

## 2011 FHWA Value Engineering (VE) Program Performance Measures

The FHWA's VE program is focused on continuously improving the development and delivery of highway improvement projects. The following goals and measures were developed in FY 2009 to monitor and report on the progress of FHWA's VE Program:

- Goal 1: Maximize the influence VE studies have on a project's cost and performance;
- Goal 2: Enhance the quality of VE programs; and
- Goal 3: Improve FHWA's stewardship and oversight of the VE Program.

These goals reflect FHWA's priorities of continuously improving their stewardship and oversight of the VE program, enhance how VE analyses are conducted, and support State DOTs efforts to improve their VE programs. Annually FHWA collects, analyzes and reports on the progress achieved with accomplishing the VE program goals and measures. The innovative and successful practices that are identified, along with the results that are compiled, annually from the VE Accomplishments Report are available at: <http://www.fhwa.dot.gov/ve/2011/>.

The trends identified from past VE Accomplishments Reports along with the data that was compiled for FY 2009 was analyzed and used to establish a baseline for the performance measures and indicators that were established for each goal. Targets were established for 2016 to support advancing the conduct of VE analyses nationally. The results of the FY 2010 and FY 2011 analysis are shown below. For additional information on FHWA's VE program, the FY 2011 VE Accomplishments Report, or the progress with achieving these VE program goals and objectives, please contact Ken Leuderalbert at [ken.leuderalbert@dot.gov](mailto:ken.leuderalbert@dot.gov) or 317-226-5351.

### **Goal 1: Maximize the influence VE studies have on a project's cost and performance.**

*Outcome:* By increasing the number of VE study recommendations that are implemented, improvements in the project's cost-effectiveness and performance will be realized.

- Baseline – FY 2009:	1.9
- FY 2010:	2.0
- FY 2011:	1.3
- Target 2016:	2.5

This measure consists of the weighted average of 40% of Indicator A: Percentage of VE Study Recommendations Implemented and 60% of Indicator B: Percentage of Construction Costs Saved. The following shows how numeric measures are established for each of these indicators based on the data collected during FHWA's annual VE Call for Data:

*Performance indicators:*

A. Percentage of VE study recommendations implemented

- Performance Metric (Percentage): This measure is determined by dividing the number of approved recommendations (question 11b) by the total number of proposed recommendations (question 11a). The following represents the average percentage of all implemented VE study recommendations as reported annually for all States.

- Baseline – FY 2009: 44 %
- FY 2010: 43%
- FY 2011: 42 %
- Target – FY 2016: 55 %

- Performance Metric (Value): The data for this indicator is the percentage of VE study recommendations implemented (questions 11a and 11b) as reported for each State. The following matrix shows the numeric values corresponding to the range of possible percentages for this measure. The performance indicator is determined by averaging the data reported annually for all States.

- Baseline – FY 2009: 2.3
- FY 2010: 2.3
- FY 2011: 2.0
- Target - 2016: 2.8

	<b>0</b>	<b>0.5</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
% of Implemented Recommendations	0	0.1 - 15%	16-30%	31-45%	46-60%	61-80%	81-100%

B. Percentage of project construction costs saved

- Performance Metric (Percentage): This measure is determined by dividing the value of approved VE recommendations (question 12b) by the estimated cost of the projects studied (question 10b). The following represent the average percentage of construction costs saved as reported annually for all States:

- Baseline – FY 2009: 5.8%
- FY 2010: 5.8%
- FY 2011: 3.0%
- Target – FY 2016: 8.0%

- Performance Metric (Value): The data for this indicator is the percentage of project construction cost saved (questions 12b and 10b) as reported for each state. The following matrix shows the numeric values corresponding to the range of possible percentages for this measure. The performance indicator is determined by averaging the data reported annually for all States.

- Baseline – FY 2009: 1.6
- FY 2010: 1.9
- FY 2011: 0.8
- Target – FY 2016: 2.4

	<b>0</b>	<b>0.5</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
% of Construction Project Cost Savings	0	0.1 - 2.5%	2.5-5%	5-7.5%	7.5-10%	10-12.5%	More than 12.5%

**Goal 2: Enhance the quality of VE programs.**

*Outcome:* To enhance both the strategic and day-to-day capacity (e.g., policy, procedures, functions, services) and quality of VE programs.

- Baseline – FY 2009: 2.7
- FY 2010: 2.9
- FY 2011: 2.8
- Target - FY 2016: 3.5

This measure consists of the weighted average of 30% of Indicator A: Number of State DOTs with a VE Policy, 30% of Indicator B: Number of State DOTs with an Established VE Program, and 40% of Indicator C: Percentage of VE Studies Conducted Prior to Completing 30% of a Project’s Design. The following shows how numeric measures are established for each of these indicators based on the data collected during FHWA’s annual VE Call for Data.

*Performance indicators:*

A. Number of state DOTs with a VE policy.

- Baseline – FY 2009: 3.0
- FY 2010: 3.6
- FY 2011: 3.5
- Target – FY 2011: 4.1

- Performance Metric: The data for this indicator is the number of FHWA recommended VE Program elements contained in the State’s VE Policy (question 1b) as reported for each State. The following matrix shows the numeric values corresponding to the range of possible program elements for this measure. The performance indicator is determined by averaging the data reported annually for all States.

