

VOLPE'S PROJECT MANAGEMENT OVERSIGHT

Research and Special Programs Administration

Report Number: SC-2004-100

Date Issued: September 30, 2004



Memorandum

**U.S. Department of
Transportation**

Office of the Secretary
of Transportation
Office of Inspector General

Subject: **ACTION:** Audit Report on Volpe's Project
Management Oversight
Research and Special Programs Administration
SC-2004-100

Date: September 30, 2004

From: Alexis M. Stefani 
Principal Assistant Inspector General
for Auditing and Evaluation

Reply to
Attn. of: JA-60

To: Deputy Secretary
Chief of Staff
Deputy Administrator, Research and Special
Programs Administration

This represents the third of three reports on the Volpe National Transportation Systems Center (Volpe). This audit was requested by Representative Ernest J. Istook, Jr., Chairman of the House Appropriations Subcommittee on Transportation and Treasury, and Independent Agencies. Chairman Istook requested that the Office of Inspector General (OIG) conduct an audit to determine: (1) how Volpe's role and functions have changed over the years and whether current Volpe activities meet the Department of Transportation's (DOT) needs, (2) if Volpe has the necessary financial controls in place to assure its service fees are appropriate, and (3) DOT's role in overseeing Volpe and whether that role is adequate to ensure that Volpe provides cost-effective services.

Our first report¹ addressed Volpe's role and functions in the Department and whether Volpe is meeting DOT's needs. Our second report² covered Volpe's financial controls. This third and final report addresses Volpe's project management oversight of DOT work and whether it is adequate to ensure cost-effective services. We focused our efforts on DOT projects because of congressional concerns regarding such work and the organizational relationship between the Department and Volpe. (See Exhibit A for our audit objective, scope,

¹ OIG Report Number SC-2004-077, "The Role and Functions of the Volpe National Transportation Systems Center," August 4, 2004. OIG reports can be accessed on our website: www.oig.dot.gov.

² OIG Report Number FI-2004-076, "Financial Controls for Cost Accounting and Billing Practices, Volpe National Transportation Systems Center," August 4, 2004.

and methodology.) During the course of our audit, three other studies of Volpe were conducted, two by the Research and Special Programs Administration (RSPA) and one at the direction of the Secretary. The Secretarial review, which is to be completed later this year, will incorporate the work done by RSPA and the OIG.

RESULTS IN BRIEF

While our second report found Volpe's financial controls to be sufficient in a number of important areas, including the recording and assignment of direct labor and acquisition costs, this report identified several areas for improvement in the Center's project management oversight. Specifically, we found: (1) project agreements between Volpe and DOT customers frequently lack well-defined requirements, (2) cost estimates are deficient for most projects, (3) project management and oversight are hampered by insufficient project status reporting, and (4) project management controls do not ensure the timely reimbursement of excess funds on inactive projects. These four areas, which are summarized below, hinder not only Volpe's and DOT's management and oversight of departmental projects, but also their ability to ensure the cost-effectiveness of the Center's services.

- ✓ **Project agreements frequently lack well-defined requirements.** Volpe's policies and procedures for developing project agreements with DOT customers need to be improved. Comprising over \$140 million in new DOT funding in fiscal year (FY) 2003, these agreements frequently lack sufficient detail about what services will be provided and the time period and costs involved. Based on our review of project agreements involving 20 randomly selected DOT projects, we found all lacked well-defined requirements in at least one of four important areas (i.e., tasks, cost estimates, deliverables with completion dates, and performance reporting). For example, approximately half of the 20 projects did not have sufficiently defined tasks or deliverables with completion dates. In many cases, the requirements were either not quantified or left to the customer to define at some future date. One multi-year project agreement involving \$9.2 million with the Federal Aviation Administration's (FAA) Environmental, Compliance and Employee Safety program stated that training would be provided but did not indicate how many classes would be held, the number of employees to be trained, or the desired time frame. Given the significant funds transferred to Volpe each year, it is critical that Volpe and its DOT customers have a clear understanding of how these funds will be used and what services will be provided. They must also ensure adequate controls exist for managing individual projects (e.g., milestones and performance reports).

- ✓ **Cost estimates are deficient for most DOT projects.** Volpe needs to develop standards for preparing cost estimates on DOT projects. Presently, the development of project cost estimates is left to the discretion of individual Volpe project managers. This results in significant differences in the number and quality of cost estimates being developed, as well as the retention of supporting documents. For example, based on our review of 20 DOT projects, we found that 19 did not fulfill minimum best practices³ for preparing a cost-estimate analysis. Funding for these projects ranged between \$180,000 and \$80 million (from October 1998 through May 2003). In one case, the project manager based his estimate on available customer funds rather than the cost to perform specific tasks. Similarly, our review⁴ of Volpe's work on the Advanced Retrieval "Tire, Equipment, Motor Vehicle" Information System (ARTEMIS) project for the National Highway Traffic Safety Administration's (NHTSA) Office of Defects Investigation found the project proceeded without a systems development strategy and reliable cost and schedule estimates. As a result, development cost estimates increased from \$5.35 million to \$9.4 million (76 percent increase) and the project encountered delays of over 20 months. Without project cost estimates, management accountability is lessened, making it difficult for Volpe and its customers to determine the cost effectiveness of those services being provided.

