



Engineering, Operations, & Technology Committee

Value Engineering Program Update

Item 6a

July 8, 2024

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Value Engineering Program Update

Subject

Value Engineering Program Update

Purpose

Provide update on Metropolitan's Value Engineering Program

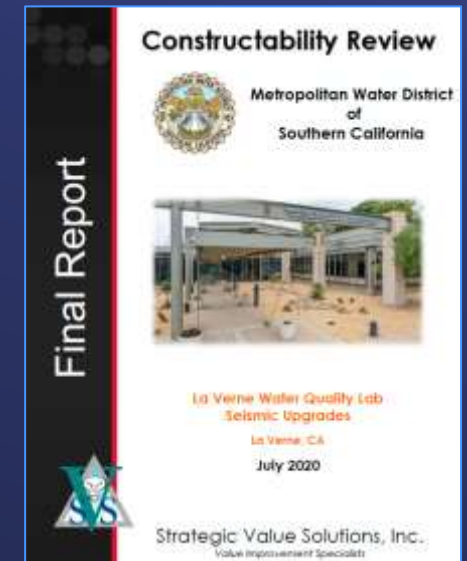
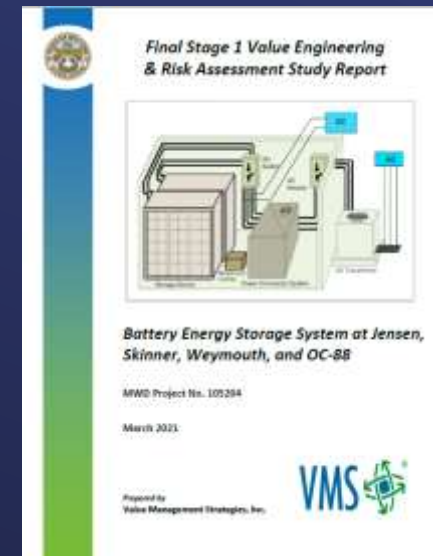
Next Steps

- Continue implementing Value Engineering Program
- Authorize on-call agreements for value engineering services in August 2024

Value Engineering Program Update

Presentation Outline

- Program Objectives
- Program Implementation
- Program Results
- Project Examples
- Next Steps



Value Engineering Program Objectives

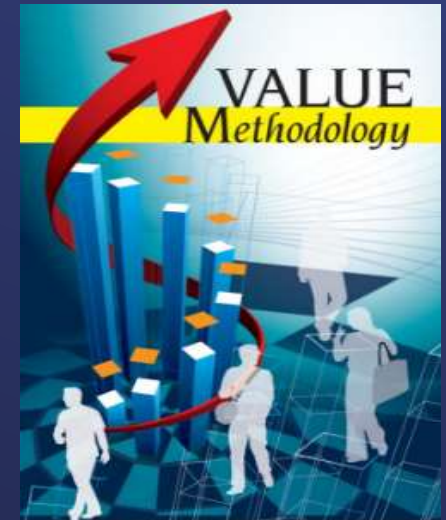
Metropolitan's Value Engineering Program

- 1994: Value Engineering (VE) program initiated
- Objectives
 - Improve the overall value of CIP projects
 - Enhance project performance, optimize use of funding for CIP projects
 - Demonstrate responsible use of public funds
- Types of Workshops
 - Value Engineering
 - Constructability Review (CR)
 - Risk Assessment
 - Specialized technical review
 - Partnering with stakeholders

