
Office of Inspector General

Audit Report

QUALITY CONTROL REVIEW OF THE AUDIT OF THE EFFECTIVENESS OF DOT'S EARNED VALUE MANAGEMENT PRACTICES

Department of Transportation

Report Number: QC-2014-065

Date Issued: July 17, 2014





Memorandum

U.S. Department of
Transportation

Office of the Secretary
of Transportation
Office of Inspector General

Subject: **ACTION**: Quality Control Review of the Audit
of the Effectiveness of DOT's Earned Value
Management Practices
Report Number: QC-2014-065

Date: July 17, 2014

From: Louis King 
Assistant Inspector General for Financial and
Information Technology Audits

Reply to
Attn. of: JA-20

To: Chief Information Officer, DOT

This report presents the results of our quality control review (QCR) of an audit of the Department of Transportation's (DOT) earned value management (EVM) practices. EVM is a tool used to plan, execute, and control the costs and schedules of information technology (IT) projects. It provides insight on program performance by comparing the value of work accomplished to the planned value of scheduled work. The Office of Management and Budget requires agencies to use EVM to calculate cost and schedule variances from the approved baselines for major IT investments.¹ For fiscal year 2013, DOT requested \$2.2 billion for 44 major IT investments and approximately \$15 million for IT security.

KPMG LLP conducted this audit under contract to DOT's Office of Inspector General (OIG). The audit objectives were to determine whether DOT: (1) has implemented effective EVM policies, procedures and practices; and (2) uses accurate EVM data to plan, monitor, and report the status of its IT investments and related security spending. KPMG found deficiencies in DOT's EVM procedures and practices and issued 14 recommendations to help the Department establish and maintain an effective program (see Exhibit A for a list of these recommendations). DOT's Chief Information Officer concurred with all recommendations. His response is included on page 26 of KPMG's audit report, dated June 30, 2014, which can be found in its entirety in the attachment to this report. In accordance with DOT Order 8000.1C, the corrective actions taken in response to the findings are subject to follow-up.

¹ Major IT investments require special management attention because of their size or importance to agencies' missions..

Our QCR, as differentiated from an audit engagement performed in accordance with generally accepted Government auditing standards, was not intended for us to express, and we do not express, an opinion on DOT's EVM management practices. KPMG is responsible for its independent auditor's report and the conclusions expressed in that report. Our QCR disclosed no instances in which KPMG did not comply, in all material respects, with generally accepted Government auditing standards.

We appreciate the courtesies and cooperation of DOT and its operating administrations' representatives during this engagement. If you have any questions concerning this report, please call me at (202) 366-1407, or Nathan Custer, Program Director, at (202) 366-5540.

#

cc: Deputy Secretary
CIO Council Members
DOT Audit Liaison, M-1

EXHIBIT A. RECOMMENDATIONS OF KPMG LLP, INDEPENDENT AUDITOR

KPMG LLP made the following recommendations during its review of DOT's information management practices for EVM. OIG agrees that DOT management should implement the following controls.

DOT Chief Information Officer	
1	Update the DOT EVMIG to establish operational requirements and document a defined or recommended set of documents to be retained in the event of a formal project baseline change.
2	Update policies and procedures for the validation of contractor cost estimates, and incorporate them into the DOT EVMIG and applicable DOT IBR guidance for Contracting Officers.
3	Develop policies and procedures for the retention of COTR and Procurement documented conclusions on the validity of provided contractor cost estimates.
4	Develop procedures to standardize program and project EVM data for all OAs.
5	Provide a platform or mechanism for ensuring appropriate personnel managing programs that require EVM reporting must obtain OCIO and/or Office of the Senior Procurement Executive (OSPE) sponsored training prior to awarding contract.
6	Work with appropriate DOT personnel to ensure training qualifications are maintained in a designated repository.
FAA Chief Information Officer	
7	Further develop the FAA EVMS Training Module to promote consistency of reporting and awareness of EVMS requirements, specifically program and contractor IBR requirements.
8	Require that the program teams attend corresponding trainings and EVM Focal Point staff will be responsible for the development and implementation of training.
9	Develop a method for holding the program manager responsible for ensuring the timely execution of the IBR.
10	Retain evidence of requests for IBR deferrals past the required 180 day threshold. Require this evidence to be presented during the IBR Status Reports conducted with JRC.

11	Develop policies and procedures documenting time requirements for certification of Contractor EVMS, as well as follow-up requirements to occur in the event contractor EVMS is unable to achieve certification.
12	Certify the Crown EVMS for NEXCOM.
13	Perform analysis of investments under development and associated contractor EVMS to identify non-certified systems currently being used to report EVM data and perform analysis to determine impact of utilization of non-certified EVMS.
14	Incorporate the timely and consistent tracking of EVMS certification into year-end performance metrics for EVM Focal Point staff.

Attachment

See the next page for the Independent Auditor's Report.

Department of Transportation Earned Value Management and Security Cost Reporting Performance Audit

Prepared for: DOT Office of Inspector General
June 30, 2014



KPMG LLP
1676 International Drive, Suite 1200
McLean, VA 22102

**Department of the Transportation
Earned Value Management and Security Cost Reporting Performance Audit**

Table of Contents

EVM and Security Cost Reporting Performance Audit Report

I. BACKGROUND	3
II. OBJECTIVE, SCOPE, AND METHODOLOGY.....	4
III. RESULTS	8
IV. FINDINGS AND RECOMMENDATIONS.....	21
1. Insufficient program baseline change requirements across the DOT.....	21
2. Standards for contractor cost validation not identified across the DOT.	21
3. Inconsistent EVM data tracking and reporting methods across the DOT.	22
4. No formalized EVMS training program established across the DOT.....	22
5. Inconsistent Integrated Baseline Review (IBR) performance and tracking at Federal Aviation Administration (FAA).....	23
6. Insufficient contractor EVMS certification and surveillance at FAA.....	24
V. MANAGEMENT RESPONSE TO THE REPORT.....	26
 Appendices	
APPENDIX I – STATUS OF PRIOR-YEAR FINDINGS	31
APPENDIX II – GLOSSARY OF TERMS.....	34



KPMG LLP
1676 International Drive
McLean, VA 22102

Mr. Louis C. King
Assistant Inspector General For Financial and Information Technology Audits
1200 New Jersey Avenue, SE
Washington, DC 20590

Re: The Department of the Transportation Earned Value Management and Security Cost Reporting 2014 Performance Audit

Dear Mr. King:

KPMG LLP (KPMG) was contracted by the Department of Transportation (DOT) Office of Inspector General (OIG) to conduct a performance audit of the Department's adoption and use of Earned Value Management Systems (EVMS) across the Departmental Operating Administrations (OAs), and specifically for certain major Information Technology (IT) investments. This report presents the results of our work conducted to address the performance audit objectives relative to the DOT. Our work was performed during the period of November 4, 2013 through March 10, 2014, and our results are as of March 10, 2014.

We conducted this performance audit in accordance with generally accepted government auditing standards (GAGAS). Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and recommendations based on our audit objectives.

Our audit objectives were to review the DOT EVMS organizational capability to assess how mature DOT is in implementing EVMS and how mature the department is in EVMS as it relates to the guidelines referenced in legislation, policy and standards pertaining to EVM. We assessed the Department's: (1) implementation of earned value management (EVM) policies, procedures and practices for its IT investments; and (2) use of EVM data to plan, monitor, and report the status of its IT investments and related security spending.

The DOT has established an EVMS policy that contains pre-established dollar thresholds and guidance for IT investment owners to consider when implementing EVMS. In addition, various OAs have improved their use of EVMS by establishing supporting materials, such as IT project management and EVMS implementation guidance, providing EVMS training and conducting EVMS lessons learned discussions. While these items help provide a foundation of EVMS guidance for OAs to follow and investments to use, there are opportunities for improvement to further implement and use EVMS to help manage major IT investments (MITI).

Overall, based on the interviews conducted, documents inspected, and test procedures performed within the audit program guide, we determined that the DOT has inconsistently applied controls across the ten (10) OAs and six (6) MITIs. As a result, the EVMS-related processes used to collect and report



EVMS data cannot be relied on to properly reflect project performance in Exhibit 300 submissions. In addition, we found that project management practices related to EVMS are not consistently applied across the OAs and MITIs. Finally, the security cost estimates that are derived for Exhibit 300 submissions cannot be fully supported. Timely implementation of the recommendations is needed to fulfill departmental requirements and achieve maturity in managing IT investments.

The detailed objectives of this performance audit are enumerated within Section II of the report. We have identified six (6) Findings, which are enumerated within Section IV.

1. Insufficient program baseline change requirements across the DOT.
2. Standards for contractor cost validation were not identified across the DOT.
3. Inconsistent EVM data tracking and reporting methods across the DOT.
4. No formalized EVMS training program established across the DOT.
5. Inconsistent Integrated Baseline Review (IBR) performance and tracking at Federal Aviation Administration (FAA).
6. Insufficient contractor EVMS certification and surveillance at FAA

We currently report, for the DOT's consideration, fourteen (14) recommendations from this performance audit

This performance audit did not constitute an audit of financial statements in accordance with *Government Auditing Standards*. KPMG was not engaged to, and did not render an opinion on the DOT's internal controls over financial reporting or over financial management systems (for purposes of Office of Management and Budget Circular Number A-127, *Financial Management Systems*, July 23, 1993, as revised). KPMG cautions that projecting the results of our evaluation to future periods is subject to the risks that controls may become inadequate because of changes in conditions or because compliance with controls may deteriorate.

Appendix I, *Status of Prior-Year Findings*, summarizes the DOT's progress in addressing prior-year recommendations from the OIG report QC-2009-048 dated April 24, 2009, *Quality Control Review of the Department's Implementation of Earned Value Management and Security Cost Reporting*. Appendix II contains a glossary of terms used in this report.