- ✓ **Project management and oversight are hampered by insufficient reporting.** Volpe is currently unable to provide to its customers project status reports that integrate both cost and performance information and are useful and easy to read. Nearly one-third of the DOT customers we interviewed complained that Volpe's project reporting does not adequately track costs, milestones, and deliverables or found that progress reports were difficult to understand. For example, FAA funds Volpe's work on the Enhanced Traffic Flow Management System from three sources.⁵ However, current Volpe financial reports do not show expenditures by funding source, thereby making it difficult for FAA to track expenditures or remaining available funds from each of the three sources. Although Volpe is working on improving its automated systems, it needs to ensure these improvements lead to better customer reports that integrate project status and cost information. This will allow both Volpe and the customer to better manage projects.

³ These requirements are cited in the Project Management Institute's *Guide to the Project Management Body of Knowledge*; Newtown Square, PA: 2000.

⁴ OIG Report Number MH-2004-088, "Follow-up Audit of the Office of Defects Investigation, National Highway Traffic Safety Administration," September 23, 2004.

⁵ Between October 1998 and May 2003, Volpe received approximately \$80 million in new obligation authority from FAA for the Enhanced Traffic Flow Management System.

- ✓ **Project management controls do not ensure the timely reimbursement of excess funds on inactive projects.** Volpe project managers do not promptly identify and reimburse unneeded funds on projects that are no longer active. This is occurring because Volpe lacks adequate controls for identifying inactive projects.⁶ Our review of Volpe records found 65 projects with \$1.5 million in available obligation authority that had been accumulated between FY 1988 and FY 1999 and was still outstanding as of May 1, 2003.⁷ None of these projects had received any new obligations since FY 2000. Moreover, based on our examination of documents and interviews with Volpe officials relating to 10 of the 65 projects, we identified 5 that should be closed and \$177,213 returned to the customer and, in turn, the U.S. Treasury. In addition to reviewing the remaining 55 projects (totaling \$834,226 in available funding), Volpe needs to improve its management controls and monitoring to ensure the timely return of available funds on projects that are no longer active.

The RSPA management assessment team in a draft reported dated July 2003 identified a number of similar weaknesses in Volpe's project management oversight. This assessment of Volpe's operations aimed to provide feedback and direction to Volpe to improve project management. For example, the assessment noted that "[t]o manage projects more effectively, Volpe could benefit from an in-depth analysis of type of data the program managers and their customers need." As Volpe takes action to address these weaknesses, RSPA needs to ensure that these corrective actions are timely and fully implemented.

The ARTEMIS project discussed above illustrates the serious impact that poorly defined requirements and cost estimates can have on Volpe's ability to meet the needs of DOT customers. As a result of problems with ARTEMIS, Volpe was required to establish a risk mitigation account to hold itself accountable for project cost overruns. To prevent such problems from reoccurring, Volpe management must ensure that all projects have clearly defined requirements with reliable cost estimates and schedules. Such controls will also help guarantee the cost-effectiveness of Volpe's services to DOT.

Based on our findings, we recommend the Volpe Director and RSPA Administrator strengthen policies, procedures, and management oversight to ensure project agreements have adequately defined requirements, including tasks, cost estimates, deliverables with milestones, and performance reporting. We also recommend developing an automated reporting and tracking capability that

⁶ For this review, we defined an inactive project as one with no new obligation authority since FY 2000 and unobligated balances of 3 years or older.

⁷ Volpe has been unable to generate subsequent reports since the conversion to the Delphi system in May 2003.

integrates project requirements, schedules, deliverables, and costs and that generates more useful and easy-to-read financial and project status reports for Volpe's customers. Finally, we recommend establishing controls to ensure the timely identification and reimbursement of unneeded funds on projects that are no longer active. Volpe also needs to complete the return of \$177,213 relating to the 5 inactive projects and review the remaining 55 projects (totaling \$834,226 in available funding) for possible closure, with all unneeded funds promptly returned to the customer.

On September 27, 2004, RSPA provided comments (see Appendix) to our draft report. RSPA concurred with our recommendations, indicating they were consistent with the observations that were made during the RSPA management assessment and the DOT Task Force review. RSPA also pointed out that they have initiated a comprehensive plan of action to address project management oversight deficiencies at Volpe and plan to forward to our office these actions and a status report on this effort by November 17, 2004. These efforts should help to strengthen Volpe's project management oversight. Our recommendations will remain open until we receive RSPA's action plan and status report and assess their responsiveness. To help facilitate this process, we request that RSPA include in its November 2004 response a listing of actions taken or planned to address each of the report's three recommendations and the target dates for completion.

BACKGROUND

The John A. Volpe National Transportation System Center, located in Cambridge, Massachusetts, is an international center for research and development, engineering, and analysis of transportation-related issues. Although part of DOT's RSPA, Volpe receives no direct appropriations from Congress. Instead, Volpe is entirely funded through a fee-for-service structure in which all costs are covered by sponsored project work. For FY 2003, Volpe received \$232 million in funding (as measured in new obligation authority), with 64 percent (\$149 million) coming from DOT sources and 36 percent (\$83 million) from non-DOT sources. By itself, Volpe is larger than several of DOT's smaller Operating Administrations, making up over half of RSPA's Federal staffing and two-thirds of its budgetary resources.

