Value Engineering Annual Report FY 2005/2006

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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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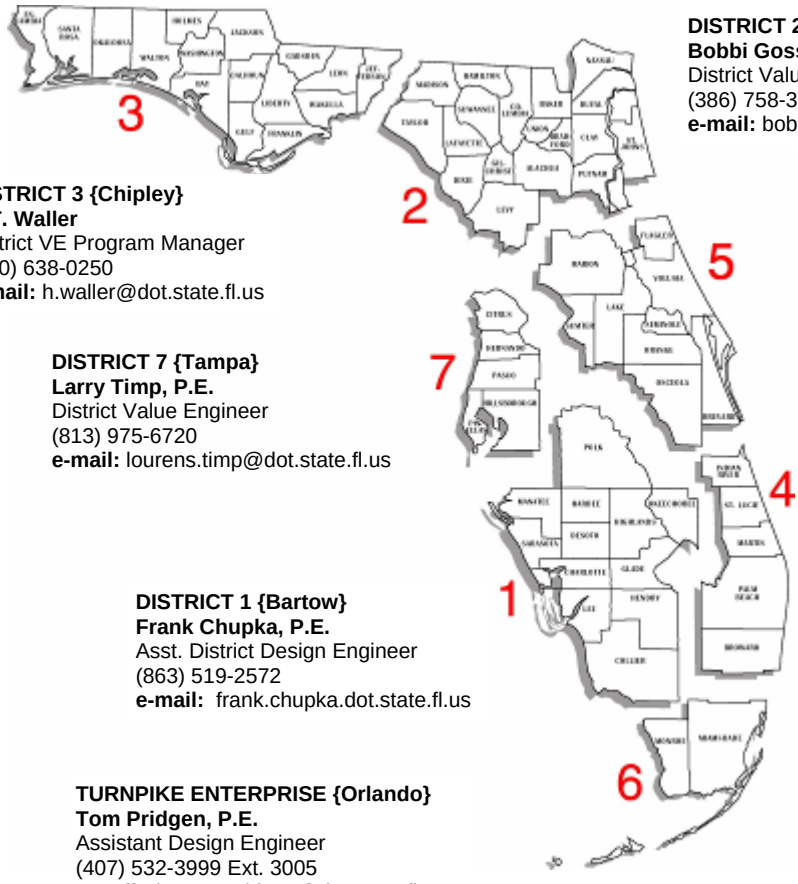

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Executive Summary

VE During Project Development

The effort put forth in value engineering by Department management and employees over the past twelve years has produced over $2.2 billion in implemented cost avoidance. 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 2005/2006.

The Districts completed 40 studies or 77% of the original scheduled work plan during this fiscal year. The original work plan had 52 studies scheduled for the year and the target was to complete 75% or 39 of the planned studies. Due to the dynamics of the Department's work program, 13 of the 52 scheduled studies (25%) were either rescheduled for next fiscal year or dropped from the work plan altogether, while eleven (8%) of the completed studies were added to the original work plan.

During this same period, the Districts acted on 136 recommendations, approving 73 for a 54% adoption rate. Sixty-six of the approved 73 recommendations resulted in $486.2 million in project cost avoidance/savings. The remaining seven approved recommendations were value added recommendations that increased project performance, while adding $1.9 million to the project cost. Therefore, the total value of the approved recommendations, including the value added recommendations, produced ***$484.3 million of project cost avoidance/savings.***

There are currently 48 pending recommendations totaling $189.8 million in potential cost avoidance. This is a 71% increase in the number of pending recommendations and a 58% increase in the pending dollars from last fiscal year. The growing concern in these numbers is the that 27 (56%) of the recommendations have been pending for more than 12 months. This is a large increase from FY 2004/2005 when the number of recommendations pending for more then 12 months was 7.

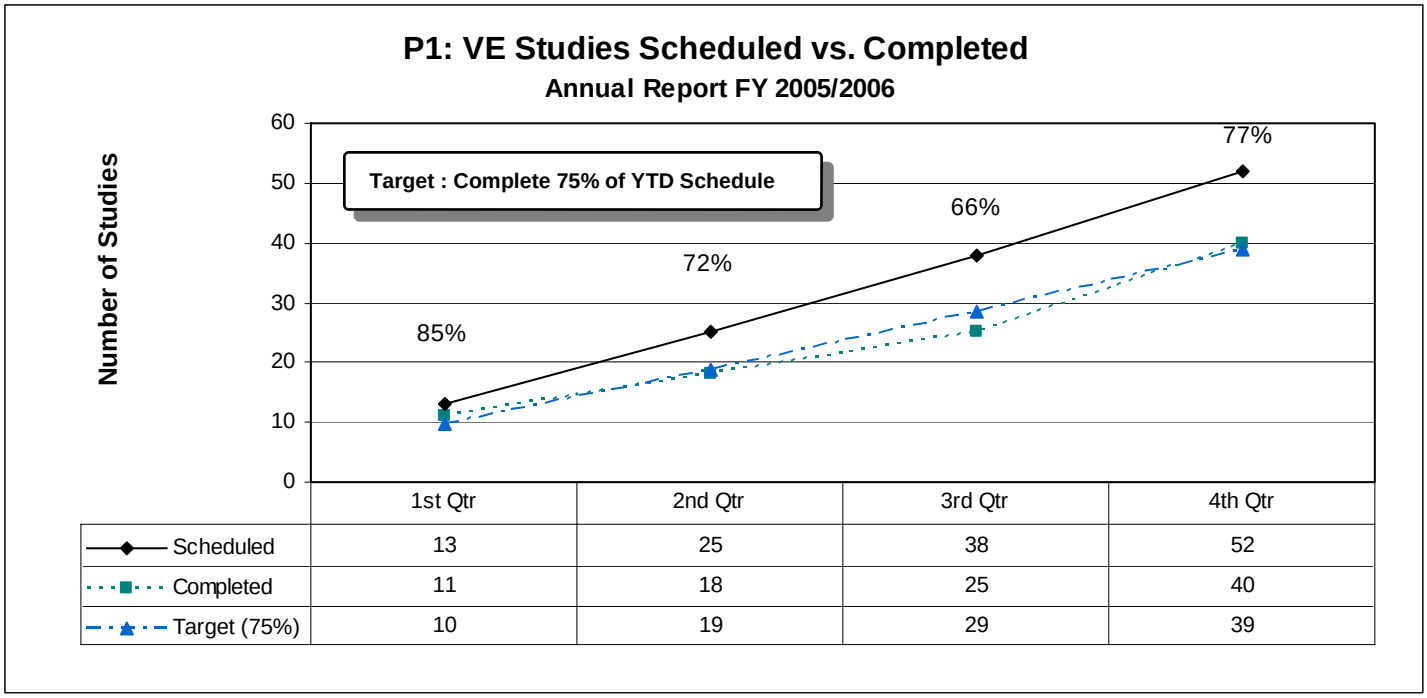
The cost of administering the program was $2.07 million for a Return on Investment (ROI) of $233 to $1.

