Project Estimating and Contingency Guidelines

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Highlights

• Keys to Estimating
  • What makes a good estimate?

• Inflation

• Contingency
  • How much to include and when?
Keys to Estimating

• What makes a good estimate?
  • Scope of work
  • Including 75-100% of needed pay items
    • This could vary by stage submittal and completed reports
    • Initial – 15-20 items
  • Not double-dipping on rounding up
    • Quantities and Unit Prices
  • Compare to previous completed project with similar scope of work
Keys to Estimating

• Initial and Stage 1
  • Understand Scope of Work
    • Pavement or Bridge Treatment
    • Drainage
    • Removal
    • MOT
    • Earthwork
    • Signing
    • Lighting
  • Add items and update quantities as Design Progresses
Keys to Estimating

• Initial and Stage 1
  • Percentage
  • Pavement markings
  • MOT (try to add items as early as possible)
  • Signing
• Lump Sum Pay Items
  • Mob/Demob (5%)
  • Clearing Right-of Way (1% to 2%)
  • Temporary Bridge and Approaches (Break it Down)
  • Field Office (months)
  • Maintaining Traffic
  • Construction Engineering (2%)
Keys to Estimating

• Stage 1
  • Items with Rough Quantities
    • Pipe Sizes and Lengths
    • Pavement and Subgrade
    • Patching (%)
    • Earthwork
    • Drives
    • Sidewalks and Ramps
    • Bridge Beams
    • Reinforcing Steel
Keys to Estimating

• Stage 1 - Watch List
  • No R/W
    • Retaining Wall
      • Type of Wall by Height or available room
      • Steepened Slopes
  • Removal Items
    • Existing Bridge Foundations
    • Large Trees
    • Rock
    • Structures
    • Environmental challenges (UST’s, Hazardous Materials)
Keys to Estimating

• Stage 1 - Watch List
  • Constructability
    • Deep Storm Sewer
    • Site Access for Bridges
    • Known Geotechnical Concerns (Peat, Poor Soils)
    • Special Materials
  • Drainage
    • Detention
    • Earthwork – Ditches can be major
Keys to Estimating

• Stage 1 - Watch List
  • Drives
    • Number
    • Width/Length
    • Structures
    • Materials
  • MOT
    • Add as much detail as possible to guide decisions

Isolate your knowns and unknowns
Keys to Estimating

• Stage 2
  • Add items as Preliminary Design is Complete
    • Update Earthwork
    • Pipe Sizes and Lengths
    • Pavement
    • Geotechnical Remedies and Recommendations
    • Removal Items quantified
    • Bridges
Keys to Estimating

• Preliminary Bridge Plans
  • Substructure Details
  • Superstructure Details
  • Extent of Rehabilitation
  • Guardrail
  • Earthwork
Keys to Estimating

• Stage 3 to Tracings
  • Finalize Quantities
  • QC/QA
  • Reduce Contingency to 0%
  • Utility Conflicts and Relocation Costs Final
  • Items priced
Inflation

• Ignore that for now...

• Please present numbers in current construction dollars

• SPMS and Finance have formulas for determining inflation
Contingency

• Definition - A provision for a future event or circumstance which is possible but cannot be predicted with certainty (or an additional expense)
Contingency

• What to consider....
  • This can depend on the project
  • This is to cover risk and scope variability
  • These should be specific to the project and identifiable

• What this is not...
  • Cover a poor estimate
  • Skip common bid items
Contingency by Stage Submittal

- Preliminary Scoping - 30%
- Stage 1 - 15-20%
- Stage 2 – 10%
- Preliminary Bridge Plans - 10-15%
- Stage 3/ Final Bridge Plans - 5%
Examples

• My Partial Depth Patching Quantity is only 75 SYDs on a 5 mile project
  • Place a higher than average unit price for the pay item due to the small quantity.
  • Increase the quantity due to the unknowns between the time of assessment and construction in the field.
  • Include the unknown in the contingency percentage appropriate for the current level of development

• Do not do all 3 of the above...
Examples

• Project was $3.5 million over budget at Stage 3

• Problems
  • Preliminary Estimate had Drives and Earthwork
    • Stage 1 Estimate did not include items
    • There were over 100 drives on project
    • Vertical Curve corrections had major earthwork and ditch excavation
  • Project was programmed as pavement rehabilitation (with some vertical curve corrections) and initial design was full depth replacement
Questions