Scoping Projects with Value Engineering to Achieve Context Sensitive Solutions

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Topic Overview

- Historical Issues
- Value Planning 101
- Using Performance Measures
- Context Sensitive Design
- Combining Processes
- Lessons Learned
- Summary / Benefits
Historical Issues

- Problems with ‘stripped’ projects
- Lack of willingness to accept change
- Adding a few sub-steps to the VE job plan can ensure workshop success and increased value
- Need to focus first of building the “right project”, then on building the “project right”

Value Planning 101

- Carried out very early in project life
- Modified Job Plan
  - Information, Functional Analysis, Creative and Evaluation Phases
  - Typically no Development, Presentation or Implementation phases
- Team includes all stakeholders
- Ranges from 3 hour session to 4-day workshop
Quality Models

- Way of Capturing stakeholder interests
- Criteria identified by team
- Facilitator helps team arrive at consensus for importance of criterion

Using Performance Measures

- Method adopted from Caltrans
- Value improvement requires improvement in performance and/or reduction in cost
- The measure of performance can be related to a set of project-specific criteria
- Criteria can be set by project team or by external steering committee
# VE Job Plan

## Workshop Activities

<table>
<thead>
<tr>
<th>Information Phase</th>
<th>Function Analysis Phase</th>
<th>Creative Phase</th>
<th>Evaluation Phase</th>
<th>Development Phase</th>
<th>Presentation Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand Project, Risks and Issues</td>
<td>Understand Purposes of Project Parts</td>
<td>Generate Ideas for Improved Value</td>
<td>Select the Best Ideas</td>
<td>Investigate Selected Ideas</td>
<td>Explain Scenarios and Rationale</td>
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<tr>
<td>Develop Performance Measures</td>
<td>Weight Performance Measures</td>
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<td></td>
<td>Combine VEPs into Scenarios, Evaluate</td>
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</tbody>
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**Post-Workshop Activities**
- Evaluate Recommendations
- Select Changes
- Document Results

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## Using Performance Measures

- Determine Performance Measures
- Define Performance Measures
- Weight Performance Measures
- Screen ideas with Performance Measures
- Develop Scenarios
- Evaluate Scenarios with Performance Measures
Defining Performance Measures

- Relate Performance Measures to your specific project
- Provide a well-defined scoring system
  - 1 to 10 basis (Caltrans)
  - Weighted formula
- Quantitative (measurable) vs. Qualitative (GFI)

Paired Comparison Weighting

Safety(i) = [50(ML)+17(RI)+17(SR)+17(LR)]
Context Sensitive Design

- Integrating Projects with surrounding environment
- Preserve historic scenic or cultural resources
- Context Sensitive Solutions
- NCHRP 480
- CSS Process

Combining Processes

- VE and CSS Processes have many aspects in common – team, workshop, alternatives, etc.
- Importance of a Facilitation Plan
- Careful team selection
- Capture stakeholders’ objectives in project Performance Measures
- Timing of the study
Lessons Learned

- Don’t make the formulas too complex
- Community scan helpful for social context
- Scenarios should be used
- Handling different groups
- Patrol Yard Design Criteria – Overcoming NIMBY

Benefits of Scoping Projects with Value Engineering

- Powerful tools
- Can build consensus with stakeholders
- Increases project acceptance
- Handles conflicting criteria
- Increases visibility of all issues
- Can justify project cost increases
Highway 17/MR55

ALTERNATIVE Aae - Parclo A Configuration with Direct Ramp from Highway 17 Westbound and Loop Ramp from Regional Road 55 Northbound

Proposal I-19
Modified
Final Quote to Ponder…

“Those not engaged in value work often believe that decisions prompted by value analysis techniques will tend to decrease the appearance and attractiveness…Nothing could be further from the truth.” – Lawrence D. Miles