Sincerely,

KPMG LLP

I. BACKGROUND

The Department of Transportation (DOT) mission is to serve the United States by ensuring a fast, safe, efficient, accessible and convenient transportation system that meets our vital national interests and enhances the quality of life of the American people, today and into the future.¹ According to the FY13 spending IT dashboard, DOT invested approximately \$3.1 billion in information technology (IT)². In order to derive the intended benefits of the programs and projects within the IT portfolio, project planning and execution processes should be in place to control the establishment of baseline performance measures and manage deviations from expected performance plans. Earned Value Management (EVM) data is a critical component of the control phase of the IT capital planning process, because it provides investment managers with the cost, schedule, and performance data necessary to help ensure that DOT investments are delivered on time and perform within budget and scope. The addition of the variance and trend analysis aspect of EVM permits an evaluation that monitors deviation from the baseline plan, which may indicate potential threats or opportunities. Proper application of EVM also increases the level of confidence of management that the investment is being managed in accordance with sound project management practices.

The Office of the Secretary of Transportation (OST) is responsible for establishing the requisite policies and procedures to govern the DOT OAs within the department for managing investments within the IT portfolio, including policies and procedures related to IT capital planning and investment control (CPIC), enterprise architecture (EA), program management, and project management. Policies and procedures should reflect Office of Management and Budget (OMB) guidance, including provisions for using EVM and estimating IT security costs for investments. In addition, the Operating Administrations (OAs) within DOT are responsible for implementing the policies and procedures promulgated by OST in a manner consistent with underlying EVM and IT security cost reporting objectives.

The following criteria are a listing of the key legislation, policies, and standards pertaining to Earned Value Management System (EVMS) and IT investment and project management:

Legislation

- *Government Performance and Results Act of 1993* – mandates the use of performance metrics.
- *Federal Acquisition Streamlining Act of 1994* – requires agency heads to achieve, on average, 90% of the cost and schedule goals established for major and non-major acquisition programs of the agency without reducing the performance or capabilities of the items being acquired.
- *Clinger Cohen Act of 1996* – requires establishment of the processes for executive agencies to analyze, track, and evaluate the risks and results of major investments in IT and requires reporting on the net program performance benefits achieved by agencies.

Policies

- *OMB Circular Number (No.) A-11 (Part 7, Planning, Budgeting, Acquisition and Management of Capital Assets)* – outlines a systematic process for program management, which includes integration of program scope, schedule, and cost objective; requires use of earned value techniques for performance measurement during execution of the program; specifically identifies American National Standards Institute (ANSI)/Electronic Industries Alliance (EIA) Standard 748.
- *OMB Memorandum M-04-24, "Expanding Electronic Government (E-Gov) President's Management Agenda (PMA) Scorecard Cost, Schedule and Performance Standards for Success"*

¹ <http://www.dot.gov/mission/about-us>

² <https://myit-2014.itdashboard.gov/portfolios>

– provides additional information on the PMA Expanded Electronic Government initiative and the standard for success concerning cost, schedule and performance goals.

- *OMB Memorandum M-05-23, “Improving Information Technology (IT) Project Planning and Execution”* – provides guidance to assist agencies in monitoring and improving project planning and execution and fully implementing EVMS for major IT projects.

Standards

- *ANSI/EIA Standard 748, Earned Value Management System (EVMS)* – industry process for use of EVMS including integration of program scope, schedule and cost objectives, establishment of a baseline plan for accomplishment of program objectives, and use of earned value techniques for performance measurement during the execution of a program.
- *National Defense Industrial Association (NDIA) Program Management Systems Committee Intent Guide for Earned Value Management Systems* – provides additional insight into the EVMS guidelines included in Section 2 of the ANSI/EIA Standard 748-A Standard for EVMS.

II. OBJECTIVE, SCOPE, AND METHODOLOGY

KPMG LLP (KPMG) was contracted by the DOT OIG to conduct a performance audit of the Department’s adoption and use of EVMS across the departmental OAs, and specifically for certain major IT investments (MITIs)³.

Objectives

We were tasked with reviewing the DOT EVMS organizational capability to assess how mature DOT is in implementing EVMS and how mature the department is in EVMS as it relates to the guidelines referenced in legislation, policy and standards pertaining to EVM.

We assisted the DOT OIG in evaluating the maturity of EVM policies, practices, and data for the period between November 4, 2013 through March 10, 2014 to evaluate the Department’s: (1) implementation of EVM policies, procedures and practices for its IT investments; and (2) use of EVM data to plan, monitor, and report the status of its IT investments and related security spending.

In addition, we were tasked with reviewing the DOT implementation and execution of three recommendations made in the OIG report QC-2009-048, *Quality Control Review of the Department’s Implementation of Earned Value Management and Security Cost Reporting*. The recommendations were:

1. Establish a target date to complete and distribute the DOT EVM implementation guidance to OAs. This guidance should document processes and practices consistent with guidelines published by OMB.
2. Require OAs to review all MITIs in the development phase for compliance with key OMB requirements for EVM implementation and report results to the Office of the Chief Information Officer (OCIO). Ensure that OAs establish a target date for correcting deficiencies found;
3. Establish security cost estimation standards consistent with the National Institute of Standards and Technology (NIST), require OAs to follow the standards, and verify compliance with the standards by performing a sample review of OA security cost estimate submissions.

³ A “major” IT investment refers to an IT Investment requiring an OMB Exhibit 300 Business Case.

Scope

The performance audit procedures were limited to evaluating the implementation of EVM and security cost estimating and reporting practices over ten (10) OAs and six (6) MITIs⁴, which have been summarized in Tables 1 and 2 below:

Table 1: Scope of EVM and Security Cost Reporting Analysis by OA

OA Selected	EVM (Y/N)	Security Cost Reporting (Y/N)
Federal Aviation Administration (FAA)	Y	Y
Federal Transit Administration (FTA)	Y	Y
National Highway Traffic Safety Administration (NHTSA)	Y	Y
Pipeline and Hazardous Materials Safety Administration (PHMSA)	Y	Y
Research and Innovative Technology Administration (RITA)	Y	Y
Office of the Secretary of Transportation (OST)	Y	Y
Federal Highway Administration (FHWA)	Y	Y
Federal Motor Carrier Safety Administration (FMCSA)	Y	Y
Federal Railroad Administration (FRA)	Y	Y
Maritime Administration (MARAD)	Y	Y
Surface Transportation Board (STB)	N ⁵	N ⁵
Saint Lawrence Seaway Development Corporation (SLSDC)	N ⁵	N ⁵

Table 2: Scope of EVM and Security Cost Reporting Analysis for MITIs

MITI Selected	EVM (Y/N)	Security Cost Reporting (Y/N)
FAA: Next Generation Air/Ground Communications (NEXCOM) Segment 1a	Y	Y
FAA: Automatic Dependent Surveillance-Broadcast (ADS-B)	Y	Y
FAA: Regulation and Certification Infrastructure for System Safety (RCISS)	Y	Y
FTA: National Transit Database (NTD)	Y	Y
NHTSA: Crash Data Acquisition Network (CDAN)	Y	Y
OST: DOT Consolidated Operating Environment (COE)	Y	Y

We designed the procedures to gain an understanding of how each OA and in-scope IT investment has instituted practices related to EVM and security cost reporting, divided into the following sections:

⁵ In the FY 2009 DOT EVMS performance audit it was determined the OA did not have any MITIs nor had they implemented any EVMS over their IT portfolio. At the time, the OIG had determined to exclude these OAs from the scope of this performance audit. In Fiscal Year (FY) 2013, it was reconfirmed that the OA still did not have any MITIs and was not required to implement an EVMS over their IT portfolio.

- **EVM Governance:** Includes the policies and supporting guidance (i.e., project and program management) available to implement and use EVM.
- **EVM Tools & Technology:** Includes the EVM tools and related technologies used for IT projects (i.e., EVM-related tools, EVM engines, cost accounting tools, scheduling and resource management tools and technology integration).
- **EVM Implementation & Performance:** Includes EVM supporting standards and practices (e.g., work breakdown structure and use, contract and scope management, resource planning and management, and EVM analysis techniques), EVMS certification, EVMS surveillance, EVM training, and EVM lessons learned.
- **Security Cost Governance:** Includes the policies and procedures in place for security cost analysis and estimation.
- **Security Cost Estimating, Analysis and Reporting:** Includes the practices used in analyzing, estimating, and reporting security costs.

We did not validate the security costs from the OMB Federal IT Dashboard⁶ provided by DOT.

KPMG conducted fieldwork during the period of November 04, 2013 – March 10, 2014 at the DOT Headquarters and FAA offices. Documented work and conclusions are based on information as of March 10, 2014.

Methodology

KPMG performed this performance audit in accordance with the *Government Auditing Standards* issued by the Government Accountability Office (GAO). In particular, we designed our procedures to conform to a performance audit defined by the *Government Auditing Standards*. The engagement was performed in three phases: (1) Planning, (2) Testing and Interviews, and (3) Report Writing.

Planning – The planning phase was designed to help ensure that team members developed a collective understanding of the EVM and security cost reporting practices in place for the ten (10) OAs and the six (6) MITIs. We provided separate questionnaires to each OA and to each investment program team.

Questionnaires and provided by client (PBC) lists were provided to OA and MITI Program Management during this phase of the engagement. Questionnaires and PBC lists were designed to provide a foundational understanding with which to conduct interviews, for identifying additional documentation requests, and identifying areas where additional focus was required in our testing.

Testing and Interviews – During the testing and interviewing phase, we conducted interviews with program managers and senior management responsible for EVM, collected and inspected PBC artifacts, participated in process walk-throughs and interviews with program staff, and performed test procedures. Test procedures included pulling cost data from the OMB Federal IT Dashboard for the OAs. Testing procedures were conducted primarily at DOT headquarters and FAA facilities in Washington, D.C. Testing procedures over the EVM and security cost reporting practices were based on the Federal legislation, policies, and industry standards.

KPMG's testing procedures required us to select a sample of items from a population for testing. To do so, we employed a risk-based approach to determine a subset of DOT information systems for the EVMS Performance Audit. The universe for this subset only included major systems that are operational.

⁶ <http://www.itdashboard.gov>

Accordingly, our recommendations are applicable to the sample we tested and were not extrapolated to the population (i.e., all OAs and all MITIs).

