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Executive Summary

Value Engineering During Project Development

The districts conducted 26 studies or 72% of the original number of studies scheduled for fiscal year 20013/2014. The original work plan had 36 studies scheduled for the year and the target was to complete 75% or 27 of the planned studies. Due to the dynamics of the department’s work program, 13 of the 26 scheduled studies (50%) were either dropped from the work plan altogether or rescheduled for the 2014/2015 fiscal year, while seven of the conducted studies were added to the original work plan.

During this same period, the districts acted on 212 recommendations, approving 112 for a 53% adoption rate. Ninety-eight of the approved recommendations resulted in $182.2 million in project cost avoidance/savings. The remaining 13 approved recommendations were value added recommendations that increased project performance, while adding $29.6 million to the project cost. Therefore, the total value of the approved recommendations, including the value added recommendations, produced $140.9 million in project cost avoidance/savings.

The approved recommendations resulted in a 3.86% project saved, 6.85% program saved and a Return on Investment (ROI) of $103 to $1. The percent project saved is calculated by dividing the value of all approved recommendations by the total costs of the projects studied, while the percent program saved is calculated by dividing the value of all approved recommendations by the average project cost of three fiscal year lettings. The ROI is calculated by dividing the value of all approved recommendations by the cost of administering the program.

There were 46 pending recommendations totaling $177.9 million in potential cost avoidance/savings at the end of the 2013/2014 fiscal year. Thirty-six of the 46 recommendations have been pending for more than 12 months, which is 78% of the total number of pending recommendations. Since the VE Study is a ‘snapshot’ of the project at some point in time of project development and projects are continuously moving forward in development, this is a concern. The longer recommendations are unresolved and in a pending status the less likely that they will be adopted because the development of the project has advanced.

Cost Savings Initiatives During Construction

Forty-two Cost Savings Initiative (CSI)’s Proposals were submitted during fiscal year 20012/20013. During this same period, the districts acted on 37 proposals totaling more than $8.62 million and approving 31 of the proposals. The implemented savings from the 31 approved CSI’s was $8.22 million. The approved CSI proposals resulted in a 0.69% project saved and a 0.27% program saved. There are currently seven pending CSI’s totaling $3.17 million in potential project savings.
**Program Organization**

**Mission:** Administer the Florida Department of Transportation Value Engineering and Cost Savings Initiative Programs, satisfying the needs of the stakeholders.

**Vision:** Value Engineering . . . providing an effective support function which maximizes project and process value for the transportation systems in the State of Florida.

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Value Engineering Overview

What is Value Engineering

Value Engineering (VE) is the formal application of a proven and effective tool used to improve the value of a project, product or service. VE strives to optimize the use of allocated funds without reducing the quality or performance. A multi-disciplined team is assembled and the six phases of the VE Job Plan (Information, Functional Analysis, Creative, Evaluation, Development and Presentation) are used to guide the team through the process.

VE Job Plan

- **Pre-Study**
  - Project Selection
  - Team Selection

- **VE Study**
  - Information Phase
  - Functional Analysis
  - Creative Phase
  - Evaluation
  - Development
  - Presentation

- **Post-Study**
  - Recommendation Resolution
  - Report Results

The administration of the VE Program can be broken down into the following key processes.

<table>
<thead>
<tr>
<th>Pre-Study</th>
<th>Study</th>
<th>Post Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Selection</td>
<td>Conduct VE Study</td>
<td>Recommendation Resolution</td>
</tr>
<tr>
<td>Team Selection</td>
<td></td>
<td>Report Results</td>
</tr>
</tbody>
</table>
## Value Engineering Overview

### Performance Measures

The VE Program and the Cost Savings Initiative (CSI) Program are managed through the use of the Process Control Systems found in Appendix B. Each process has a set of Quality and In-Process measures that are used to evaluate the performance of the program. The Quality Measures for the overall VE program are defined below.

