WSDOT

Introduction to Design-Build

Roger Millar, Secretary of Transportation

Safety

- Sign-in
- Who is CPR Qualified?
- AED
- Who will call 911?
- Evacuation
- Restrooms
- Breaks

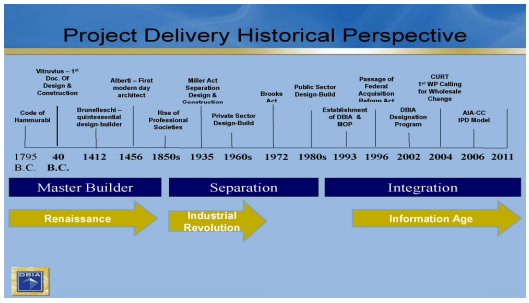
Course Overview

- Why Design Build?
- What is the Design-Build Program?
- Which Project Delivery Model?
- How is Project Start Up and Procurement Different in DB?
- How is DB Contract Administration Different?
- How is Design Different in DB?
- How is Construction Different in DB?
- How is Document Control and Closeout Different in DB?

Why Design-Build?

WSDOT 4

A Little History ....



WSDOT 5

Enabling Legislation - WSDOT

- **RCW 47.20.780 – Design-Build Process**
  - (2001) Design Build Contracts >$10M
  - (2015) Design Build Contracts > $2M
- **RCW 47.20.785 - Qualified Design-Build Projects**
  - (2001) Design Build Contracts >$10M
  - (2006) Design Build Pilot Projects (5) Between $2M and $10M
  - (2015) Design Build Contracts > $2M

WSDOT 6

JTC Recommendations

Major Topic Areas for Recommendations

1. Staffing and Career Development
2. Training
3. Programmatic Documents (policies and procedures)
4. Project Development
5. Project Delivery and Procurement
6. Performance Monitoring (Measurement)
7. Budgeting
8. Project Execution

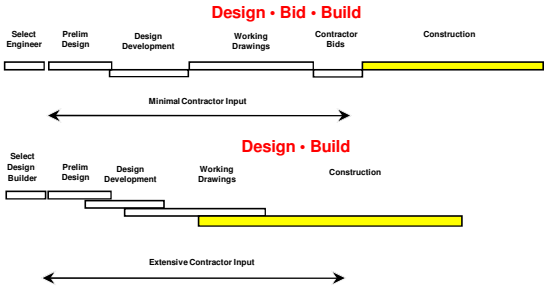
WSDOT 7

Benefits of Design-Build

- Speed of Delivery
- Resources
- Early price certainty
- Innovative design/delivery
- Matching skill sets of contractor and designer
- Risk allocation
- Single point of responsibility
- Performance Based Selection

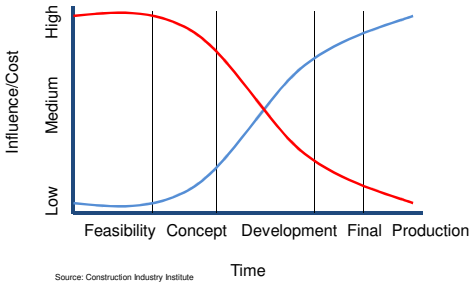
WSDOT 8

Design-Build Time Savings



WSDOT 9

Design-Build Innovation
Cost/Influence Curve



Source: Construction Industry Institute

WSDOT 10

What is the Design-Build Program?

WSDOT 11

Design-Build Program-Past

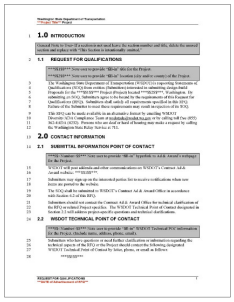
GUIDEBOOK FOR DESIGN-BUILD HIGHWAY PROJECT DEVELOPMENT

June 20, 2004

- Guidebook (2000)
- Various Guidance Statements (2006-2009)
- Desk Manual (2007)
- Templates (2008)
- Industry Workgroup
- First Project In 2001

WSDOT 12

Design-Build Program-Present



Washington State Department of Transportation
Design-Build Project

1 **1.0 INTRODUCTION**

Central Note to User: If a section is not used leave the section number and title, delete the omitted section and replace with "This Section is intentionally omitted."