During the course of our audit, three other studies of Volpe were conducted, two by RSPA and one at the direction of the Secretary. The objective of the first RSPA study was to provide Volpe with feedback and direction to improve project management. In July 2003, the RSPA management assessment team identified a number of issues in a draft report. The second RSPA study focused on Volpe's organizational structure. Based on this study, the Volpe Director, in a memorandum dated April 13, 2004, proposed restructuring the Center and establishing an oversight office in Washington, DC. The Secretary of

Transportation established a departmental task force in 2003 to review “all aspects of Volpe organization.” This review, which is to be completed later this year, will incorporate the work done by RSPA and the OIG.

RESULTS

While our second report found Volpe’s financial controls to be sufficient in a number of important areas, including the recording and assignment of direct labor and acquisition costs, this report identified several areas for improvement in the Center’s management oversight of DOT projects. Specifically, we found: (1) project agreements between Volpe and DOT customers⁸ frequently lack well-defined requirements, including preparing cost estimates; (2) project management and oversight are hampered by insufficient reporting; and (3) project management controls do not ensure the timely reimbursement of unneeded funds on inactive projects. These areas limit not only Volpe’s and DOT’s management and oversight of departmental projects but also their ability to ensure the cost-effectiveness of the Center’s services. The following discusses our major findings.

Volpe Needs To Strengthen Policies and Procedures for Defining Project Requirements and Estimating Costs

Volpe’s policies and procedures do not provide adequate controls to ensure the development of project requirements, including fully defined tasks, cost estimates related to each task, deliverables with completion dates, and performance reporting. Instead, much is left to the discretion of Volpe project managers, resulting in many requirements not being fully defined before projects start. Until these shortcomings are addressed, project management will continue to be hampered and DOT customers will have limited assurances that Volpe has identified all project requirements and associated costs up front. Volpe will also find it difficult to ensure the cost-effectiveness of its services to DOT.

Project Requirements Are Frequently Not Well-Defined

Volpe uses two documents to initiate a DOT project: the General Working Agreement (GWA) and the Project Plan Agreement (PPA) (see Figure). The GWA is a funding agreement between Volpe and the DOT customer stating the total funds that will be advanced and obligating the funds against the customer’s appropriation. The PPA is the detailed technical plan that includes the work requirements, deliverables, milestones, progress reporting, and funding provisions. The PPA procedures as prescribed in Volpe Order 5000.3B, “Processing Project

⁸ “Customer” in this report refers to the DOT manager responsible for the day-to-day oversight of the project versus the customer finance officers discussed in our second Volpe report.

Figure. Volpe's Project Initiation and Funding Documents

GWA General Working Agreement	PPA Project Plan Agreement
1. Establishes overall program scope	1. Establishes specific statement of work
2. Establishes sponsor funding level	2. Details resources required
3. Customer obligation = Volpe obligation authority	3. Details deliverables, schedules, and milestones

Plan Agreements” (June 3, 1986), state that the preparation of a PPA should be as succinct as possible and must include paragraphs on description of work, deliverables and schedules, milestones, and review and reports to customers.

To help assess Volpe's policies and procedures for defining project requirements, we developed a project agreement model⁹ (see Table 1). This model served as a baseline for evaluating the 20 projects¹⁰ in our sample. Based on our evaluation, we concluded that none of the 20 projects clearly identified, in sufficient detail, all of the four attributes (see Exhibit B). Specifically, we determined that only 12 of the 20 projects had fully specified task requirements and 7 had adequately defined deliverables with completion dates.

Table 1. How Often Key Attributes of a Well-Defined Project Agreement Were Met

Key Project Attributes	Projects Met
✓ Fully defined work scope described by specific tasks	12 of 20
✓ Cost estimates related to each task	1 of 20
✓ Defined deliverables with completion dates	7 of 20
✓ Specific reporting requirements for measuring performance and controlling cost	3 of 20

Source: Project Management Institute. *Guide to the Project Management Body of Knowledge*; Newtown Square, PA: 2000.

In many cases, the requirements were either not quantified or left to the customer to define at some future date. For example, in one case involving an FAA project agreement dated September 23, 1998, for the National Airspace System Modernization Safety Risk Assessment and

⁹ We reviewed this model with Volpe senior management and reached agreement on the attributes of a well-defined project.

¹⁰ We randomly selected 20 ongoing DOT projects with funding from FY 1999 through FY 2003. Our review examined PPAs and PPA revisions or modifications developed for the 20 projects.

Evaluation, three of the four task completion dates were originally listed “To Be Determined” under the deliverable section.

Volpe Order 5000.3B generally addresses the attributes cited in Table 1, with the exception of cost estimating, but project managers are not fully complying with the order. For example, the order calls for a statement of work, deliverables and schedules, milestones, and quarterly reports. Table 1 shows these requirements are frequently not met. This is occurring because Volpe management is not ensuring that project managers define the work requirements in sufficient detail, such as quantifying the amount of effort involved. This is particularly true for those projects involving long-term service agreements (e.g., analyses and evaluations, information technology support, training). Moreover, Volpe leaves it to the DOT customer and the Volpe project manager to decide what specific reporting information will be provided.

As a result, Volpe frequently accepts projects even though DOT customers are not always sure what they want and continues to work with the customers to better define their needs as the project progresses.¹¹ According to several Volpe officials, DOT customers view the Center’s personnel as an extension of their own staff. This situation, however, can lead to Volpe project managers and DOT customers not clearly defining project requirements. As an illustration, a multi-year project agreement involving \$9.2 million with FAA’s Environmental, Compliance and Employee Safety Program stated that training would be provided. It did not indicate how many classes would be held, the number of employees to be trained, or the desired time frame. By not clearly defining project requirements, project performance is difficult to measure, projects can incur greater costs, and customer needs may not be met.

