

# **DESIGN-BUILD OVERVIEW AND LESSONS LEARNED**

**May 19, 2009**



# Design-Build Schedule

- Senate Bill No. 2196 (House Bill No. 2253) Passed: May 16, 2007
- Initial Design-Build Program Meeting: June 12, 2007
- 1<sup>st</sup> – Region 3, Signalized Intersection with no ROW acquisition required with a contract amount not to exceed one million dollars. Completed March 15, 2009
- 2<sup>nd</sup> – Region 4, Bridge and Approaches on State Route with no ROW acquisition required with a contract amount not to exceed three million dollars. Anticipated Award to Contract May 20, 2009
- 3<sup>rd</sup> – Region 2, State Route on new alignment with ROW acquisition, utility relocations, environmental requirements, RR coordination with a contract amount not to exceed fifteen million dollars. Anticipated Award to Contract August 2009
- Design-Build Standard Guidance February 3, 2009
- Approval of Final Rule (posted on TDOT's Construction Website): June 30, 2008
- After each project is complete a summary report of benefits/challenges On-going



# Senate Bill No. 2196 (House Bill No. 2253)

The Department's authority to use design-build contracting procedures shall be subject to the following limitations:

- The Department may initiate up to fifteen (15) design-build contracts in any one fiscal year if the contract has a total estimated contract amount of less than one million dollars (\$1,000,000).
- The Department may not initiate more than five (5) design-build contracts in any one fiscal year if the contract has a total estimated contract amount in excess of one million dollars (\$1,000,000).
- If the proposed design-build contract has a total estimated contract amount in excess of seventy million dollars (\$70,000,000), the Department shall specifically identify the project as a proposed design-build project in the Transportation Improvement Program (TIP) submitted annually to the general assembly in support of the Commissioner's annual funding recommendations.



