direct labor hours required for the project. In addition, this project engineer combined all costs (travel, labor, and other direct costs) together, which prevented an accurate comparison to the contractor’s proposed engineering costs.

Also, although the Southern and Northwest Mountain IGCEs were based on similar statements of work, the number of engineering hours estimated per site varied by almost 100 percent. For example, the Southern Region project engineer estimated that the project would require on the average, 242 hours of engineering services for each of three sites, while the Northwest Mountain Region project engineer estimated that it would take 473 engineering hours for only one site. We found no basis for the number of engineering hours estimated to complete the projects, nor did we find a consistent formula or guideline used by each region to develop the IGCE.

Large Variances Between FAA’s and the Contractor’s Estimates Are Not Adequately Analyzed. Contrary to FAA’s guidelines, project engineers routinely accept the contractor’s estimates to establish work release budgets without adequately analyzing any variance in direct labor hours and costs between its estimates and the contractor’s cost estimates.

Guidelines for administering the TSSC require that project engineers conduct a Quantitative and Qualitative Analysis on every proposed TSSC project to

⁴ The Precision Approach Path Indicator is a runway lighting, visual aid system for pilots on final approach to the airport.

⁵ Includes all project costs.

ensure that the proposed costs, timeliness of deliverables, and staffing levels are appropriate. Prior to June 1998, project engineers were to address in the Quantitative and Qualitative Analysis any cost variance between the IGCE and the contractor's estimate. After June 1998 project engineers must address any cost variances greater than 10 percent. Also, under the current guidelines, FAA considers any variance greater than 15 percent to be a **significant variance**. We found that FAA project engineers were not addressing variances of 10 percent or higher.

On 43 of 49 work releases reviewed, we found that FAA used the TSSC contractor's estimates for direct labor hours and project costs to set the original project budget, even though the contractor's estimates varied widely from FAA's IGCE. In fact, on 34 of the 43 work releases, the contractor's estimates contained variances up to 200 percent in either direct labor hours or costs, but FAA provided no explanation of why the contractor's estimates were accepted over FAA's.

The following table shows examples of 12 TSSC work releases where the initial budget was identical to the TSSC contractor's proposed estimates, even though there were significant variances from the FAA IGCE.

**FAA Accepted TSSC Contractor's Estimates
Despite Significant Variances From the IGCEs**

Hour Estimate				Cost Estimate		
FAA	TSSC Contractor	Percent of Variance		FAA	TSSC Contractor	Percent of Variance
Southern Region						
0	1,610	N/A ⁶		\$75,626	\$121,431	61%
500	998	100%		\$35,400	\$42,366	20%
1,400	2,385	70%		\$72,300	\$85,756	18%
2,500	7,310	192%		\$167,200	\$393,978	136%
Southwest Region						
700	1,306	87%		\$291,600	\$331,478	14%
1,500	2,920	95%		\$397,200	\$482,428	21%
2,300	6,658	189%		\$288,600	\$477,050	65%
3,500	6,012	72%		\$555,100	\$912,707	64%
Northwest Mountain Region						
550	877	59%		\$28,053	\$80,165	186%
655	1,004	53%		\$68,967	\$85,150	23%
1,218	1,505	24%		\$67,870	\$91,786	35%
3,144	4,133	31%		\$178,320	\$246,086	38%

⁶ FAA project engineer did not estimate the number of hours necessary to complete project, so we could not compute a variance.

To illustrate, one Southern Region work release for a Runway Visual Range had an IGCE that estimated 2,500 direct labor hours at a cost of \$167,200. The contractor estimated it would take 7,310 direct labor hours at a cost of \$393,978. Despite the variances of 192 percent for direct labor hours and 136 percent for dollars, FAA used the contractor's estimate to set the work release budget without a justification for the variances. The Southwest Region issued a work release for the replacement of an Instrument Landing System and accepted the contractor's estimate of 6,658 direct labor hours at a cost of \$477,050, even though the contractor's estimate was 189 percent higher for direct labor hours and 65 percent higher for project costs. Again, we found no analysis by the Southwest Region explaining the variances or to justify accepting the contractor's estimates over its own. Because FAA did not develop reliable IGCEs and routinely accepted the contractor estimates to establish project budgets, it cannot ensure that the costs of support services are reasonable.

As previously stated, the TSSC is a cost-plus-fixed-fee type contract that provides only minimal incentive to the contractor to effectively manage costs. Reliance on cost estimates prepared by the contractor places FAA at substantial risk for inflated and overpriced contract services.

FAA must establish a reliable estimating procedure that will enable project engineers to develop reliable and accurate IGCEs. FAA should be cautious in relying solely on historical TSSC costs due to inefficiencies as described in this report. FAA should rely more on FAA in-house costs or other contractors' costs that have been analyzed. Further, FAA must analyze all variances in labor hours and cost estimates of 10 percent or more between the contractor's estimate and FAA's IGCE, and justify acceptance of the contractor's proposed estimates over its own.

