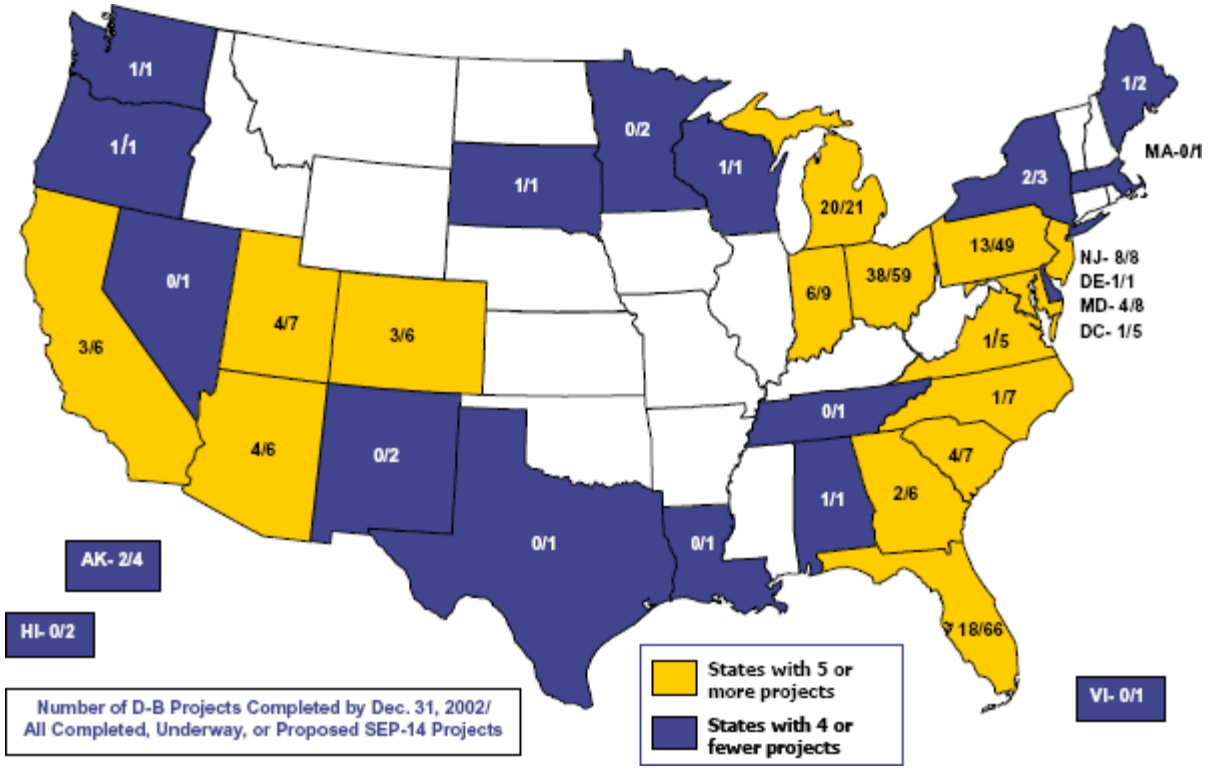
Understanding Design Build

Navigating Noise Barrier Construction in Design Build Projects

Adam Alexander, FHWA Noise Team, ADC40 Highway Noise Subcommittee, 88th TRB Annual Meeting

Design Build Participation



Design-Build Effectiveness Study (Jan 2006) http://www.fhwa.dot.gov/reports/designbuild/designbuild.htm

The regulations

- 23 CFR 635 – Construction & Maintenance
- 23 CFR 636 – Design Build Contracting
- 40 CFR 1506 – Other Requirements of NEPA
- 23 CFR 772 – Noise Standards
- NEPA

Design-build & NEPA

- DB team cannot influence NEPA
- Ensures integrity of the NEPA process
- Protects the contracting agency, the design-build team and environmental resources

Design-build & 23 CFR 772

- Noise abatement is an environmental commitment
- The environmental document must identify feasible and reasonable noise abatement measures likely to be included in the project (772.11e)
- The project plans, specifications and estimates must include reasonable and feasible abatement measures for the project to receive federal funding (772.11g)
- The completed noise analysis should be part of the environmental record
- The contractor may be able to decide how to get the desired level of abatement based on the noise analysis and the contracting agency's standards

Design-build & 23 CFR 772

- When noise abatement requirements are not clearly stated in the environmental document the project may:
  - Fail to fulfill regulatory requirements
  - Wind up with the contractor dictating the results of the noise analysis
- IMPORTANT: The NAC are NOT performance standards
- 772.11(f) The views of the impacted residents will be a major consideration in reaching a decision on the reasonableness of abatement measures to be provided…*not the views of the contractor*

Specifications

- Specifications help everyone
- Guides the DBT on what to build
  - Allows flexibility
  - Performance based preferred
- Gives state DOT something to measure
- Performance-based specifications recommended (D-B Effectiveness Study)

Design Build Advantages

- “the only way a DOT can get a “lowest bid” for design services”
- “Cuts the schedule in half”
- “the greatest benefit lies in the overall project “time” schedule which should translate into dollar savings”
- “Design / build projects allow the prime contractors to design using their “strengths” (i.e. equipment, manpower, scheduling) resulting in economies”
- “Design Build projects are cheaper. The design process is streamlined and design services are competitively secured. The quick turnaround in design and review is efficient, and therefore, cost effective. We also get as built plans, which is very useful.”

Challenges

- “It’s imperative that suppliers are required to bid within established DOT basic standards.”
- “Design / build does require estimating and production planners to put a more in-depth analysis into the project since they are not merely “taking” off quantities from a set of drawings. This is a good thing. Everyone should more clearly understand all aspects of the bid.”
- “The 100 plus “outline” data pages caused some confusion with estimators. They are more used to working with drawings. More exposure to design / build should alleviate this problem.”

Specific Challenges

- Soils information – two options
  - Scope provides geotechnical information
  - Geotechnical left up to contractor
  - The second option may negatively affect:
    - Schedule
    - Accuracy of bids
- Utilities
  - Comprehensive utility survey necessary
  - Complete utility relocations prior to the sale
  - Describe conflicts with utilities that cannot be moved in the SOS

D-B Effectiveness Study – Points to Ponder

- Greatest benefit is on project schedule
- May decrease project costs
  - Reduced number of claims
  - Performance based specs allow for innovation and cost savings
  - Do not have quantity contingencies present in D-B-B projects
- Does not require as much preliminary design

Example process

- State DOT Role
  - Noise analysis
    - Determine height/length & location of proposed noise barriers
    - Provides target noise reduction
  - Environmental document
    - Documents reasonable/feasible noise abatement
    - Environmental clearance for project
  - Public Involvement
    - Explain the project and the results of the noise analysis
    - Determine the desires of the affected public
  - Project scope
    - Provides the information needed to build the project
      - Utilities
      - Soils
      - Barrier Locations
      - Standards
      - Maintenance of Traffic
      - Etc.
  - Plan review
  - Construction management

Example process

- Design Build Team Role
  - Develop plans
  - Coordinate plan reviews
  - Build the project

Key Issues

- The RFP/Scope
  - Accuracy
  - Developed by someone who has reviewed the project AND field conditions

"A scope without field verification is not a good design build scope."

Training

COURSE NUMBER: FHWA-NHI-134058

COURSE TITLE: Alternative Contracting

Conclusions

- Be prepared
  - Specifications
  - Environmental commitments
- Potential savings
  - Efficiency
  - Compressed Schedule

Questions?