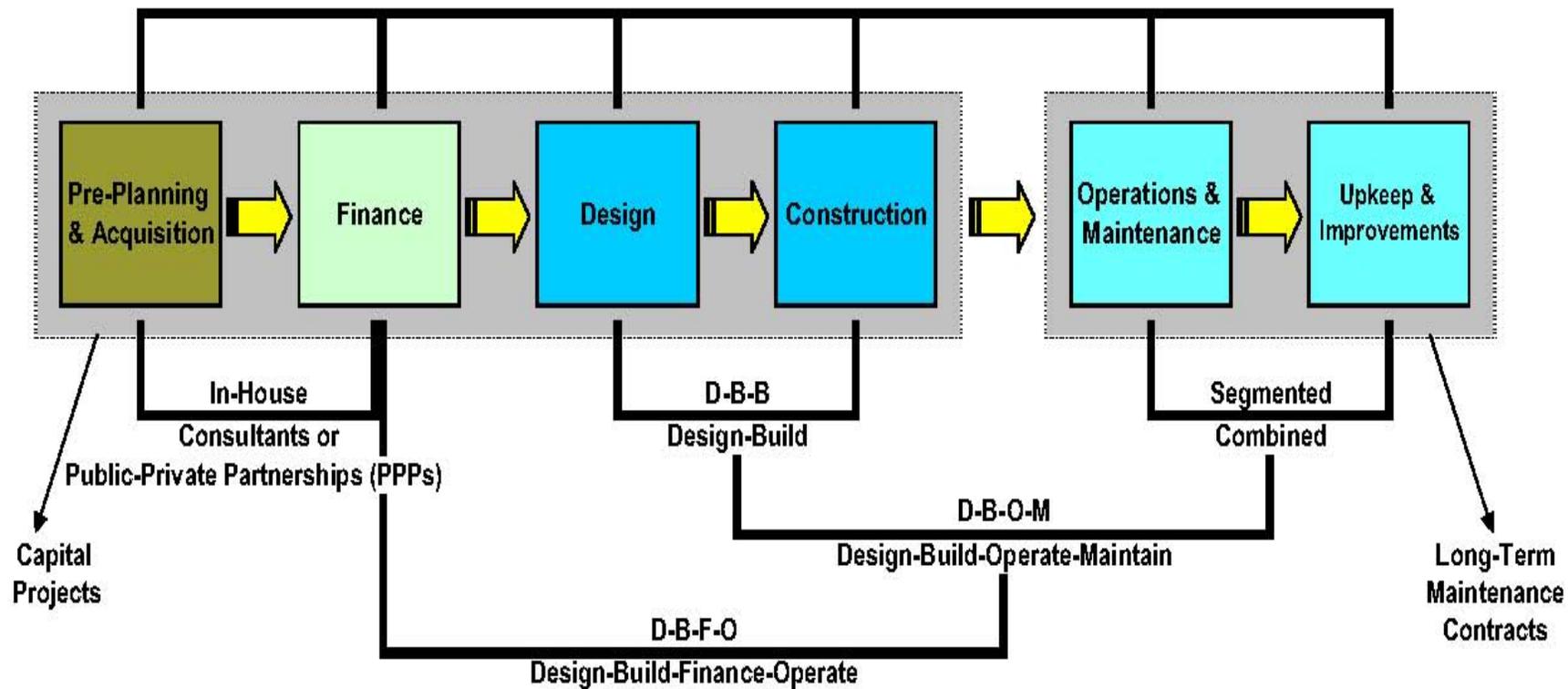
# Design-Build Benefits

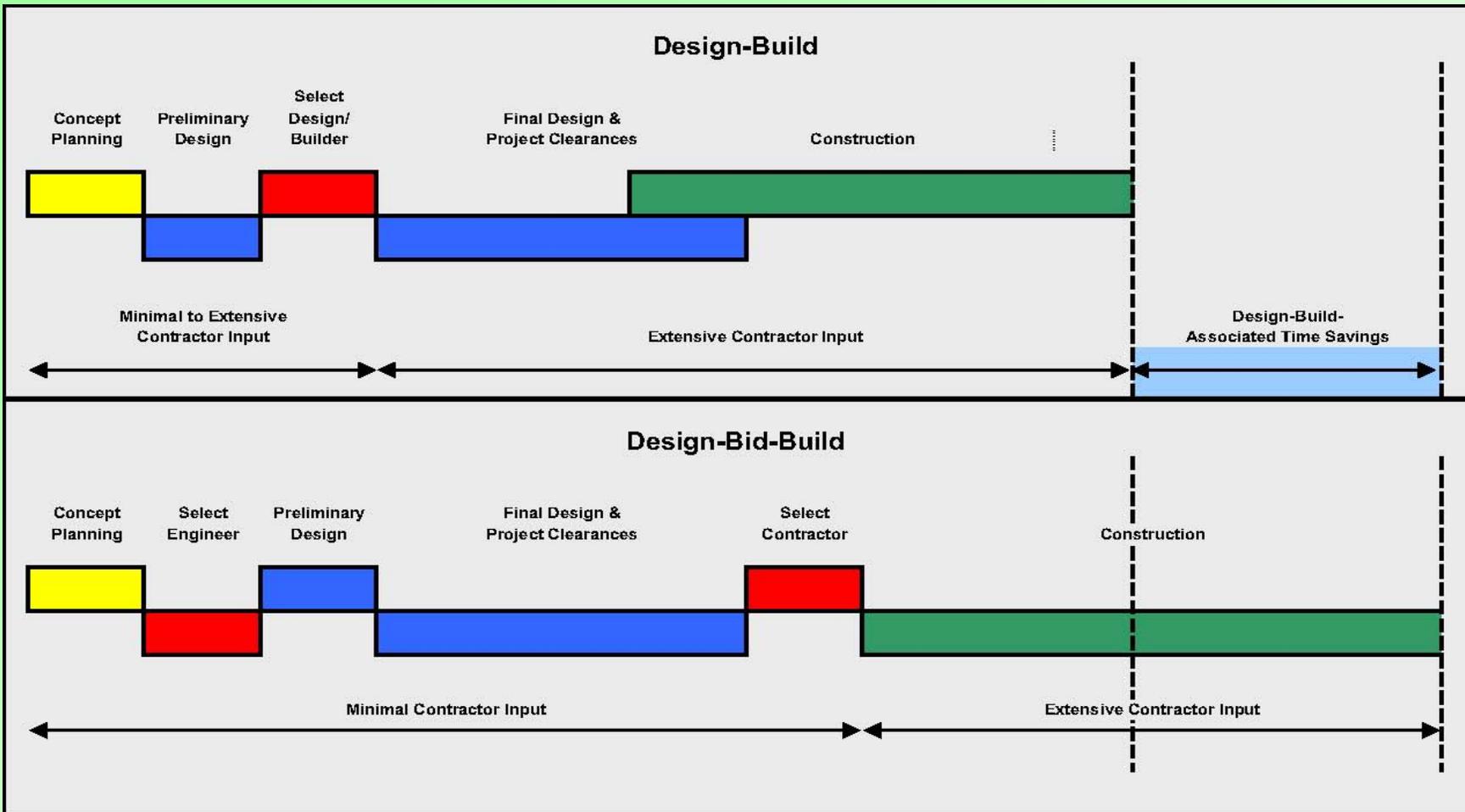
- Shortened completion time (expedited delivery) by overlapping design and construction;
  - ROW may be certified in segments or groups;
    - Construction can begin before all design details are final;
  - Greater innovation and flexibility in selecting design, materials and construction methods;
- Reduced claims due to design errors because construction happens under same contract;
  - Easier contract administration for the Department and promotes a partnering approach;
- Accelerated response time and dispute resolution through a team effort;
- Single contact point for quality, cost and schedule from design through construction;
  - Shortened project delivery time which can reduce user costs;
- Use of best-value project award selection criteria which evaluates both technical and financial elements.