Report Writing – The report writing phase entailed writing a draft report, conducting an exit conference, providing a formal draft report to OIG for review, and preparing and issuing the final report including management’s response to the report.

III. RESULTS

Feedback is critical to the success of any project. Timely and targeted feedback can enable project managers to identify problems early and make adjustments that can keep a project on time and on budget. In addition, early identification of cost and schedule variance information is needed by agency executives to monitor and control risks within its investment portfolio. EVM is an effective performance measurement and feedback tools for managing projects. EVM provides organizations with the methodology needed to integrate the management of project scope, schedule, and cost. Cost data on security spending is necessary to help ensure IT investments have adequately identified and budgeted for security in a federal IT investment.

In the following section of the report, we provide the results of our interviews and testing across the following sections pertaining to EVM to meet the performance audit objectives above in Section II:

- EVM Governance
- EVM Tools & Technology
- EVM Implementation & Performance
- Security Cost Governance
- Security Cost Estimating, Analysis and Reporting

EVM Governance

EVM governance consists of the policies, procedures and practices in place to establish requirements for EVM implementation and performance management within project and program management practices. The OST is responsible for providing this guidance to the OAs, with the exception of the FAA, which utilizes its own acquisition system known as the Acquisition Management System (AMS). The AMS establishes the FAA's acquisition policy and contains FAA specific EVM guidance. The FAA AMS is discussed in further detail below.

OST EVM Policy

The DOT EVM Policy was initially made effective on January 14, 2008. DOT has since provided updated guidance for application across OAs pertaining to the implementation and execution of EVM. DOT EVM Order 1351.22.1 and the DOT Earned Value Management Implementation Guide (EVMIG) were developed with the objective of providing guidance to DOT OAs for all projects that require EVM implementation. The DOT EVM Order 1351.22.1 was signed into effect on July 15, 2010 and establishes the EVM policy within the DOT. The policy applies to all DOT IT Investments that are required to complete an OMB Circular No. A-11, Exhibit 300 business case.

The DOT EVMIG was first issued in draft form on April 9, 2007. The DOT EVMIG has incorporated seven (7) policy revisions and was last updated on September 29, 2010. The DOT EVMIG is designed to facilitate uniform and consistent EVM implementation practices for all relevant DOT IT investments. Specifically, the guide details the DOT requirements for compliance with the 32 ANSI/EIA Standard 748 guidelines, as well as the investment EVM tier thresholds for EVM reporting.

The degree to which EVM is applied to MITIs varies depending on the size and complexity of the IT investment. The DOT EVMIG identifies three (3) tiers of EVM rigor to be applied to IT investments. Additional guidance over consolidated investments is provided within the DOT EVMIG. EVM tiers and consolidated investment guidance is depicted in Table 3 below:

Table 3: DOT EVM Tier Thresholds and Requirements

Investment EVM Tier	Total Contract Development, Modernization, and Enhancement (DME ⁷) Value	Description
Tier I	≥\$20 M	IT investments with total DME costs equal to or greater than \$20 million (then-year dollars) must implement an EVMS that fully complies with all ANSI/EIA Standard 748 Guidelines.
Tier II ⁸	≥ \$10 M < \$20 M	IT investments with total DME life-cycle acquisition costs equal to or greater than \$10 million but less than \$20 million (then-year dollars) must implement, at a minimum, an EVMS that complies with a subset of ANSI/EIA Standard 748 Guidelines as detailed in the DOT EVMIG.
Tier III ⁸	< \$10 M	IT investments with total DME life-cycle acquisition costs less than \$10 million (then-year dollars) are not required to implement an EVMS. This does not exclude investments in this tier from performing prudent program management practices.

Consolidated investments, or a collection of separate projects that pool resources and capabilities together to facilitate the effective management of all the work necessary to meet strategic objectives, are to apply the Tier I, II, or III EVM requirements to each subordinate investment, and not at the consolidated investment level.

Additional DOT Policy Requirements to be applied to Tier I and Tier II investments include:

- EVM requirements at the investment level shall also be required for all contractor and government entities accomplishing the work.
- An investment Integrated Baseline Review (IBR)⁹ shall be conducted within 180 days after the Performance Measurement Baseline (PMB) has been established and contract(s) awarded. An IBR shall also be conducted when the investment has been rebaselined.
- IT investment EVM data shall be submitted on a monthly basis using the DOT Capital Planning Tool, or any other agreed upon method with the Associate Chief Information Officer (ACIO) for IT policy oversight. The investment level EVM data shall be derived from the project level EVM data to ensure data consistence and generate an audit trail for how investment level EVM data was derived.
- A DOT EVM training program shall be established to identify available EVM courses and provide each target audience, including executive-level audiences, with a set of required, suggested, and optional EVM course offerings. OAs may include complementary EVM training under DOT EVM training guidelines to address unique OA requirements or issues.

⁷ EVM is applied to any budgeted work for DME activities. These activities include all acquisitions necessary to either complete a new investment or update an existing one. As an investment’s scope and cost increase, a greater level of EVM rigor is necessary to effectively manage the investment. The DOT-wide EVM requirement thresholds are based on the total life-cycle DME costs of the investments within the agency’s portfolio. *Source: DOT EVMIG dated September 29, 2010.*

⁸ Tier III threshold was increased to \$10 M on April 27, 2009. Previously the Tier III threshold was \$3 M.

⁹ The IBR is a critical, comprehensive evaluation of the PMB addressing the identification of inherent risk and baseline realism. It is a joint assessment by the government and contractors that must be performed before any development work has commenced, additional work scope added, or a shift in the content or phasing of the PMB. *Source: DOT EVMIG dated September 29, 2010.*

- The Investment Review Board (IRB) for each OA is responsible for reviewing and providing recommendations regarding baseline changes and submit them to the ACIO IT Policy Oversight Office for review and approval by the DOT IRB Executive Committee Staff, prior to final approval by OMB.
- Investments are required to complete and maintain a comprehensive work breakdown structure (WBS)¹⁰. Additionally, they are required to utilize the DOT's standard WBS as the organizational foundation for their overall scope.
- Investments must incorporate work scope and other authorized changes into their PMB¹¹ in a documented and timely manner.
- Investments must develop a master schedule, including work tasks and decision points. Activities must have clearly defined start and completion criteria and dependencies between activities must be indicated in an appropriate level of detail. Critical path must be determined. Schedule must then be integrated with WBS (and organizational breakdown structure (OBS) for Tier I investments) to properly track and assess work progress and performance.

The requirements above were utilized throughout the Testing and Interview Phase to provide a basis for the evaluation of OA and Investment EVM compliance.

While DOT policy contains the requirements stated above, OST Management has not developed nor promulgated guidance pertaining to the application and management of EVM across OAs and MITIs. Specifically, we noted the following:

- DOT EVM guidance lacks sufficient program baseline change requirements. Specifically, no formal rebaselining documentation retention requirements have been documented within the DOT EVM guidance for use across DOT OAs.
- Formalized standards or recommended guidance for validating contractor cost estimates are not documented within the DOT EVMIG and consistently applied across OAs.
- DOT has not implemented a consistent enterprise approach to managing and applying EVM data across OAs or investments. Specifically, tools and technology utilized to document, track, evaluate, and report EVM data is not standardized across DOT OAs.
- There is no formalized DOT training program pertaining to EVMS. The OST has not provided standardized EVMS training for utilization within DOT OAs.

We have included these weaknesses in the Findings and Recommendations section of this report.

Since the OIG report QC-2009-048 dated April 24, 2009, *Quality Control Review of the Department's Implementation of Earned Value Management and Security Cost Reporting*, DOT EVM Policies and Procedures continue to be developed within the department and across OAs. The alteration of EVM Reporting Tiers (see Table 4) has impacted the degree to which EVM data is being reported. The EVM Tier II threshold was raised in an effort to align DOT EVM standards with those of the FAA, which operates an independent EVM policy as documented below. As a result, a greater number of investments now fall within the Tier III threshold, which does not require the utilization of EVM in projects.

¹⁰ The WBS is a tool for defining the hierarchical breakdown of work necessary to meet an investment's objectives. It is developed by first identifying the high level "buckets" of work in the investment. These major components are broken down into smaller ones until they represent distinguishable products or deliverables. *Source: DOT EVMIG dated September 29, 2010.*

¹¹ The time-phased budget plan against which investment performance is measured. *Source: DOT EVMIG dated September 29, 2010.*

FAA EVM Policy

The FAA has their own EVMS policy and implementation guidance documented in the AMS. Key requirements of this policy are documented below:

- DME programs must use an EVM system based on the guidelines in ANSI/EIA Standard 748 for the total program effort, including both government and contractor work, according to the following table. Program EVM must be consistent with the acquisition strategy in the implementation strategy and planning document, *Section 3.2, Program Control*. Major investment programs are those required by the OMB to submit an OMB Exhibit 300. The Joint Resources Council or appropriate investment decision authority (IDA) designates non-major programs required to have an EVMS.

Table 4: Program EVMS Requirements

EVMS Requirements	Program Type Major	Program Type Non-Major	Program Type Other
Exhibit 300	R	T	O
Integrated Master Schedule	R	T	O
Integrated Baseline Review	R	T	O
EVM Standard Compliance	R	R	O
EVM System Certification	R	O	O

R = Required by approving authority
T = Tailored: requirement may be tailored by program
O = Optional

- Contractor EVM implementation must be consistent with the strategy in the implementation strategy and planning document, *Section 2.8, Contract Management*. All capital investment programs must use the following table to determine the application of EVM to the development, modernization, and enhancement work assigned to contractors. The requirements apply to all contract types. On an exception basis, low-risk contractor efforts, i.e., firm fixed-price production, may implement EVM within a FAA program office at the program level. Contractor EVM implementation must be based on an assessment of the cost, schedule, and technical performance risk of each contract.

