CSVA Conference 2013

Do More with Less

APPLYING VM/VA – SUCCESS STORIES (PAST, PRESENT & THE FUTURE)

Presented By:

Charles R McDuff PE, CVS-Life & Ramesh Kalvakaalva PE, CVS

Neelu Inc.

Civil Services Inc.

Civil Services, Inc.
Consulting Engineers

Outline of Presentation

- Introductions
- VE Overview
- Project Delivery Assurance Model (US Navy)
- Successful VE In Transportation Model (Georgia DOT)
- Wrap-up

VE Overview

- Value Engineering/Analysis/Management – assumed to be somewhat synonymous
- Problem solving methodology
- In distant past got bad name for cutting cost
  - Cheapened Projects
  - Last ditch, non-VE approach, used to cut cost
- Current applications of VE much more effective

Project Delivery Assurance Model

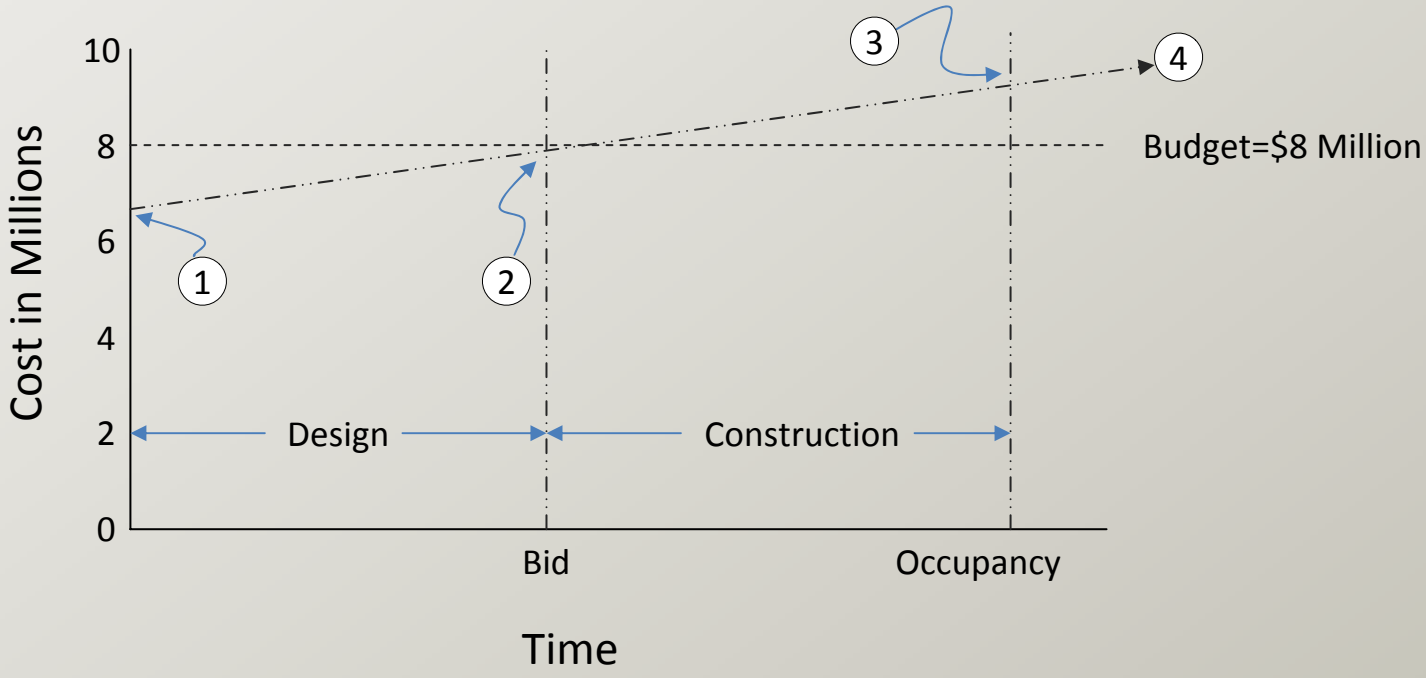
- Tool used to make sure that project comes in on budget
- Takes out and/or reduces the unnecessary cost components
- Focuses on client needs and provides laser sharp tools to use at bidding time to get the very most for the dollars spent

Project Delivery Assurance Model

- Assess budget position
- Identify client needs, wants and must haves
- Reduce cost by at least 15% below budget
- Add “enhancements” to a point that is 10% below budget
- Develop bid options that total approximately 5% of budget
- Leave 5% for cost growth through project duration

