Memorandum

**U.S. Department of
Transportation**
Office of the Secretary
of Transportation
Office of Inspector General

Subject: <u>ACTION</u>: Report on Investment Review Board
Deliberations on the Motor Carrier Management
Information System
Report Number No. MH-2004-068

Date: June 29, 2004

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

Reply to
Attn. of: JA-40

To: Department of Transportation Chief Information Officer
Federal Motor Carrier Safety Administrator

Our attendance at a recent meeting of the Department's Investment Review Board
(IRB)[1] prompted us to examine the supporting justification on the Federal Motor
Carrier Safety Administration's (FMCSA) Motor Carrier Management
Information System (MCMIS).

FMCSA relies on MCMIS to monitor over 600,000 active interstate motor carriers
and as the basis for targeting its limited resources at carriers posing the greatest
safety risk. Because MCMIS is so critical to FMCSA's mission of reducing
highway fatalities involving large trucks, and because MCMIS is so dependent on
data, we examined the supporting material on the IRB presentation to ensure that
data quality issues found in our audit work were properly considered in MCMIS
investment decisions. We also wanted to be sure that cost estimates for continuing
and expanding MCMIS and for fixing data quality problems were reasonable and
supported.

We found problems with how well FMCSA had addressed data quality issues in
its MCMIS justification and in the overall support for system cost estimates. This
memorandum details these issues to ensure that FMCSA and the IRB have
sufficient information for making informed decisions.

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[1]The IRB, which has the authority to approve, modify, or terminate major information technology (IT) investments, is
chaired by the Deputy Secretary, and comprised of the Department of Transportation (DOT) Chief Information
Officer (CIO), the DOT Chief Financial Officer, the General Counsel, and the Assistant Secretary for Administration.

On February 13, 2004, FMCSA briefed the IRB on MCMIS, the electronic data system that serves as the primary repository for motor carrier safety and operational data and is the source for numerous studies of motor carrier issues. MCMIS provides data to the Safety Status Measurement System (SafeStat) on motor carrier characteristics, reported crashes, roadside inspections, and other safety events that management uses to identify high-risk carriers for Government compliance reviews. MCMIS is also the source for publicly available safety data on all active interstate motor carriers in the country.5

The IRB briefing covered planned enhancements to MCMIS that would enable FMCSA to respond to congressional mandates such as one requiring a single, unified carrier registration system and other improvements designed to enhance the system's operation. According to the briefing, implementing the enhancements and maintaining the current system will cost $5.7 million annually in fiscal years (FY) 2005 and 2006, while life-cycle costs[2] through FY 2009 total $60.5 million.

FMCSA's briefing to the IRB was based upon a budget justification and management report known as the Exhibit 300.[3] To see whether this budget justification was providing a full and complete picture of the MCMIS investment, we compared our February 2004 audit findings[4] on data quality to the data quality assertions in the most recent Exhibit 300 for MCMIS. We also assessed FMCSA's support for its cost estimates. Further details on our objectives, scope and methodology are in Exhibit A.

OBSERVATIONS AND RECOMMENDATIONS

FMCSA's justification for the MCMIS investment provided an incomplete picture of the data quality issues associated with MCMIS. Even though other elements of FMCSA's budget called for significant funding to remedy known data quality weaknesses, the MCMIS justification asserted that "…there aren't any data quality issues at this time." This is a critical gap in the MCMIS justification because FMCSA relies on MCMIS data to target its oversight resources and the public uses the information for business decisions. The quality of the data input into this critical system is poor: so poor that FMCSA recently took action to remove key elements of the data from the public Internet site until it is improved. A more

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[2] Life-cycle cost is the total estimated cost for a particular program alternative. It includes direct and indirect initial costs plus any periodic or continuing costs over the life of the program.

3 The Exhibit 300 is required by the Office of Management and Budget Circular No. A-11. FMCSA prepares and updates Exhibit 300 for its annual budget request and to measure the performance of the investment against expected costs, benefits, and schedule milestones.