<table>
<thead>
<tr>
<th>Quality Measure</th>
<th>Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1: Approved Cost Avoidance Recommendations</td>
<td>Sum of all approved cost avoidance/savings recommendations</td>
</tr>
<tr>
<td>Q2: Approved Value Added Recommendations</td>
<td>Sum of all approved value added recommendations</td>
</tr>
</tbody>
</table>
| Q3: Adoption Rate                                    | # of Approved Recommendations  
# of Proposed Recommendations                         |
| Q4: Percent Project Saved                            | Value of Approved Recommendations  
Total Project Costs                                      |
| Q5: Percent Program Saved                            | Value of Approved Recommendations  
3 Year Monthly Average Lettings                          |
| Q6: Return on Investment (only reported annually)    | Value of Approved Recommendations  
Total cost of VE Program                                 |
Cost Savings Initiative Overview

What is Cost Savings Initiative

The Cost Savings Initiative Program offers an opportunity for the contractor to propose cost savings ideas prior to work beginning and as work progresses on a project. Contractors can demonstrate their innovation and ingenuity by proposing ideas that contribute to the cost effectiveness of the project. The contractors are then rewarded for this ingenuity and innovation by sharing in any project savings generated from an approved Cost Savings Initiative (CSI) proposal.

Performance Measures

<table>
<thead>
<tr>
<th>CSI Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1: Number of CSI's</td>
</tr>
<tr>
<td>Q2: Approved Cost Savings</td>
</tr>
<tr>
<td>Q3: Percent Project Saved</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Q4: Percent Program Saved</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
Fiscal Year 2012/2013
Value Engineering
Performance Measures
Adopted Recommendations

Q1: Annual Approved Cost Avoidance/Savings

Total Approved Recommendations: $2.6 billion

Q1: Cost Avoidance Recommendations
Annual Report FY 2013/2014

Approved Recommendations: $140.9 million
Adopted Recommendations

Q2: Annual Approved Value Added Recommendations

Approved Value Added: $199.2 million

Q2: Value Added Recommendations
Annual Report FY 2013/2014

Approved Value Added: $7.7 million

* A Value Added Recommendation significantly increases the performance of a function while also increasing the cost.
Adoption Rates

Q3: Annual Adoption Rate

Target Range: 40%-60%

Fiscal Year

Q3: Adopted Recommendations
Annual Report FY 2013/2014

Target Range: 40%-60%

<table>
<thead>
<tr>
<th>District</th>
<th># Recommended</th>
<th># Approved</th>
</tr>
</thead>
<tbody>
<tr>
<td>District 1</td>
<td>42</td>
<td>17</td>
</tr>
<tr>
<td>District 2</td>
<td>17</td>
<td>8</td>
</tr>
<tr>
<td>District 3</td>
<td>32</td>
<td>23</td>
</tr>
<tr>
<td>District 4</td>
<td>38</td>
<td>33</td>
</tr>
<tr>
<td>District 5</td>
<td>39</td>
<td>15</td>
</tr>
<tr>
<td>District 6</td>
<td>39</td>
<td>12</td>
</tr>
<tr>
<td>District 7</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Turnpike</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
The Percent Program Saved is a new measure. The intent is to compare the cost avoidance/savings to the overall work program. The measure is calculated by dividing the three year average monthly lettings into the overall cost avoidance/savings.
**Return on Investment**

**Q5: Return on Investment**
Annual Report Fiscal Year 2013/2014

- **Return on Investment** $103 to $1
- **Program Costs** $1,296,577
- **Adopted Recommendations** $133,200,000

*FHWA data for fiscal year 2013/2014 was not available at time of publication.*
Work Plan Completion

P1: VE Studies Scheduled vs. Completed
Annual Report FY 2013/2014

Target: Complete 75% of YTD Schedule

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Scheduled</th>
<th>Conducted</th>
<th>Target (75%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Qtr</td>
<td>7</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2nd Qtr</td>
<td>18</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>3rd Qtr</td>
<td>30</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>4th Qtr</td>
<td>36</td>
<td>26</td>
<td>27</td>
</tr>
</tbody>
</table>

Number of Studies

P1: VE Studies Scheduled vs. Completed
Annual Report FY 2013/2014

Target: Complete 75% of YTD Schedule

<table>
<thead>
<tr>
<th>District</th>
<th># Scheduled</th>
<th># Conducted</th>
<th># Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>District 1</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>District 2</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>District 3</td>
<td>10</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>District 4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>District 5</td>
<td>8</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>District 6</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>District 7</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Turnpike</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Pending Recommendations

P4: Annual # Pending Recommendations
Annual Report FY 2013/2014

P4: # Pending Recommendations
Annual Quarter Report FY 2013/2014

Pending Recommendations: 46
Fiscal Year 2013/2014
Cost Savings Initiative
Performance Measures
Prior to fiscal year 2010/2011, Cost savings Initiatives (CSI) were formerly referred to as Value Engineering Change Proposals (VECP’s).
Prior to fiscal year 2010/2011, Cost savings Initiatives (CSI) were formerly referred to as Value Engineering Change Proposals (VECP’s).