Table 5: FAA Contract EVMS Requirements

EVMS Requirements	Total Contract Value (\$M) > \$10 M	Total Contract Value (\$M) < \$10 M
Exhibit 300	R	O
Integrated Master Schedule	R	O
Integrated Baseline Review	R	O
EVM Standard Compliance	R	O
EVM System Certification	R	O

R = Required by approving authority
O = Optional¹²

The FAA issued the FAA EVM Guide policy document in March 2012, which provides specific implementation guidance to program managers and contracting officers. The FAA EVM Guide provides

¹² Source: FAA AMS, Sections 4.16.1 – 4.16.2

FAA program managers, contracting officers, executives, executive committees, and review boards with a further understanding of the application of EVM concepts in support of program management practices. FAA programs apply EVM methodologies to the total program effort, including both government and contractor work, to manage complex, high-risk, high-cost, or high-visibility efforts. This application of EVM to performing organizations is highlighted below:

Table 6: EVMS methodologies for organizations

Performing Organization	EVMS Consideration
Government Organizations	Government organizations and personnel (Full-Time Equivalents (FTEs)), while commonly used to perform program management and oversight, may also perform engineering, testing, deployment, and logistics support functions. All work and program activities performed by government personnel are assigned using the program baseline WBS and are managed using EVM. FAA programs required to use EVM must include resources for all government DME effort included in the IDA-approved program baseline.
Major Contractors	Major contractors commonly are employed in the areas of design, engineering, development, deployment, and support functions. All work and program activities performed by major contractors are assigned using the program baseline WBS and are managed using EVM. FAA programs required to use EVM must include resources for all major contractor effort included in the IDA approved program baseline. Implementation of EVM on major contractor effort must be consistent with AMS EVM policy, <i>paragraph 4.16.2 Contract Requirements</i> .
Support Contractors	Support contractors commonly perform support roles in one or more areas of program management, engineering, configuration management, test, and logistics. All work and program activities performed by support contractors are assigned using the program baseline WBS and are managed using EVM. FAA programs required to use EVM must include resources for all support contractor effort included in the -approved program baseline. Implementation of EVM on support contractor effort must be consistent with AMS EVM policy, <i>paragraph 4.16.2 Contract Requirements</i> .

The FAA EVM Guide identifies additional requirements for projects requiring the use of EVM, including the use of a standard lifecycle WBS, baseline management and variance monitoring activities, and EVMS certification and surveillance practices.

The FAA also has provided guidance¹³ on program management practices such as:

- Contractor Management
- Measurement & Analysis
- Program Management
- Quality Assurance
- Requirements Management
- Risk Management
- Verification and Validation

¹³ <http://www.fast.faa.gov>

EVM Tools and Technology

EVM tools are utilized to create and manage the cost and schedule of projects, including those for developing WBS elements, tracking the completion of project activities, and performing EVM related calculations (e.g., cost variance (CV), cost performance index (CPI), schedule variance (SV), schedule performance index (SPI)).

Currently, there are no prescribed or standard tools selected by OST for managing projects, performing project level EVM calculations or reporting EVM data. However, data types are standardized. For example, although the use of Microsoft (MS) Project is not mandatory, the departmental requirements to record project management data establish it as a commonly used tool for WBS maintenance and project schedule management. The Oracle Primavera Portfolio Management (OPPM) tool, managed by FAA, is utilized across OAs for reporting EVM and Investment data. The OPPM tool produces Exhibit 300 reports (when required) and IT Dashboard postings.

We noted that reporting tools vary from project to project within an OA. Similarly, they vary from OA to OA. These tool types include:

- EVM Calculation and Reporting (Program / Project Level)
- EVM Calculations (Investment Portfolio Level)
- Schedule/WBS Management
- Cost Accounting

A summarization of the various tools observed for the management of EVM data are documented below:

Table 7: EVM Tools and Technology

OA	EVM Calculations (Program / Project Data)	EVM Calculations (Portfolio Data)	Schedules / WBS	Cost Accounting
FAA	Deltek Cobra EVMS for Project	OPPM	MS Project	DELPHI
FTA	MS Excel	OPPM	MS Project	DELPHI
NHTSA	Ecosys	OPPM	Management Activity Planning System (MAPS)	DELPHI Microsoft Project Server
PHMSA	MS Excel	OPPM	MS Project	DELPHI
RITA	MS Excel	OPPM	MS Project	DELPHI
OST	MS Excel	OPPM	MS Project	DELPHI
FHWA	MS Excel	OPPM	MS Project	DELPHI
FMCSA	MS Excel	OPPM	MS Project	DELPHI
FRA	MS Sharepoint	OPPM	MS Sharepoint	DELPHI MS Sharepoint
MARAD	MS Excel	OPPM	MS Project OPPM	DELPHI

EVM Implementation and Performance

KPMG noted that of the ten (10) OAs and six (6) MITIs selected, only OST, FAA and FAA MITIS (ADS-B and NEXCOM) were required per DOT/FAA and ANSI/EIA Standard 748 Guidance to report full EVM data. The table below provides a summary of the OAs and MITIs selected, and the applicability of EVM reporting requirements. The security cost data in Tables 8 and 9 for the MITIs was provided by DOT and we did not validate the accuracy of the data reported to OMB.

Table 8: OA EVM Application and Applicability

OA	Number of MITIs	EVM Required	Additional Information
FAA	33	Yes	33 Investments require an Exhibit 300 Business Case. EVM is required for multiple FAA MITIs. Two of three investments selected for testing meet the \$10 million Development, Modernization, and Enhancement (DME) cost threshold for EVM reporting.
FTA	1	No	National Transit Database (NTD) Modernization Project is the FTA's only MITI. With a total DME cost of less than \$4 Million, it is a Tier III investment as defined in DOT Order 1351.22.1 (less than \$10 million). As such, it is not subject to formal EVM requirements. EVM has been voluntarily applied at the investment level.
NHTSA	1	No	Although an Exhibit 300 business case is required for 1 investment, the investment's DME costs do not exceed the \$10 million threshold for EVM reporting.
PHMSA ¹⁴	1	No	No investments require an Exhibit 300 business case & no investments w/ DME costs > \$10 M.
RITA ¹⁵	1	No	No investments require an Exhibit 300 business case and no investments w/ DME costs > \$10 M.
OST	4	Yes	Two (2) investments within OST have DME costs exceeding the \$20 million threshold for EVM reporting. One of the investments selected for testing is a consolidated investment and subordinate investments do not exceed the \$10 million threshold for EVM reporting. The other investment that was not selected is Tier I investment.
FHWA	0	No	No investments w/ DME costs > \$10 M.

¹⁴ The PHMSA major investment National Pipeline Information Exchange (NPIX) is shown as requiring an Exhibit 300 on the IT Dashboard. However, we determined that the investment was not funded during the year, and has been delayed until 2015. As a result, the investment does not require an Exhibit 300 or monthly IT Dashboard update.

¹⁵ The RITA major investment Aviation Information System (AIS) is shown as requiring an Exhibit 300 on the IT Dashboard. However, we determined that the investment was downgraded to a non-major investment, and thus does not require an Exhibit 300 or monthly IT Dashboard update.

OA	Number of MITIs	EVM Required	Additional Information
FMCSA	3	No	Although an Exhibit 300 business case is required for 3 investments, the investments' DME costs do not exceed the \$10 million threshold for EVM reporting.
FRA	0	No	No investments w/ DME costs > \$10 M.
MARAD	0	No	No investments w/ DME costs > \$10 M.

Table 9: MITI EVM Application and Applicability

MITI Selected	Associated OA	ANSI/EIA Standard 748 Tier	EVM Required	Additional Information
NEXCOM Segment 1a	FAA	Tier I	Yes	DME Costs for FY 2013 > 10M.
ADS-B	FAA	Tier I	Yes	DME Costs for FY 2013 > 10M.
RCISS	FAA	Tier III (Consolidated)	No	EVM applied to individual investments. RCISS consists of multiple projects within the single investment. For each project, DME Costs < 10M.
NTD	FTA	Tier III	No	DME Costs for FY 2013 < 10M.
CDAN	NHTSA	Tier III	No	DME Costs for FY 2013 < 10M.
DOT COE	OST	Tier I (Consolidated)	No	DOT COE is a collection of individual projects, none of which exceed \$10 million in DME costs.

We evaluated the EVMS implementation and performance management practices across OAs based on the EVM requirement status identified above. This includes the evaluation of the following attributes:

- Whether federal employee and contractor costs resources are assigned project work elements
- Whether standard EVMS requirements in contracts is used for major investments
- Whether EVMS system certification is or has been performed for major investments
- Whether EVMS system surveillance is used for contractors managing EVMS for major investments
- Whether a standard WBS is used for major investments
- Whether EVMS training has been provided for those using EVMS
- The frequency with which EVMS is analyzed minimally monthly in accordance with OST/FAA requirements
- Whether the Performance Reference Model (PRM) is used to monitor major investment performance
- Whether EVMS lessons learned are being used to evaluate the use of EVMS

As noted above, these EVM implementation and performance practices either are required by OMB policy, DOT policy, or are related to industry-based practices. We evaluated these EVM related attributes across each OA and IT investment selected. Table 10 contains a summary of the EVMS implementation attributes and the results of our analysis:

Table 10: EVMS Implementation & Performance Management for OAs and Investments

OA (Investments)	EVMS calculated based on who does work (Y/N)	Standard EVMS contract language for majors (Y/N)	EVMS system certification (Y/N)	EVMS contractor surveillance (Y/N)	Standard WBS for major investments (Y/N)	EVMS training provided (Y/N)	EVMS analysis frequency	PRM used to monitor majors performance (Y/N)	EVMS lessons learned performed (Y/N)
EVM REQUIRED									
FAA	Y	Y	N ¹	N ²	Y	Y	Monthly	Y	Y
OST	N ³	Y	Y	Y	Y	N ⁴	Monthly	Y	Y
EVM NOT REQUIRED									
FTA ⁶	Y	Y	N	N	N	N	Monthly	Y	Y
NHTSA ⁶	N	N	N	N	N	N	N/A	Y	N
PHMSA ⁵	N	Y	N	N	N	N	Monthly	Y	N
RITA ⁵	N	Y	N	N	N	N	Quarterly	Y	N
FHWA ⁶	Y	N	N	N	N	N	Monthly	N	N
FMCSA ⁶	N	Y	N	N	Y	Y	Monthly	N	N
FRA ⁵	N	Y	N	N	N	N	Monthly	Y	Y
MARAD ⁵	Y	Y	N	N	Y	N	N/A	Y	N

Tick Mark Legend:

¹ FAA has not fully enforced EVMS certification over contractor operated EVMS in accordance with FAA policy.