FAA Does Not Close Out Completed Work Releases, Assess Inactive Projects for Funds That Could Be Put to Better Use, and Follow Correct Procedures for Obligating and Deobligating Funds to the TSSC

Our analyses of 49 work releases identified that FAA allowed Facilities and Equipment (F&E) funds to unnecessarily remain idle for up to 2 years on TSSC work releases that had already been completed or were inactive. In addition, FAA has not provided effective oversight on procedures for obligating and expending F&E project funds to the TSSC contract. As a result, FAA has missed opportunities to more effectively use F&E project funds by

re-tasking funds from already completed or inactive TSSC work releases to other TSSC projects or by reprogramming⁷ funds to other FAA programs.

Funds Remain Idle on Completed and Inactive TSSC Work Releases. When the decision is made to use the TSSC to construct or install FAA systems, two types of F&E funds are combined to fund the work. First, project funds appropriated for specific NAS equipment are obligated to the TSSC contract to pay for all costs **other than** the contractor's labor and travel. Second, F&E funds appropriated specifically for the TSSC are used to pay for the TSSC contractor's labor and travel costs. When the project is completed and the final invoice has been paid, the work release should be closed and any remaining funds reassigned to other projects.

Our analysis of the 49 TSSC work releases found that FAA allowed F&E funds to remain idle for over 2 years on work releases that had been completed or were inactive. For the 16 work releases in our sample that had been completed, FAA took an average of 8 months from the project completion date to **begin** the close-out process. FAA also took an additional average of 8 more months to **complete** the close-out process. For the 16 work releases, FAA unnecessarily allowed approximately \$300,000 in F&E funds to remain on work releases instead of promptly closing them and putting the funds to better use by making them available for other TSSC projects. For example, the Southwest Region issued a work release in December 1996 and did not begin the close-out process until April 1999 when it decreased approximately \$81,000 from the work release allocation. However, we found that only \$400 had been invoiced to the work release since May 1998. As a result of not beginning the close-out process promptly, FAA allowed the \$81,000 to remain idle on the work release for approximately 10 months.

We also found that FAA allocated project funds to work releases that remained inactive for long periods of time. On seven work releases, FAA allocated over \$2.4 million for the installation/construction of multiple systems, yet approximately 23 months later, \$900,000 had not been expended, and work on several of the systems had not even begun. For example, the Southwest Region issued a work release on August 27, 1997, for the installation of four different NAS systems. As of July 1999, only \$345,000 of the \$882,000 allocated had been expended, and work on two of the systems had not begun.

⁷ Reprogramming is the utilization of funds in an appropriation account for purposes other than those contemplated at the time of the appropriation. Not all funds are reprogrammable, and FAA must follow specific guidance for reprogramming actions at differing thresholds.

Lastly, we found one work release where F&E project funds were allocated to install a system that had already been installed. The Southwest Region issued a work release in August 1997 and allocated over \$75,000 for the installation of equipment. Two months later, FAA notified the TSSC contractor to delete this work from the work release because other resources had completed the project. However, as of July 1999 (21 months later), the \$75,000 remained allocated to the work release.

Procedures for Obligating F&E Funds Were Not Followed. The ineffective obligation and expenditure of F&E project funds we found was confirmed by FAA in a July 1, 1999 memorandum from the Director for NAS Transition and Integration Program (responsible for *administering* the TSSC). The memorandum to the Director for NAS Implementation Program and regional implementation managers (responsible for *using* the TSSC) identified:

- \$34 million in expired funds (*funds that are past the 3-year obligation authority and must now be expended on the TSSC within 5 years*),⁸ and
- \$21 million in expiring funds (*funds that are within the 3-year obligation authority and still eligible for deobligation and reprogramming*) that appeared to be sitting idle or not even allocated to an individual TSSC work release.

The Director's memorandum addressed three problems with the amounts of expired and expiring funds found on the TSSC. First, approximately \$7 million in expired funds were obligated to the TSSC but had not been allocated to an active work release. The memorandum explained that these funds appeared to have been obligated to the TSSC just prior to the expiration of the 3-year obligation authority and were allowed to expire on the contract without being allocated to a work release. The Director's memorandum described this action as "bankrolling" of expiring funds, so they would not revert back to the United States Treasury.

The second problem identified by the Director verified what we found in our review of 49 TSSC work releases. The Director stated that work release close-out procedures were taking far too long and leaving too much unneeded money on the work releases.

⁸ FAA has 3 years to obligate appropriated funds. During the 3-year period FAA may, using prescribed guidelines, deobligate the funds from one program and obligate them to another program. If the funds are not obligated to a program within the 3 years, the funds revert back to the United States Treasury. For those funds obligated to the TSSC, FAA has an additional 5 years to expend the funds.

The third problem described by the Director's memorandum was the amount of expiring funds whose 3-year obligation authority would expire after September 1999, and therefore, the funds would be "locked" on TSSC and unavailable to other programs requiring funding. Approximately \$21 million in expiring funds were described as (1) allocated to work releases that have had zero dollars invoiced, or (2) only partially allocated or invoiced. The Director expressed concern whether a portion of these funds could be put to better use by deobligating them from the TSSC and returning them to the Headquarters program manager for reassignment to another region or for reprogramming action. However, this action would have to be performed before the funds' 3-year obligation authority expired in October 1999.