# Design-Build Challenges

- High learning curve because design-build changes stakeholders' roles;
- Parties are familiar with traditional methods (Design-Bid-Build (DBB));
  - Bidding process more expensive for design-build teams;
  - Coordination is more challenging due to faster pace;
  - Accurate assignment of risk and costs associated;
- It is yet to be proven that Design-Build will yield designs more economical than those performed in-house. It will be prudent to monitor costs to prove the effectiveness of the program.

Full Delivery or Program Management





Duration Dimension	Value	Cost Dimension	Value	Quality Dimension	Value
Responses	62	Responses	48	Responses	61
<b>Average</b>	<b>-14.1%</b>	<b>Average</b>	<b>-2.6%</b>	<b>Average</b>	<b>0.0%</b>
Median	-10.0%	Median	0.0%	Median	0.0%
Mode	-0.1%	Mode	0.0%	Mode	0.0%
Maximum	50.0%	Maximum	65.0%	Maximum	10.0%
Minimum	-63.0%	Minimum	-61.8%	Minimum	-10.0%
<b>Standard Deviation</b>	<b>24.4%</b>	<b>Standard Deviation</b>	<b>20.5%</b>	<b>Standard Deviation</b>	<b>2.1%</b>

30% to 50% TDOT time savings



# Design-Build Process

The objective of DB is to deliver projects better, faster, with fewer Department resources than the conventional Design-Bid-Build method. The DB process can be summarized by the following activities:

1. Identification that the project is a potential candidate for DB;	13. Approval by DBEOC of short listed DBs;
2. Identification of project risks;	14. Notify Short listed DBs;
3. Recommendation to & approval by DB Executive Oversight Committee (DBEOC);	15. Request for Proposal (RFP) preparation
4. Selection of a DB Review Committee (DBRC);	16. Funding authorization request & approval;
5. Obligation;	17. Release RFP to short listed DBs;
6. Determination of Scope;	18. Submission of the DB's Proposals;
7. Base data gathering;	19. Evaluation of DB's Technical Proposal;
8. Request for Qualifications (RFQ) preparation;	20. Determination of best evaluated DB in accordance with the selection method;
9. Advertisement of the proposed DB project through RFQ;	21. Public opening of DB's Price Proposal;
10. Submission of Statement of Qualifications (SOQ);	22. Recommendation for action to the DBEOC by the DBRC and FHWA concurrence;
11. Evaluation of SOQs;	23. Award of a DB contract, or rejection of all proposals, by the Commissioner;
12. Determination of the most qualified DBs (short listing);	24. Administration of the DB Contract.