[4] Report Number MH-2004-034, "Improvements Needed in the Motor Carrier Safety Status Measurement System," February 13, 2004.

complete depiction of the actions necessary to cure the known data quality problems and the associated costs should be included in the MCMIS justification, to provide assurance that continued investment in MCMIS is worth the cost. Future MCMIS funding requests and briefings to the IRB should identify the scope and success of FMCSA's actions to ensure that complete and accurate data are used in MCMIS.

In addition to providing an incomplete picture of data quality issues, FMCSA could not adequately support the MCMIS cost estimates presented in its budget justification and used in briefing the IRB. For example, FMCSA could not provide information on cost assumptions, contracts, and service provider estimates used to develop the funding levels. In conjunction with the Departmental Chief Information Officer (CIO), FMCSA should implement guidance for developing and validating information technology funding requests and provide supportable estimates for the MCMIS life-cycle costs. Without improved information, neither FMCSA nor the IRB can make informed decisions about continued funding for MCMIS operations and enhancements to the system.

Further details on our observations are provided below.

Data Quality Risks Not Reflected in Budget Justification

FMCSA needs to revise its MCMIS budget justification to include known data quality risks, as well as the costs associated to cure or mitigate these data quality issues. Specifically, the July 2003 risk inventory and assessment for MCMIS in its Exhibit 300 budget justification stated, ". . .there aren't any data quality issues at this time." However, our SafeStat final audit report issued in 2004 found the following data quality problems related to MCMIS data:

- a lack of updated census data (current number of vehicles and drivers used by a carrier) for 42 percent of the 643,909 active carriers, and for 31 percent of the 170,623 carriers that had sufficient safety information on record to be evaluated in SafeStat.

- a recorded value of zero vehicles for approximately 11 percent of active carriers and zero drivers for 15 percent of active carriers even though many of these same carriers also had crashes or inspections reported against vehicles or drivers.

- states not providing reports for an estimated one-third of the large trucks involved in crashes annually, including 37,000 crashes involving interstate carriers.

- late reporting of about 18,000 or 20 percent of the crashes reported in FY 2002 by as much as 6 months after the crashes occurred.

- underreporting of serious moving traffic violations (mainly speeding) that were identified during roadside inspections, including an estimated 29,000 serious moving traffic violations in one state that went uncounted for 3 years.

FMCSA acknowledged these data quality problems in its response to the December 10, 2003 draft of the SafeStat audit report, and described a number of positive actions initiated or planned to fix the problems. These actions included providing guidance to Internet users on the limitations of the data reported by the states; establishing goals for completeness, accuracy, and timeliness of data; and developing a comprehensive data quality plan. In addition, FMCSA has decided to remove overall carrier score data from its SafeStat Internet site. According to an FMCSA official, efforts to improve the data are underway and the data will not be posted to the site until quality issues are resolved.

Separate from the MCMIS request, FMCSA has also requested funding in its FY 2005 budget request to Congress to address data quality issues. For example, the information management budget includes $7.4 million to continue a program to improve crash collection and reporting from the states. This effort was mandated by the Motor Carrier Safety Improvement Act of 1999. Crash data are provided by the states to MCMIS and FMCSA has recognized that approximately a third of the trucks involved in large crashes are not included in the database. Additionally, according to an FMCSA official a portion of the $4.0 million in funding for data analysis was targeted for an electronic system for filing concerns about publicly released Federal and state data. Given the importance of quality data to FMCSA's mission, and the significant resources being devoted to correcting data quality problems, the MCMIS budget justification should identify the efforts underway to eliminate, mitigate, or manage the acknowledged data quality risks, and clearly report on the scope and success of these efforts.