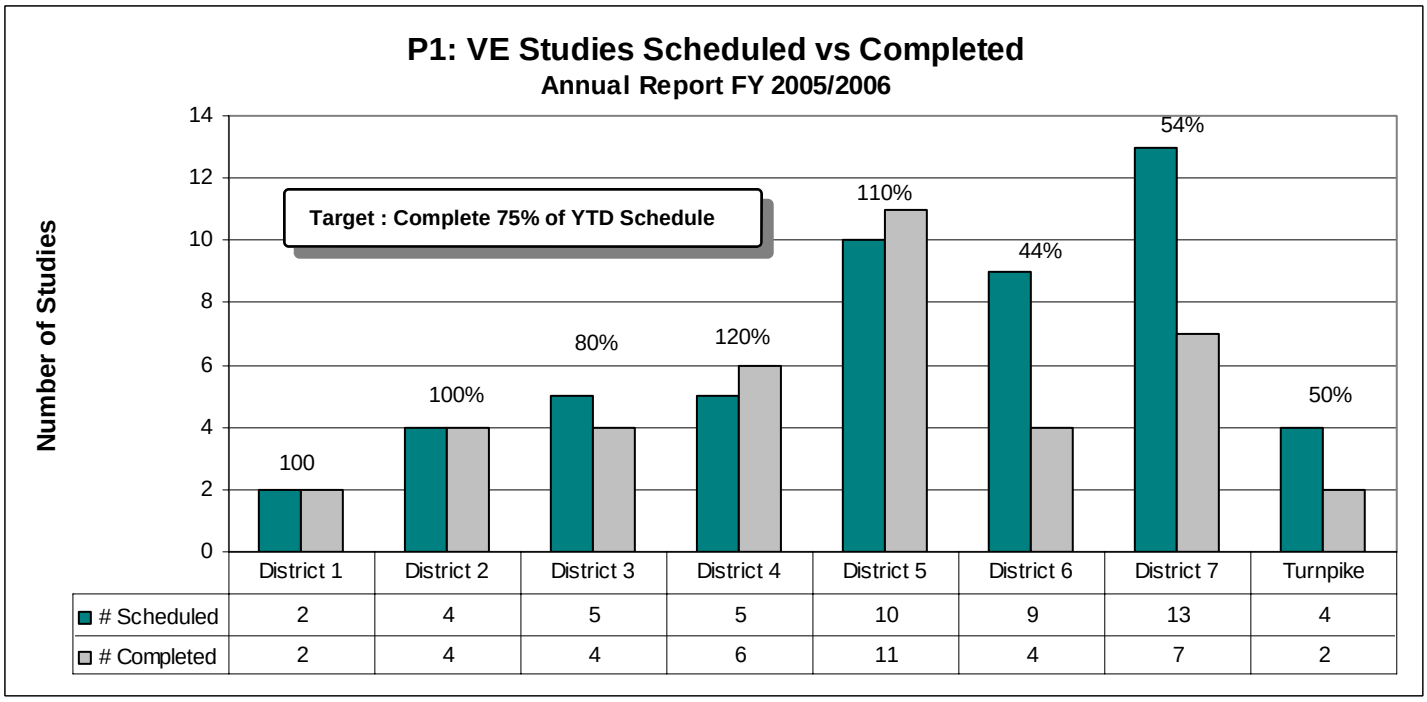
VE During Construction

Eleven Value Engineering Change Proposals (VECP's) were submitted during FY 2005/2006, totaling $1.95 million in potential project savings. During this same period, the districts acted on 10 proposals approving 10. The implemented savings from the 10 approved VECP's was $1.95 million. There are currently two pending VECP's totaling $339,320.

