

# MICHIGAN DEPARTMENT OF TRANSPORTATION & Innovative Contracting Methods

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**ACEC** of Michigan  
AMERICAN COUNCIL OF ENGINEERING COMPANIES

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# MDOT's History with Innovative Contracting

## Design-Build & Design-Build-Finance

- Bridge Replacements, Bridge Rehabilitations, and Freeway Reconstruction
- Intelligent Transportation System (ITS) Project
- Typically Used in Response to New Funding
- Emergency Response

## Construction Manager at Risk

- Passenger Ship Terminal and Wharf Facility in Detroit
  - Detroit Wayne County Port Authority project administered through MDOT Bureau of Passenger Transportation and MDOT Local Agency Programs

## 2008 Highways for Life Project on M-115

- Road Rehabilitation Project
- Best-Value Selection



# Why Design Build?

- Time Savings
- Innovations
- Address Infrastructure Needs
- Added Contracting Tool
- Added Project Finance Tool  
(Design/Build/Finance)
- Emergency Response
- Public/Private/Partnerships

# Initial Project Selection

- **Target Projects That Utilize The Benefits of Design-Build**
  - Schedule Driven
  - Innovative Solutions Available
- **Challenging Areas on Design-Build Projects**
  - Coordination with Rail Road facilities
  - Fast Track Utility Coordination
  - Areas with Significant Unknown Risks
  - Financial Component in DBF
  - Permitting Requirements that Cannot be Quantified (timing and/or requirements from permitting agency)
  - Right-Of-Way Issues
  - Evaluation of Design Exceptions
  - Evaluation of Existing Drainage Facilities
  - Availability and Scheduling of Internal Staff

# Current MDOT Design Build Process

- MDOT Has Not Committed to Instituting a Formal DB program
- Selection of “On-Demand Consultant” (ODC)
  - 4 Consultants Short-listed by MDOT for work on any phase of any DB project (HNTB, PB, URS, Wilcox)
  - ODC Process Established for Quick Response Required for Economic Stimulus Programs
  - Can Be Used for Contract Development and Construction Engineering
- Potential DB Projects Identified by Region and Central Office Staff
- MDOT and ODC Develop Contract Requirements and Data Supplied for DB teams
  - Review Project Details to Determine Procurement Method
  - Perform Initial Risk Assessment to Allocate Contractual Risk Elements
  - Gather data included in RFP (Survey, Geotech, Environmental)
  - Set up Web-site for Submittals
  - Determine Method of Procurement

# Current MDOT Design Build Process

- **Request For Qualifications**
  - Used to Short-list DB Teams
  - Contains Short-listing Criteria
  - General Project Information
  - Stipends May Be Available for Contracts That Utilize a Short-listing Process
- **Request For Proposal (RFP) Content**
  - **Instructions to Proposers (ITP)**
    - *Contains information on how to Bid the project, Pre-bid meeting dates, Designer and Contractor Pre-Qualifications, Alternative Technical Concepts, Technical Proposal Requirements, Stipend Information*
  - **Book 1** – General Contract Requirements
  - **Book 2** – Project Specific Details
  - **Book 3** – Applicable Standards
  - **Reference Information Documents (RID)**
    - *Non-Contractual Data*

# Current MDOT Design Build Process

- Post Award and Construction
  - Submission of various items for design, TMP, Public Involvement, Permitting, etc.
  - Construction Begins after Released for Construction (RFC) Documents are Accepted by MDOT.
  - Designs for Various Elements can be Submitted Individually
  - Payments Based on a Schedule of Values
  - Oversight is at the Same Level as on Traditional Projects
  - Changes From RFC's Need to go to the DB Designer
  - Field Manager/Field Build Used to Track Materials

# Common Design Build Comments

- **Design Build Project Costs More/Less than Traditional Procurements**
  - “Typically” the initial cost is slightly above a DBB contract at the time of a letting
  - “Typically” DB projects have significantly less contract overruns/extras during construction
  - MDOT Is Evaluating The Costs Involved with Utilizing DB Procurements
- **If you don't have time for a traditional project... Use Design Build**
  - FHWA's initial report from the SEP-14 DEB projects indicate an average time savings of 14%.
    - *MDOT DB projects have realized a time savings*
  - Accelerating a project does necessarily reduce the amount of work of an agencies staff
  - Accelerating DB projects may increase workload of MDOT's staff
  - Tight time frames may push additional risk to a DB team



