
Value Engineering
Annual Report
FY 2006/2007



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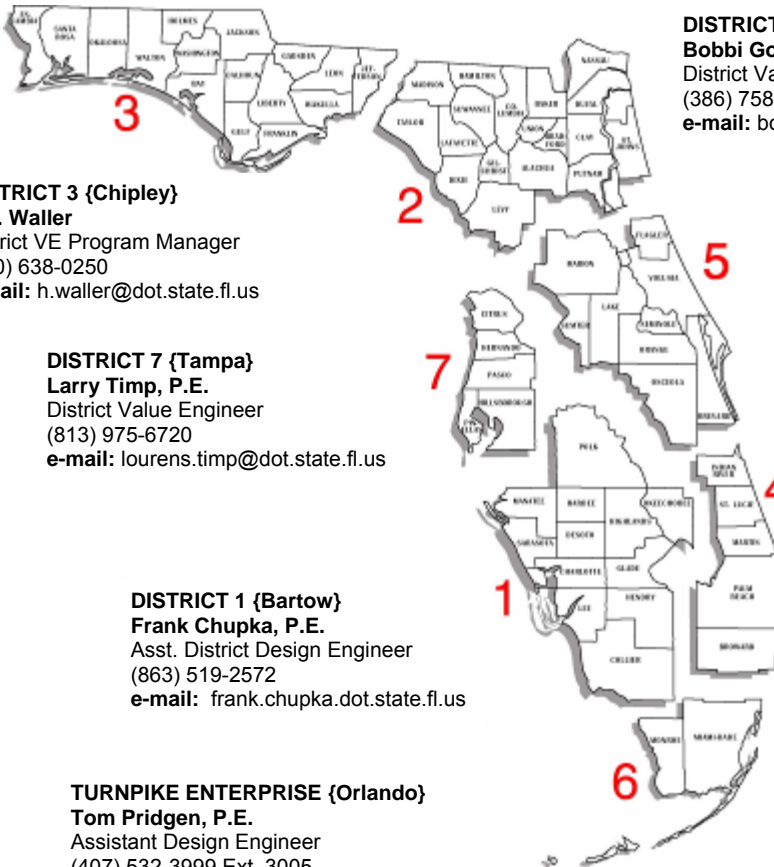
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Program Organization

Mission: Administer the Florida Department of Transportation Value Engineering Program, 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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Executive Summary

VE During Project Development

The effort put forth in value engineering by Department management and employees over the past ten years has produced over \$2 billion in implemented cost avoidance/savings. This effort has led to the Department being recognized as a national leader in value engineering by both FHWA and SAVE International. Several of the VE program measures exceeded the targets for fiscal year 2006/2007.

The Districts completed 42 studies or 89% of the original number of studies scheduled for fiscal year 2006/2007. The original work plan had 47 studies scheduled for the year and the target was to complete 75% or 35 of the planned studies. Due to the dynamics of the Department's work program, 11 of the 47 scheduled studies (23%) were either rescheduled for next fiscal year or dropped from the work plan altogether, while fourteen (30%) of the completed studies were added to the original work plan.

During this same period, the Districts acted on 239 recommendations, approving 112 for a 47% adoption rate. One hundred and two of the approved 112 recommendations resulted in \$309.2 million in project cost avoidance/savings. The remaining ten approved recommendations were value added recommendations that increased project performance, while adding \$9.3 million to the project cost. Therefore, the total value of the approved recommendations, including the value added recommendations, produced **\$299.9 million of project cost avoidance/savings.**

There were 98 pending recommendations totaling \$160.1 million in potential cost avoidance at the end of the fiscal year. This is a 104% increase in the number of pending recommendations and a 16% decrease in the pending dollars from fiscal year 2005/2006. Although the number of pending recommendations has significantly increased, the number that has been pending for more than seven months has decreased by 6%. The large increase in the number of pending recommendations has to do with the large number of studies, more than 42%, that were completed during the 4th Quarter of the fiscal year.

The cost of administering the program was \$2.06 million for a Return on Investment (ROI) of \$145 to \$1.

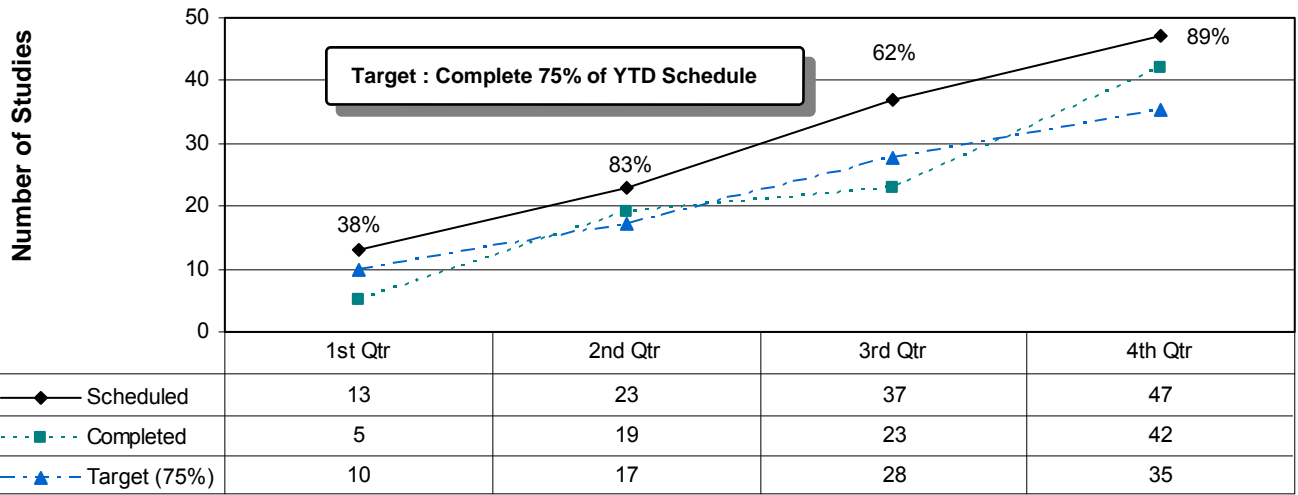
VE During Construction

Twenty-two Value Engineering Change Proposals (VECP's) were submitted during FY 2006/2007, totaling \$5.53 million in potential project savings. During this same period, the districts acted on 22 proposals approving 18. The implemented savings from the 18 approved VECP's was \$4.99 million. There are currently two pending VECP's totaling \$137,317.