**Q2: Cumulative CSI (VECP) Construction Cost Savings**

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>CSI Approved Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>04/05</td>
<td>$3.6</td>
</tr>
<tr>
<td>05/06</td>
<td>$5.6</td>
</tr>
<tr>
<td>06/07</td>
<td>$10.6</td>
</tr>
<tr>
<td>07/08</td>
<td>$15.1</td>
</tr>
<tr>
<td>08/09</td>
<td>$17.7</td>
</tr>
<tr>
<td>09/10</td>
<td>$19.1</td>
</tr>
<tr>
<td>10/11</td>
<td>$24.0</td>
</tr>
<tr>
<td>11/12</td>
<td>$28.1</td>
</tr>
<tr>
<td>12/13</td>
<td>$33.2</td>
</tr>
<tr>
<td>13/14</td>
<td>$41.4</td>
</tr>
</tbody>
</table>

**Q2: Approved CSI Savings**

<table>
<thead>
<tr>
<th>District</th>
<th>Approved CSI Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>District 1</td>
<td>$2,117</td>
</tr>
<tr>
<td>District 2</td>
<td>$937,045</td>
</tr>
<tr>
<td>District 3</td>
<td>$3,098,156</td>
</tr>
<tr>
<td>District 4</td>
<td>$1,682,289</td>
</tr>
<tr>
<td>District 5</td>
<td>$1,729,166</td>
</tr>
<tr>
<td>District 6</td>
<td>$806,000</td>
</tr>
<tr>
<td>District 7</td>
<td>$30,891</td>
</tr>
<tr>
<td>Turnpike</td>
<td>$333,676</td>
</tr>
</tbody>
</table>

Approved Savings: $8.22 million

* Prior to fiscal year 2010/2011, Cost savings Initiatives (CSI) were formerly referred to as Value Engineering Change Proposals (VECP’s).
Prior to fiscal year 2010/2011, Cost savings Initiatives (CSI) were formerly referred to as Value Engineering Change Proposals (VECP’s).

* Prior to fiscal year 2010/2011, Cost savings Initiatives (CSI) were formerly referred to as Value Engineering Change Proposals (VECP’s).
The Percent Program Saved is a new measure. The intent is to compare the cost avoidance/savings to the overall work program. The measure is calculated by dividing the three year average monthly lettings into the overall cost avoidance/savings.

**Q4: CSI Percent Program Saved**

Annual Report Fiscal Year 2013/2014

**Q5: CSI Percent Program Saved**

Annual Report Fiscal Year 2013/2014
Appendix

Process Control Systems
**Process Control System**

**Process Name:** Value Engineering Program

**Primary Customers:** Management, Regulators (FHWA)

---

### Input(s)
- Projects: Work Program

### Flow Chart

#### Process Control System
- **Process Name:** Value Engineering Program
- **Product/Service:** Perform Value Engineering analysis on selected projects and document findings
- **Primary Customers:** Management
- **Regulators:** FHWA

#### Customer's Valid Requirement(s): Effective use of resources to produce a quality transportation system.

#### Regulator's Valid Requirement(s): Projects with total costs of $25 million or more have a VE study performed during the design process.