2 **1.1 REQUEST FOR QUALIFICATIONS**

NOTE User must to provide "Brief" location info for the Project:
NOTE User must to provide "Brief" location info and/or course of the Project.

3 The Washington State Department of Transportation (WSDOT) is requesting Statements of
4 Qualifications (SOQs) from Design-Build Teams (Teams) for the Design-Build Project
5 Proposals for the ***NOTE*** Project (Project) located ***NOTE***, Washington. By
6 submitting an SOQ, Submitters agree to be bound by the requirements of this Request for
7 Qualifications (RFQ) and the laws of the State of Washington. Failure of the Submitter or
8 Failure of the Submitter to meet these requirements may result in rejection of the SOQ.
9
10 This RFQ can be made available in an alternative format by emailing WSDOT
11 MCCLUSA@WSDOT.WA.GOV or calling Design-Build Program Manager at (360) 705-7468
12 MCCLUSA@WSDOT.WA.GOV. Persons who are deaf or hard of hearing may make a request by calling the Washington State Relay Service at 711.

13 **2.0 CONTACT INFORMATION**

14 **2.1 SUBMITTAL INFORMATION POINT OF CONTACT**

NOTE Chapter 02*** Note user to provide "BR-xx" hyperlink to Ad & Award webpage for the Project.

15 WSDOT will post addenda and other communications on WSDOT's Contract Ad &
16 Award Office's website.
17
18 Submitters may sign up on the interested parties list to receive notifications when new
19 items are posted to the website.
20
21 The SOQ shall be submitted to WSDOT's Contract Ad & Award Office in accordance
22 with Section 6.2 of this RFQ.
23 Submitters may contact the Contract Ad & Award Office for technical clarifications of
24 the RFQ as related Project specifics. The WSDOT Technical Point of Contact designated in
25 Section 2.2 will address project-specific questions and technical clarifications.

26 **2.2 WSDOT TECHNICAL POINT OF CONTACT**

NOTE Chapter 02*** Note user to provide "BR-xx" WSDOT Technical POC information for the Project. (Include name, address, phone, email).

27 Submitters who have questions or need further clarification or information regarding the
28 Project shall contact the WSDOT at the Project-specific contact the following designated
29 WSDOT Technical Point of Contact by letter, phone, or email as follows:
30 **********

REQUEST FOR QUALIFICATIONS
Start 30 of Advertisement of RFQ

- Centralized Design-Build Knowledge Base at HQ
- Approved DB Templates
- Approved DB Training Program
- Implementation of JTC Recommendations

Design-Build Program-Future … what will it hold?

- Develop Design-Build Manual
- Update Documents
- Additional Training
- Consistency
- Maintain Industry Partnerships
- Develop Performance Metrics and Tracking System
- "Small" Design-Build Project Procurement

Headquarters Design-Build Contacts

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XXXXXX
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HQ Support of DB Process

Question Type	Primary Support Group	Other Support Groups
RFQ, RFP development process	**DBWG**	ASCE, ASDE
Access to templates	**DBWG**	ASCE
Determining feasibility of DB as delivery method	**ASDE**	ASCE
General Procurement process	**DBWG**	ASCE, ASDE
Scope of work	**ASCE**	ASDE, DBWG
General template content/usage (RFQ, ITP, General Prov., Tech Req.)	**DBWG**	ASCE, ASDE
Project goals	**ASCE**	ASDE, DBWG
Project specific information to be included in RFQ/RFP Templates	**ASCE**	ASDE, OEO, DBWG
Content of RFP appendices	**ASCE**	ASDE, DBWG
SOQ, Proposal schedule	**ASCE**	DBWG, ASDE
SOQ, Proposal evaluation/scoring	**ASCE**	DBWG, ASDE
Organizational Conflicts of Interest	**ASCE**	DBWG
One-on-one meetings	**ASCE**	ASDE, DBWG
Alternative Technical Concepts	**ASCE**	ASDE, DBWG

