VALUE ENGINEERING FOR TxDOT PROJECT MANAGERS

DOs and DON’Ts
What is Value Engineering?

From the FHWA website (http://www.fhwa.dot.gov/ve/)

- Value Engineering (VE) is defined as a systematic process of review and analysis of a project, during the concept and design phases, by a multidiscipline team of persons not involved in the project, that is conducted to provide recommendations for:
  1. providing the needed functions safely, reliably, efficiently, and at the lowest overall cost;
  2. improving the value and quality of the project; and
  3. reducing the time to complete the project.

\[
\text{Value} = \frac{\text{Function}}{\text{Cost}}
\]
What is Value Engineering?

- It shall include following seven phases:
  - Information Phase
  - Function Analysis Phase
  - Creative Phase
  - Evaluation Phase
  - Development Phase
  - Presentation Phase
  - Resolution Phase
What Value Engineering is NOT?

- Value Engineering does not (necessarily):
  - Cut cost, but it rather adds value.
  - Provide a complete set of design recommendations with detailed or a 100% accurate estimate and/or full design analysis, but rather the best estimate and design analysis a multidisciplinary team can provide in such short period of time.

  (i.e., a 10–15 people team split into several groups, with 3–4 people working on hydraulics, can’t provide a full hydraulic analysis as a result of the study but rather a set recommendations to the District.)
What Value Engineering is NOT?

- Value Engineering does not (necessarily):
  - Have to be 100% implemented. It is up to the District to decide what ideas will move forward. Do not “freak out” if you see an idea that, based on your expertise, makes no sense, or you already know won’t work (for whatever reason).

Some examples:

- Use slopes instead of retaining walls on approaches ($989,000; implemented)
- Replace median barrier with cable barrier ($690,000; implemented)
- Replace flexible pavement with concrete pavement section ($7,840,000; implemented)
What Value Engineering is NOT?

Other Examples:

- Replace as many MSE walls with riprap as possible without adding ROW ($4,300,000; not implemented)
- Relocate railroad line and put roadway on grade in lieu of elevated section ($23,020,000; not implemented)
- Use double tear drop roundabouts at all interchanges ($389,000; not implemented)

Note: Please do not ask for ideas to be removed from the report.
Intermission: Double Teardrop Roundabouts
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Intermission: Double Teardrop Roundabouts
When is it required?

- 23 CFR Part 627
  - Highway projects on the NHS
  - Receiving federal assistance
  - **Total** cost of:
    - $50M or more for highway projects
    - $40M or more for bridge projects
  - VE analysis not required for design/build projects
  - You can request a VE analysis on any project you deem necessary

*Note: The FHWA may require additional VE analysis beyond the federally required minimum thresholds if determine the project may benefit from it.*
TxDOT’s Value Engineering Procedure

- Described on the TxDOT’s *Project Development Process Manual*, Chapter 2 Section 6 “Value Engineering.”
  - Responsible parties. **Project manager**
    - Contact the Design Division VE Coordinator for current VE requirements and processes.
    - Conduct pre-study conference call with VE facilitator and Design Division.
    - Executive Decision Summary Form (*form 2502*) should be completed by district and sent to Design Division *along with the final report*.
    - **Invite the FHWA Area Engineer**

* Follow these steps regardless of origin of VE study (District’s or via DES).
2 Value Engineering Contracts for FY 2015-2016 with AMEC and HDR, Inc.

Memo sent to the Districts on September 25, 2014.

Each contract is for $375,000 (approx. 15–17 Value Engineering Studies).

**No cost to the District.** District only provides participants and facilities.

All paperwork and billing goes through DES.

Preliminary report is provided to the District 2 weeks after presentation day. 1 week to review.

Final report is provided to the District 4 weeks after presentation day along with the Executive Decision Summary form 2502.

District provides completed form 2502 to DES.
Contact the Design Division VE Coordinator with the following information:

- Highway, CSJ(s), Limits
- Existing Section, Proposed Section
- Status of design (30% preferred)
- In house design or consultant (name of consultant)
- District’s Study Contact Person
- Number of days (3, 4, or 5 day study) and your preferred dates

Please make the request at least 3 weeks before your estimated VE study date. This time frame will also give you enough time to invite the FHWA.
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Area Engineer: Corpus Christi, Laredo, Pharr
I-69 Program Coordinator

Anita Wilson  512-536-5951
Urban Engineer: Dallas, Fort Worth

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Area Engineer: San Angelo, Yoakum
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Value Engineering
Design Exceptions

Dan Mott  512-536-5964
Major Project Engineer/Team Leader
Major Projects Management

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Area Engineer Beaumont, Houston, Lufkin
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Justin Ham  512-536-5954
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Semme Yilma  512-536-5975
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Area Engineer: Dallas, Paris
c-Construction
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Lisell Guerra  512-536-5957
Area Engineer: Bryan, San Antonio
Clarence Rumancik, P.E.
Area Engineer / LPA Program Coordinator / Design Exceptions
Statewide Value Engineering Coordinator
Federal Highway Administration
Texas Division
I leave you with this...

If you only remember 4 things from this presentation:

- VE Studies **FREE** of charge to the District available
- Invite the FHWA area engineer to the VE study
- Send the final report along with the form 2502 to the Design Division for coordination with the FHWA
- Contact me for anything Value Engineering related
Questions?

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