### Flow Chart Details

<table>
<thead>
<tr>
<th>Step/Time</th>
<th>Dept./Person</th>
<th>Process/Quality Measures (QA/QC)</th>
<th>Checking/Measurement Monitoring</th>
<th>Miscellaneous Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Process Measures</td>
<td>Control Limits</td>
<td>Checking Item</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% of scheduled studies completed</td>
<td>75%</td>
<td>VER &amp; Work Plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% of projects &gt; $25 million never studied</td>
<td>0</td>
<td>Work Program</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% of projects studied in PDME</td>
<td>75%</td>
<td>VER</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% of pending recs. per time period</td>
<td>VER</td>
<td>Quarterly</td>
</tr>
</tbody>
</table>

### Process and Quality Measures (QA/QC)

<table>
<thead>
<tr>
<th>Step/Time</th>
<th>Dept./Person</th>
<th>Process/Quality Measures (QA/QC)</th>
<th>Checking/Measurement Monitoring</th>
<th>Miscellaneous Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>% of scheduled studies completed</td>
<td>75%</td>
<td>VER &amp; Work Plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% of projects &gt; $25 million never studied</td>
<td>0</td>
<td>Work Program</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% of projects studied in PDME</td>
<td>75%</td>
<td>VER</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% of pending recs. per time period</td>
<td>VER</td>
<td>Quarterly</td>
</tr>
</tbody>
</table>

### Checking/Measurement Monitoring

<table>
<thead>
<tr>
<th>Step/Time</th>
<th>Dept./Person</th>
<th>Process/Quality Measures (QA/QC)</th>
<th>Checking/Measurement Monitoring</th>
<th>Miscellaneous Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>% of scheduled studies completed</td>
<td>75%</td>
<td>VER &amp; Work Plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% of projects &gt; $25 million never studied</td>
<td>0</td>
<td>Work Program</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% of projects studied in PDME</td>
<td>75%</td>
<td>VER</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% of pending recs. per time period</td>
<td>VER</td>
<td>Quarterly</td>
</tr>
</tbody>
</table>

### Miscellaneous Information

- **Codes:**
  - C: Compliance
  - NC: Noncompliant
  - BP: Best Practice

---

**Approved:** ___________________________ **Date:** __________________

**Process Owner:** State Value Engineer **Rev #:** 1.5 **Rev Date:** 10/2007
Process Control System

Process Name: Value Engineering Project Selection
Product/Service: Develop a Value Engineering Work Plan by July 1 of each fiscal year.
Primary Customers: District Management, State Value Engineer.
Partners: FHWA

Valid Requirement(s): All projects with the most potential for improvement have a VE Analysis.
Regulator's Valid Requirement(s): All projects on the NHS system with estimated total costs > $25 million have a VE analysis.

Primary Customers: District Management, State Value Engineer.
Partners: FHWA

Process and Quality Indicators

<table>
<thead>
<tr>
<th>Process Indicators</th>
<th>Control Limits</th>
<th>Checking Item</th>
<th>Timeframe (Frequency)</th>
<th>Responsibility</th>
<th>QAR</th>
<th>Date of Last Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>% work plans approved by July 1</td>
<td>100%</td>
<td>Work Plan Received</td>
<td>Annual</td>
<td>SVE</td>
<td>D1: 11/2006</td>
<td></td>
</tr>
<tr>
<td>% scheduled studies completed</td>
<td>75%</td>
<td>VEA &amp; Work Plan</td>
<td>Quarterly</td>
<td>SVE</td>
<td>D2: 12/2006</td>
<td></td>
</tr>
<tr>
<td>if project is &gt; $25 million never studied</td>
<td>0</td>
<td>Work Program</td>
<td>Annual</td>
<td>SVE</td>
<td>D3: 12/2006</td>
<td></td>
</tr>
<tr>
<td>% projects studied in the Design phase</td>
<td>60%</td>
<td>VEA</td>
<td>Quarterly</td>
<td>SVE</td>
<td>D4: 5/2007</td>
<td></td>
</tr>
<tr>
<td>Total % projects approved by July 1</td>
<td>100%</td>
<td>Work Plan Received</td>
<td>Annual</td>
<td>SVE</td>
<td>D5: 1/2007</td>
<td></td>
</tr>
<tr>
<td>Total % VEA &amp; Work Plan</td>
<td>75%</td>
<td>Work Plan</td>
<td>Quarterly</td>
<td>SVE</td>
<td>D6: 5/2007</td>
<td></td>
</tr>
<tr>
<td>Total % projects studied in the Design phase</td>
<td>60%</td>
<td>VEA</td>
<td>Quarterly</td>
<td>SVE</td>
<td>D7: 11/2006</td>
<td></td>
</tr>
<tr>
<td>Total % projects approved by July 1</td>
<td>100%</td>
<td>Work Plan Received</td>
<td>Annual</td>
<td>SVE</td>
<td>D8: 1/2007</td>
<td></td>
</tr>
</tbody>
</table>

