



UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

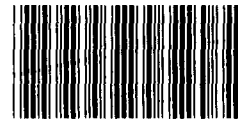
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MISSION ANALYSIS AND
SYSTEMS ACQUISITION DIVISION

B-206702

MARCH 22, 1982

The Honorable Drew Lewis
The Secretary of Transportation



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Dear Mr. Secretary:

Subject: The Urban Mass Transportation Administration
Needs to Ensure that Adequate Testing and Evaluation
is Done on Future Mass Transit Rail Vehicles
(MASAD-82-25)

The Department of Transportation Test Center in Pueblo, Colorado, is a facility operated and administered by the Federal Railroad Administration. The Federal Railroad Administration does research and development testing for the railroads on misaligned tracks, collisions, and wear rates of wheels, rails, and ties. The facility is also used by the Urban Mass Transportation Administration (UMTA) to test mass transit rail vehicles for local transit authorities. The test center has important test capabilities, some of which are not available elsewhere.

The Federal Railroad Administration is planning to vacate the test center by September 30, 1982. We are concerned that a sufficient testing facility may not be available to do essential tests on mass transit vehicles in the future to ensure that performance requirements are met. Accordingly, we are recommending that you direct UMTA to review current and future test workloads to determine the test capabilities needed. This review should include the costs of testing, test capabilities available, and identification and selection of the most cost-effective alternative to ensure that sufficient tests of mass transit vehicles are made.

Since your Inspector General is looking into matters related to selling the test center, we plan no further work at this time, but we do want to pass on to you the results of our survey.

THE FUTURE OF THE TEST CENTER IS IN DOUBT

The Administrator of the Federal Railroad Administration recently recommended that the test center be taken over by the private sector because the use of the facility did not appear to justify the expense. His recommendation is consistent with the

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Department of Transportation's goal of removing the Federal Government from the railroad business.

The railroad industry was the first group considered to take over the test center. At the request of the Administrator, the Association of American Railroads established an ad hoc committee in August 1981 to study the feasibility of the rail industry assuming ownership of the test center. The committee reported in November 1981 that the rail industry could take over the test center. The committee is currently preparing a 5-year operating plan to be considered by the rail industry in making its decision. A determination of whether the rail industry wants to take over the test center will not be made until after the ad hoc committee's report is issued in March 1982. If the rail industry does not want to buy the test facility, it may be offered for sale to other groups in the private sector. We are told that the Federal Railroad Administration's decision to sell or close the test center will be made by May 15, 1982.

The test center's fiscal year 1982 budget was significantly reduced and no funds are being requested for fiscal year 1983. The director of the test center speculated that if the center's ownership and operations are not assumed by another organization, the test center would be closed. The Department of Transportation's Office of Inspector General is making a survey to determine what assets exist at the test center and what changes in Federal Railroad Administration programs and organizations will be required if the Administration disposes of the test center. The survey is not considering changes in UMTA's programs that may result from closing the facility.

Transferring the Federal Railroad Administration's control of the test center to the rail industry or the private sector would probably not materially affect the existing UMTA testing program for mass transit vehicles. UMTA's reimbursement costs would be paid to the new owner rather than to the Federal Railroad Administration. However, if the test center is closed, testing would be limited to that which could be done on transit authority tracks. We are concerned with the adequacy of testing done on transit authority tracks.

UMTA'S TEST POLICY AND PROCEDURES

Since 80 percent of the cost of the transit vehicles is paid for by UMTA through grant programs, UMTA is concerned with the quality and safety of transit vehicles. Because of repetitive reliability, maintainability, and quality problems encountered with new transit vehicles, UMTA adopted a position that all practical means to solve these problems should be employed early in a transit car's delivery schedule. UMTA has urged the transit authorities to use the test center to supplement the usual tests of new cars done on the transit authority's property. This testing is to take place as early as practicable in the delivery

phase of new cars and definitely before the public operation of the cars.

