Lessons Learned from Design-Build

Developing the Next Generation of Design-Bid-Build

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Agenda

- Background
- Change
- Key Elements
- Examples
- Doing, Learning, Changing
Background: Design-Build

• Increasing in Popularity
• Numerous Benefits
• Predominate in Europe
• Contractor Flexibility
• Performance and Trust
Background: Design-Bid-Build

DBB Will Continue to Dominate …

- Small and Medium Projects
- Wide Variety of Contractors
- “Comfortable Process”
  - One Size Fits All
  - 100% Complete PS&E
  - All Qualified Bidders
  - Award to Lowest Bidder
  - Few Warranties
What's wrong with the old way?!?! %$#@*!!!

That Son-of- a- &^%$!

Rats!

OUCH!

AAARRRRGGG!

NOOOOOO!

CHANGE
North Carolina Creating New Culture For Road Projects

North Carolina Department of Transportation officials are working to revolutionize their design-build project process. They are making major changes to their traditional delivery system by incorporating innovative forms of design-build to construct projects more quickly and efficiently.

Director of Design-Build for the North Carolina Department of Transportation, C. Mark Kindle, says, "It is exciting to see our state taking the lead in implementing new construction delivery methods. Design-build allows us to collaborate with our contractors and engineers in a more collaborative and efficient way."

In the design-build process, North Carolina DOT (NCDOT) has been able to incorporate innovative design solutions that have resulted in significant cost savings and improved project outcomes. One example of this is the new design-build bridge in Durham County. The bridge was completed in just 18 months, saving the state $5 million and reducing the project timeline by 2 years.

"Design-build is an innovative delivery method that allows us to work closely with our contractors to create designs that are not only cost-effective but also environmentally sustainable," Kindle says. "Our goal is to deliver projects that are not only cost-effective but also provide a positive impact on the community."
Are We On Mars?

- AASHTO
- TRB
- FHWA
- AGC
- ARTBA
- ACPA
- Etc....
Learning from Design-Build
“The Next Generation of Design-Bid-Build”

Key Elements

• Procurement Methods
• Quality Control
• Opportunity for Innovation
• Design and Project Management
• Risk Assessment
• Continuing Education
Learning from Design-Build

“The Next Generation of Design-Bid-Build”

Procurement Methods

• Best Value Procurement
• Short-Listing
• Strong Contractor Prequalification Process
• Lump Sum Contracts - Progress Payments
• Life Cycle Considerations
Learning from Design-Build
“The Next Generation of Design-Bid-Build”

Quality Control

• “Trust but Verify”
• Reformed Agency Inspection
• Contractor Quality Programs
• Performance and Ownership
• Performance-Based Specifications
• Long-Term Warranties
Learning from Design-Build
“The Next Generation of Design-Bid-Build”

Opportunity for Innovation

• Maximize Contractor Flexibility
• Integrated Value Engineering
• Flexible Processes, Materials, etc.

Bid Alternates - Menu Models, Add & Delete Alternates
Learning from Design-Build
“The Next Generation of Design-Bid-Build”

Design and Project Management

• Early and Continuous Contractor Involvement
• Optimize Contractor Innovation
• Enhanced Constructability Review Process
• Accelerated Construction Process and Details
• “Right-Designing”
• Standardization where applicable
• Safer Work Zones, Decreased Exposure
Learning from Design-Build

“The Next Generation of Design-Bid-Build”

Risk Assessment

• Apportioning Risk Appropriately
• Pass-Through Costs
• Allowances
• Established Procedures for Accommodating Unknowns in Bids
• Utilities, Right-of-Way, On-Site Mitigation, Hazardous Sites
Learning from Design-Build

“The Next Generation of Design-Bid-Build”

Continuing Education

- DOT Doesn’t Always Know Best!
- Contractor Knowledge - Permitting, Design Requirements, Public Involvement, Utilities
- Technology Transfer Across Groups - (AGC/ACEC/DOT)
- Quality Control through Ownership
- Environmental Stewardship
Procurement

Cary, NC
US1/64

*Modified Design-Build*

- Traffic Control By the Contractor
- Pavement Design Alternate
- Inspection by the Contractor
- Lump Sum Contract
- Best-Value Selection
Procurement

I-40 Emergency Project Retaining Walls

Nested Design-Build Best-Value for Specialty Sub Nested within Low-Bid Contract
Quality Control

Various Projects

Inspection by the Contractor, Warranties

I-85 Rowan County

Enhanced Quality Designs, Warranty
Bid Alternates

I-77
Surry Co., NC
Pavement Design Alternates & ITS Add Alternate

I-77
Charlotte, NC
Option to Obtain Permit or Design Around Permit
Design Management

I-85
Charlotte, NC
Revised Grades and Flyover in Lieu of Dual Bridges

US-64 Bypass
Knightdale, NC
Revised Design Standards - Guardrail, Signing
Design & Project Management

US-17 Bypass
Windsor, NC

Environmental Incentives, Permitting, 4B/4C Meetings

US-17 Bypass
Washington, NC

Permitting, On-Site Mitigation, 4B/4C Meetings
Learning from Design-Build
“The Next Generation of Design-Bid-Build”

Extensions and Intangibles

- Private Engineering Firm Education
  *Conveying Knowledge to Next DOT DBB Contract*

- SEP15 - Contractor Involvement in Planning

- Contractor Part of Integral Solution
  *No Longer Reacting to DOT’s “Best” Solution*
North Carolina
Organizational Change

Alternative Delivery Systems Group

- Design-Build
- Alternative Contracts
- Value Engineering
The Next Generation of Design-Bid-Build

- Strong Prequalification Processes
- Best-Value Selection
- Flexibility
- Accountability
- Payment Methods
- Contractor Quality Control
- Warranties
- Project Management
- Optimize Contractors Ideas!
North Carolina
Doing, Learning, Changing

Design - Build Project

Interim and Post Construction Reporting

Enhanced Design or Contracting Policy

Design - Bid - Build Process

Value Engineering Proposal or Study