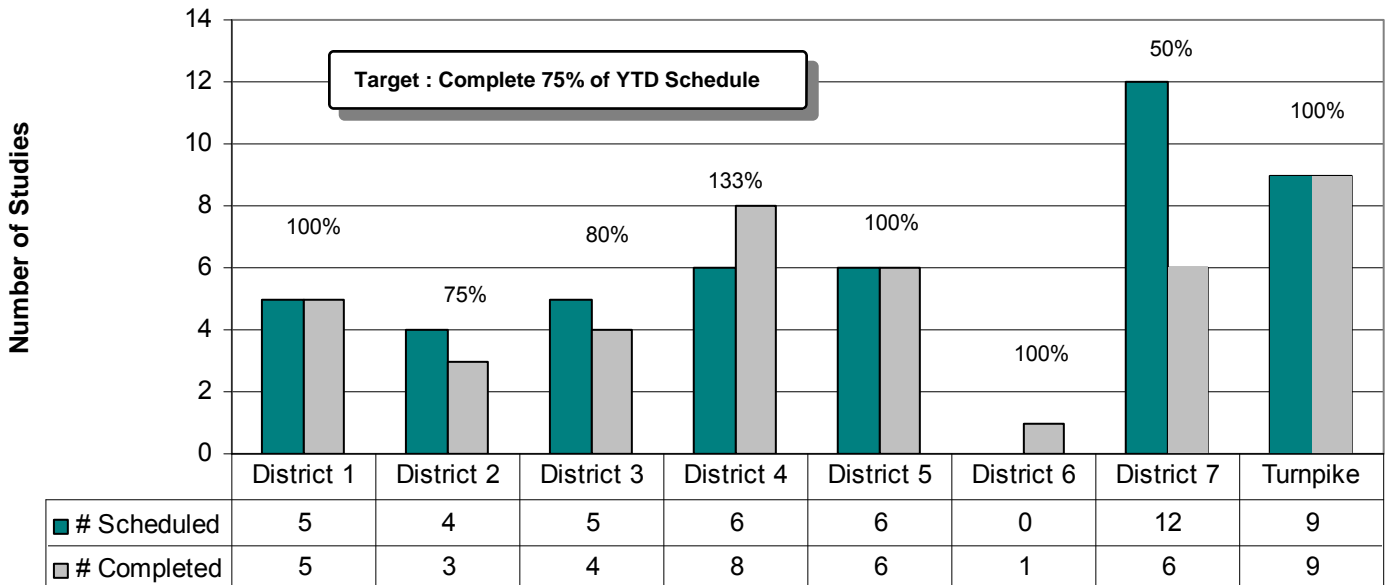
FY 2006/2007 Program Measures

Work Plan Completion

P1: VE Studies Scheduled vs. Completed
Annual Report FY 2006/2007

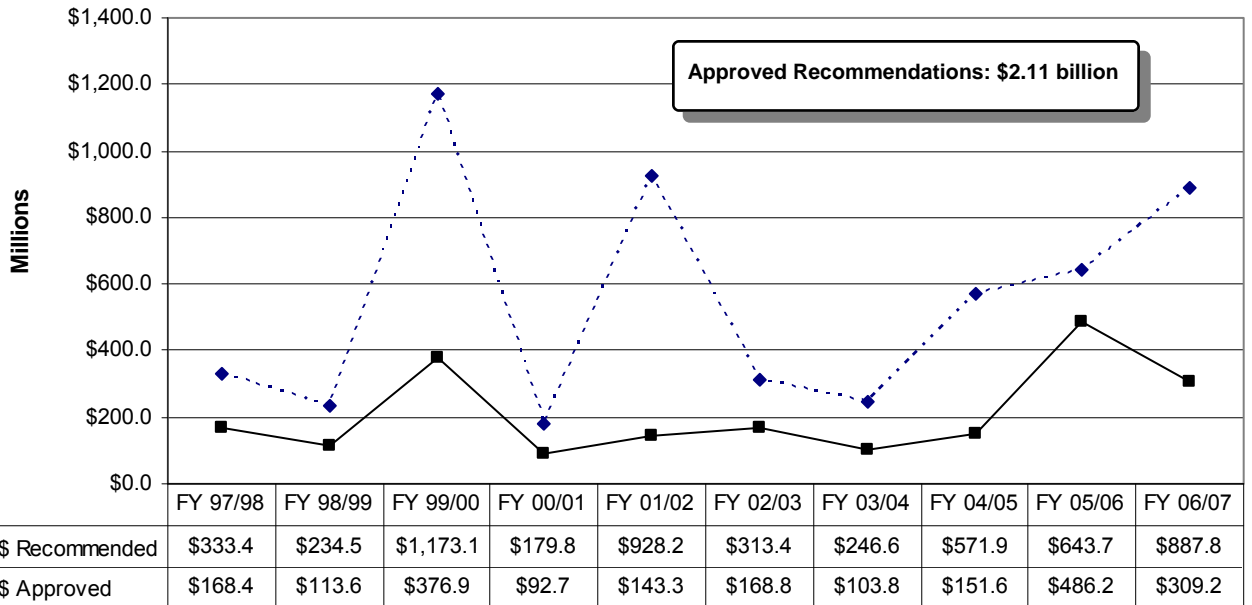


P1: VE Studies Scheduled vs Completed
Annual Report FY 2006/2007

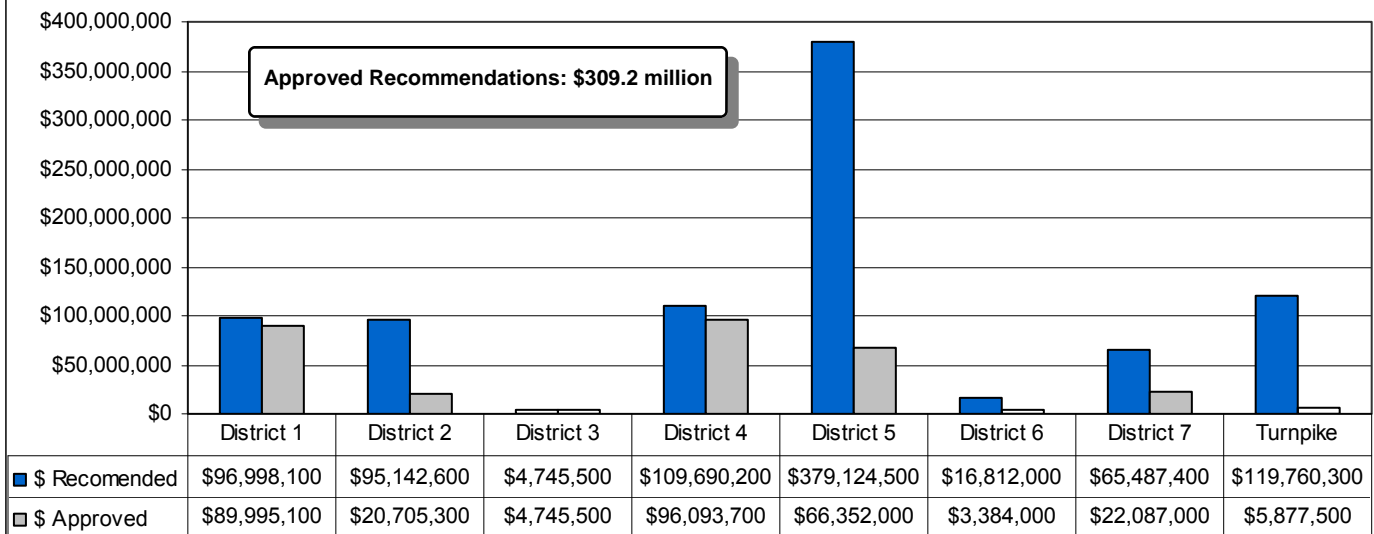


