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<tr>
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<td>53</td>
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</tbody>
</table>
Executive Summary

Value Engineering During Project Development

The districts conducted 31 studies or 141% of the original number of studies scheduled for fiscal year 2014/2015. The original work plan had 22 studies scheduled for the year and the target was to complete 75% or 17 of the planned studies. Due to the dynamics of the department’s work program, 4 of the 22 scheduled studies (18%) were either dropped from the work plan altogether or rescheduled for the 2015/2016 fiscal year, while 13 of the conducted studies were added to the original work plan.

During this same period, the districts acted on 262 recommendations, approving 132 for a 50% adoption rate. One Hundred ten of the approved recommendations resulted in $334.0 million in project cost avoidance/savings. The remaining 22 approved recommendations were value added recommendations that increased project performance, while adding $120.2 million to the project cost. Therefore, the total value of the approved recommendations, including the value added recommendations, produced $213.8 million in project cost avoidance/savings.

The approved recommendations resulted in a 8.14% project saved, 14.04% program saved and a Return on Investment (ROI) of $139 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 75 pending recommendations totaling $263.6 million in potential cost avoidance/savings at the end of the 2014/2015 fiscal year. Thirty-eight of the 75 recommendations have been pending for more than 12 months, which is 51% 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-five Cost Savings Initiative (CSI)’s Proposals were submitted during fiscal year 2014/2015. During this same period, the districts acted on 57 proposals totaling more than $8.76 million and approving 46 of the proposals. The implemented savings from the 46 approved CSI’s was $8.19 million. The approved CSI proposals resulted in a 0.36% project saved and a 0.34% program saved. There are currently 13 pending CSI’s totaling $3.31 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

- Project Selection
- Team Selection
- Information Phase
- Functional Analysis
- Creative Phase
- Evaluation
- Development
- Presentation
- 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>
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>
<tr>
<td>Q3: Adoption Rate</td>
<td># of Approved Recommendations / # of Proposed Recommendations</td>
</tr>
<tr>
<td>Q4: Percent Project Saved</td>
<td>Value of Approved Recommendations / Total Project Costs</td>
</tr>
<tr>
<td>Q5: Percent Program Saved</td>
<td>Value of Approved Recommendations / 3 Year Monthly Average Lettings</td>
</tr>
<tr>
<td>Q6: Return on Investment (only reported annually)</td>
<td>Value of Approved Recommendations / Total cost of VE Program</td>
</tr>
</tbody>
</table>
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>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1: Number of CSI's</td>
<td>Sum of all CSI's</td>
</tr>
<tr>
<td>Q2: Approved Cost Savings</td>
<td>Sum of all approved CSI savings</td>
</tr>
<tr>
<td>Q3: Percent Project Saved</td>
<td>Value of Approved Proposals</td>
</tr>
<tr>
<td></td>
<td>Total Project Costs</td>
</tr>
<tr>
<td>Q4: Percent Program Saved</td>
<td>Value of Approved Recommendations</td>
</tr>
<tr>
<td></td>
<td>3 Year Monthly Average Lettings</td>
</tr>
</tbody>
</table>
Fiscal Year 2014/2015
Value Engineering
Performance Measures
Q1: Annual Approved Cost Avoidance/Savings

Total Approved Recommendations: $2.8 billion

Q1: Cost Avoidance Recommendations
Annual Report FY 2014/2015

Approved Recommendations: $334.0 million
Adopted Recommendations

Q2: Annual Approved Value Added Recommendations

Approved Value Added: $423.5 million

Q2: Value Added Recommendations
Annual Report FY 2014/2015

Approved Value Added: $120.2 million

<table>
<thead>
<tr>
<th>District 1</th>
<th>District 2</th>
<th>District 3</th>
<th>District 4</th>
<th>District 5</th>
<th>District 6</th>
<th>District 7</th>
<th>Turnpike</th>
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</thead>
<tbody>
<tr>
<td>$0</td>
<td>$1,626,309</td>
<td>$399,264</td>
<td>$11,050,000</td>
<td>$281,031,102</td>
<td>$0</td>
<td>$959,390</td>
<td>$0</td>
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</table>
Adoption Rates

