

<b>Oregon Department of Transportation</b>  <b>POLICY</b>	NUMBER DES 05-01	SUPERSEDES 03/29/99
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SUBJECT <b>VALUE ENGINEERING PROGRAM FOR TRANSPORTATION PROJECTS</b>	APPROVED SIGNATURE 	

## **PURPOSE**

The purpose of this policy for Oregon Department of Transportation (Department) is to:

- Establish and maintain a program utilizing Value Engineering (VE) on selected projects, processes, and procedures within the Department.
- Define the role, responsibilities, and activities of Department personnel in the VE process.
- Improve the quality, value, and cost-effectiveness of projects, operations, and processes that shall be an overall improvement of productivity and efficiency within the Department.

## **BACKGROUND**

VE has been proven to be an effective tool for product value improvement and design enhancement. VE shall assist the Department in its goal of providing cost-effective projects and procedures, and improved productivity and efficiency. VE can be used in all aspects of transportation such as design, traffic operations, construction, maintenance, specifications, standard drawings, and planning.

VE is the systematic application of recognized techniques by multi-disciplined teams which identifies the function of a product or service, establishes a worth for that function, generates alternatives through the use of creative thinking, and provides the needed functions at the lowest overall cost.

The Department recognizes the need for responsible use of revenue and resources while providing a safe and efficient transportation system. To meet this need the Department shall establish and maintain a VE program. The goal of the VE program shall be to ensure that projects are cost-effective while maintaining or improving project function.

## **POLICY**

All Department Highway construction projects in the Statewide Transportation Improvement Program (STIP) shall be screened based upon established criteria, to determine the need to perform a formal VE study. In addition all Federal-aid funded National Highway System (NHS) projects with an estimated total cost of \$20 million or more shall be required to have a VE study.

For Design-Build (DB) projects that the total project cost estimate meets or exceeds \$20 million, the project shall have a VE analysis performed prior to the release of the DB Request for Proposal (RFP).

If the total project cost estimate is more than \$15 million, but less than \$20 million, then a job specific paragraph similar to the following shall be included in the DB RFP:

“If the successful Proposer’s Price Proposal is more than \$20 million (*amount reflects \$20 million total cost minus non-DB contract expenditures of the project*), upon Contract award the Proposer shall be required to prepare and submit a VE analysis of the project. The VE analysis shall conform to the FHWA standards found at <http://www.fhwa.dot.gov/ve/index.htm>, and shall be furnished to the Department Consultant Project Manager not later than 60 days after Notice to Proceed is issued for the Contract. Preparation of a VE analysis shall not authorize either Extra Time or Extra Pay; your Price Proposal includes any and all analysis work.”

## **ACRONYMS**

DB: Design-Build

FHWA: Federal Highway Administration

NHS: National Highway System

RFP: Request for Proposal

STIP: Statewide Transportation Improvement Program

TSP: Transportation System Plans

VE: Value Engineering

## **GUIDELINES**

Projects that use Federal-aid funds on National Highway System projects and have an initial cost estimate of \$20 million or more are required by Federal Highway Administration (FHWA) to have a VE study regardless of the number of phases or unit breakdowns that have occurred on the project. For example a Federal-aid preservation project with an initial cost estimate of \$30 million that has been separated into three \$10 million projects due to funding shortages would still be required to have a VE study.

For DB projects the DB Program Manager or Consultant Project Manager shall notify the

Department's VE Coordinator if project costs meet or exceed \$20 million on a NHS federally funded project. The VE analysis will vary from project to project, and the makeup and structure of the analysis shall be tailored to the level of detail and information available. The VE analysis performed prior to release of the DB RFP shall be given to the Department's VE Coordinator. The Department shall provide copies of the VE analysis to all firms as part of the DB RFP process.

### VE Study Criteria

All Department highway projects in the STIP shall be screened for a VE study, including preservation, modernization, and safety projects. Reconnaissance and planning level studies can also benefit from VE studies. Projects that make good VE study candidates have one or more of the following attributes:

- Projects that have high cost
- Projects that have substantially exceeded preliminary cost estimates
- Projects with alternative solutions to documented problems
- Major structures
- Complex projects
- Projects using critical or high cost materials and procedures
- Projects with multiple phases
- Projects with complex traffic staging

### VE Study Timing

VE studies may be conducted during one or more project development stages. In general VE studies performed early in project development have a greater potential for savings than VE studies performed later in project development. Some projects may not benefit from a VE study, while others may benefit from several studies conducted at different times and focusing on different aspects of the project. It is important to structure the VE study to the level of detail appropriate for the current development stage of the project. Study timing phases include but are not limited to:

- Solution Identification Phase - VE study to evaluate, refine, or reduce alternatives prior to proceeding with project development. Types of projects include STIP, corridor, reconnaissance, and Transportation System Plans (TSP).
- Preliminary Design - Prior to the Environmental Impact Study. At this stage major project elements have been completed. VE study to evaluate project elements and limit alternatives for advancement. Design completion is approximately 30%.
- Final Design - VE study to evaluate design details, materials, and staged construction. Design is approximately 60-70% complete.
- Construction - VE study to evaluate and minimize major cost elements and potential overruns.

## VE Training

- Recommended for anyone associated with transportation projects
- Required for designers and project leaders

## **RESPONSIBILITY**    **ACTION**

Team Leader/  
Consultant Project  
Manager

- Identify potential VE studies for projects not previously identified, based upon VE study criteria.
- Consult with the Department VE Coordinator, Region VE Coordinator, and Project Manager in scheduling projects selected for VE study.
- Assist the Department VE Coordinator in obtaining information on selected VE study projects.
- Review and adopt VE study recommendations or take those recommendations that change original project scope to the Region Management Team for adoption.

Region VE  
Coordinator

- Discuss potential of VE study projects identified by the Department VE Coordinator with the Department VE Coordinator.
- Provide liaison between project team and the Department VE Coordinator.
- Assist the Department VE Coordinator in coordinating Region VE studies as needed.
- Contact the Department VE Coordinator on potential VE projects not previously identified for study.

Department VE  
Coordinator

- Screen all Highway STIP projects for potential VE studies based upon VE study criteria.
- Screen project prospectus for VE study potential.
- Review identified VE study projects with Region VE Coordinator, Project Leader, and Project Manager.
- Coordinate/facilitate all aspects of VE study, including assembling VE team and study materials, facilitate study, facilitate VE recommendation proposal to project team, compile report, and track study results.
- Ensure that Department staff is trained in VE.
- Provide liaison between the Department and FHWA regarding the VE program.
- Prepare the Department's annual VE summary report.