Cost Avoidance/Savings

Q1: Annual Approved Cost Avoidance/Savings

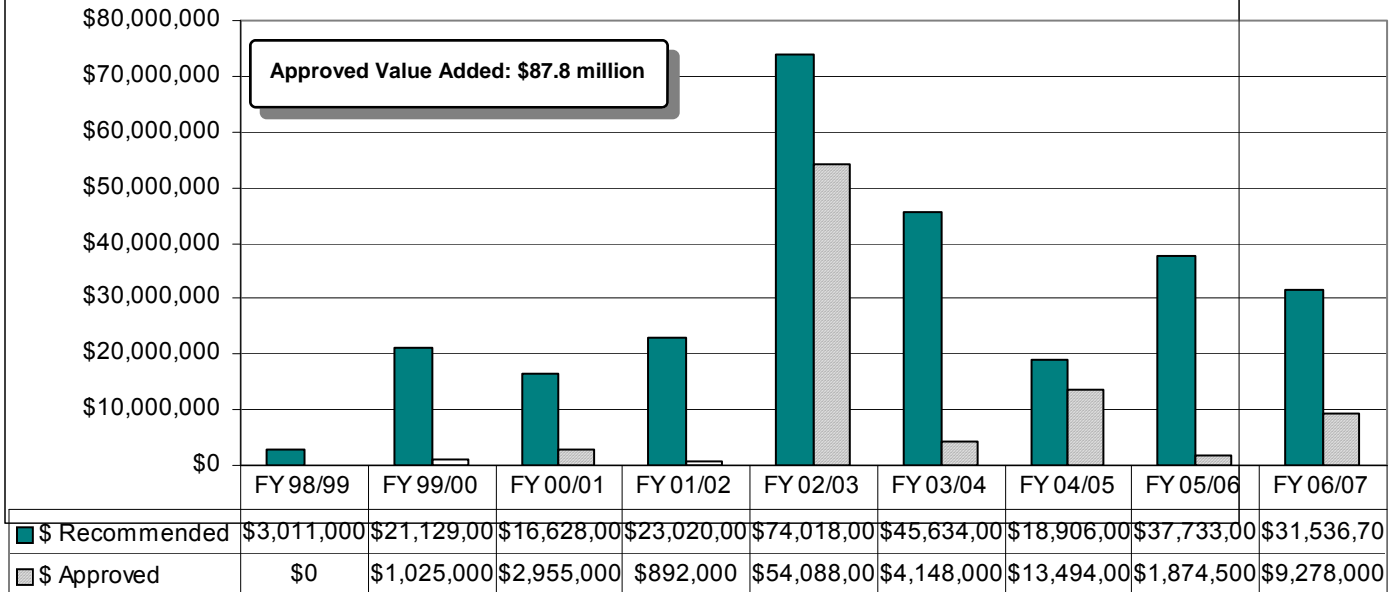


**Q1: Cost Avoidance Recommendations
Annual Report Fiscal Year 2006/2007**

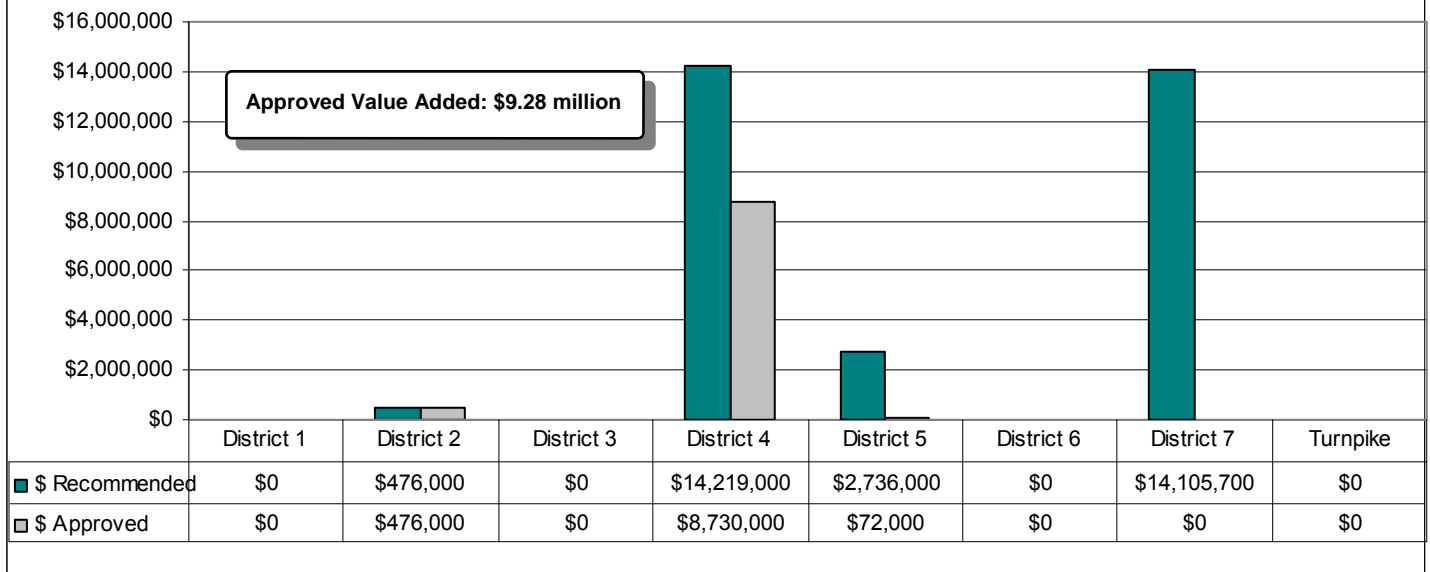


Value Added Recommendations

Q2: Annual Approved Value Added Recommendations



