

Value Engineering Program Guidance Manual



Value Engineering Program



Quality Assurance Branch
Division of Highway Design
Kentucky Transportation Cabinet

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INTRODUCTION

This document provides information and guidance regarding the implementation of the Value Engineering Program within the Kentucky Transportation Cabinet (KYTC). It is intended to be a reference for KYTC employees who are involved in the Value Engineering Program.

The United States highway network consists of 4 million miles of roads and streets (2,646,361 miles of paved public roads and 1,417,904 miles of unpaved public roads). Each segment of this complex system will most likely require repair and/or reconstruction during its lifetime. Public input, environmental considerations, inflation, revenue limitations, and other factors have reduced the availability of funds to meet the ever growing transportation needs. Value Engineering is a tool that can counteract these problems by providing cost reduction while enhancing or maintaining quality, product or process improvement, and alternate means and materials for construction and maintenance.

Value Engineering (VE) is the systematic application of recognized tested techniques which identify the function of a product or service, establish a value for that function, and provide the necessary function reliably at the lowest overall cost. The required function should always be achieved at the lowest possible life-cycle cost that maintains the requirements for performance, maintainability, safety, and aesthetics.

The VE process is not meant to criticize or "second guess" today's designs, processes, or designers. The VE process does not presume that there is intentional overdesign, negligence, or unjustifiable error. VE is designed to complement the efforts being made. It recognizes, however, that social, psychological, and economic conditions exist that inhibit good value. These conditions may include:

- Lack of information
- Unidentified or misunderstood project requirements
- Habitual thinking
- Risk of personal loss
- Reluctance to ask for advice
- Time pressures
- Last minute changes in scope
- Changes in scope and/or conditions over time
- Negative attitudes/resistance to change
- Rapidly changing technology
- Strict adherence to "requirements"
- Poor human relations or communications
- Decisions made before costs and/or value of alternates are known

The purpose of the VE program is to achieve design excellence. VE is not a cost reduction program to cheapen or cut corners with the product or service. The overall goal is to improve quality, ensure safety, minimize ownership costs, reduce construction time, and simplify construction processes while adhering to environmental guidelines and adding to the quality of life for Kentucky's communities.

The United States Congress in the 1970 Highway Act authorized the Secretary of the U. S. Department of Transportation to require VE or other cost reduction analysis on any federal-aid highway projects. FHWA established an office to administer the VE program in 1974. Throughout this time VE was strongly encouraged in the planning, design, and/or construction phases of projects.

The 1991 Intermodal Surface Transportation Enhancement Act (ISTEA) of 1991 required the Secretary of U. S. Department of Transportation to study the benefits of VE for Federal-aid highway projects and report the results to Congress. Concurrently with the passage of ISTEA, the FHWA issued non-regulatory guidance that reiterated the policy strongly encouraging the use of VE.

The FHWA issued a Notice of Proposed Rulemaking in November 1994 that would require application of VE to selected Federal-aid highway projects when funded under FHWA's grant-in-aid process. To comply with this proposed rule, KYTC established a position for a Value Engineering Coordinator in 1995 to develop and implement a VE program. Before the proposed rule became final, the National Highway System Designation Act of 1995 required States to conduct life-cycle cost and value engineering analysis of project segments on the National Highway System with costs of \$25,000,000 or more.

As part of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), a regulation was added to require a VE analysis on bridge projects with an estimated total cost of \$20 million or more.

Finally, the federal transportation act, Moving Ahead for Progress in the 21st Century (MAP-21), redefined the regulations for when a VE analysis is required. The law specifies that all roadway projects on the National Highway System exceeding a total estimated cost of \$50,000,000 require a VE analysis. Further, the law specifies that bridge projects on the National Highway System exceeding a total estimated cost of \$40,000,000 require a VE analysis. Lastly, a VE analysis is no longer required for projects delivered using the design/build method of construction.