FY 2005/2006 Program Measures

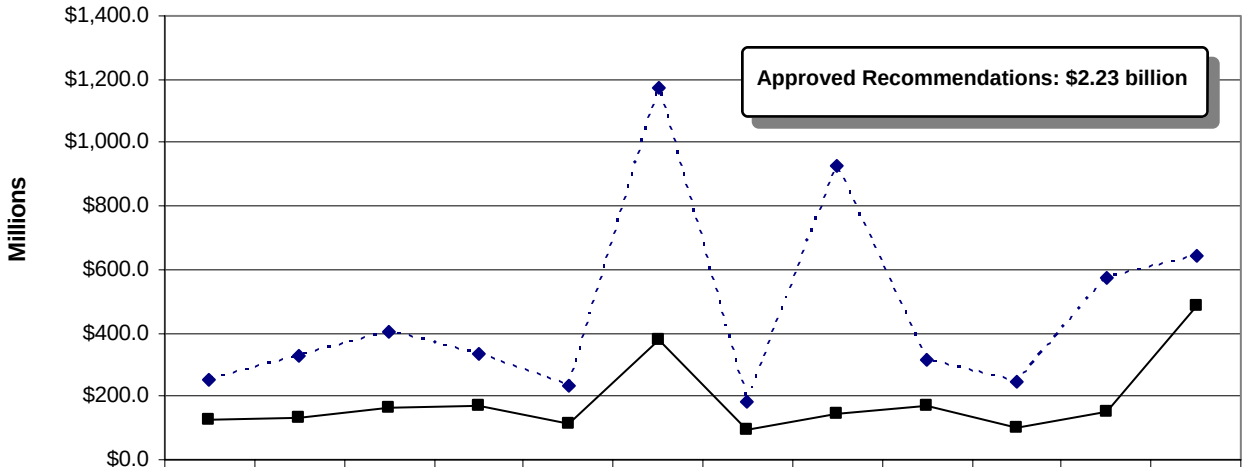
Work Plan Completion





Cost Avoidance/Savings

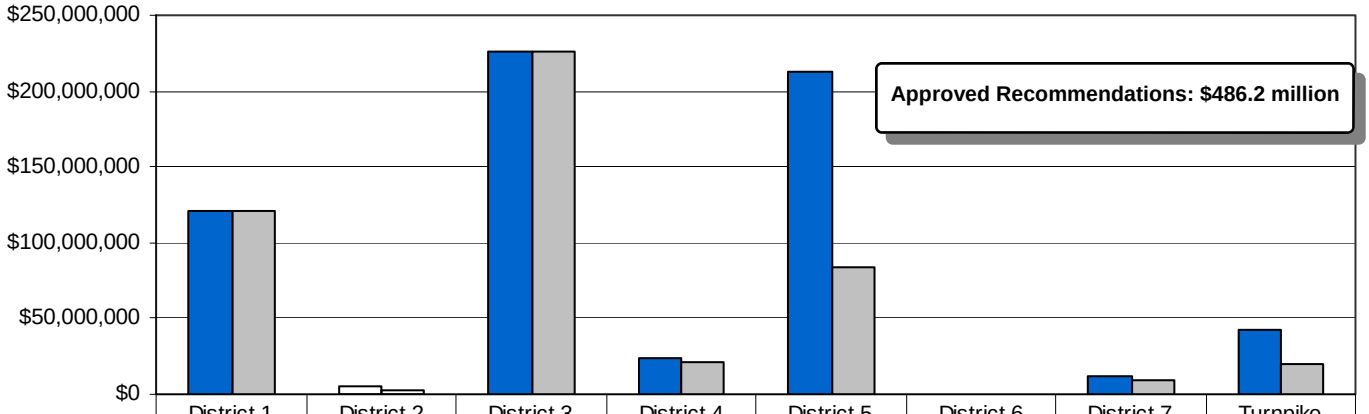
Q1: Annual Approved Cost Avoidance/Savings



	FY 94/95	FY 95/96	FY 96/97	FY 97/98	FY 98/99	FY 99/00	FY 00/01	FY 01/02	FY 02/03	FY 03/04	FY 04/05	FY 05/06
$ Recommended	$251.7	$329.0	$400.7	$333.4	$234.5	$1,173.1	$179.8	$928.2	$313.4	$246.6	$571.9	$643.7
$ Approved	$126.8	$133.5	$165.6	$168.4	$113.6	$376.9	$92.7	$143.3	$168.8	$103.8	$151.6	$486.2

Q1: Cost Avoidance Recommendations

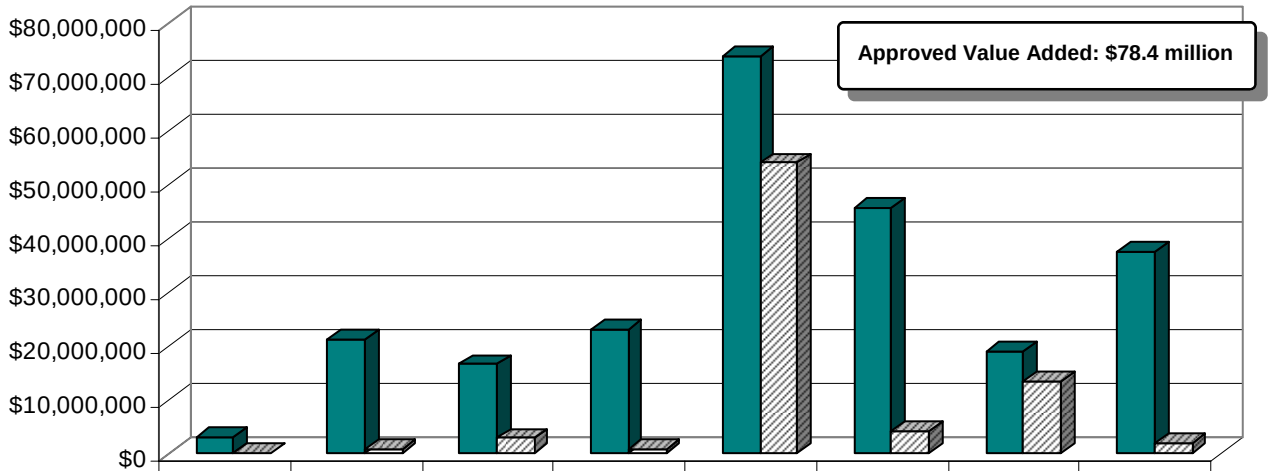
Annual Report Fiscal Year 2005/2006



	District 1	District 2	District 3	District 4	District 5	District 6	District 7	Turnpike
$ Recomended	$121,659,900	$5,411,400	$226,010,100	$23,719,000	$212,332,100	$0	$12,492,600	$42,108,400
$ Approved	$121,659,900	$3,270,800	$226,010,100	$21,419,000	$83,510,800	$0	$9,763,100	$20,522,200

Value Added Recommendations

Q2: Annual Approved Value Added Recommendations

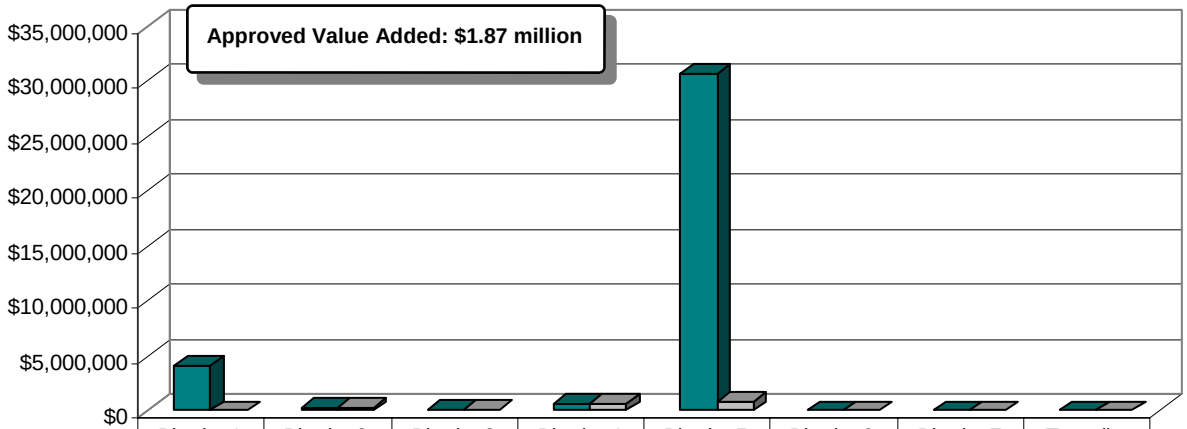


	FY 98/99	FY 99/00	FY 00/01	FY 01/02	FY 02/03	FY 03/04	FY 04/05	FY 05/06
$ Recommended	$3,011,000	$21,129,00	$16,628,00	$23,020,00	$74,018,00	$45,634,00	$18,906,00	$37,733,00
$ Approved	$0	$1,025,000	$2,955,000	$892,000	$54,088,00	$4,148,000	$13,494,00	$1,874,500