Volpe Does Not Use Standard Cost Estimating Procedures

Another area requiring improvement is the development of project cost estimates. We found that nearly all of the 20 DOT projects we reviewed did not have cost estimates or had not retained any documentation showing that a cost estimate had been done. A major reason for this was the lack of any guidance or policy requiring that Volpe project managers develop cost estimates or retain supporting documentation as part of the Center’s PPA process. Volpe project managers gave several other reasons why they had not prepared cost estimates. For example, one Volpe project manager indicated that available customer funds generally drive his estimates because customers consider him an extension of their staff. Several other project managers indicated they had completed cost estimates but, due to the informal procedures at Volpe, had not retained the documentation. As a result,

¹¹ Volpe officials noted that some project requirements, such as those for research efforts, are difficult to define up front.

Volpe project managers for 19 of the 20 projects we reviewed had either not prepared a “bottom-up” cost estimate¹² or had not kept the supporting documentation (see Exhibit B). The 20 projects in our sample had new obligation authority from October 1998 to May 2003 ranging between \$180,000 and \$80 million.

Because Volpe does not require that cost estimates be prepared or retained, the DOT customer does not have a realistic estimate of the final cost of the project, and management accountability is weakened. In accordance with best practices as shown in Table 2, managers should provide a cost estimate of each identifiable task and deliverable before project initiation. To do this, project managers need to define project requirements clearly, and Volpe needs to establish and enforce a standard cost-estimating policy.

Table 2. Minimum Requirements for a Cost-Estimate Analysis

<ul style="list-style-type: none"> ✓ Work breakdown structure by identifiable tasks and deliverables ✓ Resource requirements (staff, contractors, equipment) ✓ Resource rates (staff cost per hour, equipment cost per unit, equipment lease rates per day) ✓ Duration estimates (days or weeks to complete tasks) ✓ Risks (costs to mitigate tasks with potential risks)
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Source: Project Management Institute. *Guide to the Project Management Body of Knowledge*; Newtown Square, PA: 2000.

We also noted that cost estimating was a problem in our report on NHTSA’s Office of Defects Investigation (dated September 23, 2004). In reviewing Volpe’s work on the ARTEMIS project, we found that Volpe developed a cost estimate before finalizing project requirements for systems development and did not use generally accepted estimating techniques. As such, development cost estimates increased from \$5.35 million to \$9.4 million, and the project encountered delays of over 20 months. Finalizing project requirements in advance, using proper cost-estimating techniques, and providing a reliable estimate may have prevented such problems.

Volpe recognizes the need for improving its policies and procedures for defining project requirements. In fact, Volpe is developing a Project Management Process Standard for all new projects that will start in FY 2005. One of the improvements being considered is to establish an initial PPA based on preliminary work and to enter into follow-on PPAs once the task requirements, deliverables, schedule

¹² A “bottom-up” cost estimate involves the development of individual cost estimates for each project activity, task, or deliverable that is then rolled into an overall cost estimate for the entire project.

dates, and reporting requirements are more clearly defined.¹³ Volpe is also developing a cost- and schedule-estimation standard that will provide instructions for developing cost estimates, as well as requiring that estimates be prepared before the start of any project. In addition, to ensure compliance with existing policy and consistency in the development of PPAs, Volpe is developing a training program for its project managers. We support these efforts and see them as a means to improve overall project management oversight, as well as helping ensure the cost-effectiveness of Volpe's services to its customers. However, senior Volpe managers need to make certain that these improvements are fully implemented, including periodically reviewing PPAs to ensure they incorporate clearly defined tasks, deliverables with completion dates, cost estimates for each task, and performance reporting.

Management and Oversight of Volpe Projects Are Hampered by Insufficient Project Reporting

Volpe project managers and DOT customers are hampered in their ability to effectively manage and oversee the Center's projects due to insufficient project status reports. This is due in large part to shortfalls in Volpe's data systems, including their inability to integrate financial and project status information, and problems associated with last year's conversion to the Delphi system (DOT's new financial management system), as well as the lack of standard reporting requirements. Due to system constraints, Volpe project managers have created several approaches to generating needed customer reports, including the use of PC-based project tracking software. Such efforts, however, have resulted in significant differences in the information made available to Volpe's customers and its usefulness.¹⁴ For example, FAA funds its Enhanced Traffic Flow Management System from three sources. However, current Volpe financial reports do not show expenditures by funding source, thereby making it difficult for FAA to track expenditures or remaining available funds from each of the three sources.

Volpe's reporting difficulties with respect to financial information were documented in our second report on Volpe (issued August 4, 2004). That report cited a number of problems, including financial reports that "could be confusing and were not user-friendly." That report also noted that what reporting capability Volpe used to have was lost upon conversion to the Delphi financial system in May 2003. Volpe is gradually regaining its reporting capability, but the audit report points out that this process has been costly and the documents generated

¹³ The RSPA management assessment also observed that Volpe's acquisition office "...could serve a valuable oversight function in helping ensure the adequacy of all project agreements." We support this and agree that Volpe should include the expertise of their acquisition office, which has a staff experienced in defining contract work requirements, in reviewing all PPAs.