FEDERAL REGULATIONS AND GUIDANCE

Requirements for state Value Engineering Programs are prescribed in the Code of Federal Regulations (CFR), Title 23, Part 627. FHWA has also issued guidance that clarifies the details of the VE requirements. The CFR and the policy guidance are updated periodically. The current regulations can be found on the [FHWA website](#).

STATE REGULATIONS AND GUIDANCE

Several Design Memos have been issued to provide guidance specific to KYTC's VE program. They can be found on the [Quality Assurance Branch's website](#).

KYTC VE PROGRAM

The KYTC VE Program is organizationally part of the Quality Assurance Branch within the Division of Highway Design. Within the branch, there is a full time staff member that serves as the VE Coordinator. The Coordinator must achieve, with support from others, the components of the VE Program. The VE Coordinator has six primary responsibilities:

1. Coordinating and conducting VE Studies and the associated VE phases
2. Monitoring the implementation of recommendations from VE studies
3. Maintaining electronic (ProjectWise) and hard-copy files
4. Monitoring, evaluating, and reporting on the performance of the VE program
5. Training and certification of KYTC staff
6. Coordinating and tracking Value Engineering Construction Proposals (VECPs)

VE Studies

Any project can have a VE study. In fact, 23 CFR 627.5(b)(5) states that applicable projects can include any project determined to be appropriate. Therefore, if the Project Development Team determines a project could benefit from an outside review, then a VE Study is encouraged. Projects that are complex, projects that seek to improve high crash or fatality rates, and projects that create new roadway alignments are examples of projects that could benefit from a VE study, regardless of project cost estimates. Some projects will simply be required to have a VE Study. According to 23 CFR 627.5(b), each project on the NHS with an estimated total cost of \$60,000,000 or more (\$40,000,000 or more for bridge projects) must have a value engineering study conducted as part of the design process. A "project" is defined as a portion of a highway that a State proposes to construct, reconstruct, or improve as described in the preliminary design report or applicable environmental document. Projects that are likely to be required to have a VE Study will be long corridor roadway projects, large bridge projects, and major urban ramp reconstruction projects. Sometimes, projects such as these begin development as a single project, but are later divided into smaller sections or item numbers, commonly for funding or implementation purposes. The timing of these smaller sections may consist of several contracts or phases over several years. The logical termini as established in the environmental document should be used to determine a project's VE requirements. Therefore, the cost thresholds, explained above, apply to the entire project within the termini, not just the smaller sections. In other words, breaking a large project into smaller construction or design projects does not relieve the requirement that these projects have a VE Study. Additionally, when a project is segmented into multiple sections, the entire project must be reviewed using the VE process. The staging of the design will determine if a single VE Study or multiple VE Studies are needed for the whole project. This concept is illustrated in the following example:

Example: An Environmental Analysis was completed on a nine-mile corridor. The project was then divided into three smaller projects, each estimated at \$14 million in construction costs. Design, right-of-way (R/W) acquisition, and utility relocation of section 1 is scheduled for completion in the current year; it will be let to construction the following year. It is unknown when the subsequent sections will enter the R/W, utility, and construction phases. Total estimated R/W and utility costs for the entire project are estimated at \$7 million. Total design and environmental costs are estimated at \$2 million.

In this example, total estimated cost for the project is \$51 million; therefore, a VE Study is required. If the design of the project is performed one section at a time, a VE Study will be needed on all three sections. If all three sections are designed concurrently, a single VE Study covering the entire corridor could suffice.

The timing of exactly when a study is conducted is flexible. Generally speaking there are two logical opportunities to conduct the study. The first and preferred time is prior to completing preliminary (Phase 1) design. This allows for the review of major items such as alternatives, vertical and horizontal alignment, interchange type, intersection type, number of lanes, access control, etc. During Phase 1 design Rights-of-way have not yet been negotiated and purchased, and major environmental or property owner commitments have not been made. The second opportunity is closer to the end of the design process, before the Joint Inspection. At this point, more detailed items such as specific property access, drainage, pavement, etc. can be examined. Occasionally, a project may start out not requiring a VE Study, but through changes to scope, the project's cost estimates may exceed the threshold and subsequently require a VE Study. It is up to the VE coordinator, working with the project manager, to determine the best timing of a VE study for a specific project. Moreover, it is possible, and sometimes encouraged, to have more than one VE study on a project depending on the complexity and size of the project.