Note: Did not track “value added” recommendations prior to FY 98/99

Q2: Value Added Recommendations

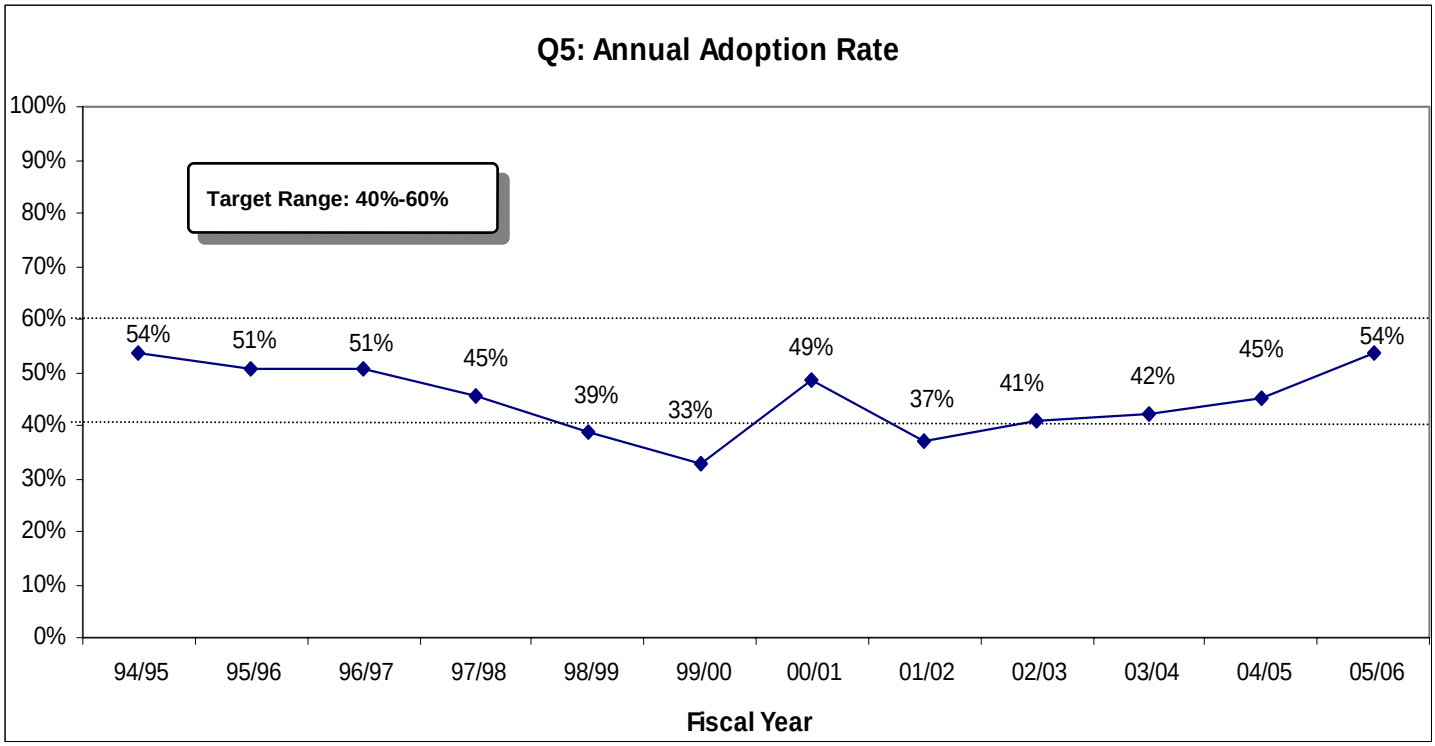
Annual Report Fiscal Year 2005/2006

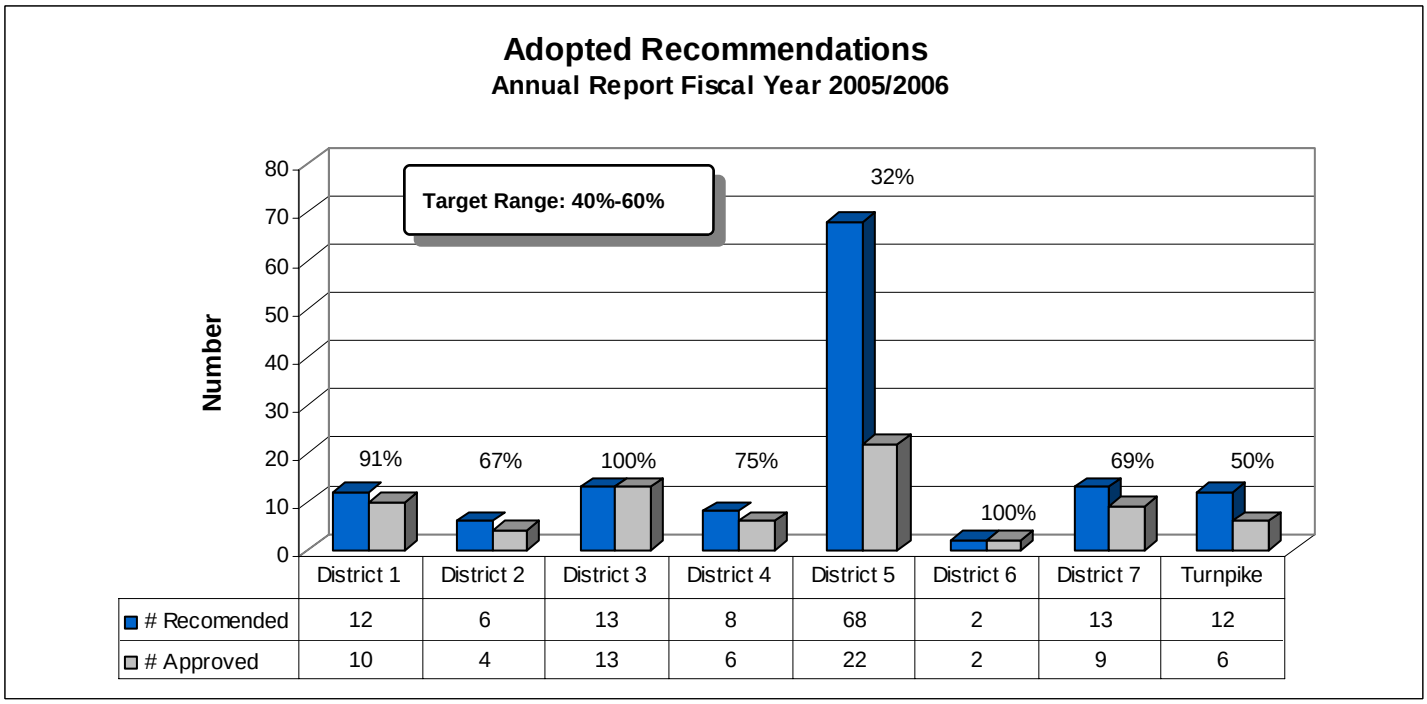


	District 1	District 2	District 3	District 4	District 5	District 6	District 7	Turnpike
$ Recomended	$4,125,100	$282,900	$104,000	$620,000	$30,723,000	$0	$0	$0
$ Approved	$39,600	$282,900	$104,000	$620,000	$828,000	$0	$0	$0

