Value Engineering
Annual Report
FY 2018/2019
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Executive Summary

Value Engineering During Project Development

The districts conducted 24 studies or 92% of the original number of studies scheduled for fiscal year 2018/2019. The original work plan had 26 studies scheduled for the year and the target was to complete 75% or 20 of the planned studies. Due to the dynamics of the department’s work program, 10 of the 26 scheduled studies (38%) were either dropped from the work plan altogether or rescheduled for a future fiscal year, while 8 of the conducted studies were added to the original work plan.

During this same period, the districts acted on 173 recommendations, approving 83 for a 48% adoption rate. Fifty-seven of the approved recommendations resulted in $83.1 million in project cost avoidance/savings. The remaining 26 approved recommendations were value added recommendations that increased project performance, while adding $10.8 million to the project cost. Therefore, the total value of the approved recommendations, including the value added recommendations, produced $72.3 million in project cost avoidance/savings.

The approved recommendations resulted in a 5.11% project saved, 2.29% program saved and a Return on Investment (ROI) of $63.9 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 144 pending recommendations totaling $1.85 billion in potential cost avoidance/savings at the end of the 2018/2019 fiscal year. This is a 118% increase in the total number of pending recommendations and a 115% increase in the amount of pending dollars from the 4th quarter of fiscal year 2017/2018. Fifty-six of the 144 recommendations have been pending for more than 12 months, which is 39% 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 they will be adopted because the development of the project has advanced.

Cost Savings Initiatives During Construction

Twenty-five Cost Savings Initiative (CSI)’s Proposals were submitted during fiscal year 2018/2019. During this same period, the districts approved 23 proposals totaling more than $10.78 million in savings. The approved CSI proposals resulted in a 0.17% project saved and a 0.33% program saved. There are currently 4 pending CSI’s totaling $1.09 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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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.

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>
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>
<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>
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 3 Year Monthly Average Lettings</td>
</tr>
</tbody>
</table>
Fiscal Year 2018/2019
Value Engineering
Performance Measures
Adopted Recommendations

Q1: Annual Approved Cost Avoidance/Savings

Total Approved Recommendations: $2.0 billion

<table>
<thead>
<tr>
<th>Year</th>
<th>Approved $$$</th>
</tr>
</thead>
<tbody>
<tr>
<td>09/10</td>
<td>$192.4</td>
</tr>
<tr>
<td>10/11</td>
<td>$158.0</td>
</tr>
<tr>
<td>11/12</td>
<td>$140.7</td>
</tr>
<tr>
<td>12/13</td>
<td>$182.2</td>
</tr>
<tr>
<td>13/14</td>
<td>$140.9</td>
</tr>
<tr>
<td>14/15</td>
<td>$351.6</td>
</tr>
<tr>
<td>15/16</td>
<td>$148.9</td>
</tr>
<tr>
<td>16/17</td>
<td>$480.3</td>
</tr>
<tr>
<td>17/18</td>
<td>$213.8</td>
</tr>
<tr>
<td>18/19</td>
<td>$83.1</td>
</tr>
</tbody>
</table>

Q1: Cost Avoidance Recommendations
Annual Report FY 2018/2019

Approved Recommendations: $83.1 million

<table>
<thead>
<tr>
<th>District</th>
<th>$ Recommended</th>
<th>$ Approved</th>
</tr>
</thead>
<tbody>
<tr>
<td>District 1</td>
<td>$30,096,699</td>
<td>$3,910,798</td>
</tr>
<tr>
<td>District 2</td>
<td>$1,428,168</td>
<td>$148,168</td>
</tr>
<tr>
<td>District 3</td>
<td>$2,264,800</td>
<td>$1,688,817</td>
</tr>
<tr>
<td>District 4</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>District 5</td>
<td>$54,995,286</td>
<td>$10,989,330</td>
</tr>
<tr>
<td>District 6</td>
<td>$76,578,699</td>
<td>$56,687,388</td>
</tr>
<tr>
<td>District 7</td>
<td>$8,329,911</td>
<td>$7,596,395</td>
</tr>
<tr>
<td>Turnpike</td>
<td>$48,400,010</td>
<td>$113,000</td>
</tr>
</tbody>
</table>
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%