Tests done at the test center are requested by the transit authorities and coordinated with UMTA. UMTA further coordinates testing between the transit authorities and the Federal Railroad Administration for the planning, implementation, and completion of the tests as well as analysis and reporting of results. The Federal Railroad Administration plans, designs, and coordinates the activities of the operating contractor, who actually does the testing, at the test facility. The operating contractor obtains the test results and prepares the test report. After transit authority approval, UMTA issues the test report.

The tests generally involve vehicle preparation, specification compliance and performance assessment, and reliability measurement. All tests prescribed in the approved test plan are completed unless a safety problem exists where personnel or equipment would be in danger.

UMTA developed a general vehicle test plan for urban rail transit cars that is used in testing for specification compliance and performance assessment and defines test procedures in nine categories: (1) performance, (2) power consumption, (3) power system interaction, (4) adhesion, (5) ride roughness, (6) passenger compartment noise, (7) community noise, (8) simulated revenue service, and (9) structure dynamics.

SIGNIFICANT CAPABILITIES OF THE TRANSPORTATION TEST CENTER

Originally funded as a research and development facility for advanced transportation systems, the transportation test center has become a facility for doing comprehensive tests, evaluations, and associated development of ground transportation systems. Equipped with several different types of testing facilities, the center is capable of determining system feasibility, adequacy of design, and the operational capability of new railroad and transit systems. The rail dynamics laboratory can simulate, in a controlled environment, the track of any transit system for testing purposes and is the only facility of its kind in the United States. The transit test track provides the capability to test electrified rail cars and transit vehicles at varying speeds, loads, and voltages, and is isolated from outside electromagnetic sources.

Transit authority views on capabilities of the test center

Although the transit authorities can do many of the tests done at the test center on their own tracks, testing is limited to early morning hours when the tracks are not used for revenue service. The dedicated track at the test center allows multiple tests to be done simultaneously and 24 hours a day without

interruption, thus allowing tests to be completed in a much more timely manner. The Massachusetts Bay Transportation Authority concluded that numerous tests at the test center would either be impossible or too time-consuming to do on its tracks. These tests include ride quality, high speed performance, power consumption, brake shoe material evaluation, drift characteristics, and high speed photography studies.

A representative of the Metropolitan Atlanta Rapid Transit Authority said it would probably take five times longer to do tests on its own tracks compared to the same tests done at the test center. The tests done at the test center identified problems that the contractor's tests on Atlanta's tracks failed to show. Atlanta was able to show, based on test results, that the contractor was responsible for correcting certain problems. Testing at the test center also allowed the Atlanta authority to avoid extending the vehicle contract while it corrected the defects in the cars it was purchasing.

AGENCY COMMENTS

We discussed our concerns raised in this report with UMTA officials at the test center and in Washington, D.C. They generally agreed with our observations. However, agency officials were concerned with the loss of test expertise at the test center should the center be closed.

CONCLUSIONS

The test center has significant capabilities and the tests done at the center have been beneficial to the transit authorities because they save time, improve performance, and return the cars to revenue service on a timely basis. Obviously, testing is an important function in the total acquisition process. The Administrator should see that, if the test center is closed, the tests are properly done on transit authority tracks or elsewhere to ensure that performance requirements are met. On the other hand, if the test center is kept operational, the only question we have is whether the Administrator is satisfied that any new testing procedures are as efficient and effective as they could be.

RECOMMENDATION

In light of the above, we recommend that you direct the Administrator, UMTA, to fully consider future testing requirements for federally supported transit systems. This would include the costs of testing, test capabilities available, and identification and selection of the most cost-effective alternative to ensure that sufficient tests of mass transit vehicles are made.

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As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the Senate Committee on Governmental Affairs and the House Committee on Government Operations not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

We are sending copies of this letter to the cognizant House and Senate Legislative and Appropriation Committees; the Director, Office of Management and Budget; and the Administrator, UMTA.

Sincerely yours,

Donald E. Day
for W. H. Sheley, Jr.
Director