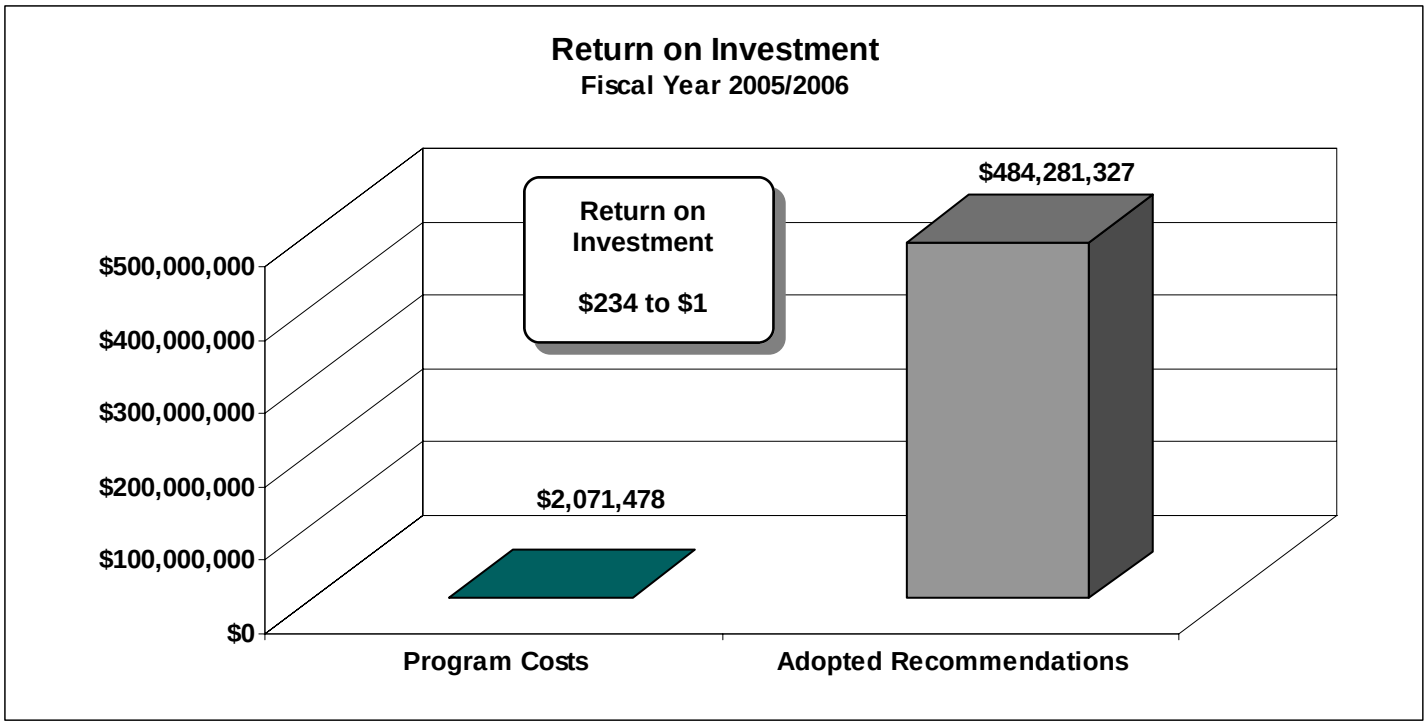
* A Value Added Recommendation significantly increases the performance of a function while also increasing the cost.