Flow Chart

1. NEED
   - Develop VE Work Plan
     - Feedback from surveys
   - Review projects in production pipeline
     - project costs > $25 million?
       - NO
       - YES
         - project a quality candidate?
           - NO
           - YES
     - VE window in this fiscal year?
       - NO
       - YES
         - Add project to Candidate List
           - all projects been reviewed?
             - NO
             - YES
2. REVIEW
   - Develop Work Plan
     - Submit work plan approval
     - Is work plan acceptable?
       - NO
       - YES
         - Approve work plan and return to SVE
   - Send copy of plan to SVE
     - P1
3. EXECUTE
   - Execute work plan

Input(s): Projects
Supplier(s): Work Program

Output(s): VE Work Plan

Miscellaneous Information

- Abbreviations
- Procedure Reference
- Notes, etc.

CODES:
C - Compliance
NC - Noncompliant
BP - Best Practice

Federal Regulation 23 CFR 627
VE Procedure 625-030-002
AASHTO Guidelines for VE
NCHRP Synthesis 352 - Value Engineering Applications in Transportation

Approved: __________________ Date: ___________ Process Owner: District Value Engineer Rev #: 1.5 Rev Date: 8/2007
Process Control System

Process Name: Value Engineering Team Selection
Product/Service: Team with the necessary skills and experience to conduct a value engineering analysis
Primary Customers: Team Leaders & Team Members
Partner: FHWA & Project Manager

Valid Requirement(s): Team makeup has the required disciplines, leadership skills and VE experience to study the selected project.
Regulator's Valid Requirement(s): Multi-disciplined team of individuals not personally involved in the design of the project.

Feedback from surveys

Process and Quality Indicators

Checking / Indicator Monitoring

Miscellaneous Information

<table>
<thead>
<tr>
<th>Input(s):</th>
<th>Output(s):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project disciplines</td>
<td>Department Heads, Consultants</td>
</tr>
</tbody>
</table>

**Flow Chart**

**Step / Person**

1. **NEED**
   - Select VE Team
   - Determine required disciplines
   - Feedback from surveys
   - (in house study)
   - District Control?
     - NO
     - YES
     - Request for Consultant to SVE
     - Request District Consultant Services
   - District Control?
     - NO
     - YES
     - Request for Consultant to SVE
     - Request District Consultant Services
   - (DVE Lead Team)
     - NO
     - YES
     - Request Team Leader
     - Request Team Members for each discipline
   - Review request
     - Make selections & send to DVE
   - Review team selections
     - Team acceptable?
     - YES
     - Send Team Notification

**Input(s):**
- Project disciplines:
- Department Heads, Consultants

**Supplier(s):**
- Department Heads, Consultants

**Process and Quality Indicators**

<table>
<thead>
<tr>
<th>Process Indicators</th>
<th>Control Limits</th>
<th>Checking Item</th>
<th>Timeframe (Frequency)</th>
<th>Responsibility</th>
<th>QAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missing required disciplines</td>
<td>0</td>
<td>VER &amp; VE Study Report</td>
<td>Annual</td>
<td>SVE</td>
<td>D1.1/2006</td>
</tr>
<tr>
<td>If team has more than 2 untrained team members serving as primary team member</td>
<td>0</td>
<td>VER &amp; VE Study Report</td>
<td>Annual</td>
<td>SVE</td>
<td>D2.12/2006</td>
</tr>
<tr>
<td>If team leader not meeting qualifications</td>
<td>0</td>
<td>VER, VE study report, SAVE, FPE, TRESS</td>
<td>Annual</td>
<td>SVE</td>
<td>D3.12/2006</td>
</tr>
</tbody>
</table>

**Checking / Indicator Monitoring**

<table>
<thead>
<tr>
<th>Quality Indicators</th>
<th>Specs / Targets</th>
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</tr>
</thead>
</table>