On October 1, 1999, the obligation authority did expire and funds became locked on the TSSC. We concluded that FAA has missed opportunities to more effectively use F&E project funds by releasing funds from completed or inactive work releases and retasking the funds to other TSSC projects, or reobligating TSSC funds to other FAA programs.

Since July 1999, FAA personnel have been taking actions to (1) identify and close out those work releases that are completed, (2) re-task funds to other higher priority TSSC projects, and (3) review inactive work releases and increase expenditures where possible. As of March 2000, FAA identified that it had reduced the amount of expired funds on the TSSC by approximately \$12.3 million from the July 1999 totals.

Although FAA has taken actions to begin resolving problems with expending and obligating F&E funds on the TSSC, FAA must review those F&E funds obligated to the TSSC whose 3-year obligation authority will expire at the beginning of the new fiscal year. A review of these expiring funds will allow FAA to determine whether funds obligated to the TSSC and remaining idle can be better used to fund other programs.

FAA Does Not Evaluate the TSSC Contractor's Work Performance

While improving the quality of services acquired is a goal of acquisition reform, we found that FAA does not complete customer satisfaction surveys to evaluate the TSSC contractor's work performance on individual work releases. In addition, FAA does not ensure that all contractor employees meet education and experience qualifications specified in the contract. As a result, FAA has no basis for determining the quality and reliability of contracted support services. In addition, for the 211 technical and engineering contractor employees who charged work on the 49 work releases reviewed, FAA paid

over \$200,000 for engineering services from contractor employees who did not meet education and experience standards contained in the TSSC.

Customer Satisfaction Surveys on the Contractor's Work Performance Are Not Completed. FAA personnel were not completing customer satisfaction surveys on projects using TSSC resources. According to the Office of Federal Procurement Policy's Guide to Best Practices for Contract Administration, good contract administration ensures that the end users are satisfied with the product or services being obtained under the contract. One way to accomplish customer satisfaction is to obtain input directly from the customers through the use of customer satisfaction surveys. These surveys help to improve contractor performance by informing the contractor when specified aspects of the contract are not being met.

TSSC guidelines require FAA personnel to complete customer satisfaction surveys at different times during the life of each work release. The surveys were developed to provide feedback on how effectively the TSSC contractor performed during the project's planning, engineering, implementation, and completion phases. In addition, written comments are requested on the overall quality and workmanship of support services provided by the TSSC contractor.

The first type of survey should be completed by project engineers for each work release periodically⁹ throughout the life of the project, and at the completion of the project. The survey at the completion of the project becomes the official FAA evaluation of the contractor's performance on the work release. The survey is then filed in the official work release file. We found only 2 customer satisfaction surveys completed by project engineers throughout the life of the 49 work releases reviewed. In addition, we found that 16 of 49 work releases were complete; however, only 1 work release had a final customer satisfaction survey. One project engineer stated that the customer satisfaction surveys provided no benefit to the region in terms of work performance improvements because nobody read them.

In the TSSC Handbook revision of June 1998, the requirement for another customer satisfaction survey was added. This survey, to be completed by FAA maintenance technicians, is an evaluation of the contractor's work performance at the conclusion of work at a site, or multiple sites, and is used to identify regional improvements. At the time of our review, this customer satisfaction survey was required for only 2 of the 16 completed work releases; however, maintenance technicians had completed none.

⁹ The 1996 TSSC Handbook required the survey on a quarterly basis, while the 1998 TSSC Handbook requires it once every 6 months.

A third survey, to be completed by the ATO and the ACO, provides an overall summary of the TSSC contractor's work performance on all work releases issued in the region, and should describe any recommendations for change. We found that this survey was completed by the ATO and ACO at two of the three regions visited.

Without consistent evaluation of the TSSC contractor's work performance, FAA cannot ensure that it is receiving effective engineering support services.

Approximately 10 Percent of the Contractor Personnel Reviewed Do Not Meet Contract Standards for Education and Experience. The TSSC contract describes the minimum requirements for education, general experience, and specialized experience for each labor category charged to the contract. The TSSC states that all individuals selected by the contractor to staff the TSSC must meet or exceed Government skill level, education, and experience requirements for each labor category. The contract also allows for the TSSC contractor to request a waiver from FAA for either the education or the experience standards contained in the contract.

We found that neither FAA nor the TSSC contractor had met their responsibilities for ensuring that personnel were qualified or that waivers were requested and justified. We reviewed resumes for 211 contractor personnel who charged direct labor hours as either an engineer or a technician on the 49 work releases reviewed. We identified that approximately 10 percent of these contractor personnel charged over 8,500 direct labor hours at a cost of over \$200,000 in labor categories for which they did not meet the TSSC contract's specified education and experience requirements.

For example, a contractor employee charged 145 labor hours on one work release as a Journeyman Electronic Engineer. For this labor category, the TSSC requires a Bachelors Degree in the appropriate engineering specialty, plus a total of 6 years experience (4 general and 2 specialized) in the appropriate field of work. As of the date the employee's time was charged to the work release, the employee did not have a Bachelors Degree in the appropriate engineering specialty, and had only 3 of the required 6 years of experience in the electronics field.