Q3: Adopted Recommendations
Annual Report FY 2018/2019

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>19</td>
<td>3</td>
</tr>
<tr>
<td>District 2</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td>District 3</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>District 4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>District 5</td>
<td>85</td>
<td>42</td>
</tr>
<tr>
<td>District 6</td>
<td>18</td>
<td>7</td>
</tr>
<tr>
<td>District 7</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Turnpike</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>CO</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>
Percent Project Saved

Q4: Annual Percent Project Saved

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

Fiscal Year

Q4: Percent Project Saved
Annual Report Fiscal Year 2018/2019

Target Range: 5%-10%

District 1: 1.74%
District 2: 0.15%
District 3: 4.22%
District 4: 0.00%
District 5: 5.20%
District 6: 48.22%
District 7: 6.28%
Tunpike: 0.01%
The intent of the Percent Program Saved measure 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

Q6: Return on Investment
Annual Report Fiscal Year 2018/2019

Return on Investment
$42 to $1

$100,000,000

Program Costs

Adopted Recommendations

$72,300,000

$1,736,133

FDOT Average  $133 to $1
FHWA Average  $134 to $1

Annual Return on Investment

<table>
<thead>
<tr>
<th></th>
<th>FY 09/10</th>
<th>FY 10/11</th>
<th>FY 11/12</th>
<th>FY 12/13</th>
<th>FY 13/14</th>
<th>FY 14/15</th>
<th>FY 15/16</th>
<th>FY 16/17</th>
<th>FY 17/18</th>
<th>FY 18/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDOT</td>
<td>$196</td>
<td>$138</td>
<td>$111</td>
<td>$118</td>
<td>$103</td>
<td>$150</td>
<td>$113</td>
<td>$208</td>
<td>$154</td>
<td>$42</td>
</tr>
<tr>
<td>FHWA Avg.</td>
<td>$146</td>
<td>$80</td>
<td>$96</td>
<td>$118</td>
<td>$200</td>
<td>$129</td>
<td>$119</td>
<td>$159</td>
<td>$157</td>
<td></td>
</tr>
</tbody>
</table>

* FHWA data for fiscal year 2018/2019 was not available at time of publication.
Work Plan Completion

P1: VE Studies Scheduled vs. Completed
Annual Report FY 2018/2019

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>4</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Conducted</td>
<td>4</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>Target (75%)</td>
<td>3</td>
<td>8</td>
<td>15</td>
</tr>
</tbody>
</table>

P1: VE Studies Scheduled vs Completed
Annual Report FY 2018/2019

Target: Complete 75% of YTD Schedule

Number of Studies

<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>
</tr>
</thead>
<tbody>
<tr>
<td># Scheduled</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td># Conducted</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>6</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

13
Fiscal Year 2018/2019
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).
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

Flow Chart

NEED
- Select VE Team
- Determine required disciplines
- Select State VE
- Request for Consultant to VE
- Request District Consultant Services

CONSULTANT REQUESTS
- Yes
  - Request Team Leader
  - Request Team Members for each discipline

- No
  - Request District Consultant Services

TEAM SELECTION
- Request Team Members for each discipline
- Review request
- Make selections and send to SVE

NOTIFICATION
- Send Team Notification

Process Indicators
- Check
- Control Limits
- Quality Measure
- Spec / Targets
- Process Indicators
- Checking / Indicator Monitoring
- Date of Last Review

Process Control System

Process Name: Value Engineering Recommendation Resolution Process
Product/Service: Resolution of VE Team Recommendations
Primary Customer: Project Manager, SVE
Primary Partners: FHWA
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

Flow Chart

Distrcit Value Engineer

Step / Time

Process and Quality Indicators

Checking / Indicator Monitoring

Miscellaneous Information

AFP - Abbreviations
AFP - Procedure
AFP - Reference
Notes, etc.

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NEED
Resolve Pending Recommendations

Distribute Study Report to project team and Decision Makers

REVIEW

YES

Recommendations accepted for presentation?

NO

Schedule Resolution Meeting

RESOLUTION MEETING

YES

All Decision Makers Available

NO

Conduct meeting - Obtain Decisions (Adopt, Modify, Pending, Reject)

YES

Obtain Final N Vaccine

NO

Exclude Decision Process

MONITOR

Update the database

Monitor Pending Recommendations

---

QC - Quality Indicator
CP - Check Point

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Approval: Date: Process Owner: District Value Engineer: Rev #: Rev Date: 03/2018