WSDOT 16

Resources For Success

- Prior Work Products
- WSDOT Internal Design-Build Workgroup
- WSDOT/AGC/ACEC Design-Build Committee
- WSDOT Subject Matter Experts
- WSDOT Construction and Design Staff
- Other State DOTs
- Various Federal, State, and Academic Research Reports
- Design-Build Institute of America

DBIA
DESIGN-BUILD INSTITUTE OF AMERICA
MEMBER

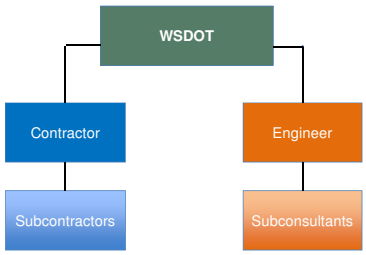
2016 SWPE Conference

WSDOT 17

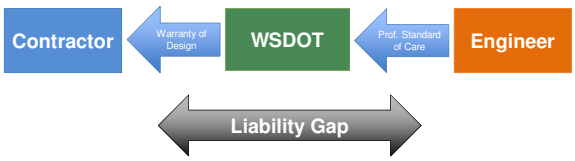
Which Project Delivery Model?

WSDOT 18

Design-Bid-Build Contract Structure



DBB "Liability Gap"



Design-Bid-Build

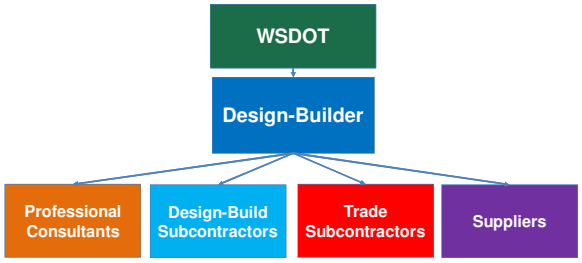
ADVANTAGES

- Well established, familiar in law and suitable for competitive bidding
- Objective Contractor Selection
- Lowest initial price
- Clearly defined roles
- Designer works directly for owner

DISADVANTAGES

- Slower
- Owner must manage two contracts
- No Contractor involvement in design
- Initial low cost might not result in best value
- Greater potential for cost/time growth

Design-Build



A Project Delivery Method in which WSDOT procures both design and construction services in the same contract from a single, legal entity referred to as the design-builder.

Design-Build

ADVANTAGES

- Best Value Selection
- Single point of responsibility
- Encourages innovation
- Lower design error risk
- Time and often cost savings
- Earlier cost and schedule certainty

DISADVANTAGES

- Reduced owner control over design
- Challenges with scoring technical evaluation factors
- Potential higher initial cost
- Parties assume different and unfamiliar risks

Making the Mental Shift

Design-Bid-Build	Design-Build
working in fragmented "silos"	Integrated teams
Frequently adversarial	Highly collaborative
Often distrustful	Focused on trust
Limited communication	Open and transparent communication
Low bid price based decisions	Best value to the project

Culture Shift

Keys to Success

- Co-location
- Formal and informal partnering
- Discipline task forces
- Shifting focus of the organization
  - Learning curve for everyone
- WSDOT maintains oversight

