



# Memorandum


**U.S. Department of  
Transportation**

Office of the Secretary  
of Transportation

Office of Inspector General

Subject: INFORMATION: ARRA Advisory –  
FHWA's Oversight of the Use of Value Engineering  
Studies on ARRA Highway and Bridge Projects  
Advisory No. AA-2010-001

Date: June 28, 2010

From: Calvin L. Scovel III   
Inspector General

Reply to  
Attn. of: J-1

To: The Secretary  
Deputy Secretary

Attached is an American Recovery and Reinvestment Act (ARRA) Advisory on the Federal Highway Administration's (FHWA) oversight of required value engineering studies used to improve performance, reliability, quality, and safety, and reduce life-cycle costs on ARRA highway and bridge projects with an estimated total cost equal to or exceeding \$25 million and \$20 million, respectively. Consistent with ARRA and Office of Management and Budget guidance, Inspectors General are expected to promptly report potential management and funding risks that could impact the effective and efficient use of ARRA funds. We are not requesting a formal response to this advisory as the key issues and proposed actions discussed in it were provided to cognizant FHWA officials and audit liaisons in advance. We plan to include information on these issues in our audit reports on FHWA's oversight of high dollar ARRA highway projects and FHWA's oversight of Federal-aid highway projects administered by local public agencies.

We will post the advisory on our website ([www.oig.dot.gov/recovery](http://www.oig.dot.gov/recovery)) and [www.recovery.gov](http://www.recovery.gov). If you have any questions, please call me at (202) 366-1959 or Joseph W. Comé, Assistant Inspector General for Highway and Transit Audits, at (202) 366-5630.

Attachment

cc: Federal Highway Administrator  
Audit Liaison, OST, M-1  
Audit Liaison, FHWA, HAIM-13

#



U.S. DEPARTMENT OF TRANSPORTATION  
Office of Inspector General

# ARRA ADVISORY

*American Recovery and Reinvestment Act*

## FHWA's Oversight of the Use of Value Engineering Studies on ARRA Highway and Bridge Projects

### Key Issues

Our ongoing audits of FHWA's oversight of \$27.5 billion in highway infrastructure investments, funded through ARRA, revealed some states did not conduct federally required "value engineering" (VE) studies during project concept and design. These studies aim to objectively review reasonable design alternatives on highway and bridge projects with an estimated total cost equal to or exceeding \$25 million and \$20 million, respectively. While benefits gained from VE studies on specific projects may vary, experience shows VE studies as a whole improve project performance, reliability, quality, and safety, and reduce life-cycle costs.<sup>1</sup> Our preliminary results indicate that the state and local agencies' failure to comply with VE requirements resulted from out-of-date regulations and FHWA policy on conducting VE studies. Furthermore, VE requirements were not included in most of the states' Stewardship and Oversight Agreements with FHWA. To address audit recommendations we made in 2007 and some of the concerns we identify in this advisory, FHWA issued performance measures to evaluate states' progress in achieving quality VE studies in April 2010 and revised its VE policy and guidance in May 2010, but additional actions are still needed.

### Proposed Actions for Change

To better ensure Federal-aid highway and bridge projects meet VE study requirements, including those funded by ARRA, FHWA needs to (1) update 23 Code of Federal Regulations (C.F.R.) § 627, Value Engineering, to include 2005 VE legislative changes;<sup>2</sup> (2) ensure that FHWA, state, and local staff are fully informed regarding VE legislative requirements and FHWA's revised VE policy; and (3) require states, the District of Columbia, and Puerto Rico to include VE requirements in their Stewardship and Oversight Agreements with FHWA. Timely completion of our proposed actions is important, as states and local public agencies strive to add projects to meet the final deadline for obligating ARRA funds by September 30, 2010.

<sup>1</sup> OIG Report Number MH-2007-040, "Value Engineering in the Federal-Aid Highway Program," found that state compliance with VE requirements could have better used an estimated \$725 million in Federal funds over 4 years. Our report can be found on our website: [www.oig.dot.gov](http://www.oig.dot.gov).

<sup>2</sup> Pub. L. No. 109-59, Sec. 1904 (2005), the "Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)," required that all bridge projects with an estimated total cost of \$20 million or more undergo a VE study.

