

Value Management Reviews of Rail Transit Capital Programs

Teri M. Marsh, PE

*HNTB Corporation, Project
Engineer*

Seattle, WA

Rail Conference



Key Presentation Take-Aways

- What is Value Engineering?
- What is the benefit of VE?
- How and when do I use it?
- Successes at Sound Transit

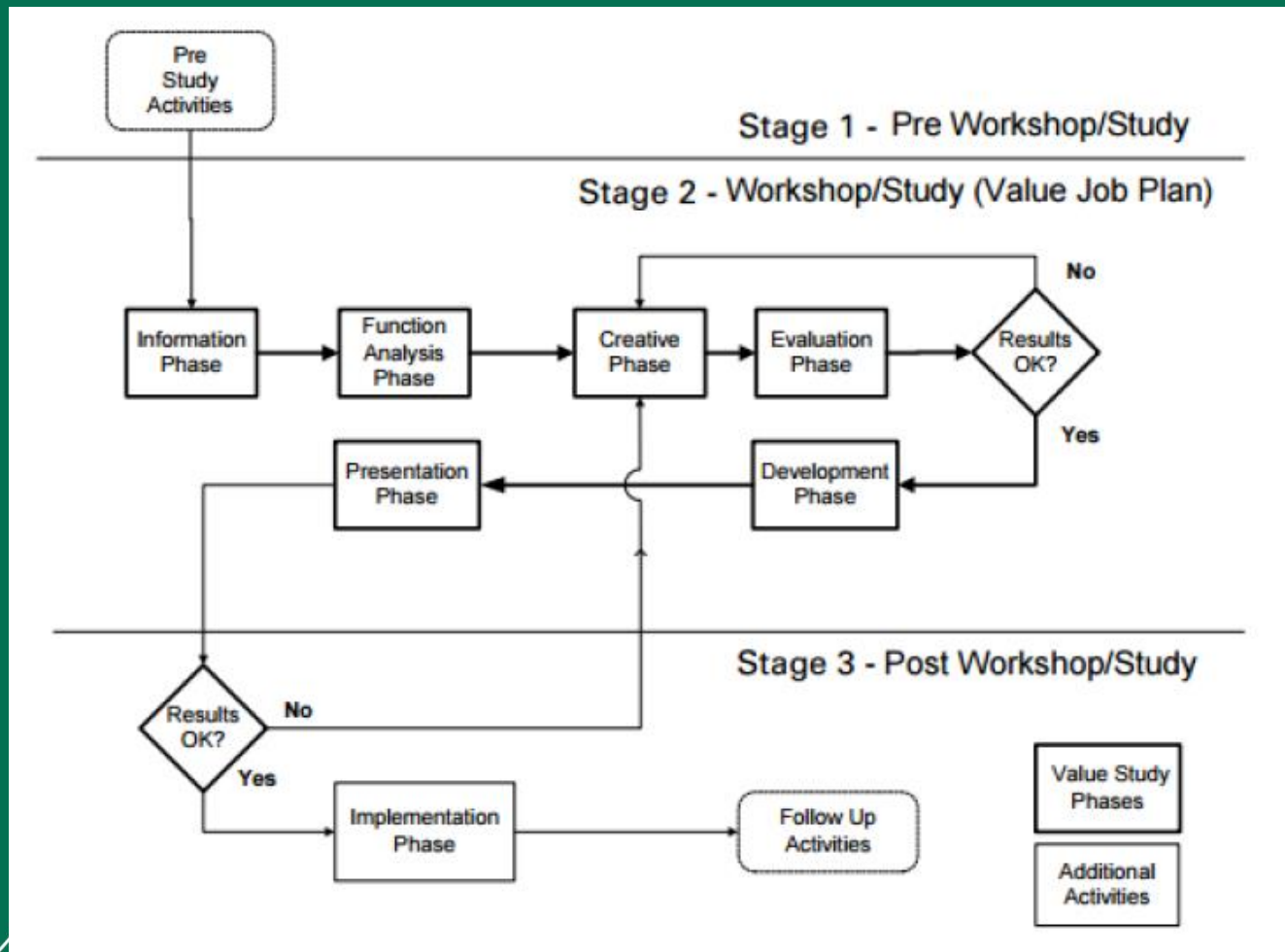


What is Value Methodology?

- A process to validate design functionality and efficiency using a multidisciplinary team approach to add customer value to a project
 - Value Methodology, Value Analysis
- Six Step Job Plan & Function Analysis
- What it's not – “cost cutting measures”



Six-Step Job Plan



Function Analysis

Active Verb + Measurable Noun

- Define needs vs. wants
- What is to be accomplished
- Often based on project objectives



Think of an Umbrella.

Active Verb + Measurable Noun



What's the Umbrella's Function?




What's the Umbrella's Function?



- Shields User
- Controls Environment
- Accommodates Grip
- Expand Fabric
- Secures Material
- Extend Rod

What's My Project's Function?

- Move People
 - Operate Trains
 - Improve safety
 - Increase Capacity
 - Enhance community
 - Reduce congestion
- 

It's a Team Effort

- Engagement = success
- 7-10 team members
- Open to VE process; flexible
- Multi-disciplinary
- Facilitator
- VE champion



How Can I Use It?

- Capital Programs – new project design
- System Operations
- Interagency discussions
- Internal Agency Processes
- Risk Assessment/Management
- Contract Packaging
- Procurement



Successes At Sound Transit

- Plan/build/operate express bus, LRT, and commuter rail in Puget Sound
- VM Fundamentals training (1 day)
- Early reviews = better implementation rate
 - Design team has time to incorporate ideas
 - In advance of stakeholder agreements



Successes at Sound Transit

- 540 value idea proposals across 18 contracts yielded 9.6% savings in the \$2.8B program studied (2014-2015)
 - \$176 ROI in each workshop dollar spent
 - Constructability
 - Risk mitigation



Successes at Sound Transit

- VE on Design Criteria and Engineering Procedures
 - Reduce design costs
 - Comparison of DC and construction issues
 - Simplify processes
 - 260/313 recommendations evaluated further

Successes at Sound Transit

- LRV Procurement
 - Focused on risks and mitigation, in RFP document
 - Risk Register as starting point
 - Used 6 step job plan to determine functions and apply to perceived risks
 - Result: tighter specs, more certain bids



Successes at Sound Transit

- Sounder (Commuter Rail) Yard Expansion
 - VE at interim PE (20%)
 - Started at \$8.6M construction cost
 - 79 ideas across 4 day workshop
 - Found \$1M in savings from 26 ideas
 - Mitigation = reduced risk



Conclusion

- Find value - focus on function of project
- Do it, and do it early
- Return on investment
- Monitor status
- List of Certified Facilitators on SAVE International website
 - Agency and consulting professionals

Contact Information

Teri M. Marsh, PE, AVS

tmarsh@hntb.com

Rahul Nagalkar, CVS

Sound Transit VE Program Manager

rahul.nagalkar@soundtransit.org