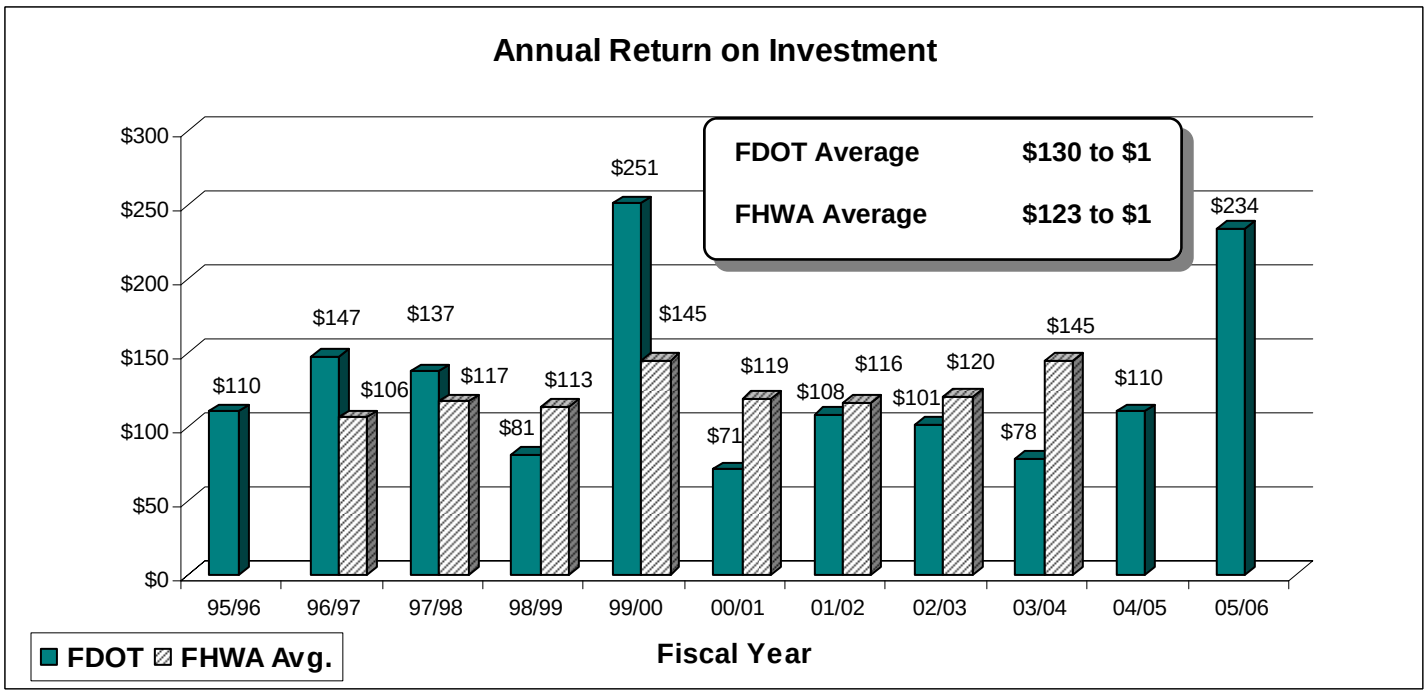
Adopted Recommendations





Return on Investment



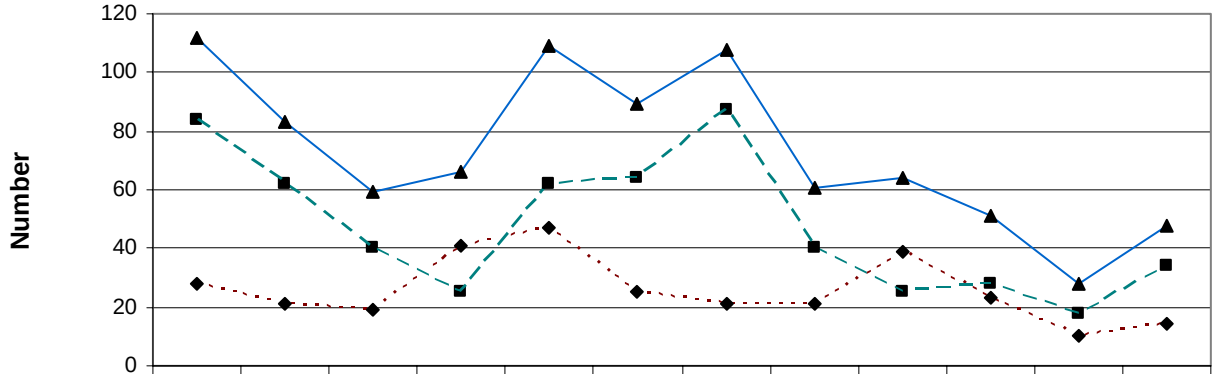


* FHWA data not available for fiscal year 1995/1996.
* FHWA data for fiscal years 2004/2005 or 2005/2006 were not available at time of publication.

Pending Recommendations

P4: Annual # Pending Recommendations

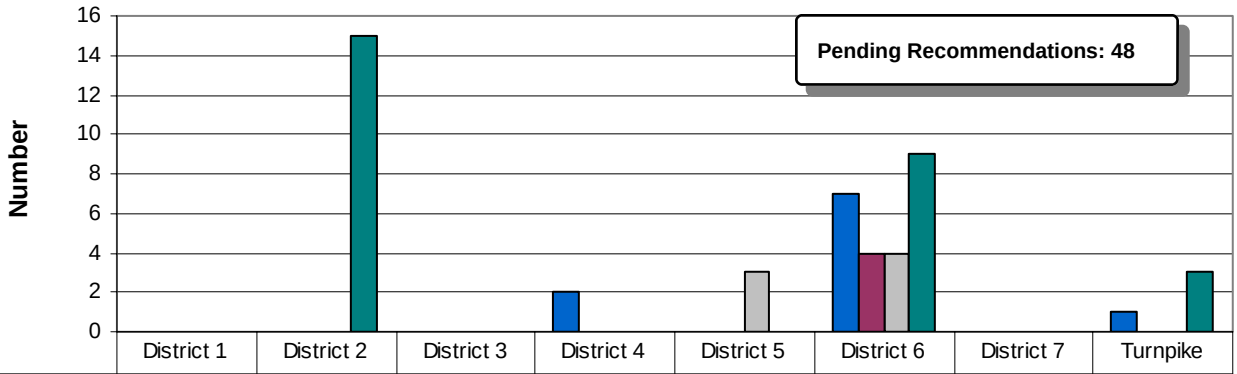
Annual Report Fiscal Year 2005/2006



	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06
0 - 6 Months	28	21	19	41	47	25	21	21	39	23	10	14
> 7 Months	84	62	40	25	62	64	87	40	25	28	18	34
Total	112	83	59	66	109	89	108	61	64	51	28	48

P4: # Pending Recommendations

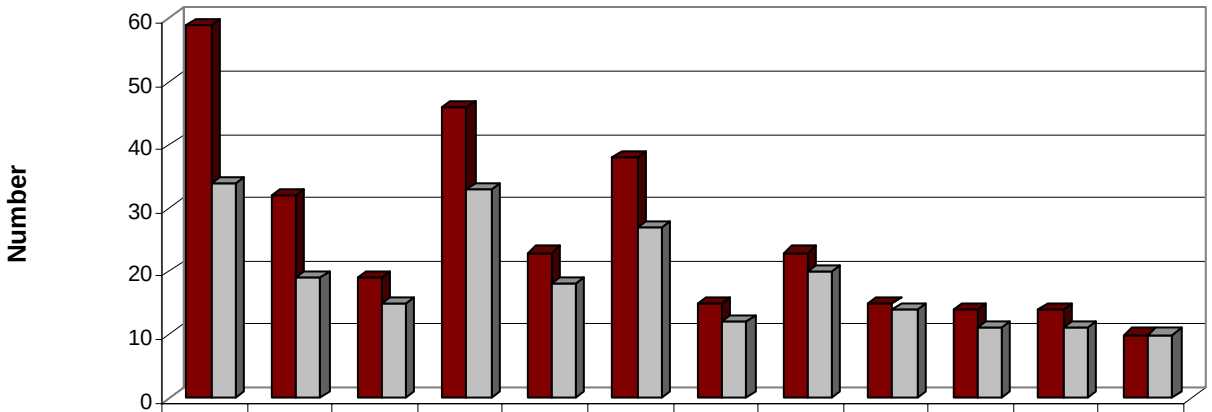
Annual Report Fiscal Year 2005/2006



	District 1	District 2	District 3	District 4	District 5	District 6	District 7	Turnpike
0 - 3 Months	0	0	0	2	0	7	0	1
4 - 6 Months	0	0	0	0	0	4	0	0
7 - 12 Months	0	0	0	0	3	4	0	0
> 12 Months	0	15	0	0	0	9	0	3

VECP Summary

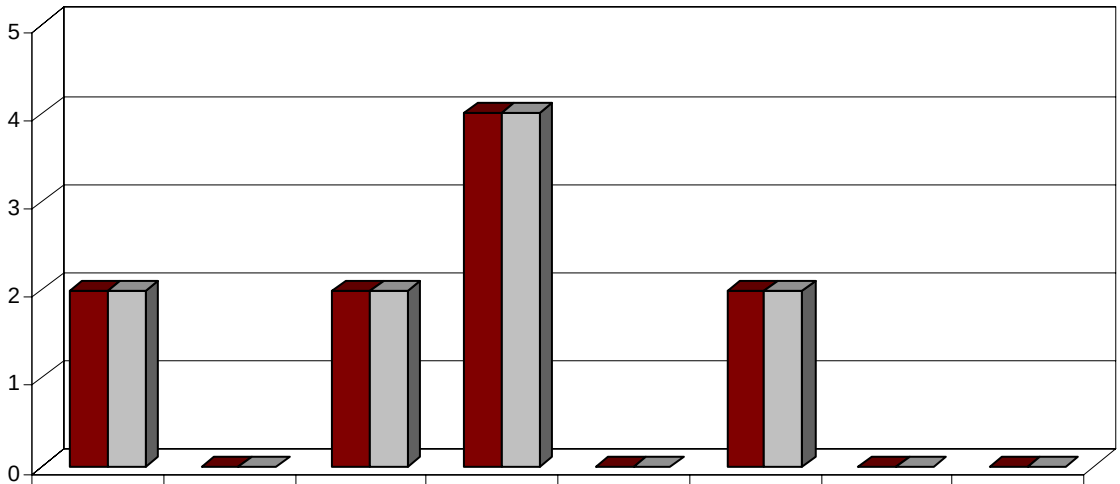
Annual VECP's Acted Upon



	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06
Acted Upon	59	32	19	46	23	38	15	23	15	14	14	10
Approved	34	19	15	33	18	27	12	20	14	11	11	10