Q3: Annual Adoption Rate

Target Range: 40%-60%

Fiscal Year

05/06 06/07 07/08 08/09 09/10 10/11 11/12 12/13 13/14 14/15

54% 47% 43% 48% 49% 59% 54% 49% 53% 50%

Q3: Adopted Recommendations
Annual Report FY 2014/2015

Target Range: 40%-60%

District 1 District 2 District 3 District 4 District 5 District 6 District 7 Turnpike

# Recommended 14 13 22 43 143 7 18 2

# Approved 6 7 11 25 65 6 10 2

Number
Percent Project Saved

Q4: Annual Percent Project Saved

Fiscal Year

Target Range: 5%–10%
National Average: 5%

Q4: Percent Project Saved
Annual Report Fiscal Year 2014/2015

Target Range: 5%–10%
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.

Q5: Percent Program Saved
Annual Report Fiscal Year 2014/2015

District 1: 5.55%
District 2: 0.13%
District 3: 5.87%
District 4: 6.45%
District 5: 47.75%
District 6: 34.88%
District 7: 3.97%
Turnpike: 4.25%

Q5: Annual Percent Program Saved

Fiscal Year

10/11: 8.62%
11/12: 7.48%
12/13: 10.58%
13/14: 6.85%
14/15: 14.04%
FHWA data for fiscal year 2014/2015 was not available at time of publication.
Work Plan Completion

P1: VE Studies Scheduled vs. Completed
Annual Report FY 2014/2015

Target: Complete 75% of YTD Schedule

Number of Studies

<table>
<thead>
<tr>
<th>1st Qtr</th>
<th>2nd Qtr</th>
<th>3rd Qtr</th>
<th>4th Qtr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheduled</td>
<td>11</td>
<td>15</td>
<td>19</td>
</tr>
<tr>
<td>Conducted</td>
<td>8</td>
<td>14</td>
<td>24</td>
</tr>
<tr>
<td>Target (75%)</td>
<td>8</td>
<td>11</td>
<td>14</td>
</tr>
</tbody>
</table>

* District 7 or Turnpike Enterprise did not submit a Work Plan as required. District 6 did not have any planned...
Pending Recommendations

P2: Annual # Pending Recommendations
Annual Report FY 2014/2015

<table>
<thead>
<tr>
<th></th>
<th>05/06</th>
<th>06/07</th>
<th>07/08</th>
<th>08/09</th>
<th>09/10</th>
<th>10/11</th>
<th>11/12</th>
<th>12/13</th>
<th>13/14</th>
<th>14/15</th>
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</thead>
<tbody>
<tr>
<td>0 - 6 Months</td>
<td>14</td>
<td>66</td>
<td>42</td>
<td>17</td>
<td>21</td>
<td>9</td>
<td>31</td>
<td>14</td>
<td>0</td>
<td>35</td>
</tr>
<tr>
<td>&gt; 7 Months</td>
<td>34</td>
<td>32</td>
<td>47</td>
<td>30</td>
<td>35</td>
<td>54</td>
<td>40</td>
<td>32</td>
<td>46</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>98</td>
<td>89</td>
<td>47</td>
<td>56</td>
<td>63</td>
<td>71</td>
<td>46</td>
<td>46</td>
<td>75</td>
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</table>

P2: # Pending Recommendations
Annual Quarter Report FY 2014/2015

<table>
<thead>
<tr>
<th></th>
<th>District 1</th>
<th>District 2</th>
<th>District 3</th>
<th>District 4</th>
<th>District 5</th>
<th>District 6</th>
<th>District 7</th>
<th>Turnpike</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 3 Months</td>
<td>15</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>4 - 6 Months</td>
<td>8</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7 - 12 Months</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&gt; 12 Months</td>
<td>0</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>8</td>
<td>1</td>
<td>16</td>
</tr>
</tbody>
</table>
Fiscal Year 2014/2015
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).