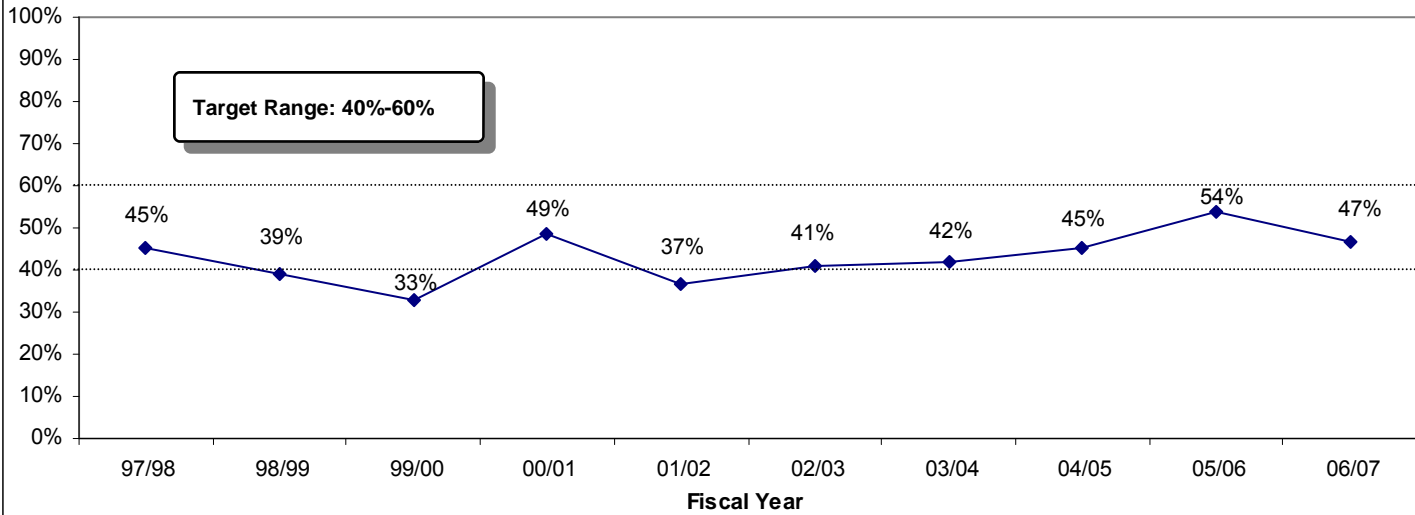
**Q2: Value Added Recommendations
Annual Report Fiscal Year 2006/2007**



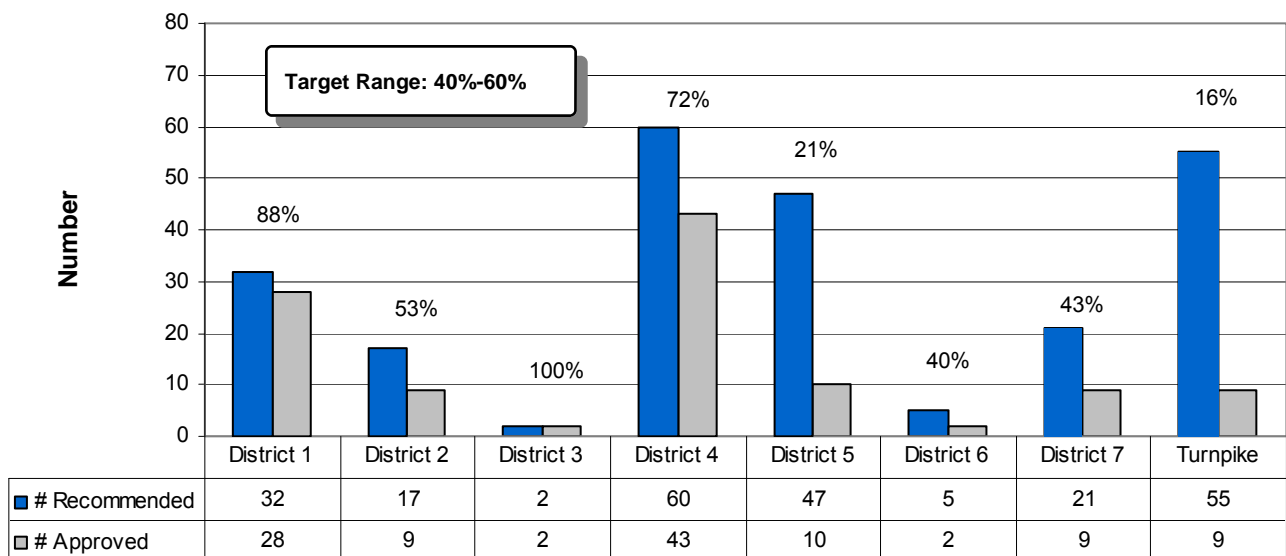
* A Value Added Recommendation significantly increases the performance of a function while also increasing the cost.