To identify total years of experience, we counted those years that related to the appropriate field of engineering work. However, we found that in determining whether some contractor personnel met the experience qualifications for an electronic technician, the TSSC contractor counted work as a salesman for home improvement products, a telephone operator, and a data entry clerk.

In addition, neither FAA nor the TSSC contractor ensured that waivers were requested and justified. The contractor requested and received waivers on only 4 of the 20 personnel that did not meet contract standards. However, the waivers contained no justification on which FAA could base an approval. For example, a contractor employee received a waiver to be charged as a Journeyman Electronic Technician. As of the date FAA approved the waiver, the employee had approximately 3 years applicable experience of the required 6 years experience needed to be qualified as a Journeyman Electronic Technician. We did not include 16 months of experience as a telephone operator that was counted by the contractor. Although the contractor's waiver request was based on the employee's experience gained on previous TSSC work releases, the request did not specify the employee's work that would substitute for the missing 3 years of experience. After FAA approved the waiver, this employee charged over 900 direct labor hours on one work release as a Journeyman Electronic Technician.

We were unable to determine any detrimental impact to the projects to which these 20 personnel were assigned because FAA did not evaluate the TSSC contractor's work performance and document whether problems with contractor workmanship occurred.

To ensure that it is receiving efficient and cost-effective support services, FAA must evaluate the contractor's work performance through consistent customer satisfaction surveys. Further, FAA should develop contract administration procedures that will ensure TSSC contractor personnel meet or exceed the standards for education and experience contained in the contract for the types of work to which they are assigned.

Future Use of TSSC Requires Significant Emphasis Be Placed on Sound Business Practices

Although FAA had contract administration procedures in place to prevent the problems we identified during this audit, it did not place an emphasis on ensuring that its own procedures were followed. For example, the TSSC Program Office performed periodic program reviews of the management of the TSSC throughout the regions and the Centers. In our opinion, these reviews did not provide constructive evaluations of the FAA regions' administration of the TSSC.

For example, the most recent program reviews for the three regions we visited described deficiencies such as customer satisfaction surveys not performed, completed work releases not closed out, and a lack of TSSC training for project

engineers. Despite these and other deficiencies, each region was given a rating of Excellent for its “management and operation of the TSSC program.” In our view, the Excellent ratings provided no incentive for the regions to increase their oversight of the TSSC. In addition, we found regional personnel were not held accountable for correcting the contract administration deficiencies identified during program reviews, and as a result, the same deficiencies existed at the time of our review 6 to 12 months later.

Additional emphasis on responsibility must also include proper training on TSSC responsibilities. Through interviews with project engineers in each region, we found that they did not understand the need for consistently performing contract administration procedures on TSSC work releases. For example, project engineers said development of the IGCE was a waste of their time because the contractor was just going to get paid what it spent. Another project engineer said customer satisfaction surveys provided no benefit to the region in terms of work performance improvements. A third project engineer said that, once projects were completed, close-out procedures became a last priority.

The training deficiency in contract administration has been previously reported in an internal FAA review. In the 1995 study of support services contracts, an FAA task force identified that the level of efficiency and effectiveness of contract management and administration varies widely across the agency. It also stated that agency employees could be considerably more “cost conscious” in using support contractors. The study concluded that there is a lack of adequate training for employees responsible for managing and directing contractors.

Recommendations

While acquisition reform gave FAA more flexibility in acquiring equipment and services, such flexibility requires a more disciplined management control system through sound business practices to ensure that it acquires goods and services in an efficient and cost-effective manner. FAA has established contract administration procedures that use sound business practices; however, these practices are not being followed.

We recommend that FAA:

1. Analyze historical cost data from the TSSC contractor, other contractors, and in-house FAA completion of like projects and develop baseline data for Independent Government Cost Estimates for TSSC projects.

2. Comply with its own contract administration procedures that require the analysis of all variances above 10 percent between FAA's and the contractor's estimates of direct labor hours and costs.
3. Comply with its own contract administration procedures for submitting customer satisfaction surveys that evaluate the TSSC contractor's work performance and take action to correct any identified problems.
4. Implement contract administration procedures to ensure that contractor personnel meet education and experience standards identified in the TSSC for the labor categories to which their time is charged.
5. Comply with its own contract administration procedures to close out work releases when projects are completed, assess inactive projects for funds that could be put to better use, and ensure Facilities and Equipment funds are correctly obligated on the TSSC.
6. Implement a process that will semi-annually identify and act on all expiring F&E funds obligated to the TSSC that can be deobligated and better used on other NAS projects.
7. Ensure that personnel having contract administration responsibilities outlined in the TSSC Handbook receive training on their responsibilities.
8. Incorporate performance of required contract administration procedures into the ATOs' and project engineers' performance standards.

Agency Comments and Office of Inspector General Response

FAA agreed with all recommendations contained in the report and identified actions either taken or planned to improve management oversight of the TSSC. These actions include (1) using databases and standard forms to develop more accurate Government cost estimates for each project; (2) clarifying guidance regarding analyzing variances in estimated project hours and costs, and providing training to project engineers in writing the Quantitative and Qualitative Analyses; (3) tracking customer satisfaction surveys and following up when they are not received; (4) closing out projects when they are completed and managing funds to reduce expired fund balances; (5) increasing contract administration training for staff charged with TSSC responsibilities; and (6) incorporating performance standards for contract administration into the evaluation criteria of TSSC officials.