**Miscellaneous Information**

- Federal Regulation 23 CFR 627
- VE Procedure 625-030-002
- AASHTO Guidelines for VE
- NCHRP Synthesis 352 - Value Engineering Applications in Transportation

**Input(s):**
- Project disciplines

**Supplier(s):**
- Department Heads, Consultants

**Procedure Reference:**
- Notes, etc.

**Approved:**

**Date:**

**Process Owner:** District Value Engineer

**Rev #:** 1.5

**Rev Date:** 8/2007
### Process Control System

#### Process Name: Conduct Value Engineering Study

**Product/Service:** Completed VE Analysis with a report documenting the findings of the team.

**Primary Customers:** Management & DVE.

**Partners:** FHWA, State Value Engineer

**Customer’s Valid Requirement(s):** Follow the VE Job Plan to produce quality recommendations that can be implemented.

**Regulator’s Valid Requirement(s):** Follow widely recognized systematic problem solving process that is used throughout private industry and government agencies.

#### Process and Quality Indicators

<table>
<thead>
<tr>
<th>Step/Person</th>
<th>Dept./Person</th>
<th>Step/Time</th>
<th>Indicators</th>
<th>Control Limits</th>
<th>Checking Item</th>
<th>Timeframe (Frequency)</th>
<th>Responsibility</th>
<th>QAR</th>
<th>Date of Last Review</th>
<th>Miscellaneous Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEED</td>
<td>District Value Engineer</td>
<td>Conduct VE Study</td>
<td>Analysis Phase</td>
<td>Team identifies the elements with the greatest potential for value improvement.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Investigation Phase</td>
<td>- Gather information about the present design from engineering reports, design plans, estimates, alternatives, right of ways, maps, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Analysis Phase</td>
<td>- Team designs the elements with the greatest potential for value improvement.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Speculation Phase</td>
<td>- Team generates alternatives to the proposed design by using brainstorming techniques.</td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Evaluation Phase</td>
<td>- Team evaluates the alternatives and determines which offer the greatest potential for savings and approval. Advantages and disadvantages are considered at this point.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Development Phase</td>
<td>- Team develops the alternatives selected. Sketches, cost estimates, validation of data and other technical work are done at this point.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Presentation Phase</td>
<td>- Team presents its recommendations to management and appropriate staff with time allocated for question and answer.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- VE Study report is developed during the study as a step-by-step record.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Post Study Surveys of Team, Project Manager and Management. Feedback results to Project Selection and Team Selection Processes &amp; Team Leaders.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Enter data into VE database</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Codes:
- C: Compliance
- NC: Noncompliant
- BP: Best Practice

**Approved:** ____________________  **Date:** ____________________  **Process Owner:** District Value Engineer  **Rev #:** 1.5  **Rev Date:** 8/2007
**Process Control System**

**Process Name:** Value Engineering Recommendation

**Product/Service:** Resolution of VE Team Recommendations

**Primary Customers:** Project Manager, SVE

**Customer’s Valid Requirement(s):** Recommendations are acted upon in a timely manner, but that a recommendation is acted upon based on information and not time.

**Regulator’s Valid Requirement(s):** Process to approve or reject recommendations to ensure the prompt review of VE recommendations

---

**Input(s):** Recommendations

**Supplier(s):** VE Team

**Flow Chart**

<table>
<thead>
<tr>
<th>Step / Person</th>
<th>DISTRICT VALUE ENGINEER</th>
<th>STATE VALUE ENGINEER</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEED</td>
<td>Resolve Pending Recommendations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Distribute Study report to project team and Decision Makers</td>
<td></td>
</tr>
<tr>
<td>REVIEW</td>
<td>Recommendations not resolved at presentation?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>Schedule Resolution Meeting</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>RESOLUTION MEETING</td>
<td>Are Decision Makers Available</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>Conduct meeting - Obtain Decisions (Adopt, Modify, Pending, Reject)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>Escalate Decision Process</td>
</tr>
<tr>
<td>MONITOR</td>
<td>Update the database</td>
<td>Monitor Pending Recommendations</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Process and Quality Indicators**

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<th>Responsibility</th>
<th>QR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adoption Rate</td>
<td>40%-60%</td>
<td>VER</td>
<td>Quarterly</td>
<td>SVE</td>
<td>C1</td>
</tr>
<tr>
<td># of pending rec. per time period</td>
<td>VER</td>
<td>Quarterly</td>
<td>SVE</td>
<td></td>
<td></td>
</tr>
</tbody>
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**Miscellaneous Information**

- Abbreviations
- Procedure Reference
- Notes, etc.