¹⁴ RSPA's Deputy Administrator also noted that he lacked sufficient information to monitor Volpe's activities adequately, especially individual projects.

still lack much of the information available in financial reports issued routinely before the conversion to Delphi. The report also makes several recommendations aimed at improving Volpe's reporting capability, including determining what ad hoc reporting capabilities Delphi could provide to meet Volpe and customer reporting needs.

Additionally, the lack of standard reporting requirements has hampered Volpe's ability to produce useful project reports. Currently, each Volpe project manager is left to determine the format, content, and type of information to provide customers.¹⁵ As a result, project reports vary by individual manager and at times are confusing and not user friendly. For example, DOT customers in our satisfaction survey expressed concern about Volpe's reporting, with 10 of 55 respondents citing the need for better cost controls and financial reports and 6 others saying that monthly reports should be formalized to include specific tasks completed during the month, along with expenditures associated with each task. Similarly, in interviews with DOT officials associated with 20 projects, 6 managers stated that they found Volpe project and financial status reports difficult to understand or lacking sufficient information to permit the tracking of project costs, milestones, and deliverables. To provide better overall management of the project, status reports need to reflect expenditures and progress to date on each task and deliverable.

RSPA's management assessment found similar problems with Volpe's project reporting. In particular, RSPA cited the need for a project management system or tool to track cost to performance and the need to improve communication with the Center's customers. As a result, Volpe has begun to identify specific steps for tracking costs to performance and improving customer reports. As part of this effort, Volpe needs to work closely with its key stakeholders (e.g., RSPA and DOT customers), as well as its project managers, to identify reporting requirements and develop the necessary automated systems to ensure the timely dissemination of financial and project status information. Table 3 identifies the attributes of a project status report that should be considered in Volpe's ongoing efforts to

Table 3. Key Attributes of Project Performance Reporting

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|---|
| <ul style="list-style-type: none"> ✓ Provide status of where the project stands in respect to schedule and budget metrics ✓ Describe progress related to project deliverables (what is completed, what is in process, and what is to be initiated) ✓ Forecast future project status and progress |
|---|

Source: Project Management Institute. *Guide to the Project Management Body of Knowledge*; Newtown Square, PA: 2000.

¹⁵ Volpe Order 5000.3B provides little guidance on reporting requirements, noting only that the PPA should cite "...noteworthy review or reports requirements as agreed upon with the Sponsor, i.e., interim and final reports, sponsor reviews, etc."

improve the quality of its reports. Specifically, status reports should provide the percent completed for each task and deliverable and the associated cost expended to date for each.

Management Controls Are Not Ensuring the Timely Return of Unneeded Project Funds

Project managers are not closing inactive projects and returning unneeded funds to customers. Even though Volpe has implemented an annual certification process to identify projects for closure and returning of remaining funds, project managers are allowing the funds to remain on projects primarily because customers say they still plan on using the funds. Since there are no restrictions on when the funds need to be spent,¹⁶ customers have little incentive to ask for the funds to be returned.¹⁷ Nevertheless, Volpe needs to implement better management controls for identifying inactive projects and for requiring project managers to provide justification for retaining funds. Such controls should also include more effective monitoring to ensure the timely closure of the project and return of unneeded funds to DOT customers and, if required, in turn to the Treasury.

Our review of Volpe's records found 65 DOT and non-DOT projects with \$1.5 million in available obligation authority that were outstanding as of May 1, 2003. None of the 65 projects had received any new obligations since FY 2000, with the \$1.5 million being accumulated between FY 1988 and FY 1999. We reviewed 10 of these projects with \$700,000 in available funding to determine the basis for retaining their obligation authority. Specifically, we had Volpe's Financial Management Office generate reports for the 10 projects to include: (1) new work assignments identified for the current fiscal year; (2) expenditure, commitment, obligation, and disbursement activity since project inception by fiscal year; and (3) the uncommitted balance as of May 2003.¹⁸ Based on our review of these documents and interviews with Volpe project and Financial Management Division managers, we identified five projects that they agreed should be closed and \$177,213 in available funding that should be returned to the customer and, in turn, the Treasury (see Table 4).

¹⁶ Title 49 USC 328(b) notes: "Amounts in the [working capital] fund [for Volpe] are available without regard to fiscal year limitation."

¹⁷ Once Volpe returns the funds to the customer, the customer would not be able to use any funds that exceeded the original appropriation timeframe and would have to transfer the funds back to the Treasury.

¹⁸ Volpe has been unable to generate reports since the conversion to the Delphi system in May 2003.

Table 4. Available Funding No Longer Needed as of May 1, 2003

Agency*	Project Title	Questioned Costs	Last Major Activity
FAA	Security Equipment Integrated Product Team Analysis Support	\$76,524	FY 1999**
FAA	Operations Control Center Support	\$49,578	FY 2001
FAA	Foundation Information Real Property Management Support	\$19,494	FY 1993
OST	Small Business Innovation Research	\$18,741	FY 1995
Other DOT	Office of Airline Information Management Collections Account	\$12,876	FY 2002***
	Total	\$177,213	

* See Exhibit D for a list of acronyms.

** Funds returned in February 2004.

*** Funds returned in June 2004.

The following includes a brief summary of three of these projects.