VE Phases

Value Engineering uses a multi-disciplinary team approach to achieve the program's objectives. The following is a listing of the phases that comprise the basic VE Study process.

Pre-Study	Selection/Identification of Project Select Team Leader Determine Study Dates & Location Develop Study Scope Determine Team Size and Necessary Skills & Experience Select Team Members Develop Study Agenda Gather Data/Information/Plans to be used in the Study
VE Study	Project Investigation (may include site visit) In-Briefing of Study Team Determine Study Goals & Expectations Function Analysis Speculation (Brainstorming) of Value Opportunities Evaluation of Value Opportunities Determine Value Opportunities to be Developed into Recommendations Development of VE Recommendations Presentation of VE Recommendations (Out-Briefing)
Post-Study	Finalize VE Study Report Evaluation of Recommendations by Project Team Implementation Meeting/Select Recommendations to Implement Monitor Implementation Status

Selection of Projects and Database Management

The VE Coordinator creates and manages the VE Program Database. The database is used to identify projects that need a VE study, track basic project information and information related to the VE study. The VE Program Database is stored in ProjectWise in the folder: Value Engineering\VE Studies

Determining which projects need a VE study and then prioritizing the order of study can be a challenge. The VE Coordinator must communicate with the Location Engineers, district Project Managers, and Division of Program Management to determine future VE study needs. It is also recommended that the VE Coordinator attend the monthly Letting Review Meetings and the quarterly District Project Status Meetings to be sure that VE requirements for projects close to construction letting are complete.

VE Study Logistics

The VE Coordinator is responsible for making arrangements for the VE study. The following preparations are required:

1. Establishing the scope and length of the study and needed expertise based on the type of project and design status.
2. Establishing whether the study is to be conducted using a statewide consultant or with in-house staff.
3. Forming the VE Study Team. When using a statewide consultant, determining what expertise the consultant will provide and what expertise KYTC will provide.
4. Contracting with the statewide consultant via letter agreement. (For details see the section VE Statewide Contract Administration.)
5. Setting the dates of the study.
6. Reserving a room location for the study and presentation.
7. Determining and securing other resource needs (i.e. projector, markers, notepads, etc.) for the study.
8. Inviting the KYTC team members to participate.
9. Notifying the location engineer and district project manager of the study.
10. Inviting the project team, management, and other KYTC staff to attend the final briefing of the study.
11. Communicating with the project manager(s) to assure project information is transmitted to the VE consultant.

Information Needed for VE Studies

To conduct a VE study, there is information critical to learning about the project and developing recommendations. The VE Coordinator should request the information below from the project manager and/or design consultant. The information should be delivered two to three weeks in advance of the VE study start date.

		# Hard Copies	Electronic Format
1	Design Executive Summary	1	PDF or Word
2	Plans , profiles, cross sections (1/2 or full size)	2 min. more may be requested	Microstation & PDF
3	Roll manuscript (with aerial & topo) to scale	1	PDF
4	Roll profile to scale	1	PDF
5	Roll aerial of project area (if not included in #3)	1	PDF
6	Earthwork quantities	1	Excel
7	Construction cost estimates (quantities & unit prices for each item)	1	Excel
8	ROW plans , if applicable	1	PDF or Excel
9	ROW cost estimate , by parcel including business damages (if applicable) or ROW values for area	0	PDF or website
10	Most recent traffic forecast (roadway & intersections)	1	PDF
11	Traffic operational analysis for roadway, intersections, interchange	0	Variable
12	Safety/crash analysis	0	1
13	Environmental Study (EA or EIS), if applicable	1	PDF or Word
14	MOT Plans , if applicable	1	PDF
15	Structures layout & profile sheets include bridge types & sizes (if available)	1	PDF
16	Structures : Details on decisions (jacking, new bridge, part width, etc.) as applicable	0	PDF
17	Geotech Report (if available)	1	PDF
18	Future land use and zoning maps	1	PDF
19	Pavement design (if available)	1	PDF
20	Drainage folder (if applicable)	1	PDF
21	Intersection and interchange layouts	1	PDF
22	Other relevant project info and correspondence that may help the VE team better understand the project. This may include meeting summaries, memos, etc.	1	PDF or Word