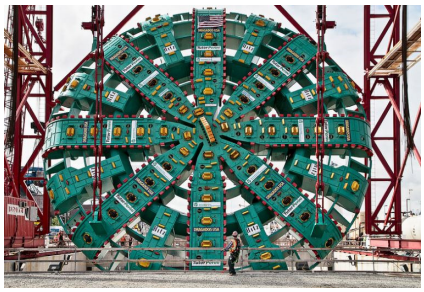
WSDOT 25

Design-Build Risk Allocation Development

- **Risk allocation developed in collaboration with the AGC/ACEC/WSDOT Design-Build Team.**
- **Goals:**
  - Promote best practices in transportation
  - Support fair risk allocation developed in conjunction with industry input
  - Select the delivery method that is appropriate for each project
  - "Right size" the risk matrix for each project

WSDOT 26

How is Project Start Up and Procurement Different in DB?



WSDOT 27

Project Delivery Method Selection Guidance ("PDMSG")

- **Uniform system for determining appropriate delivery method**
- **Final PDM (project delivery method) determined during Project Definition Phase at approximately 10 – 30% design**
- **More information can be found at** http://www.wsdot.wa.gov/Projects/delivery/designbuild/PDMSG.htm

WSDOT 28

3 Stages of Design Build

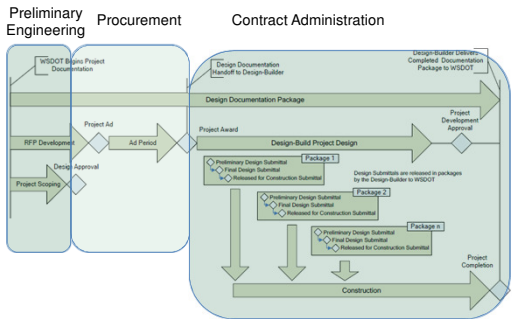


Exhibit 110-1 Design Documentation Sequence for a Typical Design-Build Project

WSDOT 29

Conceptual Design

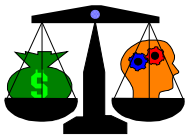
- **Basic Configuration**
  - Part of the Contract Documents
  - Proposers can rely on information
  - Proposals must be consistent with the Basic Configuration
- **Reference Documents**
  - Provides information to the Proposers to assist them in preparing Proposals
  - Designs (if any) are only to verify that Basic Configuration is constructible.

WSDOT 30

WSDOT DB Award Method

Selection Procedure

- Two-Step Selection (most typical)
  - Request for Qualifications
  - Request for Proposal
- Best-Value Award



WSDOT 31

Project Goals

- Defined early in the project
- Reflect project's needs, objectives and benefits
- Defines the "target" for the design-build team
- The RFQ and the RFP should be drafted to maximize the likelihood of achieving the project's goals.

WSDOT 32

Contract Documents vs. Reference

CONTRACT DOCUMENTS

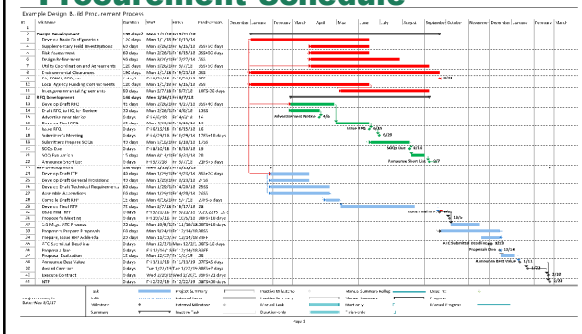
- Determine the mandatory minimums for project
- Limit "requirements" to project parameters
- Allow Proposers to innovate

REFERENCE

- Shifts risk to Proposer
- Useful information, but may be outdated
- Possible conflict with Contract Requirements

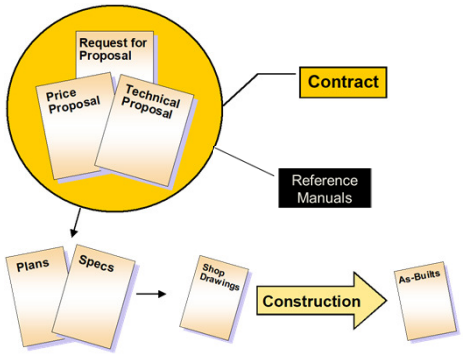
WSDOT 33

Example Design-Build Procurement Schedule



How is DB Contract Administration Different?