- ✓ **Security Equipment Integrated Product Team Analysis Support (FAA).** Available project funds as of May 1, 2003, were \$76,524 from FY 1997 funding. The project has been inactive since FY 1999. Funding was for FAA's model Explosive Detection System and was retained by Volpe at customer request in case FAA wanted work performed under the model. After our initial review, we identified this project for closure. In February 2004, Volpe took appropriate action and returned \$76,524 to the customer.
- ✓ **Operations Control Center Support (FAA).** Available project funds as of May 1, 2003, were \$49,578 from FY 1994 funding. According to the Volpe project manager, FAA is in the process of reorganization and does not want the funding returned because it still intends to use the funds. However, the available funding balance on the project as of March 2004 was \$48,296, confirming that the project has had little recent activity. Our review of accounting records shows disbursements on the project have decreased from \$23,898 in FY 2001 to \$300 in FY 2003, further demonstrating that it has had limited activity and that these funds are no longer needed.
- ✓ **Small Business Innovation Research (Office of the Secretary of Transportation).** Available project funds as of May 1, 2003, were \$18,741. This includes \$1,906 of funding from FY 1994 and \$16,835 from FY 1995. The available fund balance as of March 2004 remains unchanged because the project was awaiting additional research and development funding from the

Office of the Secretary of Transportation. The project has had no new financial activity since FY 1995, and no new tasks have been identified for the current fiscal year. As of May 2004, this money had not been returned.

Volpe's existing policy is to have project managers annually certify that funds on projects are still needed. The Center's Financial Management Division annually generates a project certification form listing all active projects and sends it to the appropriate managers for certification. Volpe office directors (conferring with the project manager and sponsor if needed) assert that the project is active and funds are needed. However, the Financial Management Division accepts these determinations without asking for specific reasons as to why the funds are still required. To ensure the timely identification of unneeded project funds, Volpe needs to establish an 18-month criterion in accordance with departmental policy¹⁹ and obtain sufficient support²⁰ as to whether the funds should be retained or returned. Volpe should also identify and assess all inactive projects as part of its annual certification, as well as complete the return of the \$177,213 identified in Table 4.

RECOMMENDATIONS

We recommend that the Volpe Director and RSPA Administrator:

1. Strengthen policies, procedures, and management oversight to ensure all PPAs have adequately defined project requirements, including tasks, cost estimates, deliverables with milestones, and performance reporting.
2. Develop an automated reporting and tracking capability that both integrates project requirements, schedules, deliverables, and costs and generates more useful and easy-to-read financial and project status reports for Volpe's customers.
3. Establish an effective and timely process for identifying and reimbursing unneeded funds for projects that are no longer active, to include establishing an 18-month criterion for designating a project as inactive and establishing a stronger oversight process to ensure effective reviews are conducted. In addition, complete the return of \$177,213 (identified in Table 4) and review the remaining 55 projects (totaling \$834,226 in available funding) for possible closure, with all unneeded funds promptly returned to the customer.

¹⁹ DOT policy memorandum "Active Validation of Obligations," December 28, 1999.

²⁰ This process could include requiring Volpe's customers to provide written justification for keeping the project open.

MANAGEMENT COMMENTS AND OFFICE OF INSPECTOR GENERAL RESPONSE

On September 27, 2004, RSPA provided comments (see Appendix) to our draft report. RSPA concurred with our recommendations, indicating they were consistent with the observations that were made during the RSPA management assessment and the DOT Task Force review. RSPA also stated that they have initiated a comprehensive plan of action to address project management oversight deficiencies at Volpe and plan to forward to our office these actions and a status report on this effort by November 17, 2004. Such efforts should help to strengthen Volpe's project management oversight. Nevertheless, until we receive RSPA's action plan and status report and assess their responsiveness, our recommendations will remain open.

ACTION REQUIRED

In accordance with DOT Order 8000.1C, we would appreciate receiving your written comments to our final report by November 17, 2004. For each of the three recommendations, please indicate the specific action taken or planned and the target date for completion.

We appreciate the courtesies and cooperation of Volpe, RSPA, and other DOT representatives during this audit. If you have any questions concerning this report, please call me at (202) 366-1992 or Robin K. Hunt, Deputy Assistant Inspector General for Hazardous Materials, Security and Special Programs, at (415) 744-3090.

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cc: Acting Director of Volpe
Assistant Secretary for Budget and
Programs/Chief Financial Officer
Martin Gertel, M-1

EXHIBIT A. OBJECTIVES, SCOPE, AND METHODOLOGY

The audit objective was to examine Volpe's project management oversight and whether such oversight is adequate to ensure cost-effective services. In addressing this objective, we reviewed pertinent legislation, memoranda, policy directives, executive decisions, DOT and Volpe policy guidance and plans related to Volpe activities, and industry best practices. We determined the Department's oversight role by meeting with senior DOT management officials and interviewing Volpe's DOT clients. We determined whether Volpe provides cost-effective services through a customer satisfaction survey and a detailed review of 20 randomly selected DOT projects. As part of this review, we interviewed Volpe project managers and DOT customers overseeing the 20 projects.

With the assistance of Volpe personnel, we identified a universe of projects with new obligation authority in the last 5 years (FY 1999 through May 2003) resulting in 324 DOT and 247 non-DOT projects. We removed 19 U.S. Coast Guard projects from the 324 DOT projects because of the Coast Guard's transfer to the Department of Homeland Security.