VE Study Procedure

VE studies should follow the guidelines presented in NHI Course No. 13405, Value Engineering for Highways, or the guidelines presented in the SAVE International Module I Certification Workshop. Based on these guidelines, a VE study typically follows a 6 Step Job Plan:

1. Information Phase
2. Function Analysis
3. Creative Phase
4. Evaluation Phase
5. Development Phase
6. Presentation/Implementation Phase.

The VE study team will document the activities performed during the six steps of the Job Plan for incorporation into a VE Study Report following the completion of the study. Also, a VE Punch List will be created which provides a summary of all the VE recommendations developed during a VE study. The VE Punch List can be utilized during the Implementation Phase to monitor and document the status of the VE recommendations.

Presentation of Findings

At the conclusion of the VE Study, the VE Team presents the results. The following persons should be invited to the presentation:

- Director of Design
- Branch Manager of Quality Assurance
- Branch Manager of Location
- Location Engineer
- Construction Liaison
- Maintenance Liaison
- Traffic Operations Liaison
- Deputy State Highway Engineer for Project Development
- Deputy State Highway Engineer for Project Delivery and Preservation
- State Highway Engineer
- Chief District Engineer
- Branch Manager for Project Development
- Project Manager
- Branch Manager for Project Delivery and Preservation
- Section Supervisor for Project Delivery and Preservation

Discussion and receipt of comments about the recommendations should be encouraged and documented by the VE Coordinator.

VE Study Report

After each project study is complete, a report documenting the results is prepared. The VE Study Report will contain the following:

1. Cover
 - Project Title, County and Route Number
 - VE Number
 - Item Number(s)
 - Location & Dates of Study
 - Date of Final Report
 - KYTC Logo
 - VE Consultant Name
2. Table of Contents
3. Executive Summary
 - Summary of VE Study Results
 - Punch List
 - Total Project Cost and Estimated Total VE Savings
4. Introduction
 - Description of VE process
 - Specifics about location, dates, VE company, team leader
 - Organization of report
5. Project description
 - Description of the project including purpose and need and estimated total cost
 - Important issues about the project that are important to the design
 - Location map and project map
 - Stage of design & name of design firm
6. VE Recommendations & Design Comments
 - Each recommendation will include;
 - i. Descriptive title of VE recommendation
 - ii. Description of original design
 - iii. Narrative of Recommended Change
 - iv. Advantages and Disadvantages of Recommended Change
 - v. Justification
 - vi. Summary Cost Analysis Table
 - vii. Diagram illustrating the Recommended Change
 - viii. Calculations
7. Punch List
8. Appendices
 - Participant Sign-in Sheets
 - Cost Model
 - Functional Analysis Model & FAST Diagram
 - Creative Idea List & Evaluation
 - Other documentation or information may be attached as necessary

VE Implementation Team

Following a VE study, decisions must be made about which VE recommendations to implement. A VE Implementation Team comprised of the KYTC Project Manager, Director of Highway Design, Location Engineer, and VE Coordinator must meet to make those decisions.