# Potential DB Candidates

Types of work on projects that may be given initial consideration are:

1. Projects where design and construction need to be expedited for the public good.
2. Emergency Projects with tight time constraints.
3. Projects with complex constructability or traffic phasing issues.
4. Projects affording opportunities for innovation in the design and/or construction efforts.
5. Unusual projects that do not lend themselves to normal D-B-B procedures.
6. Projects where in-house staffing cannot meet the project demands.
7. Projects where construction phasing is a major issue.

Once a project receives initial consideration the following projects are applicable project candidates:

1. New location projects.
2. Widening or rehabilitation projects of major transportation facilities.
3. Construction or re-construction projects of major transportation facilities.
4. Project with heavy traffic volume.
5. Large or unique bridge projects.
6. Bridge replacement on major transportation facilities.
7. ITS development, or integration, on transportation facility networks.
8. Interchange construction or re-construction on major transportation facilities.
9. Rest areas, welcome stations.



# Design-Build Committees

The DB Executive Oversight Committee (DBEOC) oversees the project's DB procurement process development. The DBEOC includes the Department's Chief Engineer (serving as the DBEOC Chairperson), the Assistant Chief Engineer of Operations, and the Director of Construction with assistance from the DBRC chairperson.

- The DB Review Committees (DBRC) ensures oversight, development, support and management of the DB project requirements, development of the procurement documents and selection process.
- The DBRC is a group of individuals designated by the department including qualified (education and experience) representatives (with at least two licensed Professional Engineers). Representatives will vary on a project-by-project basis.
- The DB Program Manager shall serve as the DBRC chairperson and will oversee the administration of the overall contract once awarded.
- The DBRC may include personnel from the following Department Divisions:

Construction (Contract Administration and Regional)	Project Management	Planning
Survey and Design	Structures	Environmental
Additional department engineering and technical experts may be selected by the Chief Engineer to serve as committee members on a project-by-project basis		



# Identifying and Allocating Risk

Issues related to DB contracting that should be reviewed and considered in the allocation of risk and assignment of responsibility includes

Funding/Cost	Construction administration	Utility relocations
Right-of-Way acquisition	Permit requirements	Hazardous materials
Inflation	Schedule	Third party claims
Third party involvement	Performance guarantees/warranties	Public involvement
Design reviews/approvals	Contract terms	Contract changes
Liquidated damages	Liability	Ownership of ideas
QC/QA responsibilities	Incentives/disincentives	Geotechnical



# Request for Qualifications (RFQ)

- Solicitation of RFQ (website only); RFQ is only released by request as stated in the solicitation.
- The RFQ:
  - may be released prior to the conclusion of the NEPA review process. Prior to completion of the NEPA, any preliminary engineering and other activities and analyses will not materially affect the objective consideration of alternatives in the NEPA or TEER review process
  - informs DBs of the general status of the NEPA process.
  - shall outline the tentative general scope, description, location, and anticipated procurement schedule for each proposed DB project.
  - shall state the evaluation criteria and scoring of the Statement of Qualifications (SOQs)
  - will outline the basic format, schedule, stipend and selection method on a project-by-project basis (e.g., adjusted low bid, fixed price/best design, weighted criteria process, lowest price-technically acceptable, etc.) for the RFP. Time will be a factor in all selection methods.
- SOQ submittal package in response to the RFQ includes:
  - A letter of interest .
  - Response to all categories to evaluation criteria and scoring.
  - A demonstration of the DB's strengths allowing the Department to determine which of the DBs are the most highly qualified.
  - specialized capabilities.