“Normal” Case with No VE

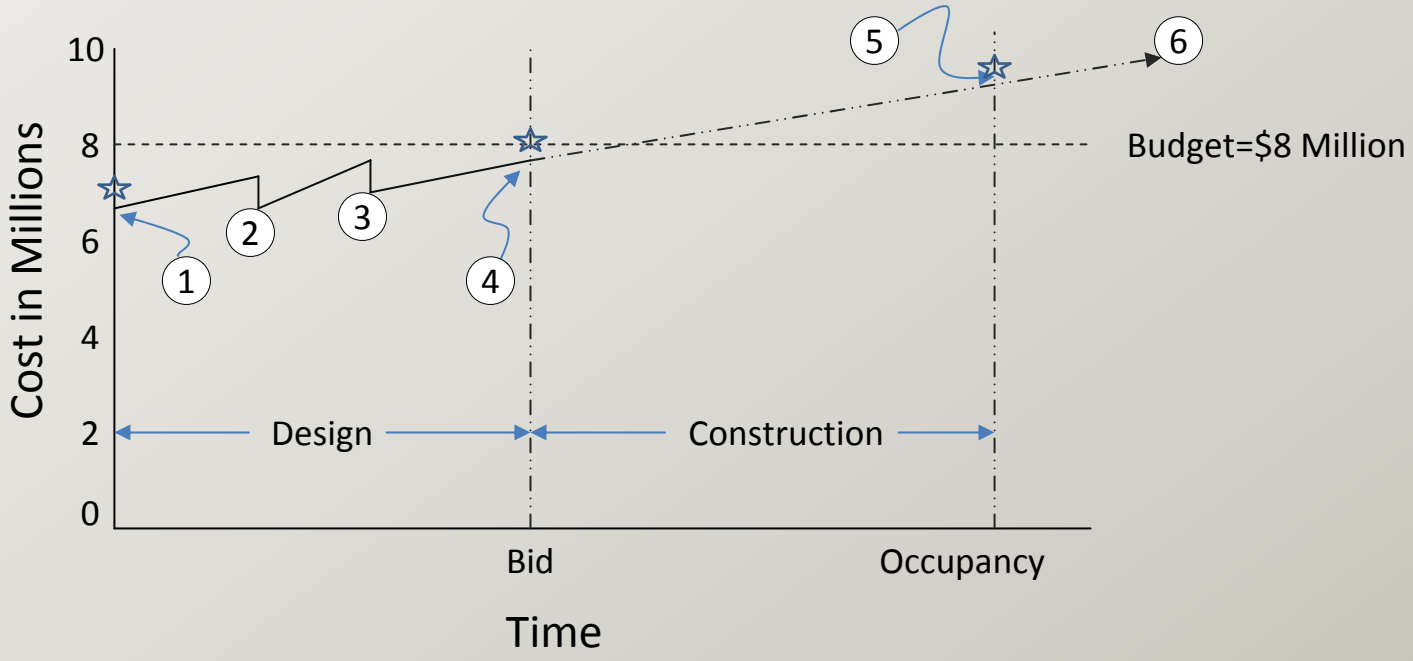
- ***Budget = $8 Million***
- ***Client has an additional $1 Million in Reserve***



1. Design Estimate (Start) = $7. 0 Million
2. Bid Accepted = $7.8 Million
3. Final Construction Cost = $8.9 Million
4. Normal Life Cycle Cost