FAA also provided specific comments on the report's findings. For several work releases described in the report, FAA provided additional explanations, but this information was not substantiated in work release files that we reviewed during the audit. Further, FAA agreed that its project engineers were not following its documentation procedures and that some work release files were incomplete and confusing. Accordingly, our conclusions are still valid and no changes to the report were made.

FAA also stated that it believes only 6 (3 percent) of the audited personnel did not meet contract qualifications instead of the 20 personnel or 10 percent of the 211 resumes we reviewed. FAA based this on analyses provided by the TSSC contractor that it had classified seven individuals in the wrong labor categories and that the remaining seven did meet contract qualifications. While the TSSC contractor corrected the classification of its employees, the fact remains that these seven individuals were charged in labor categories for which they did not meet qualifications. For the remaining seven individuals that the contractor stated did meet qualifications, no new evidence was provided that would change our determination of their qualifications. As a result, no changes were made to our finding.

With the exception of FAA's response to our recommendation to ensure contractor compliance with education requirements and experience standards, we consider actions taken and planned to be responsive to our recommendations. In response to contractor compliance with education requirements and experience standards, FAA stated that the contractor has reviewed all current contract personnel and processed requests for waivers (if education or experience standards were not met). FAA stated that it would look for methods to better eliminate mistakes in the TSSC personnel waiver process and ensure that contractor employees are charged under appropriate labor categories. We requested that FAA provide additional information to explain how and when it will implement contract administration procedures to ensure that contractor personnel meet education requirements and experience standards. We also requested FAA to provide us with the date it expects to complete its revision of the TSSC Handbook to clarify its guidance on analyzing variances between FAA's and the contractor's cost estimates.

Organizations Visited or Contacted

FAA

Office of Acquisitions, Contracts Division, Washington DC
National Airspace System Transition and Integration Program, Washington DC
National Airspace System Implementation Program, Washington DC
National Airspace System Implementation Center, Atlanta, GA
National Airspace System Implementation Center, Seattle, WA
National Airspace System Implementation Center, Fort Worth, TX

CONTRACTOR

Raytheon Service Company, TSSC Program Manager, Washington, DC
Raytheon Service Company, Regional Program Manager, Atlanta, GA
Raytheon Service Company, Regional Program Manager, Seattle, WA
Raytheon Service Company, Regional Program Manager, Fort Worth, TX

List of Major Contributors to This Report

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U.S. Department
of Transportation
**Federal Aviation
Administration**

Memorandum

Subject: **INFORMATION:** Discussion Draft Report on
Technical Support Services Contract

Date: SEP 12 2000

From: Assistant Administrator for Financial
Services/CFO

Reply to
Attn. of:

To: Deputy Assistant Inspector General for
Aviation

As requested in your memorandum dated August 16, attached are the Federal Aviation Administration's comments on your discussion draft report on the Technical Support Services Contract: Better Management Oversight and Sound Business Practices are Needed. Thank you for the opportunity to comment on the report. We agree with each of the eight recommendations. FAA has made significant progress in implementing many of them, and will make every effort to quickly and fully implement each. We explain our approach in more detail later in these comments.

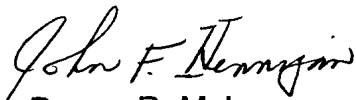
The FAA requires very detailed administrative procedures to utilize TSSC, and we recognize that we did not always follow these procedures, particularly at the inception of the TSSC-II program in 1995. We have been working diligently to correct these weaknesses, and have corrected much of the cited procedural and documentation problems in the 19 months since the audit was initiated.

The FAA believes that we have made significant improvements to provide effective management oversight to ensure that support services are effectively meeting FAA requirements and are cost-effective. Our program metrics for contract services cost, schedule and quality have always scored high. The overall cumulative TSSC cost performance index (cost efficiency measure), through July 2000, is 1.09, which exceeds contractual expectations. The overall cumulative schedule performance index (schedule efficiency measure) is 1.003, again exceeding expectations. These performance parameters are the essence for measuring service contract performance. Though the return rate for the Customer Satisfaction Surveys (CSS) was rather low, the CSS reflects relatively high scores from all categories of FAA respondents, signifying overall satisfaction with the TSSC contractual services. Additionally, the scoring is trending upward, showing greater satisfaction in the recent six-month period than in earlier years.

The FAA also uses many other significant contract administration techniques (discussed in the attachment) to ensure high quality and cost-effective work.

Attached is our response to the report's recommendations along with specific comments to the report finding.

If you have questions or need further information, please contact Ronald Page, Manager, Management Programs Division, APF-200. He can be reached at (202) 267-9960.


For Donna R. McLean

Attachment

**Federal Aviation Administration's (FAA) Response to the
Office of Inspector General Discussion Draft Report on the
Technical Support Services Contract: Better Management Oversight and
Sound Business Practices are Needed**

OIG Recommendation 1: Analyze historical cost data from the TSSC contractor, other contractors, and in-house FAA completion of like projects and develop baseline data for Independent Government Cost Estimates for TSSC projects.