# Common Design Build Comments

- **You need 30% Design on all DB projects**
  - Varies greatly with each project
  - Increase design is needed to mitigate project specific risks
- **How can we get Stipends?**
  - Stipends will only be used on a 2 Step (Short-listing) process
  - Stipends will vary depending on the size and complexity of the project



# MDOT's Future with Innovative Contracting

- Evaluate the Recent Contracts
  - Incorporate Lessons Learned from Recent Projects
  - Establish Procedures for Future Projects (MDOT Technical Agenda)
    - *Project Selection*
    - *Development Procedures*
    - *Construction Administration*
  - Educate Staff on DB Procurements
  - Document Best Practices for Use on Future Projects
- Future Stimulus Projects
- Programmatically Selected Projects
- Emergency Response
- Applications in Public-Private Partnerships

# Anticipated Future Stimulus Program Requirements

- 90 Days to Contract Award for Half the Funding
  - ARRA Had a Requirement of 120 Days to Obligation For Half the Funding
- How this Impacts Potential Design Build Projects
  - Less Time to Develop RFQ's and RFP's
  - Less Time to Gather Data to Include in the RFP
  - Shorter Advertisement Periods (4-5 weeks)
  - Potential for Additional Risk Transferred to the Design Build Teams
  - Expedited Awards
  - Multiple DB and Traditional Projects May Have The Same Letting Date

# Design-Build

Eric Johnston, P.E

Rowe Professional Services Company



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# Design/Build – Design Team's Perspective

- **I-69 Design-Build-Finance Project**
  - Total reconstruction of 6 miles of I-69 in St. Clair County
  - Reconstruction of the Capac Road Interchange Ramps
  - Pavement rehabilitation at Capac Rest Area (also ADA ramp upgrades)
  - Rehabilitation work on 3 bridges
  - Drainage upgrades
  - Signing / Pavement Markings
  - Installation of a Permanent Intermittent Weigh Station and Permanent Traffic Sensor

# Design/Build – Design Team's Perspective

## **Contractor:**

- Interstate Highway Construction, Inc.

## **Lead Design Consultant:**

- Rowe Professional Services Company

## **Design Sub-Consultants:**

- Williams & Works, Inc.
- Parsons Transportation Group of Michigan
- Somat Engineering, Inc.
- Aamazon Natural Resources Consulting, LLC

# Design/Build – Design Team's Perspective

## Design-Build-Finance

- New delivery method for MDOT – Still some bugs to work out of the system
- New delivery method for Contractors – Need to break out of old habits
- New delivery method for Consultants – New partner, new rules

# Design/Build – Design Team’s Perspective

## Design Consultant Positives:

- **Designer is working closely with the Contractor during the procurement and design process.**
  - Gives designer a better understanding of the Contractor’s work methods and abilities
  - Designer is able to “re-think” work process to maximize Contractor’s efficiencies
  - Great for design team (especially younger engineers), working with the Contractor and looking at the project through their eyes
  - A close teaming process during design should result in a decrease of issues during construction
- **Allows Contractor’s team to propose options (Alternative Technical Concepts) during the procurement phase**
  - Promotes “Out of the Box” thinking
  - Not always accepted by MDOT
  - Need to give reasons why ATC should be accepted
- **Still allows for Value Engineering during the design/construction process (not on I-69 DBF)**

# Design/Build – Design Team’s Perspective

## Design Consultant Positives:

- Utilizes a share point website to electronically transfer data and comments back and forth between MDOT (their team) and the Contractor (their team)
  - Much more efficient process
  - Central location where information on project is available
  - Tracks where submittals are at and who is responsible for getting information out
  - Allows for electronic Requests for Information (RFI’s)
- Utilized “Comment Tracker Form” for submittals
  - MDOT reviews, weeds out comments that don’t apply and provides a concise list of issues to be addressed for that submittal
  - Contractor is able to address comments and specifically respond to each
- Requires that the Contractor’s design team be more involved with the project during construction
- Over the shoulder reviews during design