*We are issuing these advisories to promptly report potential management and funding risks consistent with ARRA and Office of Management and Budget guidance.*



# FHWA's Oversight of the Use of Value Engineering Studies on ARRA Highway and Bridge Projects

## Background

VE analyzes a project's functions to improve performance, reliability, quality, and safety, and reduce life-cycle costs. Federal law requires all federally aided highway and bridge projects with an estimated total cost equal to or exceeding \$25 million and \$20 million, respectively, to undergo VE studies during project concept and design.<sup>3</sup> These cost thresholds also apply to the \$27.5 billion in FHWA highway infrastructure projects funded through ARRA. According to FHWA, to achieve maximum project effectiveness, VE studies should generally be performed early in project development and design to avoid project delays or significant rework of completed designs and, thereby, have the greatest impact on a project's life-cycle costs. Furthermore, VE study recommendations conducted prior to a project's construction can result in reductions in project cost estimates that release funds states can re-program to other Federal-aid highway and bridge projects.

## What We Found

Our ongoing audit of high dollar ARRA highway projects found that the District of Columbia, Alaska, and Missouri did not perform VE studies during the project concept and design phase on the projects shown in the following table, although their projects exceeded the VE threshold. Two additional states met the requirement to perform VE studies, but the studies, in our opinion, were performed late in the process. Specifically, Pennsylvania and North Carolina performed the studies for the projects shown below only months before beginning the contract bid process, thereby lessening the likelihood that the studies' results would be used to improve functionality and safety, and to reduce costs and construction times.

State*	ARRA Project	Required VE Study Status	Project Value In Millions
District of Columbia	New York Avenue	Not conducted	\$36.6
Alaska	Willow to Kashwitna	Not conducted	\$27.5
Missouri	I-44	Not conducted	\$27.1
Pennsylvania	Girard Point Bridge	Conducted less than 2 months before the start of the project's contract bid process	\$77.4
North Carolina	Fayetteville Outer Loop	Conducted 1 month before the anticipated start of the project's contract bid process	\$55.1

\* Alaska and Missouri were not part of our preliminary sample of projects receiving more than \$20 million in ARRA funding, but were identified by FHWA's National Review Teams as not conducting required VE studies.

Source: OIG and FHWA's Federal Highway Management Information System, as of April 2010

Under ARRA, local public agencies have a significant role and could manage up to 30 percent of ARRA highway funds in some states. In our ongoing audit of FHWA's oversight of Federal-aid highway projects administered by local public agencies, we reviewed 11 California local public agencies slated to receive ARRA funding and found that 2 Federal-aid projects and 1 ARRA project did not have the required VE studies.

<sup>3</sup> Other projects that the U.S. Secretary of Transportation determines to be appropriate may also require a VE study.



# FHWA's Oversight of the Use of Value Engineering Studies on ARRA Highway and Bridge Projects

Our preliminary results indicate that the failure to conduct VE studies or conduct them in a timely manner resulted from several FHWA omissions.

- FHWA has not updated its C.F.R. to include VE legislative changes made in 2005, including the new requirement for bridge projects with an estimated total cost equal to or exceeding \$20 million to undergo a VE study. Officials responsible for VE oversight on one project stated the required VE study was not done because they relied on the C.F.R. and were not aware of the legislative change regarding bridge projects.
- FHWA's VE policy also lacked information on VE legislative changes made in 2005, study timeliness, dollar thresholds, and actions needed when project cost estimates escalate past VE thresholds. After cost estimates escalated past the VE thresholds, two project officials did not conduct a required VE study because it was deemed too late in project development to perform a study.
- FHWA's Stewardship and Oversight Agreement policy does not include VE requirements as an element states should address in their agreements. Of the 52 Stewardship and Oversight Agreements with FHWA,<sup>4</sup> 16 do not mention VE and 32 either do not cite the \$20 million threshold for bridge VE studies or explain the bridge VE requirement incorrectly.

## Future OIG-Related Activities

Since March 2010, we have met with FHWA to resolve the concerns noted above and the outstanding 2007 VE report recommendations. According to FHWA, its May 2010 VE policy addresses VE study timeliness and provides effective guidance while regulatory updates proceed. Furthermore, while not directly requiring states to include VE in their Stewardship and Oversight agreements, FHWA contends that its April 2010 VE performance measures provide integration of VE into FHWA and state practices. As part of our ongoing ARRA audits, we plan to review FHWA's implementation of its policy and performance measures and to further assess VE issues and FHWA's actions. We are not requesting a formal response to this advisory. The advisory will be posted on our website ([www.oig.dot.gov/recovery](http://www.oig.dot.gov/recovery)) and [www.recovery.gov](http://www.recovery.gov).

**For information on this advisory, contact Joseph W. Comé, Assistant Inspector General for Highway and Transit Audits, at (202) 366-5630.**

<sup>4</sup> Although FHWA retains overall oversight responsibility for all aspects of Federal-aid programs, the states, District of Columbia, and Puerto Rico have entered into Stewardship and Oversight Agreements with FHWA that establish their responsibilities for Federal-aid highway projects.