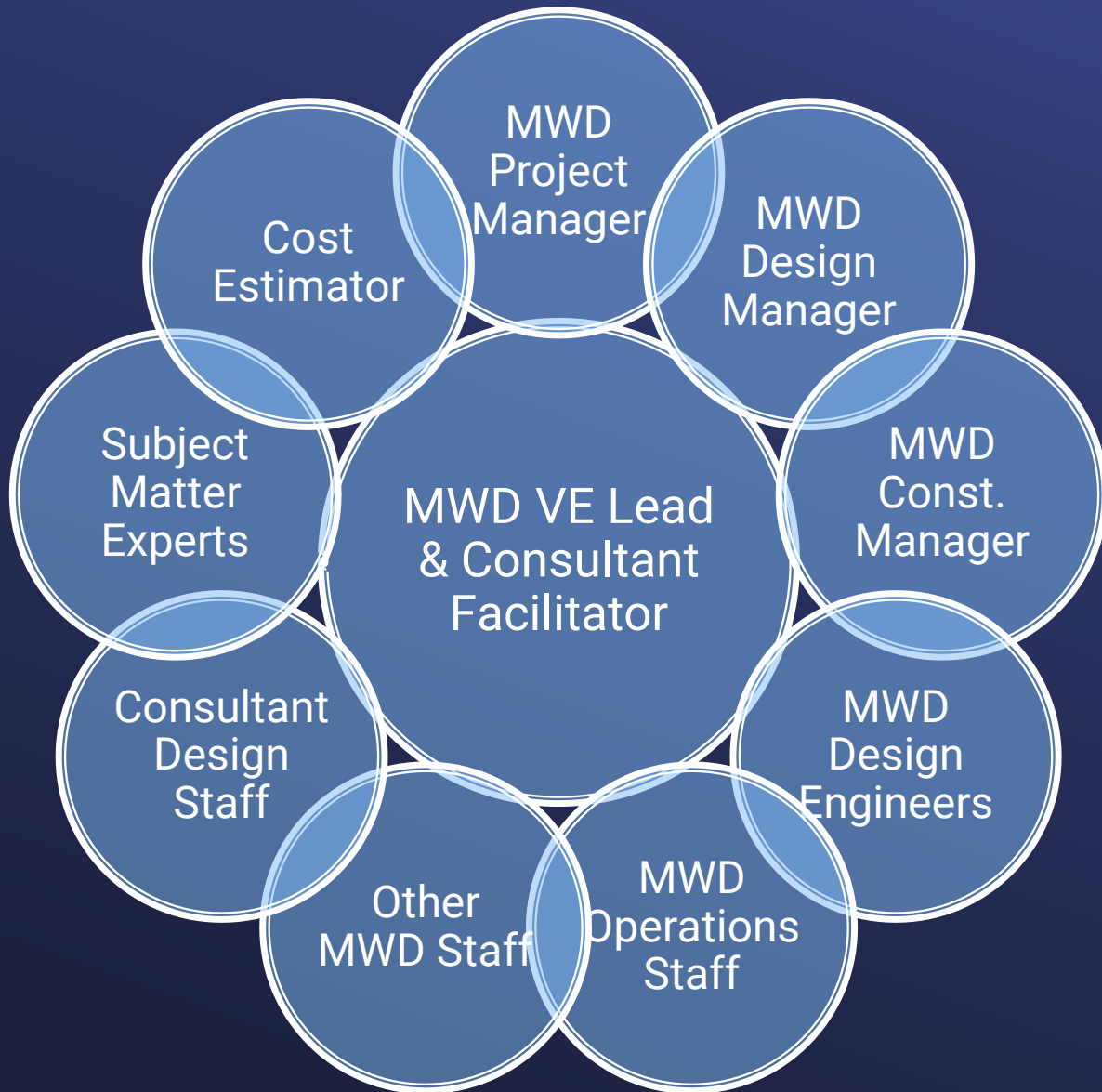
Value Engineering Program Workshop Process

Value Methodology

- Value Methodology initially developed in 1940's
- Purpose is to improve value by examining functions relative to costs
- Focus - Achieve required functions at the best possible capital and life cycle cost
 - Capital cost saving - not the primary objectives
 - Capital cost may be increased for other critical benefits



VE Team Composition



Diemer Filter & Chemical Systems Rehab CR Workshop

On-Call Consultant Agreements

- Certified Value Specialists
- Independent Cost Estimators
- Subject Matter Experts