VECP's Acted Upon

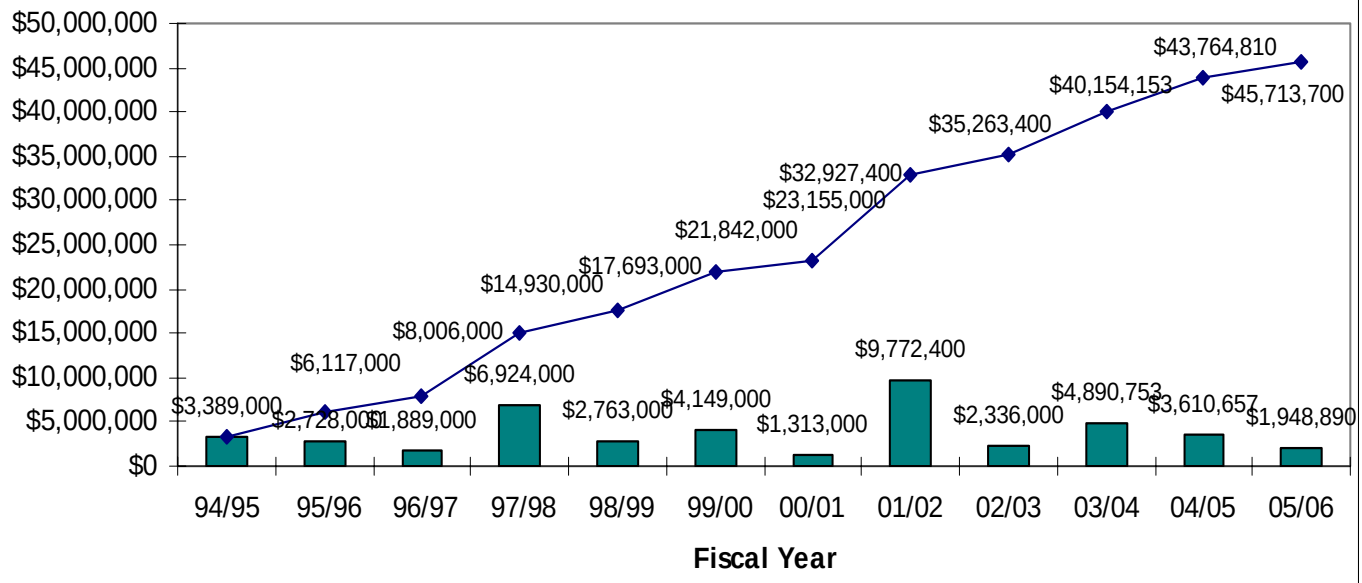
Annual Report Fiscal Year 2005/2006



	District 1	District 2	District 3	District 4	District 5	District 6	District 7	Turnpike
Acted Upon	2	0	2	4	0	2	0	0
Approved	2	0	2	4	0	2	0	0

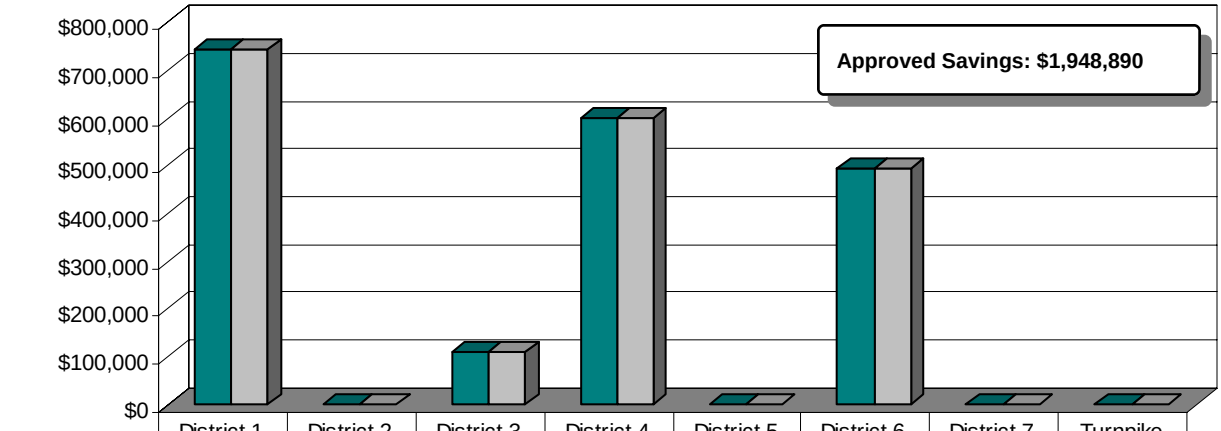
VECP Approved Savings

Cumulative VECP Construction Cost Savings



Approved VECP Savings

Annual Report Fiscal Year 2005/2006



	District 1	District 2	District 3	District 4	District 5	District 6	District 7	Turnpike
Acted Upon	$743,651	$0	$111,099	$599,463	$0	$494,677	$0	$0
Approved	$743,651	$0	$111,099	$599,463	$0	$494,677	$0	$0

Program Accomplishments

- More Than $2.2 billion of implemented Cost Avoidance Recommendations over the past twelve fiscal years.

- 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 Crary 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.

FY 2005/2006 Sample Projects

District 3 – US 98, Okaloosa County

US 98 on Okaloosa Island has been damaged by storm surge from at least five tropical events in the last ten years resulting in more than $16 million dollars in repair work. The purpose of this project was to provide additional protective features to reduce the potential for future damage from similar storm events. The District wanted the additional protection in place prior to the next storm season, which required the project to be designed and constructed in less than 1 year. The proposed design involves the construction of a concrete sheet pile wall & associated bulkhead at the edge of pavement with gabion mat armoring in the median and on the south side of US 98. The sheet pile wall was located based on past storm events & the roadway profile elevations. The total cost of the project was estimated at $20.6 million of which approximately 80% was associated with the construction of the concrete sheet pile. The multi-disciplined team included members from design, drainage, environmental management, structures, geo-tech, construction, maintenance and a specialist in coastal engineering.

