



VALUE ENGINEERING

FY 2017

Value Engineering is a formal process which breaks projects into functions utilizing a team of experts to identify solutions that satisfy the functions. It is a process which can improve quality, constructability, and lower life-cycle costs. It is also a tool used in project development. Value Engineering is an innovative way to change the way we think.

Value Engineering is:

- Function based analysis
- Multi-discipline team approach
- Systematic problem solving process
- Life-cycle cost oriented
- Value oriented
- Free of normal design restrictions
- A proven management technique

During a Value Engineering Study, the VE Team will question current design policies, review alternate horizontal and vertical alignments, alternate methods of construction, and different materials for bridges and pavement. The team will perform Life Cycle Cost Analyses when appropriate. The team will review the need and purpose of the project, historical accident data, access points, staging and earthwork. Changes to the typical sections and lane widths will also be considered.

As more and more projects go through the Value Engineering process, a list of common recommendations has been created:

- Refine vertical profile and horizontal alignment
- Use 11 foot lanes when possible
- Modify median width and type
- Minimize side road work
- Narrow shoulder widths and back slopes
- Modify drainage
- Modify bridges and walls
- Modify sidewalk and multi-use trails
- Modify lengths of turn lanes

The Value Engineering program at the Georgia Department of Transportation began in 1996. In 1998, FHWA adopted a Value Engineering regulation that required VE Studies for all federally funded projects on the National Highway System (NHS) over \$25 million. In 1998, GDOT created their VE Policy. From 1998 to 2002, GDOT averaged 5 studies per year. From 2002 to 2005 this increased to 15 studies per year. In 2005, SAFETEA-LU eliminated the NHS requirement and required VE Studies for all Federal Aid projects. From 2005 to 2008, GDOT averaged 30 studies per year.

In 2008, SB 417 lowered the state threshold to \$10 million. No exemptions were made for funding type; therefore, state funded projects required VE Studies as well. This increased the need to perform VE Studies on a wide range of projects, and from 2009 to 2012 GDOT averaged 45 studies per year. Once MAP-21 was passed in 2012 the state law was amended to mirror the federal threshold of \$50 million and to exempt design build projects from requiring VE studies.

In 2005, 13 VE Studies were conducted by GDOT. The total savings were \$84 million. For every dollar spent on VE, GDOT saved \$300. In 2006, 26 VE Studies were conducted. The total savings were \$13 million. For every dollar spent on VE, GDOT saved \$23. The savings decreased from the previous year because of the SAFETEA-LU changes. Many projects were in the final design stages when their VE Studies were held. It is more difficult and costly to implement recommendations and make changes to project plans as design progresses. It will also delay the letting of the project. In 2007, 48 VE Studies were conducted. The total savings were \$90 million. For every dollar spent on VE, GDOT saved \$102.

In 2008, 39 VE Studies were conducted on projects over \$25 million. An additional 2 VE Studies were conducted to review design policies. A total of 55 VE Studies were implemented, including many studies that were held the previous year. There were 639 recommendations, of which 304 were implemented. The total savings were \$295 million. For every dollar spent on VE, GDOT saved \$138.

In 2009, 90 VE Studies were conducted. Thirty seven of the projects were over \$25 million. Fifty three of the projects were over \$10 million but less than \$25 million. A total of 85 VE Studies were implemented, including several studies that were held the previous year. There were 738 recommendations, of which 297 were implemented. The total savings were \$162 million. For every dollar spent on VE, GDOT saved \$73.

In 2010, 44 VE Studies were conducted. Twenty three of the projects were over \$25 million. Twenty one of the projects were over \$10 million but less than \$25 million. A total of 53 VE Studies were implemented, including several studies that were held the previous year. There were 481 recommendations, of which 255 were implemented. The total savings were \$270 million. For every dollar spent on VE, GDOT saved \$217.

In 2011, 30 VE Studies were conducted. Thirteen of the projects were over \$25 million. Seventeen of the projects were over \$10 million but less than \$25 million. A total of 27 VE Studies were implemented, including two studies that were held the previous year. There were 257 recommendations, of which 135 were implemented. The total savings were \$47 million. For every dollar spent on VE, GDOT saved \$55.

The Georgia Department of Transportation won two of the nine awards at the American Association of State Highway Officials (AASHTO) Value Engineering Conference in New Orleans in September 2011. The SR 36 Passing Lanes and Flint River Bridge replacement project in Upson and Talbot Counties won the national first place pre-construction award in the projects less than \$25 million category. The Northwest Corridor project in Cobb and Cherokee Counties won the national honorable mention pre-construction award in the projects greater than \$75 million category. Georgia was the only state to win two awards.

In 2012, 14 VE Studies were conducted. Ten of the projects were over \$25 million. Four of the projects were over \$10 million but less than \$25 million. A total of 15 VE Studies were implemented, including four studies that were held the previous year. There were 155 recommendations, of which 66 were implemented. The total savings were \$264 million. For every dollar spent on VE, GDOT saved \$537.

In 2013, 10 VE Studies were conducted. Five of the projects were over \$50 million. Five of the projects were over \$10 million, but less than \$50 million. A total of 13 VE Studies were implemented, including three that were held the previous fiscal year. There were 157 recommendations, of which 85 were implemented. The total savings were \$56 million. For every dollar spent on VE, GDOT saved \$134.

In 2014, one VE Study was conducted and implemented. There were 14 recommendations, of which 5 were implemented. The total savings were \$5.3 million. For every dollar GDOT spent on Value Engineering \$1,861 was saved.

In 2015, there were no VE Studies conducted.

In 2016, 3 VE Studies were conducted. Two of the projects were over \$50 million. One of the projects was over \$25 million. One of the 3 VE Studies was implemented this fiscal year. There were 7 recommendations, of which 3 were implemented. The total savings were \$2.0 million. For every dollar GDOT spent on Value Engineering \$45 was saved.

In 2017, 4 VE Studies were conducted on 9 projects. Five of the projects were over \$50 million while four were over \$25 million. A total of 4 VE Studies were implemented, including two that were held the previous fiscal year. There were 54 recommendations, of which 26 were implemented. The total savings were \$27.7 million. For every dollar GDOT spent on Value Engineering \$170 was saved.