After receiving the VE draft report, the VE Coordinator will forward a copy of the report and the VE Punch List to the Location Engineer and District Project Manager. The VE Coordinator schedules a time to meet, typically within two months after a VE study takes place. The Project Manager may enlist additional staff or the design consultants to participate. The VE Implementation Team discusses the VE recommendations and then decides which should be implemented, rejected, or considered after further review. The status of each VE recommendation should be noted on the VE Punch List. For each of the VE recommendations that are rejected, the team should document substantial, engineering-based reasons for the rejection in the comments section of the VE Punch List. For the VE recommendations that are under consideration, a plan of action should be documented in the comments section of the VE Punch List. For example, a new traffic analysis may need to be completed prior to deciding if a recommendation intersection design is adopted.

Once design plans are finalized the following actions should generally take place:

1. The Location Engineer notifies the VE Coordinator the plans are finalized.
2. The VE Coordinator may then request from the Project Manager, written verification (email is acceptable) that all the approved VE recommendations have been incorporated into the plans.
3. If any approved VE recommendations could not be implemented, the Project Manager should provide comment as to why.
4. The VE Coordinator may also request a status update on the VE recommendations that were under consideration.
5. If a VE recommendation that was under consideration could not be implemented, the Project Manager should provide comment as to why.
6. The VE Coordinator will document all final VE decisions on the VE Punch List.
7. The VE Coordinator will update any and all pertinent information about the accepted and rejected VE recommendations into the VE Program Database.

VE Statewide Contract Administration

The VE Program uses the statewide contracting mechanism to retain and use qualified consultants to perform VE studies. The consultants are selected using the normal consultant selection procedure, administered through the Division of Program Management. Currently, there are two consultants that have statewide contracts for VE services. There is a \$60,000 maximum for each letter agreement and a \$350,000 upset limit for each statewide contract. Each began in 2015 and will last for two years. Generally, the use of these consultants is alternated so that the amount of work is roughly equal over the life of the contract. Each time a VE study is needed using the statewide contract, the VE Coordinator must follow these steps to establish a letter agreement prior to the beginning of work:

1. Decide on the resources (number of people and expertise) and the length of study needed to accomplish the goals of the VE study.
2. Notify the VE consultant via email of the study, timeframe, and resources.
3. Schedule a date that works for the VE consultant, district project manager, project consultant, and location engineer.
4. Request a draft scope of services and fee proposal from the VE consultant. After receiving these documents, review (see notes below), negotiate, and revise, as necessary.
5. Request the VE consultant to prepare and send minutes of the negotiations.
6. Send the scope of services, fee proposal, and negotiation minutes to the Division of Professional Services (Adrian Wells and David Gormley) for review of consultant salary and overhead rates.
7. The Division of Professional Services (David Gormley) will draft a letter agreement and send to the VE Coordinator for review. Once the letter agreement is satisfactory, the Director of the Division of Highway Design signs the letter agreement, and the Division of Professional Services sends the document to the VE consultant for signature.
8. The VE consultant may begin work and start preparing for the VE Study after signing the letter agreement.

The fee proposal is normally estimated based on man-hours for each person and task, approved (audited) salary rates, estimated direct costs, and the approved overhead rate. Man-hours and direct costs should be reviewed for reasonableness to accomplish each task. Math (addition and multiplication) should be checked. For consultants headquartered outside of Kentucky, the overhead rate is typically adjusted annually. The VE Coordinator should check with the External Audits branch to make sure the latest accepted overhead rate matches the fee proposal. The final negotiated fee will be included in the letter agreement as Lump-Sum.

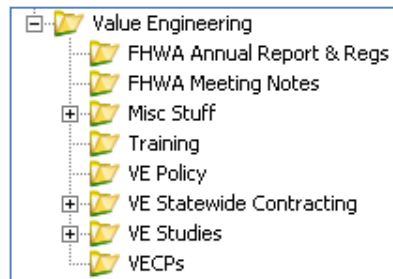
Upon completion of the tasks outlined in the scope of services, the consultant must submit a Pay Estimate form (TC 61-408) to the VE Coordinator who in turn, reviews for accuracy. The VE Coordinator submits the invoice via email to the Division of Professional Services (David Gormley) for payment. No additional documentation is required for a Lump-Sum payment.