Adopted Recommendations

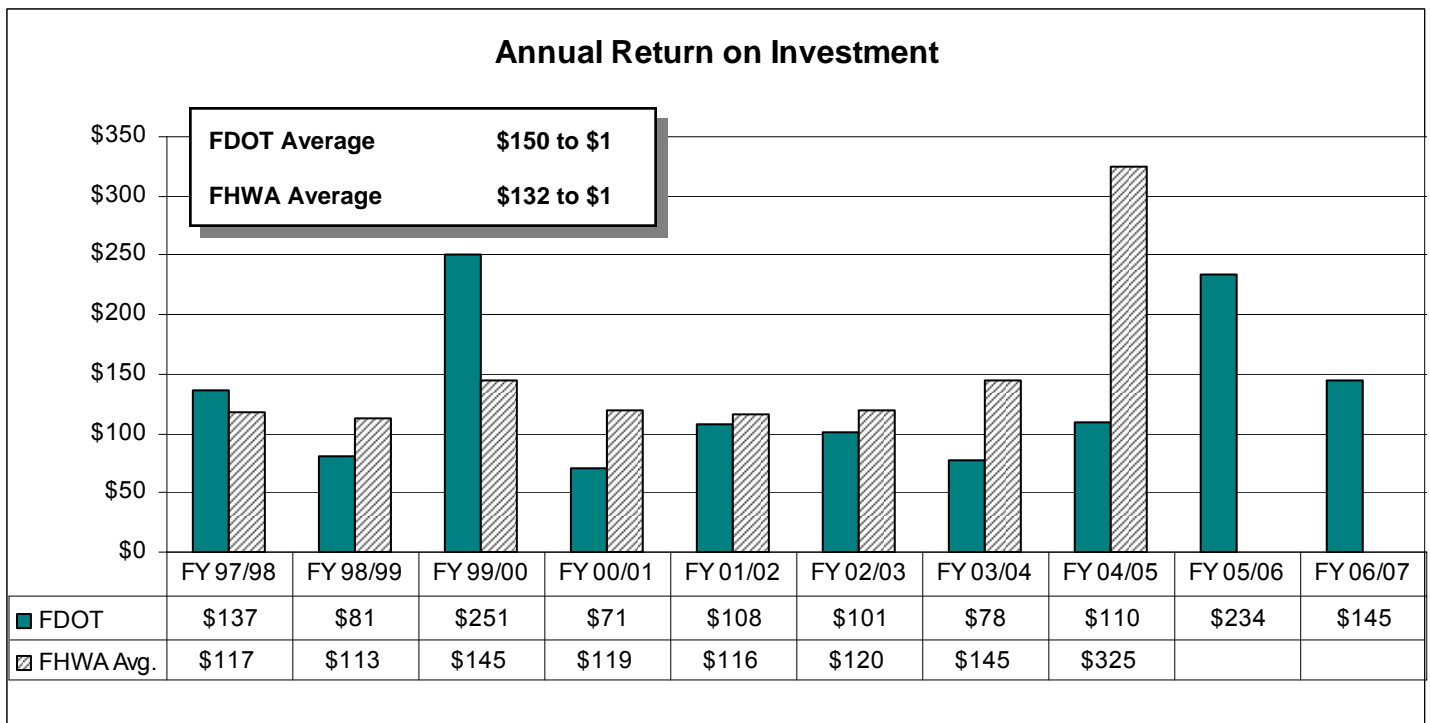
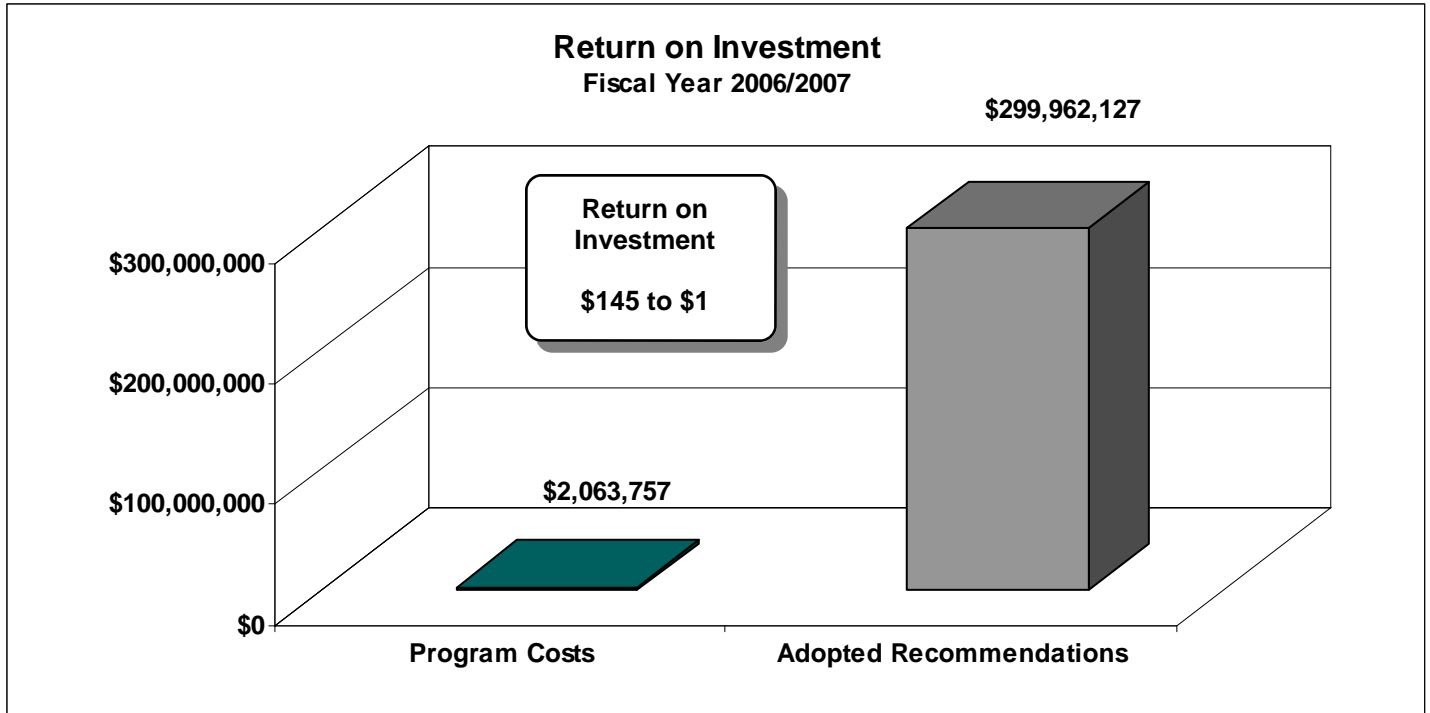
Q5: Annual Adoption Rate