FAA Response: Concur. We agree that this would be useful in the development of the IGCE. Since initiation of the audit, FAA has updated its previous TSSC cost estimate format, and has begun a process to utilize a database of standard networks as the basis for more accurate cost estimates. These standard networks were developed by FAA personnel with experience and historical knowledge in each of the project types represented by these networks. We have also conducted several process improvement workshops (8/99, 5/00, 8/00) with all TSSC Associate Technical Officers (ATO).

We have standardized the IGCE form to provide better estimates for all projects before initiating cost discussions with the contractor. We updated the form with current labor rates for each region. The form and rates are updated annually; they were last updated on July 31, 2000. The most current form and rates are also on the TSSC web site at <http://t-wins.awa.faa.gov>.

We have provided TSSC procedures training to project engineers (PEs) on IGCE and project estimating techniques. This training was completed between July and September, 2000. This training is also available on the TSSC web site.

FAA's Acquire system now allows use of Architecture and Engineering firms' historical costs. The new FAA Labor Distribution Report (LDR) database allows project engineers to produce more reliable labor estimates. We have mandated resource coding of TSSC projects be entered into the Resource Tracking Program (RTP), which will provide more accurate data. An FAA workshop on this approach was completed on August 30, 2000.

OIG Recommendation 2: Comply with its own contract administration procedures that require the analysis of all variances above 10 percent between FAA's and the contractor's estimates of direct labor hours and costs.

FAA Response: Concur. FAA agrees that weaknesses exist in the quality of IGCEs and quantitative and qualitative analysis (Q&Qs). We have been taking several steps to correct the weaknesses.

The TSSC Handbook states that a significant variance is 15%. We previously gave guidance to the regions for Q&Qs to address labor dollar variances above 15%, to clarify some Handbook ambiguity. We will revise the Handbook to clearly reflect this.

Via telecons with field personnel, the FAA has reiterated the importance of effective variance analysis between its internal estimates and those contained in TSSC contractor work plans. Additionally, classroom training has been provided to the PEs (July – September, 2000), giving guidance in the writing of the Q&Q analysis. Further training and documentation on the Q&Q concept is available on the TSSC web site.

An increased emphasis on better Q&Q quality has been provided by the TSSC Program Office since the beginning of the contract, but particularly for the past several years. We have further increased this emphasis since the audit commenced, using monthly telecons, special ATO and TSSC meetings, Regional Program Reviews (RPRs), and email messages. Much awareness and improvement in complying with procedures have been achieved. A major TSSC meeting and workshop with ATOs and ACOs in May 2000 addressed this action item in great detail. FAA telecons with field management further emphasized these concepts and the need for management oversight of them; the most recent was held on August 28, 2000.

TSSC contract administration procedures will also be included in the performance standards of regional management and staff using the contract during fiscal year 2001 (Recommendation 8), and these procedures will be checked during our Regional Program Reviews more closely. Action items resulting from these reviews will be kept and tracked to completion.

FAA has seen considerable improvement in the quality of contract administration documentation in the past year and will continue to work with the users for further improvement.

OIG Recommendation 3: Comply with its own contract administration procedures for submitting customer satisfaction surveys that evaluate the TSSC contractor's work performance and take actions to correct any identified problems.

FAA Response: Concur. The FAA has already made improvements in its customer satisfaction survey (CSS) process. At the May 2000 TSSC meeting, participants agreed to an improved transmittal flow for CSS forms. We will track returns and follow up when they are not received. The meeting participants also agreed to return CSS forms back to FAA Headquarters as soon as received, rather than waiting each month for a "batch" mailing. Emphasis on PE CSS forms being placed in the official Work Release (WR) folder was given.

The TSSC Program Office will continue to develop enhancements to the CSS process and better track survey returns. FAA has increased the awareness and need to improve CSS return rates. Improvement has already been seen: in the past year, the

TSSC Program Office has received 131 engineer WR evaluations, and 46 voluntary SMO WR evaluations. (The SMO CSS return is voluntary, as the PE is considered the TSSC contractor's direct customer. However, FAA has now put in place a process for increased SMO CSS submissions.)

Additionally, the FAA recently (January 2000) approved a revised Quality Assurance and Quality Control Plan, submitted by the contractor. The intent is to utilize ISO 9000 techniques to perform necessary quality functions over the contractor's work performance and products in a better, while less costly, manner. These concepts will feature improved QC standards and process documentation than existed previously.

OIG Recommendation 4: Implement contract administration procedures to ensure that contractor personnel meet education requirements and experience standards identified in the TSSC for the labor categories to which their time is charged.

FAA Response: Concur. FAA will look for methods to better eliminate mistakes in the TSSC personnel waiver process and ensure that employees are classified and charged under appropriate labor categories. The TSSC contractor is now more careful to ensure that all personnel qualifications are met, as a result of the preliminary OIG findings. They have improved their internal process to establish qualification matrixes and to recode them from their internal corporate system to the TSSC contract requirements properly. They have added extra review and quality control to this process.