Design-Build Contract



Contract Structure

- **Chapter 1, General Provisions**
  - Replaces Division 1 of the Standard Specifications.
- **Chapter 2, Technical Requirements**
  - Consists of discipline-specific sections. Each section is typically broken out into the following subsections:
    - General / Scope
    - Mandatory Standards
    - Personnel Requirements
    - Design and Construction Criteria
    - Submittals

WSDOT 37

Appendices

- **Appendix A1 – the go-to appendix.**
- **Conceptual Plans**
- **WSDOT (or other) Manuals**
- **Region Policies**
- **Discipline Reports**
- **Environmental Commitments**
- **Utility Agreements**
- **As-Builts**
- **ROW plans**

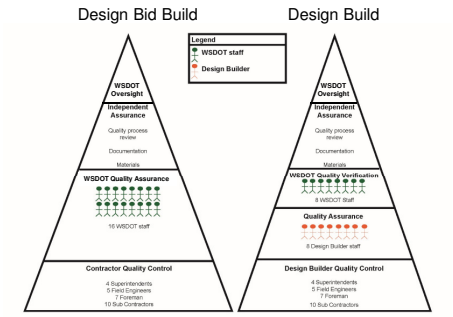
WSDOT 38

Order of Precedence

1. Change Orders
2. Design-Build Contract, excluding WSDOT Identified Betterments
3. WSDOT Identified Betterments
4. General Provisions (RFP Chapter 1)
5. Technical Requirements (RFP Chapter 2)
6. All other Contract Documents in RFP Appendix A1
7. Design-Builder's Proposal

WSDOT 39

Staffing



WSDOT 40

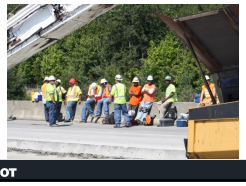
WSDOT Organization

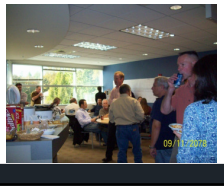
- PE / Asst. PE
- Design Engineer
- Design Reviewers
- Office Engineer
- QV Manager
- QV-Materials Engineer

WSDOT 41

Co-Location

- Definition: locating both WSDOT and Design-Builder's staff in the same facility
- Extent varies by project
- Fosters collaboration and communication





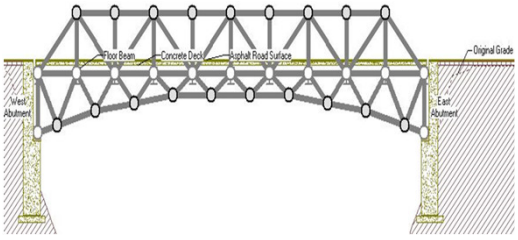
WSDOT 42

Office Administration

- Document Control
- Review and Approve QMP
- Materials/Record of Material
- Payment
- Change orders
- Federally Funded Projects

WSDOT 43

How is Design Different in DB?



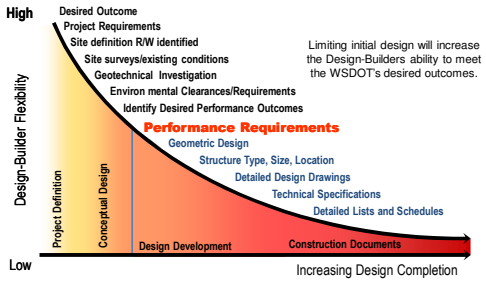
WSDOT 44

Design-Builder's Role in Design

- From (~30%) conceptual plans to 100% RFC plans.
  - Design Builder stamps the design
  - Design Builder owns risk of design errors
- Submits plan sets to WSDOT for Review and Comment (<u>not approval</u>).
- Construction starts before final design is complete
  - Not without Released For Construction plans

WSDOT 45

Varies with Level of Design



Limiting initial design will increase the Design-Builders ability to meet the WSDOT's desired outcomes.