	0	1	2	3	4	5
VE Policy	No policy documented or formal VE program commitment	Documented commitment to conduct required VE analysis (23 CFR 627) & 1 VE program element in policy	2 VE program elements addressed in policy	3 - 4 VE program elements addressed in policy	5 - 6 VE program elements addressed in policy	7 - 8 VE program elements addressed in policy

B. Number of states with an established VE Program.

- Baseline – FY 2009: 2.8
- FY 2010: 3.0
- FY 2011: 2.9
- Target – FY 2016: 4.0

- Performance Metric: The data for this indicator is the number of FHWA recommended VE Program elements (question 1a) which exist in a State’s VE Program as reported for each State. The following matrix shows the numeric values corresponding to the range of possible program elements for this measure. The performance indicator is determined by averaging the data reported annually for all States.

	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
VE Policy	No policy documented or formal VE program commitment	1 VE program element identified or under development	2 VE program elements identified or under development	3 VE program elements identified or under development	4 VE program elements identified or under development	5 - 6 VE program elements identified or under development

C. Percentage of VE studies conducted prior to completing 30% of a project’s design.

- Baseline – FY 2009: 2.4
- FY 2010: 2.3
- FY 2011: 2.2
- Target – FY 2016: 2.7

- Performance Metric: The data for this indicator is the number of VE studies conducted at or prior to completing 30% of the final design for a project (question 4c) as reported for each State. The following matrix shows the numeric values corresponding to the range of possible percentages for this measure. The performance indicator is determined by averaging the data reported annually for all States.

	<b>0</b>	<b>0.5</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
% of VE studies conducted before completing 30% of a project’s design	0	0.1 – 15 %	15 – 30 %	30 – 45 %	45 – 60 %	60 – 80 %	80 – 100 %

**Goal 3: Improve FHWA's stewardship and oversight of the VE Program.**

*Outcome:* To enhance FHWA's consistency with providing stewardship and oversight of the State VE programs and involvement with VE studies.

- Baseline - FY 2009: 2.5
- FY 2010: 2.9
- FY 2011: 2.8
- Target – FY 2016: 4.3

This measure consists of the weighted average of 30% of Indicator A: Divisions are engaged in VE Studies, 30% of Indicator B: Number of Divisions Verifying all Required VE Studies are Conducted, and 40% of Indicator C: Enhance the Consistency of FHWA Stewardship and Oversight of VE. The following shows how numeric measures are established for each of these indicators based on the data collected during FHWA's annual VE Call for Data.

*Performance indicators:***A. Divisions are engaged in VE studies.**

- Baseline – FY 2009: 3.1
- FY 2010: 3.0
- FY 2011: 3.0
- Target – FY 2016: 4.2

- Performance Metric: The data for this indicator represents the Division's level of participation in VE analyses on all applicable projects (question 20a) as reported for each State. The following matrix shows the numeric values corresponding to the range of possible percentages for this measure. The performance indicator is determined by averaging the data reported annually for all States.

	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Participating in VE studies	0 or No involvement	Rarely (1-20 %)	Seldom (21-40 %)	Occasionally (41-60 %)	Frequently 61-80 %	Normally (80-100 %)

**B. Number of Divisions verifying all required VE studies are conducted.**

- Baseline – FY 2009: 3
- FY 2010: 4
- FY 2011: 4
- Target 2016: 5

- Performance Metric: The data for this indicator represents the division's stewardship and oversight efforts to ensure the States complete the required VE analyses on all applicable projects (question 21) as reported for each State. The following matrix shows the numeric values corresponding to the range of possible number of divisions for this measure. The performance indicator is determined by counting the number of divisions reporting annually that they verify the required VE analyses are conducted for all applicable projects.

	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Verification of VE studies conducted	0	0.1 - 5	6 - 20	21 - 35	26 - 39	40 - 51	52

C. Enhance the consistency of FHWA’s stewardship and oversight of VE.

- Baseline – FY 2009: 1.6
- FY 2010: 1.9
- FY 2011: 1.6
- Target – FY 2016: 3.9

- Performance Metric: The data for this indicator represents the division’s stewardship and oversight efforts involved with monitoring, assessing and advancing the VE program. This measure is based on a weighted average of 75% for the division’s stewardship and oversight (questions 19 and 20) and 25% for their risk management (questions 17 and 18) involvement with the State DOTs VE program as reported for each State. The following matrix shows the numeric values corresponding to the range of possible stewardship and oversight efforts for this measure. The performance indicator is determined by averaging the data reported annually for all States.

	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Integration of VE in Divisions stewardship & oversight agreements, risk assessment, & reviews conducted	-VE is not included in Divisions stewardship & oversight agreement  -VE is not considered in Division’s annual risk assessment process	-VE analysis identified in planning & design sections of Divisions stewardship & oversight agreement  -VE identified as issues to consider in Division’s annual risk assessment process	-State DOTs VE policies & procedures referenced in Division’s stewardship & oversight agreement  -Division VE coordinator identified in Division’s Stewardship & Oversight agreement or work plan  -VE was considered in Division’s risk assessment process	-Division’s VE coordinator roles & responsibilities identified in Division’s stewardship & oversight agreement  -Division involved in VE analysis conducted on direct oversight projects  -VE risk assessment conducted as a part of the Division’s risk assessment process	-Conducting VE analysis, identifying & verifying recommendations are implemented are included in Division’s stewardship & oversight agreement  -VE is integrated into Division’s work plan  -VE review conducted or need to conduct a VE review is identified in Division’s work plan based on Division’s VE risk assessment	-Monitoring, evaluating & reporting on VE program are included in Division’s stewardship & oversight agreement  -Activities to improve State DOT’s VE program or VE analyses conducted are included in Division’s VE work plan