“Normal” Case With VE

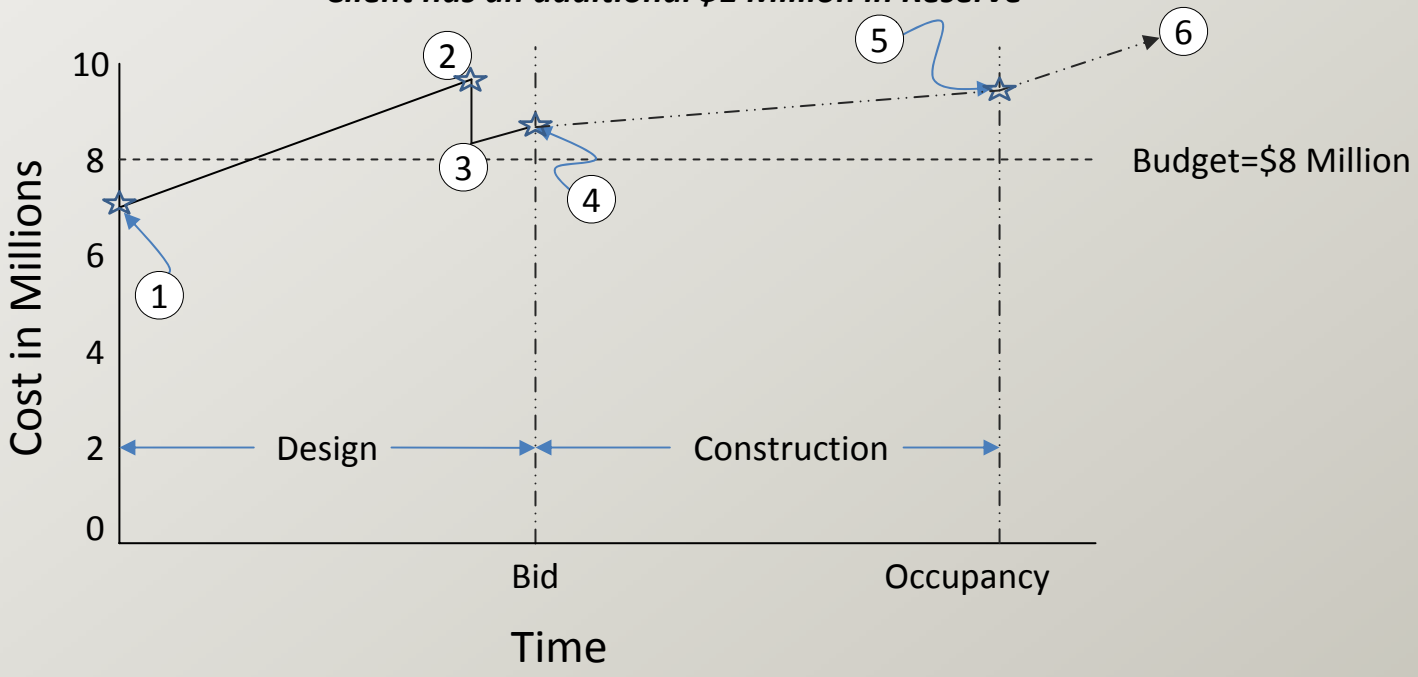
- ***Budget = $8 Million***
- ***Client has an additional $1 Million in Reserve***



1. Design Estimate (Start) = $7. 0 Million
2. VE at Concept Level Used to pull cost back in line
3. Second VE if Necessary
4. Bid Accepted = $7.8 Million
5. Final Construction Cost = $8.9 Million
6. Normal Life Cycle Cost

Going From Bad to Worse

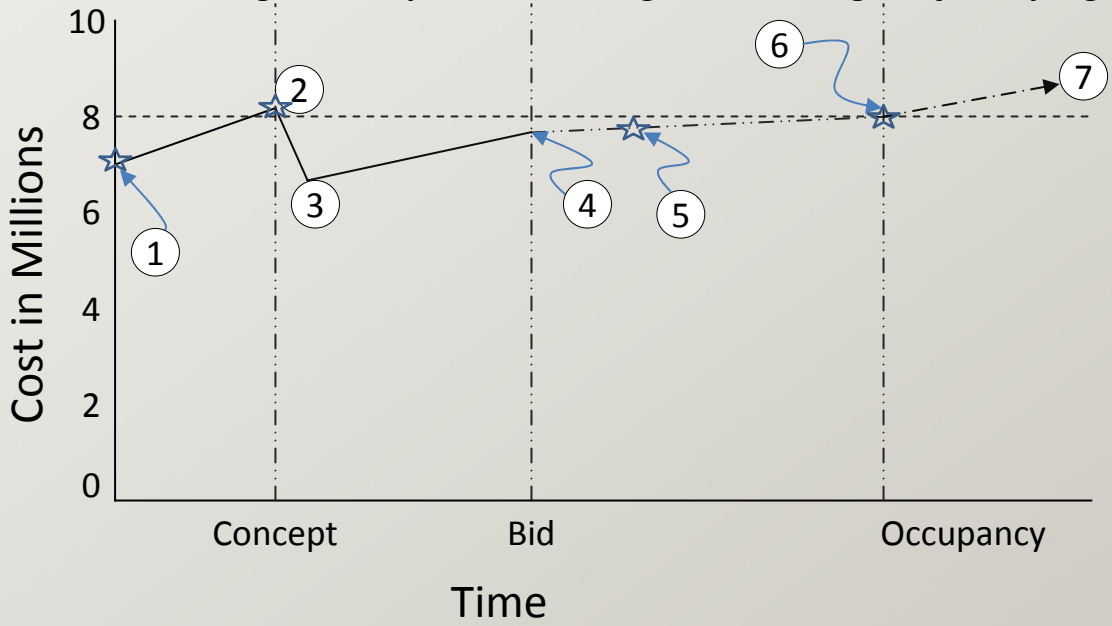
- ***Budget = $8 Million***
- ***Client has an additional $1 Million in Reserve***