The costs of addressing data quality problems could be significant both in funding and time. For example, the cost and time required to ensure that 272,000 carriers comply with the congressional requirement to update data every 2 years could be considerable. Closing the significant gap in state reporting of crashes could also involve significant expenditures. A clear description in the current Exhibit 300 budget justification of the planned initiatives to solve these problems and any associated costs would assist decision makers in making hard choices now between building new capabilities and ensuring the reliability of current operations. A clear statement in the FY 2006 MCMIS budget request of any future requirements or trade-offs needed to address MCMIS data quality issues is essential to ensure that these long-standing problems are corrected.

Support for Life-Cycle Cost Estimates Were Not Sufficient

According to FMCSA's Exhibit 300 budget justification, estimated life-cycle costs for MCMIS are $67.4 million from FY 2005, the budget year, through the life of the project, which FMCSA stated as "FY 2009 and beyond." FMCSA proposes this funding to support several upgrades and improvements and to enhance the public interface with MCMIS. The funding also addresses the continued data processing of several hundred thousand forms per year, including the forms used to record critical motor carrier data. FMCSA reports that over 10,000 Federal and state enforcement personnel use MCMIS information to perform duties needed to meet the Agency's goal of reducing truck and bus crashes.

We agree with FMCSA's assertions in its budget justification regarding the criticality of MCMIS to its mission and we do not question the need to enhance MCMIS to address congressional mandates and changing requirements of the motor carrier industry. However, the supporting materials provided to us for the estimates were missing key elements and the information that was provided was questionable or inconsistent.

For example, although officials provided a breakdown of the costs making up the Exhibit 300 life-cycle data, officials could not provide key supporting information such as:

- the assumptions used for computing increases in the investment from the base year through the life of the project.

- information on cost assumptions, contracts, and service provider estimates used to develop the funding levels.

Further, the IRB briefing, Exhibit 300 budget justification, and the supporting information that was provided to us also contained some questionable information, and inconsistent information. For example:

- the IRB briefing cited life-cycle costs of $60.5 million, although the Exhibit 300 shows life cycle cost of $67.4. (An additional $6.9 million for Government personnel costs was excluded from the life-cycle cost figure provided to the IRB.)

- the Exhibit 300 narrative shows a planned investment completion date of FY 2008, but the funding estimate in the Exhibit 300 extends beyond FY 2009.

- the cost breakdown provided shows identical values for telecommunications and security, which appeared unusual and thus warranted further questioning, but FMCSA could not provide us detail on how these were derived.

- the funding estimate for security in the cost breakdown provided to the IRB was more than double the level of security funding called for in the narrative explanation of Exhibit 300 supporting the MCMIS investment.

FMCSA officials stated that the MCMIS cost estimates were based upon a projection of current work efforts, which were derived from historical information and the experience of the MCMIS team. Guidance issued by the DOT CIO requires greater detail to justify the monies required as well as to support an executive level decision to continue to invest in the system. However, FMCSA does not have detailed guidance for developing and validating information technology funding requests.

To prevent this problem in the future, FMCSA should work with the DOT CIO to issue specific guidance for developing and validating the Agency's cost estimates. The Assistant CIO in FMCSA stated that a formal process was under development for use during the FY 2006 planning cycle. The newly developed process should be applied to the current MCMIS budget justification to ensure that all costs, including those associated with data quality improvements, are detailed and supported. With more complete and consistent support for the life-cycle cost estimates, DOT can be assured that the funds being requested for FY 2006 and beyond are reasonable and sufficient to fund this critical system.

Recommendations

We recommend that FMCSA:

1. Revise the MCMIS Exhibit 300 budget justification to identify known data quality risks, the strategy planned to correct data quality weaknesses, and the success of these measures. The revision should state the cost implications, if any, associated with managing this risk and be part of the FY 2006 budget submission.

2. Implement FMCSA guidance, in consultation with the DOT CIO, for developing and validating information technology funding requests.

3. Use the established guidance to revise the budget justification to reflect supportable estimates for MCMIS life-cycle costs. This action should occur prior to the FY 2006 budget submission.