**Adopted Recommendations
Annual Report Fiscal Year 2006/2007**



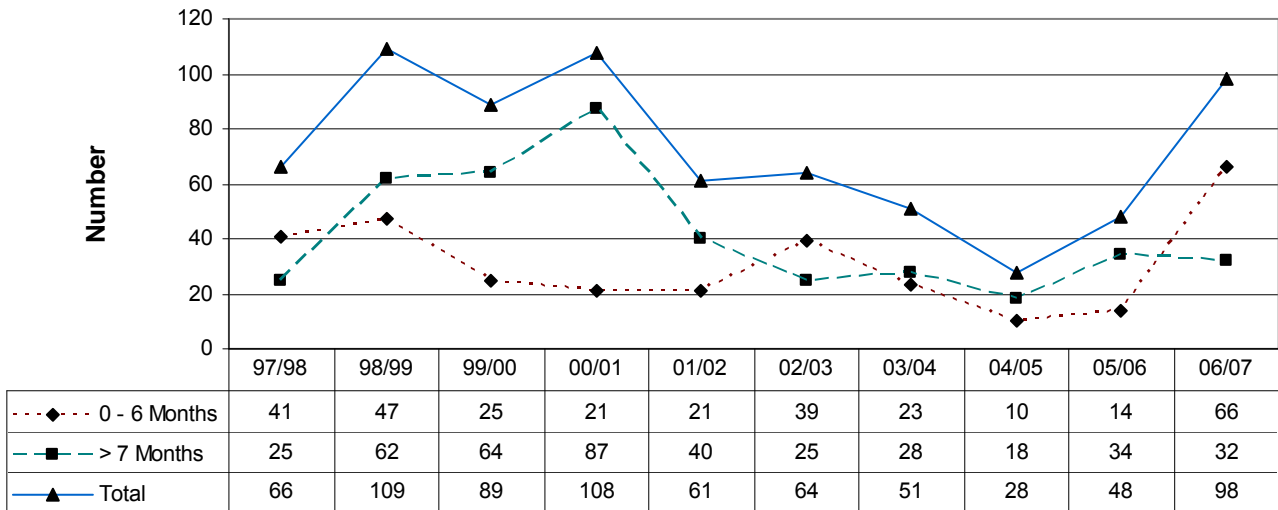
Return on Investment



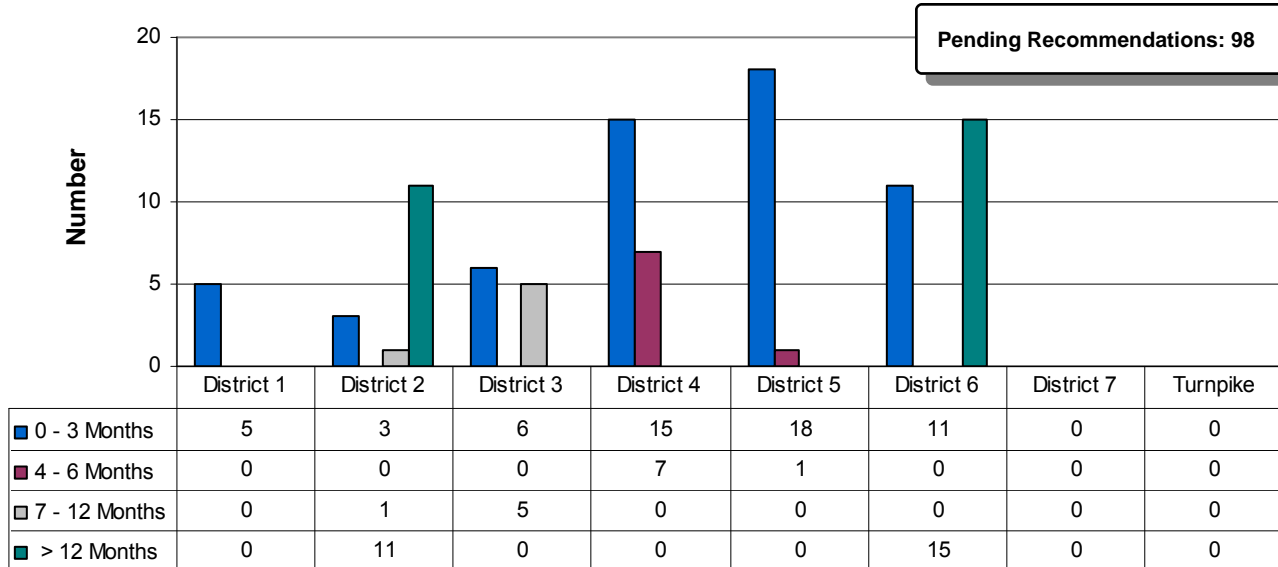
* FHWA data for fiscal years 2005/2006 or 2006/2007 were not available at time of publication.

