



The Value Engineering Process

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Value Engineering

Definition:

- Delivering the project safely, reliably, and at the lowest overall cost;
- Improving the value and quality of the project, and
- Reducing the time to complete the project.

VE Study Required for:

A VE study is required for all transportation corridors or federal-aid projects on the National Highway System (NHS) with an estimated cost of \$25 million or more

SAFETEA-LU Requirements:

- All projects \$25 million or more on the *FEDERAL-AID SYSTEM*.
- All bridge projects \$20 million or more.
- Any project the Secretary deems appropriate.
- And for any Major project (\$500 million or more) the Secretary may require more than one Value Engineering study on major projects.

Warning

FHWA can withhold Federal-aid highway funds on any eligible project that does not receive a VE study.

Federally funded NHS projects will require a VE Study even though :

- They previously had no federal participation,
- The estimated cost unexpectedly increases to exceed the \$25 million due to cost and scope creep.

Best Time to Conduct A VE Study

Best Time is:

30-60% Schematic/Environmental

Worst Time is:

100% Schematic and Public Acceptance

100% PSE when in Austin for Review

Scoping and Estimating Projects

Memo directed from Amadeo Saenz, Jr. on
November 1, 2004

Requires an annual update on DCIS of:

- Project Scope
- High-Quality Preliminary Cost Estimate with use of Annual Scope & Estimate Documentation Form

Documentation required for Following Funding Categories

- 2 - Metropolitan Area (TMA) Corridor Projects
- 3 - Urban Area (non-TMA) Corridor Projects
- 4 - Statewide Connectivity Corridor Projects
- 6 - Structures Replacement and Rehabilitation
- 12 - Strategic Planning

Annual Scope and Estimate Documentation Form

Annual Scope and Estimate Documentation Form

Date _____ Prepared by _____

District _____ CSJ _____

County _____ CCSJ _____

Project No. _____

Construct Categories _____ UTP Authority _____

Limits:

From _____

To _____

Project Scope _____

Existing Facility:

No. Mainlanes _____ Type _____

No. Frontage Lanes _____ Type _____

Proposed Facility:

No. Mainlanes _____ Type _____

No. Frontage Lanes _____ Type _____

Estimate:

I. Earthwork subtotal \$ _____

II. Subbase & base subtotal \$ _____

III. Surface Courses or Pavement subtotal \$ _____

IV. Structures subtotal \$ _____

V. Incidental subtotal \$ _____

VI. Lighting and Signing subtotal \$ _____

Total \$ _____

Last Year's Total \$ _____

Percent change _____ [(Total - Last Yr.) / Last Yr.]

Explanation of Change from Last Year's Total _____

Signature- District Engineer or
Dir. of Trans. Planning and Dev.

 TxDOT

July 2004

Initiative for Changes

Review of Federal Highway Administration's (FHWA)
Value Engineering (VE) Policy
by the Office of Inspector General (OIG)
on
June 20-24, 2005

Audit Objective

- VE studies are performed on all Federal-aid NHS projects that have an estimated cost of \$25 M or more
- VE studies are performed on all Federal-aid projects that have a high potential for cost savings, and
- All VE recommendations that can be implemented are approved

Audit Outcome

- TxDOT missed opportunities by not performing required VE Studies
- FHWA granted waivers for the statutory requirement to perform VE studies
- VE recommendations were not implemented
- No performance goal for measuring effectiveness of state value Engineering Program in place

District Visits

- Austin District
- Corpus Christi District
- Dallas District
- Houston District
- San Antonio District
- Waco District

Common Complaint

\$25 Million Threshold

Recent Changes

- Design Division Contracts have increased amounts
- Statewide VE Inventory Spreadsheet
- CVS required to provide an Executive Decision Summary Form
- Updated Project Development Process Manual, Chapter 2, Preliminary Design, Section 6, Value Engineering

Executive Decision Summary Form

To: Design Division
Subject: Highway
Limits: _____
CSJ(s): _____

VE Study Date: _____
Facilitator: _____
CVS Firm: _____

EXECUTIVE DECISION SUMMARY **VE Team Recommendations**

VE Team Recommendation No. 1

Comments: _____

Approval: _____
Transportation Planning and Development Engineer

Approval: _____
District Design Engineer

Approval: _____
District Engineer

Suggested Additional Fixes

- Assign District VE Coordinators
- Add to Project Tracking System
- Annual update of Annual Scope and Estimate Documentation Form for DCIS

Modified DSR

Design Summary Report

ADVANCED PROJECT DEVELOPMENT ELEMENTS

A. Surveying

1. Is planimetric needed? yes no
2. Status of aerial photography: complete in progress not started not proposed
3. Status of field surveys: complete in progress not started
4. Has vertical and horizontal control been established on the ground? yes no
5. Additional elements to be surveyed (drainage channels, intersecting streets, etc.)

-
6. Is existing ROW staking required? yes no
Status: complete in progress not started Responsible Office: _____
 7. Comments _____

B. Schematic development

1. Is a geometric schematic required? yes no If yes, responsible office _____
2. Is a signing schematic required? yes no
3. Schematic status
 - a. Percent complete _____ %
 - b. Approval authority: FHWA DES District
 - c. Need prelim. schematic by _____
 - d. Need approved schematic by _____
 - e. Approval date _____
4. Comments _____

E2. Value Engineering Study

1. Is a study required? yes no If yes, responsible office _____
2. Scheduled Date? _____ District or Division Contract _____
3. Copy of District Study sent to Design Division? yes no

C. Environmental Commitments & Issues

Modified Form 1002



Form 1002
(Rev. 12/2004)
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B. STIP Year _____ STIP Page # _____

C. Financing

CSJ	Work Program No.	Authorized Funds	Estimated Funds (excl. E&C & other part.)	Overrun/Underrun (+/-)
_____	_____	\$ _____	\$ _____	\$ _____ 0.00
_____	_____	_____	_____	_____ 0.00
_____	_____	_____	_____	_____ 0.00
_____	_____	_____	_____	_____ 0.00
_____	Total	\$ _____ 0.00	\$ _____ 0.00	\$ _____ 0.00

Attach separate sheet explaining overruns of programmed amounts. (In accordance with current Department Program Overrun policy.)

Other Participation:

	Amount	Indicate Fixed Sum or Actual Cost	Authorization Minute Order No.
County _____	\$ _____	_____	_____
City _____	_____	_____	_____
Other (Specify) _____	_____	_____	_____

Attach any necessary funding agreements. _____

C2. Value Engineering Study
Required Yes No Date Conducted _____

D. Agreements

(1) Railroad Agreements

Required: Yes No Name of Railroad _____
Date Executed _____ If Not Executed, Date Request Sent to TRF _____

Last Suggestion

Finalize process for CDAs and RMAs

FHWA VE Policy Recommendations

- Complete documentation in final report
- Conducted studies between the concept phase and 35% of project design
- Include guidelines for follow-up with recommendations
- Full support of cost estimates
- Require FHWA to monitor or participate in all VE studies.

REMINDER

Design Division Contracts:

Edwards and Kelcey, Inc.

(Jacobs Engineering Group Inc.)

James Wong, CVS and Gary Myers, CVS

Martin Y. Hsu, PE, CVS & Associates, Inc.

Martin Hsu, CVS

Questions???

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