2018 Design-Build Peer Exchange

November 27-29, 2018
Columbia, South Carolina

Final Report
February 4, 2019
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INTRODUCTION AND PURPOSE

The Federal Highway Administration (FHWA)-South Carolina Division (FHWA-SC) and the South Carolina Department of Transportation (SCDOT), in conjunction with the FHWA-Resource Center (FHWA-RC), delivered a design-build peer exchange at the request of the SCDOT Preconstruction Design-Build Group. The peer exchange was held November 27 to 29, 2018 in Columbia, South Carolina at the 1208 Washington Place meeting facility.

The purpose of the peer exchange was to facilitate sharing of best practices between SCDOT, the invited states, and FHWA. Of particular interests were eight design-build topics that SCDOT continues to improve upon so that its use of the design-build project delivery method will continue to be efficient and effective. In addition and as outlined by FHWA, the use of a peer exchange was established to provide state DOT programs with the opportunity to examine and evaluate their own programs through a collaborative team of peers, experts, and persons involved in the process, where the exchange of vision, ideas, and best practices could be fostered to benefit their program and the program of the participants.
PEER EXCHANGE ORGANIZATION

SCDOT established a committee to organize the exchange. The committee consisted of members from SCDOT’s Design-Build Group, construction, legal, procurement, and FHWA. In May 2018, the committee began meeting weekly to identify the event location, obtain the requisite agency approvals, create the agenda, select state participants, and brainstorm topic issues.

The committee determined that 10 states would be invited to participate. FHWA counterparts for each of the 10 states were also invited to attend along with all SCDOT staff involved in delivering design-build projects.

The selection of the states participating in this peer exchange was determined based on the agenda topics, SCDOT’s and FHWA’s knowledge of state programs, and available budget. In addition, SCDOT strongly considered inviting neighboring states due to their repeated interaction with the same design-build contracting entities. As a result, SCDOT invited 10 states to participate in this peer exchange. Unfortunately, Texas was unable to attend due to prior commitments. Summary information of the nine states that did attend and participate is provided in the table below.

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<th>Title</th>
<th>D-B Program Age</th>
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<tr>
<td>North Carolina</td>
<td>Teresa Bruton</td>
<td>Design-Build Manager</td>
<td>18 Years</td>
</tr>
<tr>
<td>Georgia</td>
<td>Darryl VanMeter</td>
<td>State Innovative Delivery Engineer</td>
<td>11 Years</td>
</tr>
<tr>
<td>Georgia</td>
<td>Andrew Hoenig</td>
<td>Innovative Delivery Project Manager</td>
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</tr>
<tr>
<td>Virginia</td>
<td>Jeff Roby</td>
<td>Assistant State Engineer APD</td>
<td>17 Years</td>
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<td>Florida</td>
<td>Kathy Thomas</td>
<td>District 2 Design Engineer</td>
<td>20 Years</td>
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<td>Minnesota</td>
<td>Peter Davich</td>
<td>Design-Build Program Manager</td>
<td>21 Years</td>
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<tr>
<td>Arizona</td>
<td>Jesse Gutierrez</td>
<td>District Engineer</td>
<td>15 years</td>
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<tr>
<td>Colorado</td>
<td>Matthew Pacheco</td>
<td>Region 6 Project Manager</td>
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<tr>
<td>Missouri</td>
<td>David Simmons</td>
<td>State Design-Build Coordinator</td>
<td>13 Years</td>
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<tr>
<td>Washington</td>
<td>Jolena Missildine</td>
<td>State Design-Build Engineer</td>
<td>19 Years</td>
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In comparison, SCDOT has been utilizing the design-build project delivery method for 23 years. In 2014, SCDOT established the Preconstruction Design-Build Group which is comprised of 12 design-build engineers.

The Committee identified eight topics of interest within SCDOT’s design-build program that would be addressed at the exchange. A participation form was sent to each of the states requesting that they select three topics, in priority order, from the topic list in which they were most knowledgeable and willing to present their experiences and lessons learned.
After reviewing the responses, the committee identified which states would present on the selected topics. The eight topics for discussion included:

- Design-Build Preparation
- Risk Allocation
- Effectiveness Metrics
- Conceptual Estimating
- Best-Value and Cost Proposal Analysis
- Information Exchange
- Alternative Technical Concept (ATC) Process
- Quality Management and Construction Oversight

A panel discussion format was used to discuss each of the eight topics. Each panel consisted of three state representatives. Facilitators from SCDOT were assigned to each panel session. The facilitators presented a three to five minute overview of SCDOT’s process relating to the topic. Each panelist provided a 10 minute presentation on the topic. After all presentations, open discussion of the topic followed. Each session was to be approximately two hours long to allow for adequate open discussion. Each facilitator had topic questions and poll surveys prepared to steer discussion as necessary.