Pending Recommendations

P4: Annual # Pending Recommendations
Annual Report Fiscal Year 2006/2007

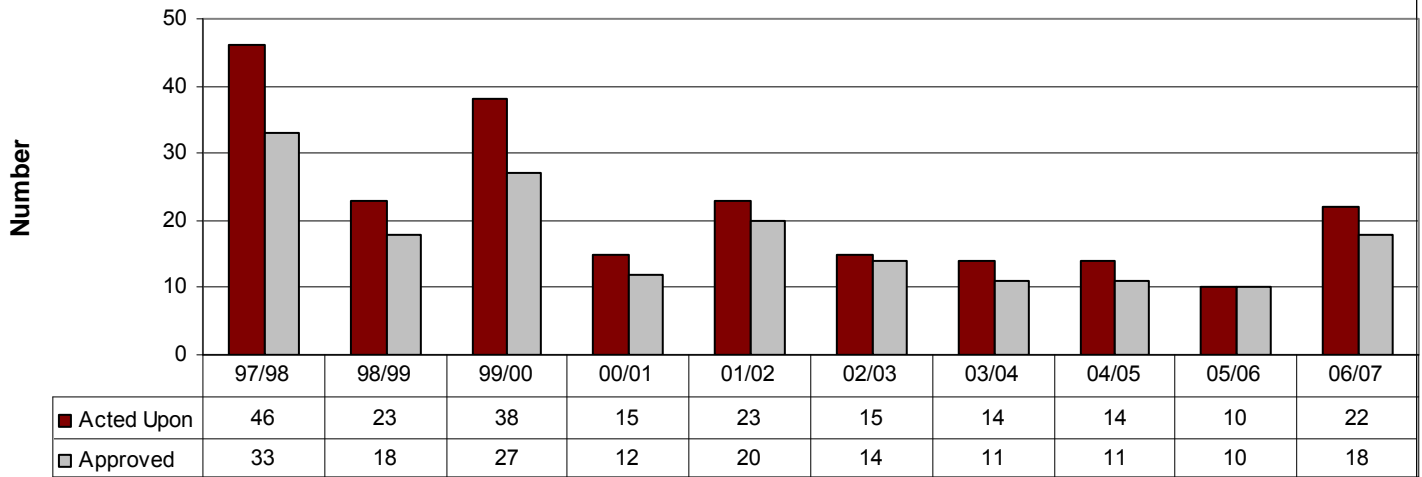


P4: # Pending Recommendations
Annual Report Fiscal Year 2006/2007

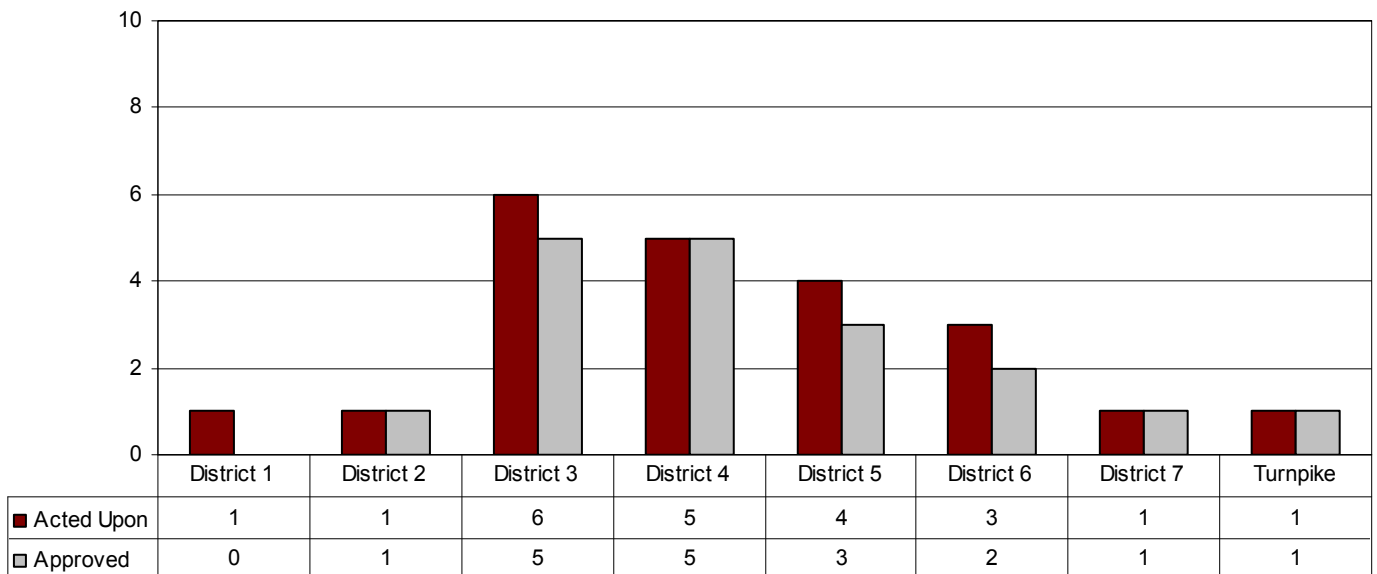


VECP Summary

Annual VECP's Acted Upon

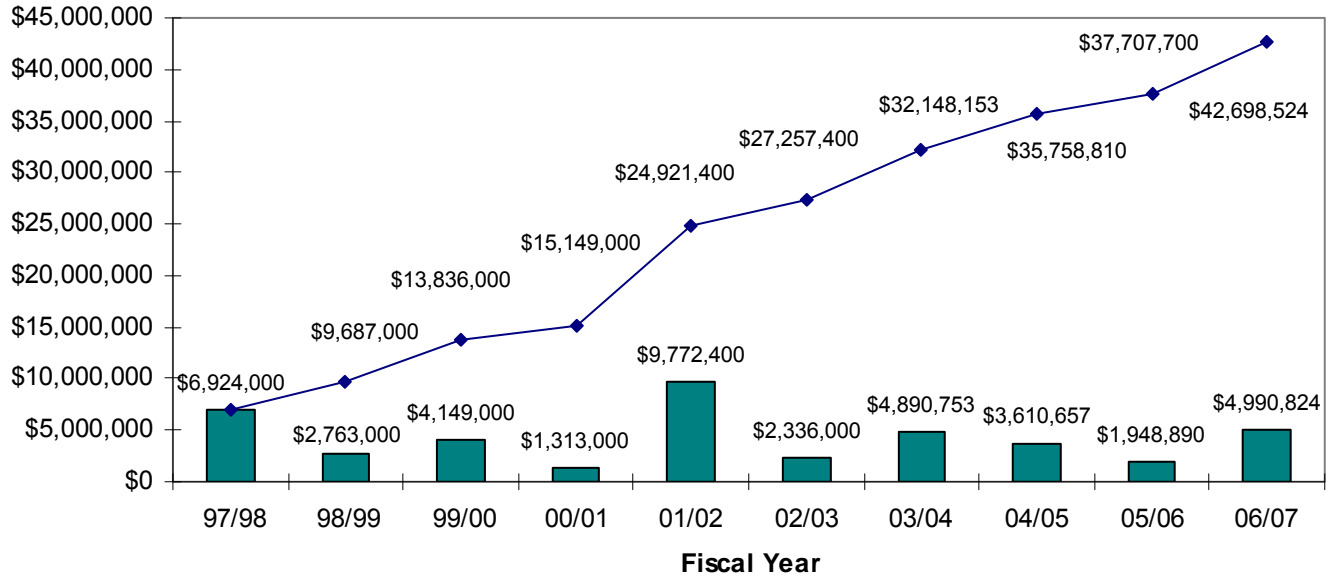


VECP's Acted Upon Annual Report Fiscal Year 2006/2007

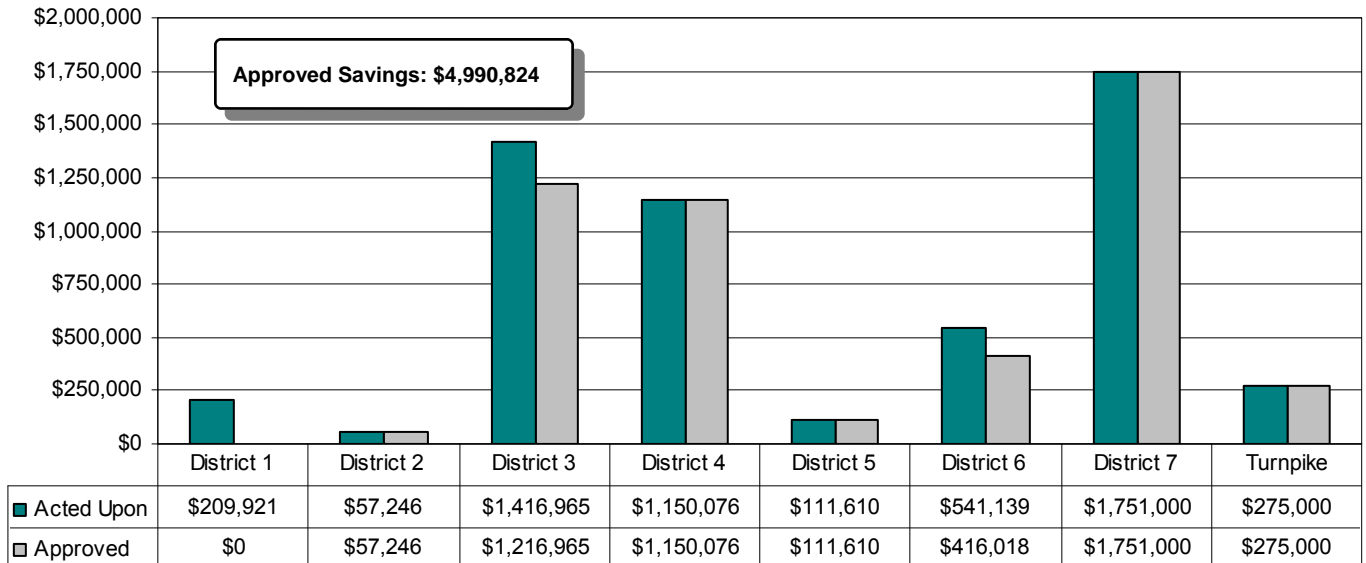


VECP Approved Savings

Cumulative VECP Construction Cost Savings



Approved VECP Savings Annual Report Fiscal Year 2006/2007



Program Accomplishments

- More Than \$2 billion of implemented Cost Avoidance Recommendations over the past ten fiscal years.
- Received a 2007 Davis Productivity Award for Leadership of the VE program.
- Received a 2007 Davis Productivity Award for the VE study conducted by District 3 on the US-98 Okaloosa Island project.
- Received the National Value Engineering Award for the “Most Value Added Proposal for projects less than \$25 million” on the District 3 US-98 Okaloosa Island VE study.
- Received a 2006 Davis Productivity Award for VE studies conducted by District 4 on the I-595 corridor.
- Received the National Engineering Award for the “Most Value Added Proposal During Project Delivery” at the 2005 AASHTO Value Engineering Conference, for VE studies conducted by District 4 on the I-595 corridor.
- Received “2003 Value Engineering Outstanding Achievement Award” from Federal Highway Administration.
- Received the National Value Engineering Award for the “Most Innovative Proposal During Construction” at the 2003 AASHTO Value Engineering Conference, for a VECP submitted on SR 60A from Agricola Road to Broadway Avenue, Polk County.
- The “Turnpike Interchange Improvements at Commercial Boulevard” study received Honorable Mention for the “Most Value Added During Proposal During Engineering” at the 2003 AASHTO Value Engineering Conference.
- The “SR 25 from Boggy Marsh Road to SR 50 WB Ramps” study received Honorable Mention for the “Most Value Added During Proposal During Engineering” at the 2003 AASHTO Value Engineering Conference.



Program Accomplishments

- Received “Outstanding Accomplishment in Construction Award” from SAVE International in 2003.
- Received the National Engineering Award for the “Most Cost Effective Proposal During Construction” at the 2001 AASHTO Value Engineering Conference, for a VECP submitted on the Re-construction of SR 600, in Volusia County.
- Received “State Government Presidential Citation for Value Engineering Leadership Excellence” at the 2001 SAVE International Conference. Awarded for the highest implemented Department of Transportation savings in the nation for FY 1999/2000.
- District 4 SR7 Value Engineering Team received the 2000 AASHTO Standing Committee on Quality “Exemplary Partner Award” for their teamwork during the Design phase of the project.
- Received “1999 Value Engineering Outstanding Achievement Award” from Federal Highway Administration.
- Received the National Value Engineering Award for the “Most Cost Innovative Proposal During Construction” at the 1999 AASHTO Value Engineering Conference, for a Value Engineering Change Proposal (VECP) submitted on the Evans Cray Bridge in Martin County.
- The “Advanced Utility Relocation Study” received Honorable Mention for the “Most Cost Effective Proposal During Process Improvement” at the 1999 AASHTO Value Engineering Conference.

Sample VE Studies

District 1 — I-75/SR-80 Interchange, Lee County

This project involved improvements to the I-75/SR 80 interchange in Lee County, Florida. The project was designed for the interim 6-lane configuration on I-75 (six travel lanes and two auxiliary lanes) and a nine-lane typical section on SR 80 (six through lanes and three left turns). The total replacement of the I-75 bridges was deemed as too expensive, so the proposed design replaced the existing I-75 sloped bridge abutments with vertical abutments and separated the SR-80 outside through movements from the remaining SR-80 through movements with the existing piers. The I-75 existing bridges remained.