# SOQ Scoring Criteria

RATING	DESCRIPTION	DESCRIPTION (Key Personnel)	Score
Excellent	The DB's ability and experience greatly exceeds the stated requirements/objectives, offering material benefits and/or added value, and providing assurance that a consistently outstanding level of quality will be achieved. There is very little or no risk that the DB would fail to satisfy the requirements of the Contract.	The KP's ability and experience greatly exceeds the stated objectives, offering material benefits and/or added value, and providing assurance that a consistently outstanding level of quality will be achieved.	76 to 100
Superior	The DB's ability and experience significantly exceeds the stated requirements/objectives, offering advantages, benefits and/or added value, and providing assurance that a level of quality will be achieved that is materially better than acceptable. There is little risk that the DB would fail to satisfy the requirements of the Contract.	The KP's ability and experience significantly exceeds the stated objectives, offering advantages, benefits and/or added value, and providing assurance that a level of quality will be achieved that is materially better than acceptable.	51 to 75
Good	The DB's ability and experience materially exceeds the stated requirements/objectives and provides assurance that the level of quality will meet or exceed minimum requirements. Little or minimal unique characteristics are present.	The KP's ability and experience materially exceeds the stated objectives and provides assurance that the level of quality will meet or exceed minimum requirements.	26 to 50
Marginal	The DB's ability and experience provides satisfactory assurance that the level of quality will meet or marginally exceed minimum requirements. There may be questions about the likelihood of success and there are questions about the likelihood of success that the DB may fail to satisfy the requirements of the Contract. No unique characteristics are present.	The KP's ability and experience provides satisfactory assurance that the level of quality will meet or marginally exceed minimum requirements.	1 to 25
Poor	The category fails to meet stated requirements/objectives and provides unsatisfactory assurance that the minimum level of quality will be achieved. There are questions about the likelihood of success and there is risk that the DB will fail to satisfy the requirements of the Contract.	The KP's fails to meet the five (5) years minimum requirement of experience in or managing projects of similar scope and magnitude or the licensing requirements.	0



Scoring converted to point assignment

# Short-Listing

- A formal ranking document will be developed and provided to the DBEOC for review and approval.
- The Department will short-list at least three (if any) of the most qualified Design-Builders.
- If less than three (3) acceptable responses to the RFQ are received, the Department may proceed with the RFP subject to the approval of the Chief Engineer.
- If more than one of the lowest ranked DBs receives the same score, the Department will make the decision, in its sole discretion, whether or not to short-list those Design-Builders.
- The DB Program Manager will meet with the DBEOC to concur in the listing.
- The DB Program Manager will notify all DB's submitting SOQs in writing or by e-mail of their successful or non-successful selection and will invite those short-listed to submit a proposal in accordance with the RFP. The short-listing will be posted to the DB website. Only the short-listed DB's will be eligible to submit proposals in response to the RFP for the Project.
- No information regarding the deliberations by the DBRC, the short-list recommendation, or other information relating to the evaluation process will be released (except to authorized persons) or publicly disclosed. The established SOQ evaluation procedure for each project is deemed to be sensitive information and will not be publicly disclosed unless otherwise provided for by law.
- The department will allow reviews of the SOQs in the HQ Construction Office; however requests shall be made after award of the contract.



# Project Scope

The scope should describe in enough detail to produce a proposal:

- the existing conditions and the expected outcomes;
- project's NEPA Decision Document, and commitments of the document;
- the project objective;
- The project goals;
- what development activities the Department will complete;
- what degree of definition needs to be provided to describe the activities;
- how to transfer, share, or manage the risks inherent in the scope and activities;
- Selection method and stipend.

Value Engineering of the scope still required federal projects



# Request for Proposals (RFP)

- Department Estimate and Approval of FHWA to release the RFP.
  - Release of the RFP to the short-listed DB's by CD.
  - The RFP:
    - may be released prior to the conclusion of the NEPA review process (still requires FHWA approval, but funding and physical construction will be affected); however this is an unlikely departmental practice.
    - shall outline the detailed contract requirements, submittal instructions, scope, description, location, and procurement schedule, stipend and selection method for the DB project.
    - shall state the specific evaluation criteria and scoring of the Technical Proposal and submittal criteria for the Price Proposal.
  - The RFP project structure includes:
    - RFP Contract Book 1 (Instructions to Design-Builders - ITDB)
    - RFP Contract Book 2 (Design-Build Contract)
    - RFP Contract Book 3 (Project Specific Information)
    - Reference Documents (DB Standard Guidance and Addendum; the Department Standard Specifications; the Department Supplemental Specifications; the Department Design Guidelines, and Addendum; the Department Construction Circular Letters; the Department Standard Drawings; all other programmatic plans or any other reference documents; all material included by Reference in any of the above documents)
  - Proposal Technical package in response to the RFP includes:
    - Response to all categories to evaluation criteria and scoring including the Technical Solution (Concept)
    - A demonstration of the DB's approaches to: Expertise, Organization, Project Understanding, Project Management, Schedule Management, Environmental Compliance, Innovation, and Context Sensitive Solutions.
- Oral Presentation