After receiving the final VE Study report, the VE Coordinator should review the performance of that VE consultant. A Value Engineering Consultant Performance Evaluation form (TC 61-811) is filled out. A letter from the Division Director is prepared, signed, and sent to the consultant. A copy of the form and letter is then stored in the appropriate consultant's file located in ProjectWise under Value Engineering\VE Statewide Contracting.

The statewide contract, fee proposal, scope of services, invoices, and signed letter agreement electronic documents should be filed in the appropriate consultant's file located in ProjectWise under Value Engineering\VE Statewide Contracting. A hard copy should also be printed and placed in the appropriate consultant's file located in the high density files.

Record Keeping

The VE Coordinator will maintain the electronic (ProjectWise) and physical files for the VE Program.



ProjectWise File Structure

The following is a list of the ProjectWise file structure and the information stored in each folder:

- FHWA Annual Report & Regs
 - Federal regulations
 - Each VE Status Annual Report
- FHWA Meeting Notes
 - Notes from the regular VE coordination meetings
- Training
 - Course agendas
 - Certificates of attendance
- VE Policy
 - VE Program Guidance Manual
 - Punch list form
 - Performance evaluations
 - List of required information for studies
- VE Statewide Contracting
 - Blank Consultant Evaluation Form
 - Statewide consultant contracts
 - Letter agreements and supporting documentation
- VE Studies
 - Draft, Final Draft, and Final study reports
 - Pertinent study information
 - Database of VE Studies
- VE Construction Proposals (VECP)
 - Compiled documentation for each VECP

The following physical files are established and stored in the high-density filing system:

- Individual VE Studies:
 - Final report (two copies)
 - Miscellaneous but pertinent VE Study information (design project information is not kept after the study is complete)
- Individual Consultants
 - Statewide contract
 - Letter agreements and supporting documentation
 - Performance evaluations

VE PROGRAM PERFORMANCE

The primary functions of the VE Program are to ensure that all required VE Studies are completed on applicable projects and all approved VE recommendations are implemented into project plans, specifications, and estimates prior to projects being authorized for construction. In order to accomplish this, the VE Coordinator is responsible for monitoring, evaluating, and reporting on the performance of the VE Program.

VE Program Performance Goals

The VE Program has the following performance goals:

- Goal 1. All VE studies will be conducted for all federally required projects prior to completion of final design.
- Goal 2. Conduct VE studies prior to 30% design point.
- Goal 3. Follow appropriate procedures and guidelines (see the section VE Study Procedure).
- Goal 4. The implementation status of all VE recommendations will be accurate on the corresponding VE Punch List prior to a project's Construction Letting.
- Goal 5. All recommendations have a decision to approve or reject within 6 months after completion of the VE study.

Monitoring & Evaluation

As part of the KYTC VE program the VE Coordinator has must monitor several things. The VE Program Database can be utilized to accomplish most monitoring and evaluation. The goals listed above will be monitored and evaluated by the VE Coordinator as follows:

- 1. Track all projects to determine which are federally mandated to have a VE Study. Projects with total costs that are at or above \$45 million (\$36 million for bridge projects) should be noted in the VE Program Database for continued monitoring and communication with the Project Manager. As projects progress, ensure that all projects that exceed \$50 million (\$40 million for bridge projects) have a VE Study completed.
- 2. For projects that receive a VE Study, document in the VE Study Database the approximate design stage at which the VE Studies were performed. At the end of each federal Fiscal Year calculate the percentage of projects that received a VE Study prior to the 60% design point.
- 3. Perform Quality Control Reviews of the reports submitted by each of the VE Consultants. At a minimum, review 50% of the VE Study Reports from each VE Consultant each federal Fiscal Year. Reviews will check for report documentation that appropriate procedures and guidelines were utilized during the VE Study. (Note: It is encouraged for the VE Coordinator to perform additional Quality Control Reviews of VE Study Reports as time allows.) Following each review, document in the VE Program Database whether or not appropriate procedures and guidelines were used during the corresponding VE Study.
- 4. Enter all study recommendations into the VE database.
- 5. Track the progress of all projects that have had a VE Study. Through communication with the Project Manager and Location Engineer ensure the status