The multi-disciplined team, consisting of FDOT personnel and consultants, included members design, structures, drainage, traffic operations, construction and maintenance. The concept developed by the VE team was a compromise between total replacement of the I-75 bridges and the proposed design to leave the existing I-75 bridges and change the bridge abutments. The VE team recommended lengthening one span of each bridge, keeping the through movements under either the main span or the new lengthened span, and providing room for not just one, but three new turn lanes under the center span. Replacing only one span during the interim project provides for both the interim and ultimate turning movements under the bridge, and will require no further structural modification for the ultimate project. The additional cost of replacing the end spans on both bridges will be offset by the savings of not having to build the special vertical abutments. The team found additional savings by utilizing the existing lighting as well as recommending more storm water treatment and attenuation along the mainline right of way. They also recommended taking advantage of the tidal nature of the Caloosahatchee River by requesting permission to release the storm water unattenuated.

By using the Value Engineering process as a tool to help improve the project, District 1 was able to develop a project that resulted in a much safer and efficient product for both the interim improvement and the ultimate project.

Sample VE Studies

District 4— I-95, Palm Beach County

District Four has developed a unique approach to the value engineering of large corridor projects. These large projects differ from normal projects because of their complexity, size and integration with other projects. The value engineering effort encompasses several workshop sessions rather than the normal one week effort. A value engineering schedule is established for the different workshop sessions to ensure that the effort is integrated into the Project Development and Environmental (PD&E) phase. The value engineering sessions are established according to the key milestones of the project. Also different from a normal value engineering study is that the design team is a part of the value engineering team. During each session the value engineering team identifies alternatives that are later developed by the design team prior to the next session.

The I-95 corridor, as with most major projects, has a master plan that identified Locally Preferred Alternatives (LPA) for the corridor. The I-95 project is proceeding through the PD&E phase as two separate design team contracts. One contract is from Palmetto Park Road to South of Linton Boulevard in Palm Beach County, Florida and the other is from Commercial Boulevard to Palmetto Park Road in Broward County, Florida. The corridor value engineering process is used to refine the concepts and alternatives for the project and to gain early consensus on the project functions.

The goals of the District Four corridor value engineering process is to maintain consistency with the LPA, minimize overall project impacts, maintain the project schedule and develop a project that can be implemented. The District Four VE philosophy quantifies building quality into projects. By using this unique approach, the District was able to reduce the costs of this corridor project by \$34 million. This team was recognized as the District 4 Value Engineering Team of the Year.

Sample VECP's

District 7—I-75, Pasco County

A VECP was submitted in District 7 on a project to install guardrail in the median along a section of I-75 from north of SR 52 to north of CR 577 in Pasco County. The original design places a new double faced guardrail at 12 feet from the inside edge of pavement on one side of I-75, and adds shoulder pavement to fill in the remaining 8 to 9 feet between the base of the guardrail and the edge of the paved shoulder. The contractor submitted a VECP to install the double faced guardrail 16 feet from the edge of pavement and eliminate the added should pavement. The acceptance of this VECP resulted in a project savings of nearly \$1.7 million.

District 3 — I-10, Leon County

District 3 was the source of a unique VECP that involved coordination of three contractors on three separate projects. The three projects involve the widening of I-10 in Leon County and all three contracts included use of Road Rangers Service Patrols to help keep the construction zone free of disabled or stranded motorists. The VECP proposed by one contractor and agreed to by the other 2 contractors was to eliminate the Road Ranger Service from 2 of the contracts and provide the full service from a single contract. The acceptance of this VECP eliminated the inefficiencies of three separate services and allowed the Department to realize a savings of more than \$675,000.

Turnpike — Turnpike Mainline, Broward County

The widening of the Turnpike mainline in Broward County was the source of a VECP. The original design called for the installation of 10' x 4' concrete box culverts. The contractor submitted a VECP proposing to install dual 66" 10 gauge steel pipes in lieu of the concrete box culverts. After an extensive review and several modifications the VECP was accepted, resulting in a project savings of \$275,000.