Number Approved CSI's: 214

Number Approved CSI's: 46

* 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).
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* 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.
Appendix
Process Control Systems
## 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  
**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.

### Flow Chart

<table>
<thead>
<tr>
<th>District Value Engineer</th>
<th>Value Engineering Team</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NEED</strong></td>
<td>Conduct VE Study</td>
</tr>
<tr>
<td><strong>INFORMATION</strong></td>
<td></td>
</tr>
<tr>
<td><strong>FUNCTION ANALYSIS</strong></td>
<td></td>
</tr>
<tr>
<td><strong>CREATIVE</strong></td>
<td></td>
</tr>
<tr>
<td><strong>EVALUATION</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DEVELOPMENT</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PRESENTATION</strong></td>
<td></td>
</tr>
<tr>
<td><strong>RESULTS</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Function Analysis Phase:
- Team analyzes the project and defines the project functions using a two-word active verb measurable noun technique.
- Team determines which functions can be improved, eliminated or combined.
- Team classifies remaining functions as either Basic or Secondary functions.
- Tools used during this phase include: Random Function Identification, Function Analysis System Technique (FAST), Function Listing and Value Index.

### Creative Phase:
- Team generates alternative ideas to perform the project functions by using creative techniques, such as brainstorming techniques.

### Evaluation Phase:
- Team evaluates and selects the ideas with the greatest potential for development into fully-supported recommendations.
- Tools used during this phase include: Advantages and disadvantages comparison, evaluation matrix with weighted criteria.

### Development Phase:
- Team develops the ideas with the greatest potential value into fully supported recommendations by establishing costs and back-up documentation and data to support the results.
- Tools used during this phase include: sketches, cost estimates, Life Cycle Cost Analysis and validation of data and other technical tools.

### Presentation Phase:
- Team presents its recommendations to management and appropriate staff with time allocated for questions and answers.
- Draft VE Study report is developed during the study as a step-by-step record.

### Process and Quality Indicators

<table>
<thead>
<tr>
<th>Process Indicator</th>
<th>Control Limits</th>
<th>Checking Items</th>
<th>Timeframe (Frequency)</th>
<th>Responsibility</th>
<th>Date of Last Review</th>
<th>QAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

### Input/Recommendations

<table>
<thead>
<tr>
<th>Step / Time</th>
<th>Depth / Person</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

### Miscellaneous Information

- Abbreviations  
- Procedural Reference  
- Notes, etc.

### Approved:  
Date:  
Process Owner: District Value Engineer  
Rev #: 1.6  
Rev Date: 3/2016
Process Control System

Flow Chart

Input(s) / Study Results
- Supplier: D/E

Need
- Report the results of the VE program to management

Maintain Files
- Prepare Draft Report & e-mail to District
- Enter data into VE database at conclusion of study
- Upload copy of final study report to VER

Data Verification
- Review Draft Report
- Is Draft Report accurate?
  - YES
  - No

Report
- Is this the Annual Report?
  - YES
  - Prepare Final Annual Report
  - Send Monthly Report to Production Management Office
  - Prepare Annual FHWA Report
  - Distribute Reports
  - Present at Monthly Performance Meeting
  - Correct database and notify SVE

- NO
  - Annual Report completes by July 30
  - Annual Review
  - Annual

Checking / Indicator Monitoring
- Process Indicators
- Quality Indicators
- Control limits
- Checking Item
- What is to be checked?
- When to check?
- Who will check?
- Timeframe (Frequency)
- Responsibility
- QAR

Miscellaneous Information
- Abbreviations
- Procedure
- Reference
- Notes, etc.

Process Name: Value Engineering Reporting Process
Product/Service: Reporting the results of the VE program
Primary Customers: Management
Partners: FHWA
Customer’s Valid Requirement(s): Prepare accurate and reliable reports
Regulator’s Valid Requirement(s): Report accurate results of the VE program

Approvers: __________________________ Date: ______________ Process Owner: State Value Engineer Rev #: 1.6 Rev Date: 03/2016