² FAA has not fully implemented EVMS contractor surveillance practices, including the performance of IBRs in accordance with FAA policy.

³ See Section: 'EVM Governance' for documentation of findings identified pertaining to EVMS calculations and contractor cost validation methods.

⁴ See Section: 'EVM Governance' for documentation of findings identified pertaining to EVM training.

⁵ DOT represented that there are no major investments currently reported by the OA.

⁶ The criteria is not required based on investment tier per DOT EVM policy and ANSI/EIA Standard 748 Guidelines.

Although Tier III MITIs and OAs with no major investments are not required to adhere to DOT EVM requirements, the analysis of EVM performance and implementation was performed over all OAs and MITIs selected. As a result, findings are identified for only those investments required to adhere to OMB, DOT, and FAA guidance regarding EVM. The increase in the Tier II threshold contributed to an increased exclusion of OAs and MITIs requiring the utilization of EVM.

The analysis performed indicates that OAs and investments are inconsistently applying EVMS implementation and performance practices.

These weaknesses have been included in the Findings and Recommendations section of this report.

Security Cost Governance

OST is responsible for providing policies and procedures over the OAs for estimating, analyzing and reporting IT security costs. We noted that OST has developed policies and procedures for estimating, analyzing, and reporting IT security cost estimates, and has promoted guidance which forms the foundation for the Department of Transportation Information Systems Security Program.

DOT Information Systems Security Policy

DOT CyberSecurity Policy Order 1351.37 and the Departmental Cybersecurity Compendium supplemental guidance establish the processes, procedures, and standards of the Department of Transportation Information Systems Security Program. DOT EVM Order 1351.37, dated June 21, 2011, provides IT Security process and procedural guidance, and documents pertinent security responsibilities of administrative personnel within DOT and its OAs (listed as “components” within the document). The responsibilities include:

- On an Information System level, Authorizing Officials (AO) are responsible for ensuring vulnerabilities and weaknesses associated with unacceptable risks are listed in the information system Plan of Action and Milestones (POA&M), which is updated quarterly. For POA&M items that require resources, the AO must specify whether funds will come from a reallocation of base resources or a request for new funding. If a request for new funding is deemed necessary, the AO must provide the Component Chief Information Officer (CIO) and DOT CIO a brief rationale to support the request.
- On an Information System level, System Owners (SO) are responsible for:
 - Categorizing the criticality/sensitivity of the information system in accordance with Federal Information Processing Standards (FIPS) 199 and ensuring the categorization receives the approval of AO.
 - Implementing a level of security commensurate with the information system impact level.
 - Including security considerations and identify associated security funding requirements in the procurement of information system software, hardware, and support services, including information system development, implementation, operation and maintenance, disposal activities (i.e., life cycle management), and weakness remediation / mitigation associated with unacceptable risks tracked in POA&M.

The Departmental Cybersecurity Compendium, dated June 14, 2011, provides further detail on Department-wide cybersecurity policies and controls. Relevant requirements include:

- DOT Components must (Control SA-2: Allocation of Resources):
 - Include a determination of information security requirements for the information system in mission/business process planning.
 - Determine, document, and allocate the resources required to protect the information system as part of its capital planning and investment control process.
 - Establish a discrete line item for information security in organizational programming and budgeting documentation.
- DOT Components must (Control PM-3: Information Security Resources):
 - Ensure that all capital planning and investment requests include the resources needed to implement the information security program and documents all exceptions to this requirement.
 - Employ a business case/Exhibit 300/Exhibit 53 to record the resources required.
 - Ensure that information security resources are available for expenditure as planned.

Security Cost Estimating, Analyzing and Reporting

Across OAs, management represented that historical information and a risk-based approach to addressing security weaknesses were used to estimate security costs. OAs applied different methods for security cost reporting and for calculating security related cost inputs. MITIs followed the OAs methods for estimating security costs (i.e., NEXCOM, ADS-B, and RCISS follow FAA, NTD follows FTA, and CDAN follows NHTSA). These security costs were funded either at the investment level, centrally through the program office, or as a combination of the two methods.

Table 11 contains a summary of how management represents how each OA reported their security costs and demonstrates the inconsistency of security costs reporting across the DOT.

Table 11: Security Cost Estimating and Reporting by OA

OA	Policy for developing security estimates (Y/N)	Security related costs
FAA	N	<p>Investments map security spending to the following (13) security elements:</p> <ul style="list-style-type: none"> • Anti-Virus Software Licensing Costs • Anti-Malware Software Licensing Costs • Intrusion Detection Systems Licensing Costs • Intrusion Prevention Systems Licensing Costs • Web Filtering Software Licensing Costs • Email filtering software • Security Information Management (SIM) / Security Information and Event Management (SIEM) tools • Data Leakage Protection tools • Costs for NIST Special Publication (SP) 800-37 implementation • Costs for annual FISMA testing • Costs for network penetration testing activities • Security awareness training costs • Security training costs for employees with significant security responsibilities <p>Security costs are incorporated into project WBS. Organizational IT Security spending includes governance training and compliance through the Office of Information Systems Security group.</p>
FTA	N	<p>Factors that influence security costs include the Information System Security Manager (ISSM) and his backups, the security contractor who conducts the Security Assessment and Authorization (SA&A), and known costs for specific items such as Personal Identity Verification (PIV) card enabling.</p> <p>On a project basis, contractors who are performing specific security tasks bill to a designated security Contract Line Item Number (CLIN).</p>

OA	Policy for developing security estimates (Y/N)	Security related costs
NHTSA	N	<p>Systematic and risk based prioritization of information security funding. Security costs for each control include the costs for the FTE allocation, federal oversight and hardware/software/services levels during the investment's select CPIC phase.</p> <p>When an investment is created, default numbers are entered with iREx. The Project Manager (PM) is responsible for revising and validating the cost data.</p>
PHMSA	Y	<p>PHMSA investment owners work with IT Security Team / Information Systems Security Officer (ISSO) team to ensure security costs are properly funded. This includes Certification and Accreditation (C&A) activities and completing POA&Ms.</p> <p>System owner estimates the POA&M cost in hours. The system owner then works with the IT project manager to determine an overall remediation cost by multiplying the number of hours by the appropriate rate(s). The project owner then supplies the security team with dollar amounts to resolve each POA&M to enter into CSAM.</p>
RITA	N	<p>Security Cost considerations include costs of security assessments, system security plan, vulnerability scanning and remediation, anti-virus and anti-malware products, system-specific security training, and development of the secure baseline configuration of the system. Most security costs are borne at the RITA CIO level and not embedded in the project budgets. Security cost estimation is inconsistently performed at the project level.</p>
OST	N	<p>Security awareness training, privacy training, and Federal Information Security Management Act of 2002 (FISMA) reporting tool use (CSAM). Funds are requested by OST from the OAs for these services.</p> <p>Costs for certification and accreditation, risk assessments, and risk mitigation activities are captured in the budgets of major investments.</p>
FHWA	N	<p>Risk assessments capture current level of risk for the system, provides risk mitigation strategies, and recommended level of effort (FTE hours and cost) to fund the implementation of recommended IT security controls to comply with FISMA (NIST SP 800-53 annual control testing, DR testing, security plan review, etc.). Risk level is calculated based on the determined likelihood and magnitude of impact for each vulnerability. A cost performance rating is determined based on the estimated level of effort.</p>

OA	Policy for developing security estimates (Y/N)	Security related costs
FMCSA	N	Centrally funded costs – Security awareness training, intrusion detection, incident response, vulnerability management, contingency plan and test, security assessment and authorization and privacy impact assessment. Program costs – security controls and costs to comply with FISMA (NIST SP 800-53 annual control testing, annual disaster recovery (DR) testing, security plan review, etc.).
FRA	N	IT Security teams conduct cost analysis at control level. WBS contains system specific security activities and costing data. IT Security assigns work hours to the activity. Resource sheets assign hourly rates to resources.
MARAD	Y	Monthly vulnerability scanning performed. Risk classification determines funding. Costs are estimated with the Federal Enterprise Architecture Security and Privacy Profile (FEA SPP) Prototype, a tool used to estimate the remediation costs based on the NIST control that is rendered vulnerable by the risk.

We did not validate the security cost estimates, because a standard security cost estimation process does not exist and has not been developed nor promulgated by OST. While a small number of proprietary tools are used by individual OAs (i.e., NHTSA uses iREx to calculate its security costs), a standard policy or tool suite has not been implemented across DOT. OST acknowledged this and stated that security cost estimation procedures are in the process of being finalized, and noted that a March 30, 2014 deadline is in place to “Develop and/or revise the Department’s EA procedures to address the following: creation of a standardized methodology that provides reliable estimates of security funding needed for system investments.” OST Management stated that they anticipate meeting this target delivery date. This finding was reported within the *FY 2013 DOT FISMA Report, Report Number: FI-2014-006*, issued November 22, 2013. This will not be issued as part of the FY2014 DOT EVM Performance Audit. Please refer to the referenced FISMA Report for additional information and current remediation progress.

Because DOT has not provided guidance on estimating IT security costs, the security estimates are being self-reported by the OAs and do not follow any consistent, predictable methodology from which future projections can be based. Finally, the security costs for the common IT services (i.e., DOT COE) do not follow a consistent methodology that provides a reasonable estimate of future security costs based on the services rendered as the subordinate investments are migrated to the common operating environment. Please refer to Appendix I for DOT’s progress in addressing prior-year recommendations from the OIG report QC-2009-048 dated April 24, 2009, *Quality Control Review of the Department’s Implementation of Earned Value Management and Security Cost Reporting*.