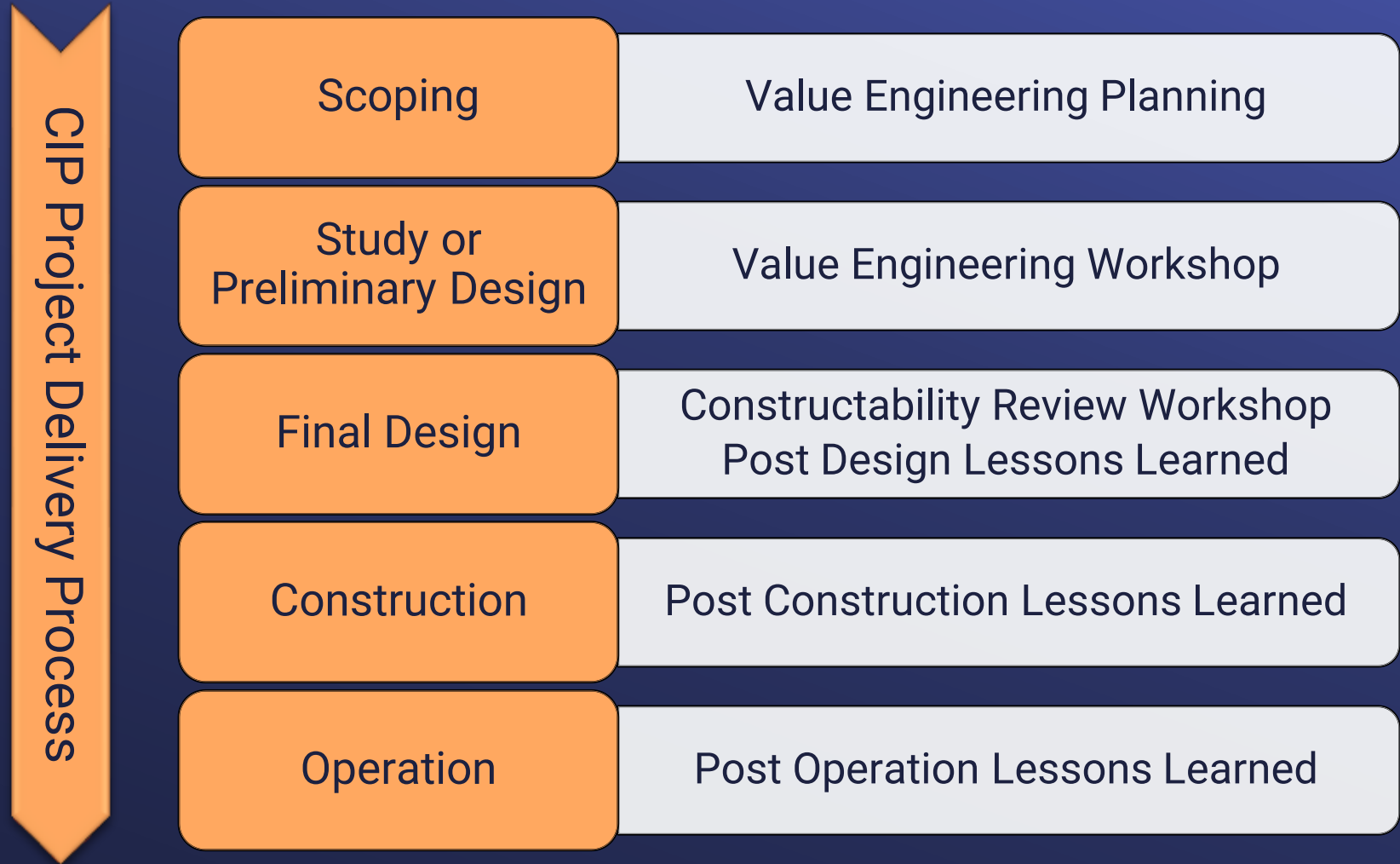
Value Engineering Program Project Selection

Project Selection

- Construction Cost Threshold
 - Projects in preliminary design with estimated construction cost > \$5M
 - Ensure that project will benefit from VE review
- Other projects may benefit from VE or CR
 - Complex projects involving many stakeholders
 - Work involving a shutdown & coordination with other member agencies
 - Projects involving underground work

Value Engineering & Lessons Learned

Value Engineering Program Implementation



VE Workshop Results – 1995 - 2024

Value Engineering Program Results



Total estimated construction cost of projects studied

\$ 4.3 billion



Savings - accepted VE recommendations

\$ 215 million (approx. 5%)

Copper Basin & Gene Wash Discharge Valve Rehab.

- CR Workshop conducted at Gene Pumping Plant in April 2016
- 20 participants
- 15 ideas generated, focused on construction risk
 - Construction access
 - Rockfall protection
 - Discharge isolation device

Value Engineering Program CR Study Example



Review Team



Copper Basin Dam

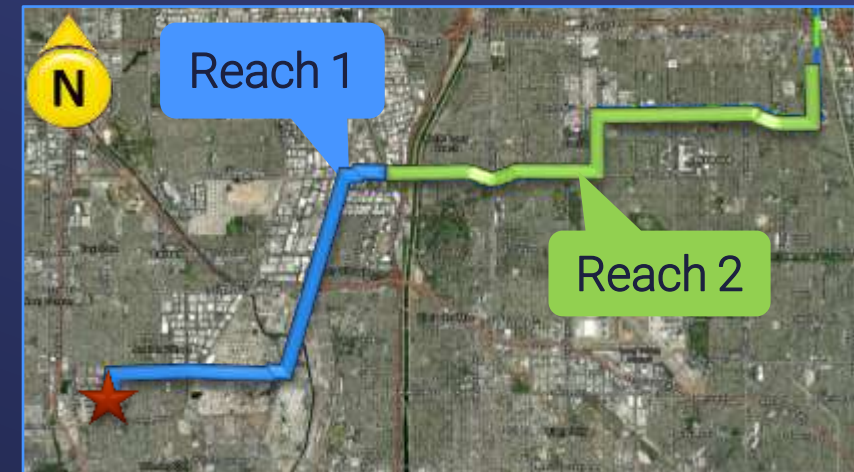
Value
Engineering
Program
VE Study
Example

Pure Water Conveyance Reaches 1 & 2

- VE Workshop conducted in May 2024
- 26 participants
- 91 ideas generated:
 - Flexibility for more tunneling
 - Curved tunnel segments
 - Vertical shaft design
 - Shop-applied pipe lining



Pure Water Conveyance
Reach 1 Utility Investigation



Pure Water Conveyance
Reaches 1 & 2 Alignment

Value Engineering Program

Next Steps

- Continue implementing Value Engineering Program
- Authorize on-call agreements for value engineering services in August 2024