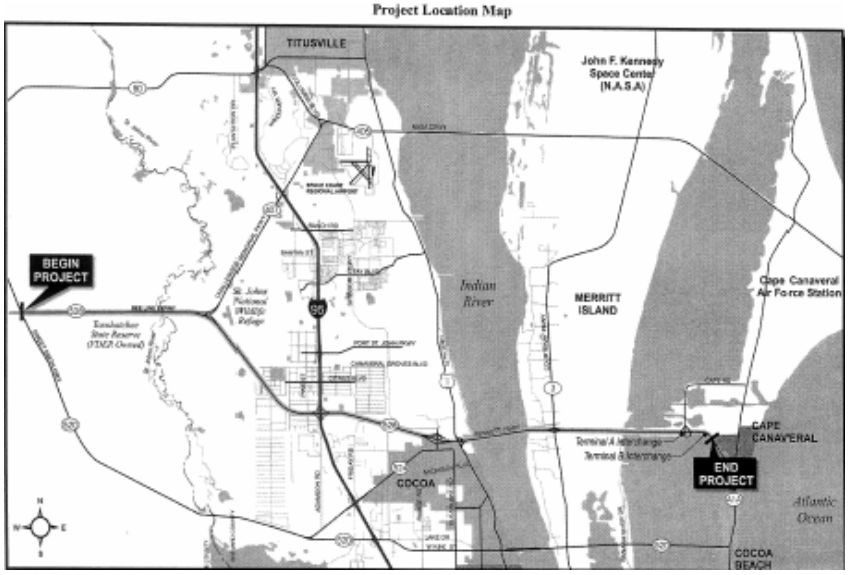
The recommendation developed by the team and accepted by management was to use a composite sheet pile system with the gabion mat armoring in lieu of the proposed concrete sheet pile. The advantages of the composite sheet pile over the concrete sheet pile were speed of construction and price. The composite sheet pile can be installed at a rate of approximately 80 feet per day as opposed to the concrete sheet pile which is installed at a rate of approximately 25 feet per day. By using VE as a tool to help improve the project, District 3 was able to reduce the project costs by $8.3 million or 40% and also reduce construction time by 50%. This team was recognized as the District 3 Value Engineering Team of the Year.

FY 2005/2006 Sample Projects

District 5 – SR 528, Brevard County

A Value Engineering Study was performed during the Project Development & Environmental (PD&E) phase of this project to increase the capacity of SR 528 from SR 520 to Port Canaveral's Terminal B Interchange project. The project consists of approximately 23.5 miles of widening from the existing 4 lane to a 6 lane limited access highway and making interchange geometry improvements. The proposed design also included a proposed bikeway and pedestrian trail along the SR 528 corridor. The total cost of the project was estimated at $541 million , of which $505 million was construction and $36 million was right-of-way (ROW).

The multi-disciplined team included members from design, drainage, structures, traffic operations, right-of-way and utilities. The team developed six recommendations, of which five were accepted by management for more than $69 million in cost avoidance. Two of the approved recommendations made modifications to three of the proposed interchange improvements for a cost avoidance of more than $34 million. Since Florida statute 316 restricts pedestrians and bicyclists on limited access facilities, one of the teams recommendations was to eliminate the proposed bikeway and pedestrian trail within the right-of-way of SR 528 for a cost avoidance of $32 million. The remaining recommendations included widening an existing bridge in lieu of replacement and modifying some pond locations by utilizing the infield areas to eliminate long conveyance to remote pond sites. By using VE early in project development, District 5 was able to reduce the cost of this project by more than 12%. This team was recognized as the District 5 Value Engineering Team of the Year.



FY 2005/2006 Sample Projects

District 1—Lakeland In-town Bypass

This project involves the continuation of the Lakeland In-town Bypass from US 92 to North Florida Avenue. The as-proposed design constructs a four lane divided urban section with a new bridge over the CSX Railroad and three new signalized intersections. The total cost of the project was estimated at $46 million, of which $31 million was construction and $15 million was right-of-way (ROW). Unlike many value engineering studies performed by FDOT, this value engineering study was conducted at 100% plans. This created a difficult task of finding improvement opportunities, while keeping previous commitments made to the locals and getting the project to construction.

The multi-disciplined team, consisting of FDOT personnel and consultants, included team members from design, drainage, structures, construction and maintenance. Three recommendations developed by the VE team were accepted by District Management. One of the recommendations was to reduce the length of a steel plate girder bridge that was proposed to span over the CSX railroad, the former Florida Tile parking lot, and a concrete retention pond. The longer span was necessary in order to avoid major impacts to the private tile plant. The team through investigation discovered that the plant had since closed and was therefore able to justify a significant reduction in the span length of the 575 foot bridge. The accepted VE recommendation proposed a steel plate girder bridge to span over the CSX railroad and that the remaining portion of the bridge that spanned the parking lot and retention pond be replaced with embankment and MSE walls. Another recommendation involved a reconfiguration of the storm sewer system that led to a reduction in the number of inlets, while still meeting all current drainage criteria. The team was also able to offset the recent increase in plant prices by changing the size requirements for the initial plantings, recognizing that smaller plants will grow to the same size at maturity as those originally specified. By District 1 using Value Engineering as a tool to deal with the rising costs of roadway construction, they were able to reduce the costs of this project by more than $8 million and keep this project from being deferred several years. This team was recognized as the District 1 Value Engineering Team of the Year.

FY 2005/2006 Sample VECP

District 1—SR 31, Charlotte County

A VECP was submitted in District 1 on two projects to resurface SR 31 in Charlotte County. The VECP proposed to reduce the amount of existing pipe culvert removed during the upgrade of headwalls by carefully protecting the existing culvert and eliminating the need for the associated barrier wall for Maintenance of Traffic (MOT). The Department had concerns with the elimination of the barrier wall, so after a meeting to discuss the concerns the contractor was able to modify the VECP to meet the satisfaction of the Department. The acceptance of this VECP resulted in an estimated savings of $379, 850.

District 1—SR 684, Manatee County

The addition of turn lanes, sidewalk and resurfacing of SR 684 in Manatee County was the source of a VECP in District 1. The VECP proposed to eliminate the temporary barrier wall and to use flagging to control traffic. The original VECP submitted by the contractor was denied due to a commitment made to the locals on lane closures during construction. A lane closure analysis performed on the original VECP showed that the proposal would cause backups at an unacceptable level. The contractor modified the VECP to satisfy the Department concerns and meet the lane closure commitment made to the locals. The new proposal actually lowers the number of closure days below that of the original contract. The acceptance of this VECP resulted in a project savings of nearly $364,000.