1. Design Estimate = $7. 0 Million (Wishful Thinking)
2. Just Before Bidding “Real Estimate”= $9.5 Million
3. Panic- Based Cost Cutting = $8.2 Million
4. Accepted Bid = $8.5 Million
5. Final Construction Cost = $9.5 Million
6. Extraordinarily High Life Cycle Cost

The "Navy Way" with VE

- ***Budget is Firmly Fixed at $8 Million***
- ***Budget Is Based on Carefully Define Scope (Mission, Content, SQ. Footage)***
- ***Running Over Either Budget or Scope Means Going Back to Congress for Reprogramming (Not Acceptable)***



Budget=$8 Million*

*Goal – Get absolute maximum benefit out of dollars spent

1. Bid Estimate = $7. 7 Million
2. Concept Estimate= $8.2 Million
3. Budget / Score Workshop
   - A. Use Formal VE to bring cost within 15% of Budget = $6.8 Million
   - B. Create Ideas to put into project enhancements totaling 5% of budget (Incorporated into design)
   - C. Save 5% of Budget to address cost creep
   - D. Create bid options (5% of Budget) in case bids come in low
4. Accepted Bid = $7.8 Million
5. Practical Partnering and Risk Analysis
6. Final Construction Cost = $8.0 Million
7. Normal Life Cycle Cost

Successful VE Model – GDOT

- Program Management and Monitoring involves a holistic approach for efficiency and efficacy
- The holistic approach actively controls the performance of the program
- Focus is on the interdependent critical elements of:
  - Project selection
  - Study timing and scope
  - Team makeup
  - Recommendation development, Resolution, Implementation and Program Reporting

Successful VE Model – GDOT

GEORGIA DOT's VE Progam

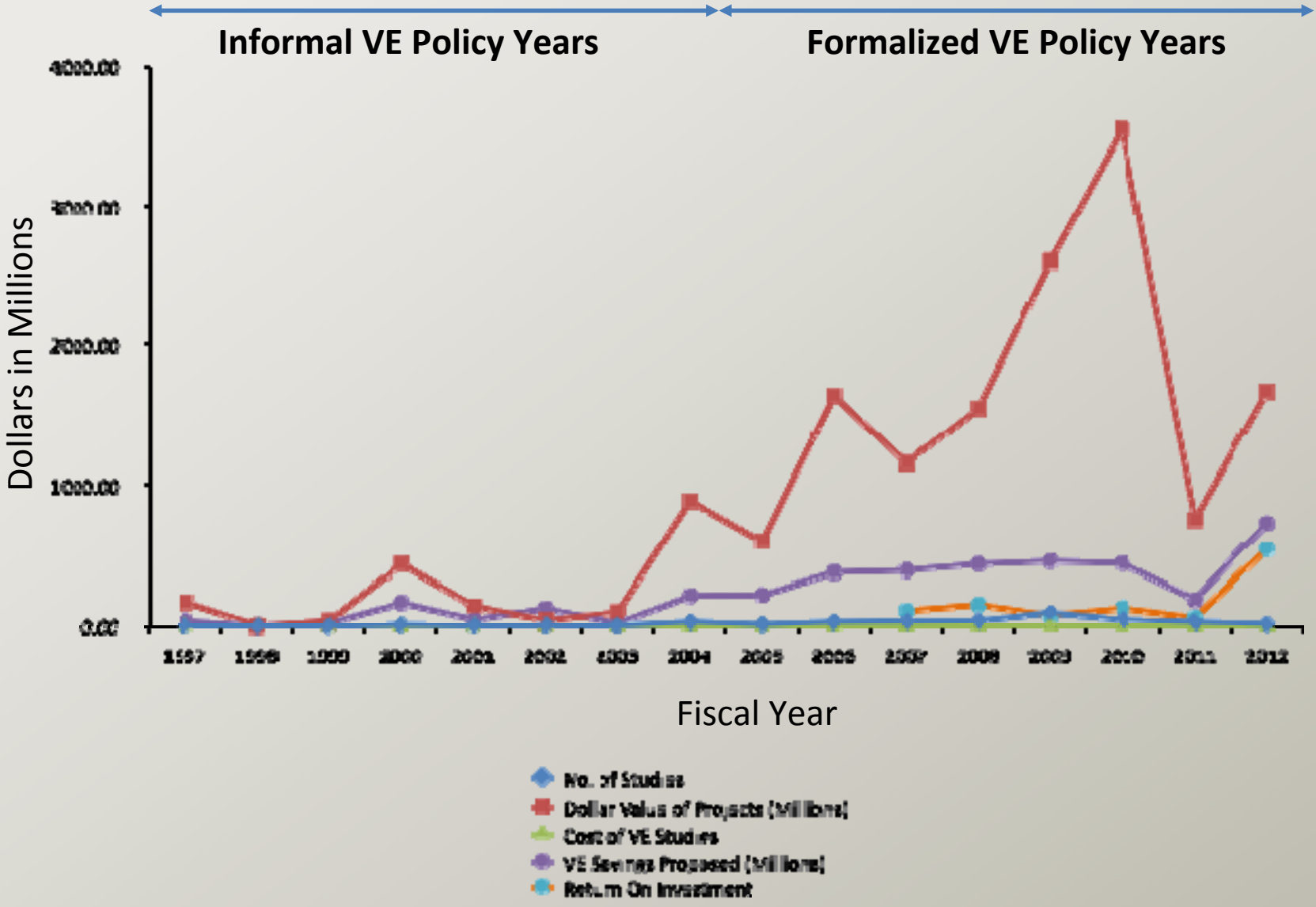
(Dollar figures below in Millions)