IV. FINDINGS AND RECOMMENDATIONS

1. Insufficient program baseline change requirements across the DOT.

DOT EVM guide lacks sufficient guidance on the rebaselining documentation retention for use across DOT OAs. Specifically, a defined documentation set to be retained in the event of a formal project baseline change has not been incorporated into Departmental policy.

OST, who has a responsibility for coordinating and promulgating EVM requirements, has not had adequate resources dedicated to creating and promulgating EVM requirements, specifically documentation retention requirements pertaining to program rebaselining decisions to be leveraged across OAs. Without documented retention requirements or a DOT standard list of documents to be retained in the event of a program rebaseline, rebaseline documentation may not be retained or made available in the event a review of the rebaseline decision is performed. Rebaseline documentation is important to prevent any unauthorized revisions of the PMB. Documents retained may also be inconsistent among agencies, resulting in inconsistent post-execution reviews of program baseline changes.

We recommend that OCIO update the DOT EVMIG to establish operational requirements and document a defined or recommended set of documents to be retained in the event of a formal project baseline change.

2. Standards for contractor cost validation not identified across the DOT.

Formalized standards or recommended guidance for validating contractor cost estimates are not documented within the DOT EVMIG.

OST Management indicated a lack of consistency in the validation process, specifically, in regards to the coordination between the Contracting Officer's Technical Representative (COTR) and Procurement groups, in efforts to validate the accuracy of contractor cost estimates prior to acceptance.

Contractor cost estimates are required to be independently validated within their respective OAs during the IBR process, as the submission of accurate contractor cost data is critical to the consistent and accurate EVM reporting. However, recommended methodologies are not identified within DOT guidance to assist in the consistent analysis of submitted contractor costs.

OST, who has responsibility for coordinating and promulgating EVM requirements, has not had adequate resources dedicated to creating and promulgating EVM requirements, specifically in regard to the development and inclusion of contractor cost validation guidance into DOT policy. Without formalized standards or recommended guidance for the validation of contractor cost estimates, control account estimates may be inconsistently validated across OAs and investments by program management. Submitted contractor costs are at risk of being accepted without sufficient validation or review, thus hindering DOT's objective of providing timely, valid, and auditable investment cost and schedule status information to program managers, senior managers, executive sponsors, and stakeholders.

We recommend that the Office of the Senior Procurement Executive (OSPE) with assistance from the OCIO:

1. Update policies and procedures for the validation of contractor cost estimates, and incorporate them into the DOT EVMIG and applicable DOT IBR guidance for Contracting Officers.
2. Develop policies and procedures for the retention of COTR and Procurement documented conclusions on the validity of provided contractor cost estimates.

3. Inconsistent EVM data tracking and reporting methods across the DOT.

While the DOT has implemented an enterprise approach to EVM portfolio data, it has not implemented a consistent approach to managing and applying EVM data for programs and projects. Specifically, tools and technology utilized to document, track, evaluate, and report program and project EVM data are not standardized across DOT OAs.

OST, who has responsibility for coordinating and promulgating EVM requirements, has not had adequate resources dedicated to creating and promulgating EVM requirements, specifically in regard to the development of an enterprise approach to EVM for projects. OST noted that due to the varying sizes of agencies and the variety of investments therein, the implementation of a required set of tools for EVM would require a disproportionately high level of effort and resources. Without a standardized set of EVM reporting tools, EVMS may be inconsistently implemented and maintained across OAs. The utilization of varied tools and technologies across OAs introduces the risk EVM data being reported and secured inconsistently, and hinders DOT's ability to provide a robust training curriculum as tools and reporting methods are not consistent across OAs. DOT may not be recognizing the benefits of consistent and reliable information through the leveraging of an enterprise approach in regard to the implementation of EVM in projects.

We recommend that OCIO develop procedures to standardize program and project EVM data for all OAs.

4. No formalized EVMS training program established across the DOT.

There is no formalized DOT training program pertaining to EVMS. The OST has not provided standardized EVMS training for utilization within DOT OAs.

OST, who has responsibility for coordinating and promulgating EVM requirements, has not had adequate resources dedicated to creating and promulgating EVM requirements, specifically in regard to a dedicated EVMS specific training program to be leveraged across DOT OAs. Without documented and formalized EVMS training, EVMS may be inconsistently applied across projects requiring its use. EVMS requirements are at risk of being reported improperly or neglected, reducing the reliability of reported EVMS data. Key personnel without appropriate training are at risk to contribute to delays in the execution of reporting requirements and deliverables as defined by DOT and OMB policy.

We recommend that OCIO:

1. Provide a platform or mechanisms for ensuring appropriate personnel managing programs that require EVM reporting must obtain OCIO and OSPE sponsored training prior to awarding contract.
2. Work with appropriate DOT personnel to ensure training qualifications are maintained in a designated repository.

5. Inconsistent Integrated Baseline Review (IBR) performance and tracking at Federal Aviation Administration (FAA).

IBR performance has not been consistently executed by investment program management and EVM Focal Point staff in accordance to FAA and DOT policy requirements.

Two investments selected (NEXCOM Segment 1a and ADS-B) did not sufficiently perform required IBR performance and reporting actions, as documented below:

- NEXCOM Segment 1a performed a contractor IBR in excess of the maximum time requirement of 180 days for IBR performance. Contract award was stated as February 9-10, 2009, while the contractor IBR was not performed until September 25, 2009.
- ADS-B conducted a program level IBR in 2008; however, a formalized IBR report was not developed or disseminated to stakeholders following execution. Additionally, ADS-B has not performed the required program level IBR associated with the final investment decision (FID) made on May 30, 2012, for the ADS-B program segment spanning from FY2014 – FY2020.

Due to improper IBR execution, the validation and assessment of key project attributes (i.e., planning activities, performance measures, contract revisions, significant changes to the PMB, schedule feasibility, and essential program elements) has not been performed. As a result, FAA and DOT Management are unable to validate monthly reported EVM data for accuracy or completeness.

FAA, who has a responsibility for coordinating and promulgating EVM requirements, has not consistently monitored key reporting activities per the AMS policy and ANSI/EIA Standard 748 guidelines. Specifically, program management has not received adequate training in regards to the performance or execution of a contractor IBR. Training was not completed prior to the required execution of the IBR, which resulted in delayed IBR performance. Additionally, a mechanism for tracking and reporting planned IBRs was only recently been developed for use by the FAA Focal Point group. Without completed provisions and monitoring of EVMS standardization and implementation, EVMS may be inconsistently applied across projects requiring its use. Without proper IBR execution, the validation and assessment of planning activities, identification of useful and accurate performance measures, contract revisions, significant changes to the PMB, schedule feasibility, and essential program elements are not appropriately performed. EVMS requirements are at risk of being reported improperly or neglected, and reducing the reliability of reported EVMS data. Projects are at risk of being funded while exhibiting significant program deficiencies.

We recommend that FAA Management:

1. Further develop the FAA EVMS Training Module to promote consistency of reporting and awareness of EVMS requirements, specifically program and contractor IBR requirements.

2. Require that the program teams attend corresponding trainings and EVM Focal Point staff will be responsible for the development and implementations of training.
3. Develop a method for holding the program manager responsible for ensuring the timely execution of the IBR.
4. Retain evidence of requests for IBR deferrals past the required 180 day threshold. Require this evidence to be presented during the IBR Status Reports conducted with Joint Resources Council (JRC).

6. Insufficient contractor EVMS certification and surveillance at FAA

Contractor EVMS has not been appropriately certified by FAA to meet the guidelines of ANSI/EIA Standard 748 as required by DOT and FAA policy. Additionally, FAA Management has not appropriately enforced contractor EVMS certification requirements, having permitted the continued operation and utilization of a non-certified contractor EVMS.

Per FAA policy, the EVM Focal Point is responsible for assessing and validating EVM implementation and monitoring application to ensure compliance. The Office of Information Technology Value Management Office (AIT) is responsible for certifying program EVM systems. However, the prime contractor (“Crown Consulting Inc.”) EVMS utilized by the NEXCOM Segment 1a investment has not been certified.

As the contractor EVMS is not certified, reported EVM data for NEXCOM Segment 1a cannot be consistently validated for accuracy or completeness.

FAA, who has a responsibility for coordinating and promulgating EVM requirements, has not consistently monitored key reporting activities per the AMS policy and ANSI/EIA Standard 748 guidelines. EVMS certification requirements, although defined, are not adhered to by EVM Focal Point staff, as penalties for non-compliance are not defined nor enforced. EVMS certification has been delayed as a result of the contractor’s inability to meet required certification criteria. However, program reporting and acceptance of EVMS generated data was not halted as penalties for non-compliance were not enforced. Lack of an actionable set of repercussions enabled the continued operation and reliance upon the non-certified EVMS. Without completed provisions and monitoring of EVMS standardization and implementation, EVMS may be inconsistently applied across projects requiring its use. EVMS requirements are at risk of being reported improperly or neglected, reducing the reliability of reported EVMS data.

We recommend that FAA Management:

1. Develop policies and procedures documenting time requirements for certification of Contractor EVMS, as well as follow-up requirements to occur in the event contractor EVMS is unable to achieve certification.
2. Certify the Crown EVMS for NEXCOM.
3. Perform analysis of investments underdevelopment and associated contractor EVMS to identify non-certified systems currently being used to report EVM data and perform analysis to determine impact of utilization of non-certified EVMS.

4. Incorporate the timely and consistent tracking of EVMS certification into year-end performance metrics for EVM Focal Point staff.

V. MANAGEMENT RESPONSE TO THE REPORT

The following is the DOT CIO's response, dated June 19, 2014, to the DOT EVM and Security Cost Reporting 2014 Performance Audit report.

Memorandum

U.S. Department
of Transportation

**Office of the Secretary
of Transportation**

ACTION: Response to the OIG Draft Report
On US DOT EVMS Program and Practices for FY 2014

Date:

From:

Richard McKinney 
Chief Information Officer (CIO)

Reply to
Atn of

To

Louis King
Assistant Inspector General for Financial and
Information Technology Audits

The Department of Transportation's (DOT) Office of the Chief Information Officer (OCIO) continues to refine the use of the Department's Earned Value Management System (EVMS) and the value it brings to the project management community. While we have made progress in maturing the use of the EVMS, we will continue that progress and work to make EVMS a tool that helps drive decision making. Going forward, the (OCIO) will work to update EVM policy and implementation guidance that will enhance our ability to leverage best practices for training our program managers to ensure they have the core knowledge to apply EVM to applicable programs. Additionally, we will strengthen the procedures for validating contractor cost estimations and establish a required set of documents to support program rebaselining decisions. These actions should posture the Department to EVMS success.