# Technical Scoring Criteria

RATING	DESCRIPTION	Score
Excellent	The DB's ability and experience greatly exceeds the stated requirements/objectives, offering material benefits and/or added value, and providing assurance that a consistently outstanding level of quality will be achieved. There is very little or no risk that the DB would fail to satisfy the requirements of the Contract.	76 to 100
Superior	The DB's ability and experience significantly exceeds the stated requirements/objectives, offering advantages, benefits and/or added value, and providing assurance that a level of quality will be achieved that is materially better than acceptable. There is little risk that the DB would fail to satisfy the requirements of the Contract.	51 to 75
Good	The DB's ability and experience materially exceeds the stated requirements/objectives and provides assurance that the level of quality will meet or exceed minimum requirements. Little or minimal unique characteristics are present.	26 to 50
Marginal	The DB's ability and experience provides satisfactory assurance that the level of quality will meet or marginally exceed minimum requirements. There may be questions about the likelihood of success and there are questions about the likelihood of success that the DB may fail to satisfy the requirements of the Contract. No unique characteristics are present.	1 to 25
Poor	The category fails to meet stated requirements/objectives and provides unsatisfactory assurance that the minimum level of quality will be achieved. There are questions about the likelihood of success and there is risk that the DB will fail to satisfy the requirements of the Contract.	0



Scoring converted to point assignment

# Selection and Award of DB Contract

- The DBRC via the DB Program Manager will forward a recommendation to the DBEOC either to:
  - Reject all proposals; or
  - Award a DB contract to the best evaluated DB.
- Upon receiving the DBRC's recommendation via DB Program Manager (and FHWA concurrence in award recommendation), the Commissioner may either:
  - Reject all proposals; or
  - Award a DB contract to the best evaluated DB.
- After successfully awarding the contract to the best evaluated DB, the Department will proceed to execute a contract. The DB awarded the contract shall provide a performance and payment bond for the contracted amount.
- After the Design-Build contract has been successfully awarded, the Department may publish the technical scores and adjusted prices on the Department's website.
- All short-listed Design-Builders will be afforded the opportunity for a debriefing with the Department regarding the relative merits of their Technical and Price Proposals after award of the contract.



# Administration of the DB Contract

- The Department Alternative Contracting Office within the HQ Construction Division serves the Department and the Design-Builder in administration of the contract.
- After award, personnel in this office are available to assist the Department and the Design-Builder with answers to their questions about the DB Program.
- The DB Standard Guidance is the basic structure of the administration of a DB contract. The procedures differ slightly from the traditional procedures, but only when necessary.
- Notice to Proceed documents are used at each milestone and are issued by the Alternative Contracting Office.
- The members of the DBRC shall be the designated contact for their respective division. The Designated contact names will be given to the Design-Builder after award of the Contract. These may include:
  - Construction Project Supervisor
  - Design Manager
  - Environmental Manager
  - ROW Manager
  - Utilities Manager



# Lessons Learned

## Key lessons included

- Carefully choosing projects appropriate for Design-Build;
- Adequately preparing to procure and manage a Design-Build project;
- Developing templates to standard procurement procedures for all types of projects and selection criteria;
- Developing DB Standard Guidance for contract administration;
- Better allocation of risk by defining the department and DBs project responsibilities.
- Leaving design scope “dynamic,” with performance criteria designed to drive the creativity of the Design-Builder;
- Allowing Alternate Technical Concepts
- Maintaining communications between the contracting agency and Design-Builder;
- Start slow and grow the process;
- Reducing the potential for design errors and omissions;
- Allowing for more concurrent processing of design and constructing activities for different portions of the same project;
- Time Value is the most savings.



# Questions?