The contractor has reviewed all current contract personnel and processed waivers for the few that needed them. The contractor is now fully compliant in processing waiver requests to FAA. FAA reviews and responds to TSSC waiver requests promptly; we have processed all such requests.

OIG Recommendation 5: Comply with its own contract administration procedures to close out work releases when projects are completed, assess inactive projects for funds that could be put to better use, and ensure Facilities and Equipment funds are correctly obligated on the TSSC.

FAA Response: Concur. Closing of work releases has been much improved. It has become a high priority and is thus occurring in a much timelier manner. WR close out status is discussed at each monthly PSR. The TSSC Program Office sends a monthly email notice to regions, alerting them to WRs that appear to be ready for close out action. Emphasis on WR close out is provided at most monthly TSSC telecons. At several telecons, we held extensive discussions on WR close out and project capitalization requirements and activities. FAA has conducted special project close out seminars and workshops with regional staff, over the last year.

FAA now closes out each project and capitalizes its costs as soon as the project is completed, rather than waiting for the entire WR to be completed. The FAA has closed

out many TSSC WRs over the past two years: 377 X Rev and 336 Z Rev (X revisions begin the WR close out process and Z revisions are the final step).

The FAA also has put increased emphasis on management of expired funds, CL&T expenditure, funds reprogramming and retasking, etc. with much success. We routinely, on a monthly basis, send out to the regions email notification of CL&T obligations and expenditures, for better funds management. We have clarified reprogramming and retasking concepts for all TSSC users, in order to effect better F&E funds management. Because of these actions, expired funds resident on the contract are down considerably from last year. We have reduced expired funds balances on the contract from approximately \$34 million to \$16 million (47% reduction) in the past 12 months. The FAA expects that our "platform" concept and FY-2001 National Work Plan process will further improve funds management on the TSSC.

OIG Recommendation 6: Implement a process that will semi-annually identify and act on all expiring F&E funds obligated to the TSSC that can be de-obligated and better used on other NAS projects.

FAA Response: Concur. The FAA has recognized the need to improve overall management of expired funds and has taken a proactive approach on expired funds management, predating the OIG audit. We have embarked on an aggressive program to actively manage these funds and reduce expired funds on the contract. Expired funds are now tracked and reported to FAA management on a quarterly basis. Expiring funds are identified one year before their expiration date and closely tracked. As a result, in the past 12 months, FAA has reduced the expired funds total from \$34 million to \$16 million (a 47% reduction). This will be a continuing area of FAA management emphasis.

FAA believes there are valid reasons for having some expired funds on the TSSC. Most TSSC funds that have become expired were previously obligated and allocated to WRs for active or planned projects. Project implementation may have been delayed for a variety of reasons: equipment delivery, land lease negotiation, environmental litigation, lack of CL&T funding to install, etc. Projects with expired funds will be installed as planned, within appropriation law limitations, or the funds will be retasked to more appropriate work.

Judging by the progress achieved in the past year, FAA is confident that expiring funds management on TSSC will continue to improve and that no "trapped" funds will be lost or wasted as a result of being obligated to the contract.

OIG Recommendation 7: Ensure that personnel having contract administration responsibilities outlined in the TSSC Handbook receive training on their responsibilities.

FAA Response: Concur. FAA training efforts (at meetings, telecons, regional reviews, etc.) have been emphasized for the past several years. As a result of the preliminary audit findings, efforts have redoubled. The May 2000 TSSC meeting focused on the ATOs' and ACOs' contract administration responsibilities.

The FAA conducted other special meetings with ATOs and/or ACOs to stress contract administration responsibilities and the need for complete file documentation. The August 1999 ATO session was such an example. ATOs, ACOs and project engineers are using the training modules covering contract administration on the TSSC web site. ATOs have recently (July - September 2000) provided classroom briefings to PEs on TSSC procedures. The FAA will place greater emphasis on funding future training opportunities for all FAA staff charged with TSSC administration.

The FAA has undertaken to ensure that all the employees using TSSC have proper training. The TSSC Program Office has recently required all ATOs to provide a briefing/training session for engineers in each of their offices. This effort has been completed.

OIG Recommendation 8: Incorporate performance of required contract administration procedures into the ATOs' and Project Engineers' performance standards.

FAA Response: Concur. The FAA will include pertinent performance standards in the evaluation criteria of contract administration officials. They will be incorporated into the standards of NAS Implementation Center managers, platform managers, ATOs and project engineers. All performance standards will be put in place during FY 2001.

Specific Comments on the OIG Report Findings

Page 5: We have found no evidence of TSSC contractors preparing IGCEs for the FAA.

"FAA Does Not Control Costs of Projects Using TSSC Resources"

Page 6: **"FAA Has Not Analyzed Historical Cost Data or Developed Baseline Cost Data to Estimate Project Costs."** Some of the examples on the table do not represent like systems. The Northwest Mountain Region Work Release (WR) represents contractor labor for a PAPI installation, assuming an already partially completed engineering design. The Southern WR is for a PAPI installation, with a 95% completed engineering design phase. The Southwest Region WR is for a complete PAPI installation, with all engineering work needed. These three WRs represent significantly different work; thus, it cannot be expected that these projects would share a common basis of estimate, or that labor costs would be similar.