From the DOT projects, we randomly selected 60 for which we conducted a customer satisfaction survey and 20 to assess project management oversight. The customer satisfaction survey addressed the customer's reason for selecting Volpe, the level of satisfaction with Volpe performance on past and present projects, and any improvements Volpe could make to enhance customer satisfaction in the future. To assess project management oversight, we conducted structured questionnaires and on-site follow-up interviews of Volpe project managers and DOT customers involved in the 20 DOT projects. Specifically, we reviewed how Volpe develops project agreements, including defining tasks and deliverables, providing cost estimates, setting schedules and milestones, and defining reporting requirements. Our audit also included reviewing supporting PPA documentation for each project. The reviews obtained information about the customers' and Volpe's ability to oversee the projects by means of project status and financial reports and project tracking systems. We also assessed existing standards and training requirements for Volpe project managers.

To ensure the timely return of unneeded project funds, we identified 65 DOT and non-DOT projects that had not received any new obligations since FY 2000. We reviewed 10 of these projects to determine the basis for retaining existing obligation authority.

We reviewed several studies and reports on Volpe, including OIG audit reports (see Exhibit C) and RSPA's management assessment draft report (July 18, 2003). We also met with the RSPA management assessment team to discuss its observations, and we reviewed related briefings and consultant reports on follow-up actions being taken. Throughout the process, we met with the Volpe Director and staff and RSPA officials to gain an understanding of the ongoing actions and to obtain documents as needed.

We conducted work at Volpe in Cambridge, Massachusetts, at RSPA, and at other selected DOT offices in Washington, DC. We conducted the audit from July 2003 through June 2004. The audit was done in accordance with Government Auditing Standards prescribed by the Comptroller General of the United States and included tests of internal management controls as were considered necessary. In the conduct of this audit, we used computer-generated data from Volpe. We did not assess the general and application controls for each of the automated systems. For some of these data, such as yearly funding totals, we relied on recent audit work done by another office within our organization.

EXHIBIT B. SUMMARY OF PROJECT MANAGEMENT WEAKNESSES

No.	Sponsor Agency,* Project	Work Scope Described by Specific Task	Cost Estimates Related To Each Task	Deliverables with Completion Dates	Reporting Requirements for Measuring Performance and Controlling Costs
1	FTA, Drug and Alcohol Guidelines/Newsletters	No	No	No	No
2	FAA, Central Region Environmental and Safety Support	Yes	No	No	No
3	FTA, Drug and Alcohol Testing Compliance	No	No	Yes	No
4	FAA, Wake Turbulence	No	No	No	No
5	NHTSA, Automated Data Processing Systems/Programming—National Automotive Sampling System	Yes	No	Yes	No
6	FAA, National Airspace System Property Accounting and Financial Systems Support	Yes	No	No	No
7	STB, Information System Technical Support**	No	No	No	No
8	FAA, Traffic Flow Management	Yes	No	Yes	Yes
9	FAA, Environmental Compliance Employee Safety Program	No	No	No	No
10	FAA, Free Flight Program Support	Yes	No	No	No
11	NHTSA, Evaluation of Drowsy Driver Warning System	Yes	No	Yes	Yes
12	FTA, Bus Rapid Transit Technical Support	No	No	Yes	No
13	RSPA, Hazardous Materials Information System Redesign	Yes	No	No	Yes
14	GMATS, International Port Security Program**	No	No	No	No
15	FMCSA, Motor Carrier Analysis Regulatory Support	Yes	No	No	No
16	RSPA, Transportation Infrastructure Assurance R&D	Yes	No	No	No
17	SLSDC, Saint Lawrence Seaway Automatic Identification System Network System Support	Yes	Yes	Yes	No
18	FAA, Technical Support to the Runway Safety Program Office	No	No	No	No
19	NHTSA, Alcohol Countermeasures Support	Yes	No	Yes	No
20	FAA, Safety Analysis Support	Yes	No	No	No
	Projects Meeting Attributes of a Well-Defined Project Agreement	12 of 20	1 of 20	7 of 20	3 of 20

* See Exhibit D for a listing of organizational acronyms.

** A reimbursable agreement was used in lieu of a PPA.

Exhibit B. Summary of Project Management Weaknesses

EXHIBIT C. PRIOR AUDIT COVERAGE

OIG Report Number R2-RS-4-021, “Project Acceptance Review Volpe National Transportation System Center,” June 8, 1994

We found that while Volpe contributed significantly to DOT’s research programs, the Center accepted projects with little or no research value and projects which were outside its basic mission of transportation research, development, testing, and evaluation. The report also noted that Volpe did not deobligate and return excess funds from projects amounting to about \$66 million at the end of FY 1992. In response to the OIG’s report findings and recommendations, Volpe developed formal criteria limiting the acceptance of projects and evaluated proposed work against these criteria. Volpe performed a project-by-project review to determine which projects were completed or otherwise inactive so that remaining obligational authority could be returned to the sponsoring agency.

OIG Report Number MH-2002-071, “Review of the Office of Defects Investigation, National Highway Traffic Safety Administration,” January 3, 2002

We found the Office of Defects Investigation’s project with Volpe to replace the Office’s current defect database with a new information system was at risk because of poor project management and planning. Specifically, a detailed project schedule and detailed resource requirements had not been developed, project duties and responsibilities had not been finalized, and the project scope had not been fully defined. The OIG recommended NHTSA create a detailed project plan that will show specific tasks linked to a starting and ending date, resources, and deliverables. The report also recommended that NHTSA create a detailed organizational structure that identifies roles and clearly defines responsibility for major task areas.