Year	No. of Studies	Dollar Value of Projects	Cost of VE Studies	VE Savings Proposed	ROI (Ratio)
1997	2	164	0.24	33.5	
1998	1	0.175	0.004	0.175	
1999	1	35	0.002	18.8	
2000	10	431.24	0.25	160.58	
2001	4	136.44	0.1	42.4	
2002	5	37.9	0.15	120.3	
2003	3	94	0.04	15.1	
2004	28	887.45	0.55	210	
2005	12	596.3	0.27	213.7	
2006	28	1638.95	0.56	372.4	
2007	32	1152.81	0.88	387.16	104
2008	35	1547.65	1.38	430.34	147
2009	90	2596.85	2.289	450.75	71
2010	42	3538.08	1.16	436.4	123
2011	27	752.68	0.86	182.25	55
2012	15	1670.29	0.493	727.43	537

Informal VE Policy Years

Formalized VE Policy Years

Successful VE Model – GDOT



Successful VE Model – GDOT

Georgia DOT (Reasons for success):

- Has provided training to most of its design and project management staff. Key VE Staff have AVS certifications and actively participate in local/national SAVE/AASHTO meetings
- Upper management encourages and supports VE
- VE staff work with project managers to identify and schedule VE studies
- Recommendations are implemented within a few months of the VE study
- Annual reports are prepared for the FHWA, Governor's Office and State Legislature
- VE is discussed at industry conferences

Wrap-Up

- *VE is much more than a cost cutting tool*
- *The Methodology can constructively lower costs on projects and make it possible to bring lower priority projects back into consideration*
- *Can be used to make sure that the cost goal for the project is met while much more effectively incorporating client requirements*
- *Can provide extremely useful tools to deploy at bidding time*
- *Helps to make the most of construction funds*

Wrap-Up (Cont'd)

- *Will making designs fit today's needs and circumstances compromise our infrastructure in any way?*
- *The design and construction industry is alive with new geometric approaches, new material applications and driven by strong safety requirements and the desire to provide the various stakeholders, the end users and the tax payers with highly efficient and cost effective infrastructure*
- *These approaches will be applied by practitioners that are excited about cutting edge technology while being ever mindful of the consequences of making a false step in the application of their knowledge*
- *This creates a very healthy tension for us all!*

ACKNOWLEDGEMENTS

- Lisa Myers, and Matthew Sanders, Georgia Department of Transportation, GDOT, Office of Engineering Services - Value Engineering

- Would like to thank so many Navy VE personnel and VE contractors who have refined the methodology over the years. Mike Koga in PACDIV, Shirley Bowe and Bill Bogue of NAVFAC in Norfolk, and the late Mr. Jim Dziekonski - private VE contractor

- US Federal Highway Administration

- Christopher Morse, PE, Civil Services, Inc.

- Neerja Tayal, PMP, Neelu, Inc.

QUESTIONS?