ACTION REQUIRED

We provided a draft of this report to FMCSA officials on May 18, 2004 to obtain their oral comments. In general, those officials agreed with the facts as presented

in the report but officials stated that to provide a fuller context for the issues, the report should include a description of FMCSA's information management initiatives on data quality that are addressed outside the Exhibit 300 justification for MCMIS. We revised the report to include these initiatives.

In accordance with Department of Transportation Order 8000.1C, we would appreciate receiving FMCSA's formal written comments within 30 calendar days. If you concur with the finding and recommendations, please indicate the specific action taken or planned for each recommendation and the target date for completion. If you do not concur, please provide your rationale. You may provide alternative courses of action that you believe would resolve the issues presented in this report.

We appreciate the courtesies and cooperation of FMCSA staff during our review. If you have any questions concerning this report, please call me at (202) 366-1992 or Kurt Hyde, Deputy Assistant Inspector General for Surface and Maritime Programs at (202) 493-0331.

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cc: Investment Review Board Members
        Assistant Secretary for Budget and Programs

EXHIBIT A. OBJECTIVES, SCOPE AND METHODOLOGY

Our objectives were to examine the relevance of our recent audit work on the Motor Carrier Safety Status Measurement System (SafeStat) to the IRB deliberations on MCMIS and to determine whether FMCSA's estimates on the cost, funding, and scheduling for MCMIS were sufficiently supported.

To accomplish our objectives we reviewed supporting information contained in a FMCSA report on the MCMIS investment known as Exhibit 300. FMCSA prepares and updates Exhibit 300 on a continuing basis and includes it in the capital asset plan and business case submission to the Office of Management and Budget for the annual budget request. Exhibit 300 is also a management tool used to measure the performance of IT investments against expected costs, benefits, and schedule milestones. Exhibit 300 includes a projection of life-cycle costs for the system and an assessment of the risks associated with the investment. FMCSA used the most recent Exhibit 300 to support the briefing to the IRB.

To examine the relevance, if any, of our recent audit work on SafeStat to the IRB deliberations on MCMIS, we compared our findings in OIG Report Number MH-2004-034, *"Improvements Needed in the Motor Carrier Safety Status Measurement System,"* February 13, 2004 with the MCMIS Exhibit 300. As one of its objectives, the audit evaluated the adequacy of data from MCMIS that is used by the Motor Carrier Safety Status Measurement System (SafeStat).

To determine whether sufficient support was available for FMCSA's estimates on the cost, funding, and scheduling for MCMIS, we reviewed information FMCSA provided to the IRB supporting the cost estimates made as part of the capital asset plan and business case submission to the Office of Management and Budget. As part of the DOT capital planning and investment control process, FMCSA was required to develop a business case for MCMIS with accurate, reliable, and up-to-date data on project costs, reliability, and risk. We met with FMCSA officials responsible for preparing the life-cycle cost estimates for MCMIS to discuss the basis for and the assumptions used in formulating the life-cycle cost estimate. We also reviewed a breakdown of the life-cycle cost estimates for MCMIS provided by FMCSA. Given the insufficient documentation provided for the cost estimates, we did not pursue an analysis of more specific funding and scheduling elements.

We conducted this review from January 24 through March 31, 2004, in accordance with <u>Government Auditing Standards</u> prescribed by the Comptroller General of

the United States, and included such tests of internal controls as we considered necessary to provide reasonable assurance of detecting abuse or illegal acts.

Exhibit A . Objectives, Scope, and Methodology

EXHIBIT B. MAJOR CONTRIBUTORS TO THIS REPORT

THE FOLLOWING INDIVIDUALS CONTRIBUTED TO THIS REPORT.

Name	Title
Debra Ritt	Assistant Inspector General for Surface and Maritime Programs
Kurt Hyde	Deputy Assistant Inspector General for Surface and Maritime Programs
Joe Comé	Program Director
Michael Marshlick	Computer Scientist
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