**Approved:** ____________________________  Date: ____________________  Process Owner: District Value Engineer  Rev #: 1.5  Rev Date: 08/2007
Process Control System

Process Name: Value Engineering Reporting Process
Primary Customers: Management
Customer's Valid Requirement(s): Prepare accurate and reliable reports
Partner(s): FHWA

Regulator's Valid Requirement(s): Report accurate results of the Value Engineering Program

Flow Chart

Input(s):
Study Results Supplier(s): DVE

Process and Quality Indicators
Checking / Indicator Monitoring

<table>
<thead>
<tr>
<th>Step / Person</th>
<th>State Value Engineer</th>
<th>District Value Engineer</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEED</td>
<td>Report the results of the VE program to management</td>
<td></td>
</tr>
<tr>
<td>MAINTAIN FILES</td>
<td>Enter data into VE database at conclusion of study</td>
<td></td>
</tr>
<tr>
<td></td>
<td>File copy of final study report in District files</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Send copy of final study report to SVE</td>
<td></td>
</tr>
<tr>
<td>DATA VERIFICATION</td>
<td>Prepare Draft Quarterly Report &amp; e-mail to Districts</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Correct database and notify SVE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Review Draft Quarterly Report</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Is Draft Report accurate?</td>
<td></td>
</tr>
<tr>
<td>REPORT</td>
<td>Is this the Annual Report?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prepare Final Annual Report</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prepare Final Quarterly Report</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prepare Annual FHWA Report</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Distribute Reports</td>
<td></td>
</tr>
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</table>

Process and Quality Indicators

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Miscellaneous Information

- Abbreviations
- Procedure Reference
- Notes, etc.

Approved: ___________________________ Date: ____________________ Process Owner: State Value Engineer Rev #: 1.5 Rev Date: 8/2007

Input(s):
Study Results Supplier(s): DVE
Process Control System

Flow Chart

Process Name: Cost Savings Initiative (CSI) Proposal
Primary Customers: Construction Contractor

Customer's Valid Requirement(s): Review and either approve or reject the CSI proposal in a timely manner.

Regulator's Valid Requirement(s): Program that encourages the use of a cost reduction incentive clause.

Process and Quality Measures (QA/QC)

Checking / Indicator Monitoring

miscellaneous Information

- Abbreviations
- Procedure Reference
- Notes, etc.

Codes:
- C - Compliance
- NC - Noncompliant
- BP - Best Practices

Approved: ____________________________ Date: ________________ Process Owner: ____________________________ Rev #: 1.6 Rev Date: 5/2011

Schedule CSI Workshop

Hold CSI Workshop

Visible proposal? YES

NO

Any more ideas? YES

Schedule Concept Meeting

End

Not more ideas!

Hold Concept Meeting

Yes

Viable proposal?

Time Ext? YES

Grant Time Ext

NO

SUBMITAL

Submit Proposal

Forward copy to DVE

Forward proposal to technical reviewers

Establish review schedule

Review Proposal

Compile comments forward to DCE

Prepare letter of recommendation

Resolution meeting?

YES

NO

Resolution meeting?

YES

NO

Approved?

NOTIFICATION

Notify Contractor of results

Process SA

Update Database

Review:

Review Proposal

Prepare letter of recommendation

Resolution meeting?

YES

NO

Resolution meeting?

YES

NO

Approved?

NOTIFICATION

Notify Contractor of results

Process SA

Update Database

Review:

Review Proposal

Prepare letter of recommendation

Resolution meeting?

YES

NO

Resolution meeting?

YES

NO

Approved?

NOTIFICATION

Notify Contractor of results

Process SA

Update Database

Review:

Review Proposal

Prepare letter of recommendation

Resolution meeting?

YES

NO

Resolution meeting?

YES

NO

Approved?

NOTIFICATION

Notify Contractor of results