RECOMMENDATIONS AND RESPONSE

Recommendation 1: We recommend that OCIO update the DOT EVMIG to establish operational requirements and document a defined or recommended set of documents to be retained in the event of a formal project baseline change

Response: Concur. The Director of IT Governance will update the Earned Value Management Implementation Guide (EVMIG), setting forth clear operational procedures and documents required to support program rebaseline changes over the lifecycle for projects geared towards development, modernization, and enhancement activities. Expected completion date for this recommendation is December 31, 2014.

Recommendation 2: We recommend that the Office of the Senior Procurement Executive (OSPE) with assistance from the OCIO:

1. Update policies and procedures for the validation of contractor cost estimates, and incorporate them into the DOT EVMIG and applicable DOT IBR guidance for Contracting Officers.

Response: Concur. OCIO will work with OSPE in providing policy and procedural updates to strengthen EVM guidance that will outline requirements for validating contractor cost estimates. The updates will ensure program managers are aware of and comply with requirements outlined in Federal Acquisition Regulation policy on contractor cost estimation and IBRs. OCIO proposed updates will be coordinated with the OSPE. Guidance updates are expected to be complete no later than September 30, 2014.

2. Develop policies and procedures for the retention of COTR and Procurement documented conclusions on the validity of provided contractor cost estimates.

Response: Concur. OCIO will work with OSPE in drafting EVM policy and procedural guidance updates and coordinate recommendations with OSPE. Policy and guidance updates will focus on procedures for retaining appropriate procurement documents used to assess and validate contractor cost estimates. The revised guidance and policy are expected to be complete no later than September 30, 2014.

Recommendation 3: We recommend that OCIO develop procedures to standardize program and project EVM data for all OAs.

Response: Concur. OCIO will work to update the EVM guidance, which will outline procedures for providing standard data or artifacts required to measure the effectiveness of EVM and improve oversight I monitoring of baseline changes for affected OA programs. The updated guidance is expected to be complete no later than December 31, 2014.

Recommendation 4: We recommend that OCIO:

1. Provide a platform or mechanisms for ensuring appropriate personnel managing programs that require EVM reporting must obtain OCIO and OSPE sponsored training prior to awarding contract.

Response: Concur. OCIO will work with OSPE to leverage existing training provided through Federal Acquisition Institute, Defense Acquisition and other methods such as web based and/or computer based modules for project management professionals. The training is expected to provide the appropriate information for Project Managers and Program Managers to achieving at least minimum proficiency and certification levels for managing EVM affected programs. The planned completion is no later than March 31, 2015.

2. Work with appropriate DOT personnel to ensure training qualifications are maintained in a designated repository.

Response: Concur. OCIO will work with Department stakeholders to identify a designated repository for storing and maintaining EVM training qualifications. Once selected, the repository is intended to be maintained in a similar manner as that which is required for Program Management proficiency training. Expected date for completion is March 31, 2015.

Recommendation 5: We recommend that FAA Management:

1. Further develop the FAA EVMS Training Module to promote consistency of reporting and awareness of EVMS requirements, specifically program and contractor IBR requirements.

Response: Concur. The current Basic and Advanced EVM training does provide training on the need to conduct both contractor and program level IBRs. The training module will be reviewed and revised as needed to promote consistency in the reporting and awareness of EVM requirements for both program and contract IBRs. The EVM Focal Point will review and update the training material by June 30, 2014.

2. Require that the program teams attend corresponding trainings and EVM Focal Point staff will be responsible for the development and implementations of training.

Response: Concur. EVM training is planned and scheduled prior to each fiscal year. The schedule is published in FAA's eLearning Management System (eLMS). The program teams that require training will be informed of the requirement, directed to sign up for the training, and their attendance will be tracked through eLMS. Those requiring the training and not signed up will be contacted along with their Directors to ensure that they take the training in accordance with the established schedule. This provision for the tracking of training for the program teams will begin by July 1, 2014.

3. Develop a method for holding the program manager responsible for ensuring the timely execution of the IBR.

Response: Concur. The EVM Focal Point, in coordination with the program managers, has developed a list of the required IBRs and is now tracking their conduct. The EVM Focal Point will coordinate the development of a method to hold program managers responsible for timely execution of IBRs with the Directors of the programs. The FAA will provide the OIG with an update on this effort by September 30, 2014.

4. Retain evidence of requests for IBR deferrals past the required 180 day threshold. Require this evidence to be presented during the IBR Status Reports conducted with Joint Resources Council (JRC).

Response: Concur. The FAA will require the program managers to provide a rationale for deferring IBRs past the required 180 days deadline date through the EVM Focal Point. The EVM Focal Point will provide the information collected to the JRC in the quarterly EVM status briefing starting June 25, 2014. The EVM Focal Point will revise the IBR date on the IBR tracking sheet and monitor the conduct until the IBR is completed.

Recommendation 6: We recommend that FAA Management:

1. Develop policies and procedures documenting time requirements for certification of Contractor EVMS, as well as follow-up requirements to occur in the event contractor EVMS is unable to achieve certification.

Response: Concur. The FAA will develop policies and procedures documenting time requirements for contractor EVMS certification. These new policies and procedures will include follow-up requirements if the contractor is unable to achieve certification within the time requirements. The FAA plans to accomplish this effort by September 30, 2014.

2. Certify the Crown EVMS for NEXCOM.

Response: Concur. The EVM Focal Point certified the Crown EVMS during the week of May 12, 2014. There were no corrective actions but there were recommendations made. The final report will be issued by July 15, 2014. The certification letter that validates the EVMS will be developed and provided to the FAA Acquisition Executive for signature by July 31, 2014, at which time the FAA will provide the OIG a copy of the letter.

3. Perform analysis of investments under development and associated contractor EVMS to identify non-certified systems currently being used to report EVM data and perform analysis to determine impact of utilization of non-certified EVMS.

Response: Concur. The investments that are under contract that have the requirement for a certified EVMS and have yet to be certified will be identified, a list will be developed, and timeframes established for the certification of these EVMS. The contractors with the non-certified EVMS will be determined by July 31, 2014, and the list with timeframes will be developed by August 29, 2014. The timing of the conduct of the EVMS certifications will be coordinated between the contracting officer responsible for managing the contract and the EVM Focal Point. The contracting officer will ensure, with assistance from the EVM Focal Point, that the certifications are conducted within the established timeframe. If EVMS certifications are required, an analysis will be performed to determine the impact of the utilization of non-certified EVMS on investment programs. This effort should be completed no later than September 30, 2014.

4. Incorporate the timely and consistent tracking of EVMS certification into year-end performance metrics for EVM Focal Point staff.

Response: Concur. The annual performance plan of the EVM Focal Point developed by management captures the requirement to track and conduct EVMS certifications. These requirements are also captured in the annual Division Level Work Plan. The annual performance plan is developed and signed by both management and the EVM Focal Point in October of each year and is reviewed periodically during the year. This process includes a mid-year review, which is conducted in April, and the year-end performance review and assessment, which is conducted annually in September of each year. The Division Level Work Plan is reviewed on a quarterly basis and updated as required. Additionally, the EVM Focal Point meets bi-weekly with management for a status review which includes a report on the tracking and results from the conduct of EVMS certifications. The agency believes it has complied with this recommendation and requests that it be closed.

The Office of the DOT CIO appreciates the opportunity to review and respond to the report. If you have any questions concerning the response, please contact Walter McDonald at (202) 366-6067, or by email at walter.mcdonald@dot.gov

APPENDIX I – STATUS OF PRIOR-YEAR FINDINGS

As part of this year’s Performance Audit, we followed up on the status of the recommendations from the Office of Inspector General (OIG) report QC-2009-048, dated April 24, 2009, *Quality Control Review of the Department’s Implementation of Earned Value Management and Security Cost Reporting*.

Finding #	Prior-Year Condition	Recommendation	Status
<p>2008-1: Controls Over the Reliability of Earned Value Management Systems (EVMS) Data Should Be Strengthened</p>	<p>During our review of the EVMS used at the Department of Transportation (DOT), we identified the following exceptions related to the reliability of EVMS data:</p> <p>A. Controls to prevent unauthorized changes to the spreadsheets (i.e., key cells and spreadsheets used to calculate Earned Value Management (EVM)) have not been identified.</p> <p>B. Office of the Secretary of Transportation (OST) has not promoted nor provided standards for estimating project requirements for information technology (IT) projects. This includes considerations for:</p> <ul style="list-style-type: none"> • Estimating resource requirements for project work elements • Assigning management resource/using an Organizational Breakdown Structure (OBS) and Responsibility Assignment Matrices (RAM) for control accounts and work elements • Estimating project activity duration and sequencing • Establishing EVM credit techniques, EVM performance analysis and reporting requirements including specific requirements for EVMS certification and surveillance procedure. 	<p>A. Ensure that controls over the process of collecting and reporting EVM data contain adequate provisions for controlling access and changes to the EVM data. In addition, adequate controls should be included over the analysis and monitoring processes in order to verify the accuracy and completeness of the EVM data. These provisions should be contained in related EVM policy and implementation procedures and in corresponding Statement of Work (SOW) with contractors.</p> <p>B. Consider incorporating the standards for estimating project requirements as described in the observations and incorporate in the to-be released EVM Implementation Guide.</p>	<p>Implemented/Closed</p> <p>A. EVM tools and technology were restricted to individuals using role-based permissions established through Active Directory accounts to control the ability to access and change EVM data within the Oracle Primavera Portfolio Management (OPPM) tool. In addition, DOT released DOT Order 1351.22.1, <i>Earned Value Management</i>, dated July 15, 2010, and updated the DOT EVM Implementation Guide, dated September 29, 2010 to address policy and implementation procedures for the analysis and monitoring process of verifying the completeness and accuracy of EVM data. The DOT EVM Implementation Guide addresses the related policy and implementation procedures required in corresponding SOWs with contractors.</p> <p>B. Standards for estimating project requirements were included in the DOT EVM Implementation Guide, dated September 29, 2010.</p>