WSDOT

As-Built Plans and Shop Drawings

- **Definition:**
  - Record of changes made to the Released for Construction (RFC) Documents
- **Revisions Supervised by Engineer of Record**
- **Submitted in Complete Package**
- **WSDOT Review**

WSDOT 47

WSDOT Role in Design

- **Owns Basic Configuration elements.**
- **Provides oversight through Review and Comment:**
  - Meets the Contract Requirements
  - "Over the shoulder" reviews
  - Beware of preferences
  - Do not direct work
- **WSDOT accepts the design at the end of the project**

WSDOT 48

Typical Review Process

- Preliminary, Final, RFC
- 14 day turnaround cycle
- WSDOT Design Manager compiles comments and checks for contract compliance
- DB sends comment responses
- Comment resolution meeting (all parties present)
- Over the shoulder review process

WSDOT 49

How is Construction Different in DB?

WSDOT 50

Design-Builder's Role in Construction

- **Manage Construction**
- **Quality Control**
- **Quality Assurance**
- **Solve problems**

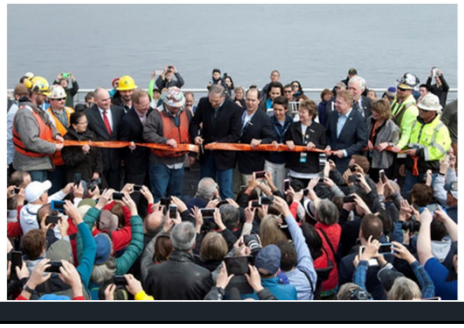
WSDOT 51

WSDOT Role in Construction

- Project Oversight
- Quality Verification
- Testing HMA
- Fabrication Inspection
- Independent Assurance

WSDOT 52

How is Document Control and Closeout Different in DB?



WSDOT 53

Contract File Index

- Essential tool
- Uniform for every project
- Administered by single person
- Tracks:
  - Design submissions, comments, and approvals
  - Submittals
  - Communications
  - Changes

WSDOT 54

Submittals

What are you expecting in the first 30-45 days of the project?

- Draft Quality Management Plan
- Emergency Communication Plan
- DBE / MSVWBE Goal Implementation Plan
- Training or Apprentice plan
- Preliminary 90-day schedule/ Baseline Schedule
- First invoice
- Escrow Proposal Documents

WSDOT 55

Submittals

After the first 45 days

- FHWA Form 1273 for all subs (Fed Aid only)
- Buy America materials documentation (if required)
- Training or Apprenticeship reporting/revisions
- Final Baseline Schedule

WSDOT 56

Documentation and Files

- **Quality Management Plan (QMP)**
  - Document Control System
- **Design Document Package (DDP) and Project File (PF)**
  - Design Approval (DA)
  - Project Development Approval (PDA)
- **Project Deliverables Checklist**
- **Materials Documentation**
- **(Construction) Final Records**

WSDOT 57

Resources

- WSDOT Design-Build Web Page
  http://www.wsdot.wa.gov/Projects/delivery/designbuild/Default.htm
- Joint Transportation Committee of Washington State Legislature Design-Build Study
  http://leg.wa.gov/JTC/Pages/Design-Build-Study.aspx
- WSDOT Design-Build Templates
- http://sharedot/eng/cn/hqconstr/dpb/DB%20Templates/Forms/AllItems.aspx
- Design-Build Institute of America Best Practices
  https://www.dbia.org/resource-center/Pages/Best-Practices.aspx
- Design-Build Institute of America Transportation Conference
  www.dbia.org

WSDOT 58

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WSDOT 59

Questions

WSDOT 60