OIG Report Number SC-2004-077, “The Role and Functions of the Volpe National Transportation System Center,” August 4, 2004

We addressed Volpe’s role and functions in the Department and whether it was meeting DOT’s needs. The report concluded that DOT senior leaders need to take a more active role in determining the Center’s mission, role, functions, and activities within the Department and in overseeing its planning and project acceptance processes. This will help to ensure that all future work represents the most effective use of Volpe’s resources and has direct value to the Department. Towards this end, we recommended that the Department establish a DOT

oversight board for Volpe composed of senior departmental representatives from OST and DOT Operating Administrations. We recommend that the board report directly to the Deputy Secretary and provide input to the RSPA Administrator in defining Volpe's mission and role, developing its strategic and business plans and core capabilities, and improving the Center's procedures for accepting projects. We also recommended that the board review and provide feedback to the Deputy Secretary and the RSPA Administrator on interagency agreements and memoranda of understanding between DOT and other agencies that involve significant amounts of work for Volpe.

OIG Report Number FI-2004-076, "Audit of Financial Controls for Cost Accounting and Billing Practices, Volpe National Transportation Systems Center," August 4, 2004

We evaluated Volpe's operations to determine whether the revenues and costs, accumulated by project and funded by various agencies, are accurately reflected in the accounting records. We also evaluated Volpe's overhead rate development and implementation, including its method of distributing overhead costs to projects. We concluded that Volpe accurately recorded direct costs, such as labor and acquisitions (contracts), and assigned them to projects appropriately. However, the treatment of indirect costs during both FY 2002 and FY 2003 did not comply with generally accepted accounting principles. Volpe recorded over \$2 million of FY 2003 overhead costs in the year obligated, FY 2002, rather than the year the costs were actually incurred, FY 2003. In addition, after converting to DOT's new Delphi financial management system in May 2003, Volpe's reporting capacity was adversely affected. We recommended a series of actions to correct the accounting system deficiencies and improve reporting capabilities.

OIG Report Number MH-2004-088, "Follow-up Audit of the Office of Defects Investigation, National Highway Traffic Safety Administration," September 23, 2004

We evaluated NHTSA's progress in implementing the Transportation Recall Enhancement, Accountability, and Documentation (TREAD) Act and followed up on issues identified in our January 2002 report. We found that NHTSA has successfully implemented 20 of the 22 requirements of the TREAD Act, and it completed development of a new safety defects information system called ARTEMIS. However, the ARTEMIS development effort experienced significant cost increases and schedule delays due to Volpe's and NHTSA's poor project planning and execution. Specifically, development cost estimates increased 76 percent from \$5.35 million in June 2001 to \$9.4 million in March 2004, and schedule estimates increased from 21 months to 42 months during the same time period. We also found that NHTSA had identified but could not verify \$17.12 million as future operations and maintenance costs for ARTEMIS.

Exhibit C. Prior Audit Coverage

NHTSA subsequently reduced this amount to \$11.46 million, thus creating an opportunity to put \$5.66 million to better use.

In addition, we found that ARTEMIS does not have the analytical capabilities originally envisioned to help point analysts toward potential safety defects warranting further investigation. NHTSA plans to separately acquire these capabilities but has not finished defining the capabilities needed, identified the software it will purchase to analyze the early warning reporting information, outlined associated costs, or established a schedule for implementing these capabilities. We made several recommendations for moving ahead with the use of manufacturer early warning reporting information for opening defects investigations. NHTSA concurred with our recommendations.

EXHIBIT D. ORGANIZATIONAL ACRONYMS

DOT	Department of Transportation
FAA	Federal Aviation Administration
FMCSA	Federal Motor Carrier Safety Administration
FTA	Federal Transit Administration
GMATS	Global Maritime and Transportation School
NHTSA	National Highway Traffic Safety Administration
OIG	Office of Inspector General
OST	Office of the Secretary of Transportation
RSPA	Research and Special Programs Administration
SLSDC	Saint Lawrence Seaway Development Corporation
STB	Surface Transportation Board

EXHIBIT E. ACTIVITIES VISITED OR CONTACTED

- Volpe National Transportation System Center, Cambridge, MA
- Research and Special Programs Administration, Washington, DC
- Office of the Secretary of Transportation, Washington, DC
- Federal Aviation Administration, Washington, DC
- Federal Highway Administration, Washington, DC
- Federal Transit Administration, Washington, DC
- National Highway Traffic Safety Administration, Washington, DC
- Surface Transportation Board, Washington, DC

APPENDIX. MANAGEMENT COMMENTS



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

Memorandum

Subject: **ACTION**: Draft Report on Volpe's Project
Management Oversight
Research and Special Programs Administration
Project No. 04B3004B000

Date: September 27, 2004

From: Samuel G. Bonasso
Deputy Administrator

A handwritten signature in black ink, appearing to read "S. Bonasso", written over the printed name of the sender.

Reply to
Attn. of:

To: Kenneth M. Mead
Inspector General

This is in response to your request for action, as cited in the subject Draft Report. We are in complete agreement with the recommendations presented in the report. These recommendations are consistent with the observations that were made during the RSPA management assessment and the DOT Task Force review. We have initiated a comprehensive plan of action to address project management oversight deficiencies at the Volpe Center. We will forward to your office these actions and a status report on this effort by November 17, 2004.

cc:
S-1/J. Flaherty
S-2/K. Van Tine