Finding #	Prior-Year Condition	Recommendation	Status
<p>2008-2: Controls Over the Reasonableness of Security Cost Estimates and Reporting Should Be Strengthened</p>	<p>During our review of the security cost reporting practices performed at the DOT, we identified the following exceptions:</p> <ul style="list-style-type: none"> A. There are no DOT specific policies or procedures for estimating, tracking and reporting security costs. This includes: <ul style="list-style-type: none"> a. Provisions for distributing resources based on assessed risks b. Provisions for using risk analysis, earned value and return on investment to determine which security controls should be funded and implemented c. Provisions for linking information security expenditures to the strategy and mission of the program d. Provisions for linking the security costs to OMB A-11 categories e. Provisions for developing a performance plan that addresses security resources including budget, staffing and training B. Security estimates for the IT Combined Infrastructure are self-reported by the Operating Administrations (OAs) and do not follow any consistent, predictable methodology from which future projections can be based by OST. In addition, there is no accountability over the reasonableness of the estimates provided by the OAs. Lastly, the estimates for the common IT services also do not follow a consistent methodology that provides a reasonable estimate of the future security costs based on the services rendered as the subordinate investments are migrated to the common operating environment. 	<p>A, B. Consider incorporating the standards for security budgeting as described in the observations, promulgate and monitor the use of the standards across OAs.</p>	<p>Not Implemented/ Open A, B. The prior year finding has not been closed as a standard security cost estimation process does not exist, and has not been developed nor promulgated by OST. While a small number of proprietary tools are used by individual OAs (i.e., National Highway Traffic Safety Administration (NHTSA) uses iREx to calculate its security costs), a standard policy or tool suite has not been implemented across DOT. OST acknowledged this and stated that security cost estimation procedures are in the process of being finalized, and noted that a March 30, 2014 deadline is in place to “Develop and/or revise the Department’s EA procedures to address the following: creation of a standardized methodology that provides reliable estimates of security funding needed for system investments.” OST Management stated that they anticipate meeting this target delivery date.</p>

Finding #	Prior-Year Condition	Recommendation	Status
<p>2008-3: Controls Over the Implementation and Use of EVMS In Project Oversight Should Be Strengthened</p>	<p>During our review of the implementation and completeness of EVMS practices performed at the DOT we identified the following exceptions:</p> <p>A. The DOT EVM policy:</p> <ul style="list-style-type: none"> a. The EVM Implementation Guidance referenced throughout the DOT EVM policy has not yet been created nor promulgated; b. Does not accurately recognize Federal Aviation Administration (FAA) applicability even through FAA’s requirements for implementing and using EVM are more stringent and are accompanied by EVM implementation guidance; and c. Does not contain provisions for Training, Integration with Portfolio Management, the use of templates and tools. <p>B. There is no consistent enterprise approach to managing and applying EVM data across OAs.</p> <p>C. OST has not promoted nor provided standards for applying EVM in IT projects. This includes considerations for:</p> <ul style="list-style-type: none"> a. Articulating and capturing project scope and work assignments through integrated baseline reviews b. Decomposing work using a standard work breakdown structures (WBS) for IT development projects (e.g., following a standardized software development lifecycle or SDLC) c. Managing concurrent efforts through an Integrated Master Schedule (IMS) d. EVM rebaselining guidelines and documentation retention requirements e. Conducting EVM training and lessons learned <p>D. There are inconsistent EVMS practices being followed across OAs and investments. Specifically,</p> <ul style="list-style-type: none"> a. Standard contract language for EVMS is not being used for Pipeline and Hazardous Materials Safety Administration (PHMSA) and NHTSA OAs and the Automated Surface Observing Systems/Automated Weather Observing System (ASOS/AWOS), Advanced Technologies and Oceanic Procedures (ATOP), Safety Monitoring and Analysis Reporting Tool (SMART) and Federal Motor Carrier Safety Administration (FMCSA) Modernization investments. b. Certain OAs and investments have not performed EVMS certification over their EVMS operated by contractors. Specifically the OST, NHTSA, FMCSA, and PHMSA OAs and the Terminal Automation Modernization and Replacement (TAMR), ASOS/AWOS, SMART and FMCSA Modernization investments. c. Inconsistent contractor surveillance of EVMS practices for OST, NHTSA, FMCSA, PHMSA OAs and ATOP, Automated Traffic Management/Traffic Flow Management (ATM/TFM), SMART and FMCSA Modernization investments. d. Standard WBS for development activities are not consistently used by PHMSA or the SMART investment. e. EVMS reporting frequency performed quarterly for NHTSA. 	<p>A. Evaluate, complete and promulgate the EVM policy and Implementation Guide.</p> <p>B. Evaluate the cost/benefits of leveraging an enterprise technology for managing projects and calculating EVM project level data.</p> <p>C. Consider incorporating the standards for applying EVM in project requirements as described in the observations and incorporate in the to-be released EVM Implementation Guide.</p> <p>D. Consider incorporating the standards for implementing and using EVM as described in the observations and incorporate in the to-be released EVM Implementation Guide.</p>	<p>Partially Implemented/Open</p> <p>A. The DOT EVM Implementation Guide, was revised from April 27, 2009 to September 29, 2010. This guide has been published and is utilized by OAs for guidance pertaining to the application of EVM requirements. Implemented.</p> <p>B. A standard framework for managing and apply EVM data across OAs portfolios has been implemented through OPPM. However, tools and technology utilized to document, track, evaluate, and report project-level EVM data is not standardized. Partially Implemented.</p> <p>C. Rebaselining and documentation retention requirements have not been identified within the DOT EVM Implementation Guide. Additionally, there is no formalized DOT training program pertaining to EVMS. Partially Implemented.</p> <p>D. The DOT EVM Implementation Guide, was revised from April 27, 2009 to September 29, 2010. This guide has been published and is utilized by OAs for for determining the application of EVM requirements. FAA Requirements are documented in the FAA Acquisition Management System (AMS) Policy. While both the DOT EVM Implementation Guide and FAA AMS Policy address the requirements for the certification and surveillance of contractor EVMS and performance of Integrated Baseline Reviews (IBRs), we noted that certification and IBR activities had been inconsistently performed over contractor EVMS and major investments. Partially Implemented.</p>

APPENDIX II – GLOSSARY OF TERMS

Acronym	Definition
ACIO	Associate Chief Information Office
ADS-B	Automatic Dependent Surveillance-Broadcast
AIS	Aviation Information System
AIT	Office of Information Technology Value Management Office
AMS	Acquisition Management System
ANSI	American National Standards Institute
AO	Authorizing Officials
ASOS/AWOS	Automated Surface Observing Systems/Automated Weather Observing System
ATM/TFM	Automated Traffic Management/Traffic Flow Management
ATOP	Advanced Technologies and Oceanic Procedures
C&A	Certification and Accreditation
CDAN	Crash Data Acquisition Network
CIO	Chief Information Officer
CLIN	Contract Line Item Number
COTR	Contracting Officer's Technical Representative
CPI	Cost Performance Index
CPIC	Capital Planning and Investment Control
CSAM	Cyber Security Assessment and Management
CV	Cost variance
DME	Development Modernization Enhancement
DOT	Department of Transportation
DOT COE	Department of Transportation Consolidated Operating Environment
DR	Disaster Recovery
EA	Enterprise Architecture
E-Gov	Electronic Government
EIA	Electronic Industries Alliance
EVM	Earned Value Management
EVMIG	Earned Value Management Implementation Guide
EVMS	Earned Value Management System
FAA	Federal Aviation Administration
FEA SPP	Federal Enterprise Architecture Security and Privacy Profile
FHWA	Federal Highway Administration
FID	Final Investment Decision
FIPS	Federal Information Processing Standards
FISMA	Federal Information Security Management Act of 2002
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration

Acronym	Definition
FTE	Full-time Equivalent
FY	Fiscal Year
GAGAS	Generally Accepted Government Auditing Standards
GAO	Government Accountability Office
IBR	Integrated Baseline Review
IDA	Investment Decision Authority
IRB	Investment Review Board
ISSM	Information Systems Security Manager
ISSO	Information Systems Security Officer
IT	Information Technology
JRC	Joint Resources Council
KPMG	KPMG LLP
MAPS	Management Activity Planning System
MARAD	Maritime Administration
MITI	Major IT Investment
MS	Microsoft
NDIA	National Defense Industrial Association
NEXCOM	Next Generation Air/Ground Communications
NHTSA	National Highway Traffic Safety Administration
NIST	National Institute of Standards and Technology
NPIX	National Pipeline Information Exchange
NTD	National Transit Database
OA	Operating Administration
OBS	Organizational Breakdown Structure
OCIO	Office of the Chief Information Officer
OIG	Office of Inspector General
OMB	Office of Management and Budget
OPPM	Oracle Primavera Portfolio Management
OST	Office of the Secretary of Transportation
PBC	Provided by Client
PHMSA	Pipeline and Hazardous Materials Safety Administration
PIV	Personal Identity Verification
PM	Project Manager
PMA	President's Management Agenda
PMB	Performance Measurement Baseline
POA&M	Plan of Action and Milestones
PRM	Performance Reference Model
RCISS	Regulation and Certification Infrastructure for System Safety
RITA	Research and Innovative Technology Administration
SA&A	Security Assessment and Authorization

Acronym	Definition
SIEM	Security Information and Event Management
SIM	Security Information Management
SLSDC	Saint Lawrence Seaway Development Corporation
SMART	Safety Monitoring and Analysis Reporting Tool
SO	System Owner
SOW	Statement of Work
SPI	Schedule Performance Index
STB	Surface Transportation Board
SV	Schedule Variance
TAMR	Terminal Automation Modernization and Replacement
WBS	Work Breakdown Structure