Page 7: **"Large Variances Between FAA's and the Contractor's Estimates Are Not Adequately Analyzed."** FAA engineers do not routinely accept the contractor's estimates. Approximately 3% of the total work releases on TSSC were reviewed, and

from only the navigation/landing aids equipment area. The WR process can be quite complex with frequent scope or work changes, and some employees were not following documentation procedures as required.

The following comments refer to the table on page 8:

Southern Region, 4th entry: The numbers cited for the FAA estimate (2500 hours and \$167,200) represent installation work for five PAPI systems. A sixth site was added after the original FAA Independent Government Cost Estimate (IGCE) cited. It was a complicated and costly site, with two PAPI sensors for a Category III ILS system at Charlotte, N.C. The contractor's estimate included the sixth site and represents different work requirements.

Southwest Region, 1st entry: Both costs quoted include construction costs, which are not used when calculating labor variances. The actual labor costs, without construction, are \$51,600 from FAA (assuming no travel), and \$62,400 from the contractor (includes travel), resulting in a 6.4% labor cost variance.

Southwest Region, 3rd entry: The quoted FAA estimate is for one ILS and the contractor's estimate is for two. Between the two estimates, the scope of work changed to include the second ILS. The official WR file documentation is incomplete and confusing on the specific numbers of runways included.

Southwest Region, 4th entry: The quoted FAA estimate was for two ILS, and the contractor's was for three. There were several scope and cost changes to the project before final work release approval. The FAA did not follow correct procedure to fully document these changes.

Northwest Mountain, 1st entry: The quoted FAA estimate does not include construction costs, while the quoted contractor's estimate does. The actual labor cost variance is 47%.

Northwest Mountain, 3rd entry: The on-site labor was very closely estimated. The difference in the total hours and costs was due to additional office support and travel expenses needed by the contractor, which was not anticipated by the FAA.

Additional methods, over and above IGCE and Q&Q, are used extensively to control costs. All subcontract approvals over \$25,000 must be reviewed and approved by the FAA Administrative Contracting Officer before they may be awarded by the contractor. Competition in contracting for these fixed price awards, plus the contractor's ability to negotiate subcontract awards ensures the FAA is receiving best value. Any WR Change Action (for unexpected construction work scope or cost) must receive FAA approval before any go-ahead for on-site work is granted. Program Status Reviews, conducted to monitor work progress and costs, are held monthly in Washington and in each region between FAA and the contractor. Various contract and cost performance reports are scrutinized and issues resolved.

TSSC costs are low due to competitive direct labor rates and fixed indirect rate ceilings on the contract. In addition, Defense Contract Audit Agency audits verify submitted contractor costs.

Page 9: "FAA does Not close Out Completed Work Releases, Assess Inactive Projects for Funds that Could be Put to Better Use, and Follow Correct Procedures for Obligating and Deobligating Funds to the TSSC."

FAA has been very aggressive in closing out work releases in the last two years. We closed out 120 WRs in FY 1999, 171 in FY 2000, and have focused the attention of management officials and engineers to continue this effort. The improvements seen in FAA's fiscal program management will have a direct positive effect upon better fiscal management of TSSC obligations and projects. We have provided extensive management oversight, current data, and updated guidelines to the regions pertaining to expired funds, excess funding on completed projects, and funds re-tasking policy. Our expired funds balance has been reduced dramatically in the past year.

The point that FAA allowed funds to remain on work releases after the project is completed is accepted in that any funds excess to the completed WR should be reassigned to other work. Regions may have over 100 job order numbers (JON) of a particular equipment installation on one WR. As these sites are completed, each JON is closed out and capitalized.

"FAA Does Not Evaluate the TSSC Contractor's Work Performance"

Page 13: **"Customer Satisfaction Surveys on the Contractor's Work Performance Are Not Completed."**

FAA agrees that CSS return rates can be better. We have been making a concerted effort in the past 1-1/2 years to improve. In addition to the CSS feedback, there is a series of activities the FAA uses to monitor, measure, and control contractor performance to ensure quality and cost-effective performance:

1. Monthly Cost Performance Reports
2. National and regional monthly Program Status meetings
3. Work Release Planning meetings for each WR
4. Contract Deliverable Reviews to Project Engineers (50%, 90%, 100%)
5. Phase 1 Reviews to FAA PE
6. In-Process Work (TOR/RE/SMO Representative)
7. Contractor Acceptance Inspections (FAA PE/SMO)
8. Real Time Reports of Unsatisfactory Performance (ATO, ACO, PE, SMO,)
9. Monthly Invoice Reviews (ATO, ACO, PE)
10. Weekly WR Project Status Meetings (ATO, ACO, PE)

Page 14: **"Approximately 10 Percent of the Contractor Personnel Reviewed Do Not Meet Contract Standards for Education and Experience."** We believe only six (3%) of the audited personnel did not meet contract qualifications. The \$200,000 is the total

salary cost of the disputed labor classifications, not FAA's over-payment. The actual incremental difference due to different labor category classifications for the six people is \$7,075.