# Design/Build – Design Team’s Perspective

## Design Consultant Negatives:

- **Submittals and meeting process**
  - A lot of meetings!!
  - Over the shoulder reviews were great, although spacing of meetings didn’t always work well
  - Very fast paced. Contractor’s team can be moving very fast towards getting RFC acceptance. Limiting time available for review must also be a priority of MDOT.
- **Statements such as “As Approved by MDOT”**
  - This can change the work substantially depending on who is reviewing the project
- **MDOT Review Process**
  - To many individuals reviewing the project
  - Conflicting comments between reviewers
  - Not everyone familiar with Design/Build process and Contract Proposal

# Design/Build – Design Team’s Perspective

## Design Consultant Negatives:

- “Guidelines” for design being utilized as mandatory requirements
  - Words such as “should, may, could and can” are being interpreted as “shall”
  - You are directed to disregard words such as “usually, normally and generally”
- New delivery process – MDOT still trying to hold onto to as much control as possible
- May not be reimbursement for procurement from MDOT
- Competitive bid

# Design/Build – Design Team's Perspective

## Issues Design Team must be aware of for DB projects:

- The design team must know and understand the entire Contract Proposal
  - Single sentences that you may overlook during procurement may end up causing issues during construction
- The design team must be involved with the project during construction
  - MDOT (or their representatives) will not tell the contractor how issues need to be resolved in the field. This is the designers responsibility.
  - This is especially important for the preparation of quality As-Built drawings
  - Very different from what the contractor is use to and can be hard for them to accept
- Any changes during construction are the responsibility of the Design team
  - No deviations from RFC plans are allowed unless accepted by MDOT
  - MDOT will want to see revised plans for acceptance prior to implementation of changes in the field
- MDOT observes, Contractor and their Engineers are responsible for giving direction and answering questions

# Design/Build – Design Team’s Perspective

## Issues Design Team must be aware of for DB projects:

- You may have designed numerous projects for MDOT, but that doesn’t mean that you will be able to utilize the same methodology for a design-build project
- Who is responsible for misses/overages on project construction items during the design-build project?
  - You need to discuss this with your Contractor and design team members on what your liability is for the project
- Contractor must be involved during the design process. This will help eliminate finger pointing on issues during construction.
  - This is truly a “teaming” process
- *Design plans are still required!!*
  - Do not short yourself on design budget because you believe that a simpler plan set will be acceptable
  - RID documents are non-contractual. If there are issues with these then you need to correct them on your dime
  - Review As-Built requirements

# Design-Build

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URS

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**URS**

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# DB from Design/Development/CE Perspective

## URS MDOT Experience

- **M-21 over I-75, Flint**
  - Dan's Excavating as prime
  - Design-build-finance
  - 2-step best value with stipend
- **I-96 from Wacousta to M-43**
- **ITS projects in Grand Region**
- **9 Mile Road over I-75**



# DB from Design/Development/CE Perspective

## Lessons Learned

- **Emphasize teamwork**
- **Tap into collective expertise**
- **Stress collaboration between design & construction professionals**
  - **Construction attend design meetings**
  - **Design attend construction meetings**



# DB from Design/Development/CE Perspective

## Lessons Learned

- **Increase designer interaction with suppliers**
  - Material cost
  - Material availability
- **Break design into components**
- **Minimize “at-risk” where possible**
  - Schedule / OTS meetings

# DB from Design/Development/CE Perspective

## Design-Builder Relationship Suggestions



- **Communicate!!!!**
- **Question contractor on preferences**
- **Inform regards driver behind design decisions**
- **Allow for variability in materials**
- **Weigh costs in design decisions**

# DB from Design/Development/CE Perspective

## Design-Builder Relationship Suggestions



- **Take a new perspective with the contractor**
  - They are in control throughout
  - They are ultimately responsible
  - Designer is on their team
- **Submittals**
  - Contractor must sign-off
  - Implementation and execution
  - Updated drawings in field

# DB from Design/Development/CE Perspective Designer and Builder Contract Suggestions

- **Clarify scope of work and extra work**
- **Price considerations**
  - Temporary works
  - TMP performance assessment
  - SESC inspections
  - Regular construction site visits
- **Consider schedule in contract**
  - Mitigate schedule changes
  - Mitigate LD's



# DB from Design/Development/CE Perspective

## Designer and Builder Contract Suggestions

- **Payment terms**
- **MDOT > contractor exposure to site damage in DB contract**
- **Determine liability limitations**
  - Limit exposure to contractor costs
  - Consider two tier
- **Negotiate contract early**





# QUESTIONS