of all VE recommendations is updated and accurate on the corresponding VE Punch List (see the section VE Implementation Team for more details). Due to funding some projects may not move forward and project managers may not have sufficient information to approve a recommendation. The VE coordinator will monitor the status of the project quarterly and communicate with the project manager yearly until outstanding analysis is completed, decisions are finalized, and approved recommendations are implemented into the highway plans.

6. Document in the VE Program Database the implementation status of all VE recommendations.

Annual VE Status Report

After the conclusion of each federal fiscal year FHWA will request information about VE studies for that year. Once requested the VE Coordinator prepares and submits a VE Status Report to FHWA based on the information requested. The VE Program Database contains reporting templates that can be used for the annual VE Status Report to FHWA, as well as other reporting for internal monitoring and evaluation. The annual VE Status Report to FHWA typically includes the following:

- VE Study Summary
 - Total number of projects studied
 - Total number of recommendations and proposed savings
 - Number of recommendations accepted and proposed savings
- List of individual VE study locations
 - Number of recommendations and proposed savings from each project
 - Number of accepted recommendations and proposed savings
 - Cost of the study
- Training Summary
 - Number of persons trained in VE techniques
 - Number of persons in VE team member pool
- Program Changes
 - Any changes that happened during the fiscal year

TRAINING OF KYTC STAFF

The VE Coordinator may schedule training for KYTC personnel so as to maintain a pool of persons trained in VE concepts; however, consultant teams are most common now with a few KYTC participants. This training may be provided by NHI or by consultants. Training provided by consultants for team members will be the SAVE International Module I certification.

VALUE ENGINEERING CHANGE PROPOSALS (VECP)

During the construction phase of a project, the contractor has the opportunity to propose changes that will improve the quality of the project and/or reduce the cost. These are called Value Engineering Change Proposals (VECP). If there is a cost savings from the VECP, the contractor splits the savings with KYTC. Details of the process and requirements are covered under [Section 111](#) of the Standard Specifications for Road and Bridge Construction. A detailed VECP **process flow chart** ([hyperlink](#)) is also available.

Although VECPs developed during the construction phase are administered by the Division of Construction, there are four roles of the Value Engineering section in this process:

1. Facilitate and participate in discussion with Construction personnel, technical or subject matter experts, project design staff to make the decision to approve or deny the VECP. The purpose of this is to ensure that the VECP is technically sound and that it does not conflict with previous project design or VE decisions.
2. Collect, consolidate, and file documentation used in the VECP decision making process. Details of the consolidation and filing process are below.
3. Develop a GIS database of all VECPs that includes the physical limits of the project, PCN, item numbers, whether the VECP was approved or denied, date of the decision, description of the VECP, technical category/subcategory, and cost savings.
4. Use the information to identify VECP trends or process problem areas. This information will be shared with the appropriate divisions to facilitate improvements in internal processes or standards. This information may be used to encourage changes that accept new innovation or technologies not currently in practice.

VECP Documentation

The VE Coordinator will obtain documentation including decision memos, e-mails, plan sheets, calculations and other pertinent information to each VECP. All documentation will be converted and merged into a single PDF document. The document will be saved in ProjectWise under the following folder: Value Engineering\VECPs.

The file will follow a standard naming convention that includes the following pieces:

- VECP_
- PCN_ (Project Construction Number)
- County Name_
- Memo Decision Date_ (Format: mm-yy)
- Letter indicating multiple approvals on the same date (Optional)
- Example: VECP_091317_Grant_11-09
- The Name and File Name will be the same.
- The Description shall include the status (Under Review, Denied, Approved or Approved with Conditions) and date of action.

End of document