To provide additional opportunities for exchange and networking, the SCDOT Design-Build Office arranged for an informal networking reception on Wednesday evening. At the end of the exchange, participants were offered professional development hour (PDH) certificates.
KEY TAKEAWAYS

1.1 Design-Build Preparation

- SCDOT typically does not acquire permits prior to design-build contract execution, does not perform early acquisition of ROW, and does not perform early relocation of utilities. However, we are currently reevaluating how to better share this risk.
- FDOT acquires permits prior to awarding a design-build contract to mitigate risk. FDOT believes that if a permit modification is needed then the modification of an existing permit is faster than getting a new permit.
- The handling of ROW varies by state. FDOT acquires right of way prior to awarding a design-build contract to mitigate risk. VDOT provides compensation for right of way and will purchase high-risk properties up front to mitigate risk.
- A majority of the states in attendance develop plans only to the level sufficient to complete the NEPA Process for their best-value design-build procurements. SCDOT develops plans to less than 30%. However, a number of states (CDOT, MnDOT, and FDOT) use low-bid design-build procurement for small ($2-10 million) non-complex projects. Plans can be 70-80% complete for this group of projects.
- Most states do not release the RFP until NEPA is complete. MODOT and WSDOT indicated they would entertain the idea of awarding a design-build contract before the NEPA process was completed.
- GDOT stated that they have legislation that allows payment for all utility relocations associated with a design-build project.
- All states at the peer exchange provide a pavement design in the RFP. States entertain ATCs for pavement design with the exception of FDOT. If FDOT receives a request to change the pavement design and it is accepted, they will issue an addendum.
- FDOT does one-on-one meetings prior to the start of procurement.
- RFPs are written by consultants in some states. FDOT procures two prep Consultants, one for NEPA and one for RFP Development. SCDOT typically procures one consultant to complete design-build prep work.

1.2 Risk Allocation

- Risk assessment should be used when determining the appropriate project delivery method. Most states indicated that a risk assessment is developed to assist in the decision to use the design-build delivery method.
- Washington state law requires WSDOT to “strongly consider” the use of design-build for any project over $2M. In their case, the use of a risk assessment helped the agency document adherence to its state law.
- Most states, including SCDOT, are developing Risk Matrices for projects to aid in the development of scope. Developing a project risk matrix will assist the state in verifying project goals.
Typical project risks vary from state to state. Project items such as ROW acquisition, material quantities and quality, and weather are handled differently based on each state’s opinion of the benefits and impacts to the project.

CDOT cautioned to be careful of risk fatigue during risk assessment procedures. Risk fatigue occurs when everything becomes a risk due to the nature of the analysis.

Colorado has state laws that allow them to seek damages from utility companies when the relocation of their utilities delay a project.

Most states are assigning costs to risk; some are using a Monte Carlo Simulation. These costs are used in preparing estimates, and mitigating and allocating risk.

Two recommended resources include AASHTO Design-Build Procurement Guidelines and NCHRP Report 562.

1.3 Effectiveness Metrics

- SCDOT has executed a research project with the University of Colorado to develop a definitive procedure for measuring the efficiency and/or effectiveness of the use of design-build project delivery.
- To measure effectiveness focus post construction metrics on initial project goals. The reasons for selecting design-build (i.e., project goals) can vary, so effectiveness should relate to the reasons for selecting the method.

“If you don’t know what you value, how can you do best value?” --CDOT

- Ensure that you have executive team buy-in to project goals during procurement.
- SCDOT and WSDOT are the only states that have a Performance Evaluation process either in practice or development.
- The FHWA recently completed a comprehensive study on the effectiveness of alternative contracting methods, including design-build (see FHWA-HRT-17-100). States are encouraged to use this study to benchmark their effectiveness against others across the county.
- Look in the AASHTO Design-Build Procurement Manual, Chapter 3 Defining Project Goals, to see good examples for developing project goals.

1.4 Conceptual Estimating

- States are using a variety of resources to produce conceptual estimates, such as AACEI estimating curves, AASHTO’s Practical Guide to Estimating, and Parametric Cost Estimating.
- SCDOT has developed a template to produce planning level estimates for design-build projects utilizing modifiers, multipliers, and percentages.
- Some states use consultants to develop the entire estimate and others use consultants to simply provide quantities.
- Some states (NC, MODOT) have an internal office separate from the Design-Build Section that produces estimates in their entirety.
- There was general consensus that most estimates were falling within 10% of the engineers estimate at the time of the bid opening. 22% standard deviation nationally on estimates in the last 22 years.
• Dr. Molenaar, from University of Colorado, discouraged states from getting too hung up on the bid being within 10% of the engineer’s estimate. More emphasis should be put on competition and market driven analysis along with understanding the value being provided.

• Most states use standard percentages (2.0 - 7.5%) to accommodate project risks but some states do detailed evaluations of specific risks to determine an actual cost figure. WSDOT and CDOT have offices that specialize in risk-based cost estimating and apply these techniques to all best-value design-build procurements.

• If states are not completing a comprehensive risk-based estimate, Dr. Molenaar recommended pricing at least the top 5-10 risks to help determine contingency when developing your design-build estimate.

• Several states adjust their estimate based on the quality of approved ATCs.

• There was a general consensus that cost savings did not affect the acceptance or rejection of an ATC. Some states do not ask for cost as part of the ATC submittal.

• There was a consensus that market conditions are a huge factor in estimating.

• Note paper from Texas A&M, “Sliding-Scale Contingency for Project Development Process, Transportation Research Record, No 2051,” that identifies a sliding scale used for identifying risk percentage in the estimate.

### 1.5 Best Value and Cost Proposal Analysis

• SCDOT primarily uses the weighted criteria formula with the cost weight typically ranging from 50 to 70 percent.

• VDOT uses 70% cost and 30% Technical Proposal; GDOT has used a 50/50.

• States consistently stated that best-value selection criteria need to be consistent with project goals in the RFP.

• Many states use a consensus group to discuss strengths and weaknesses up front in Evaluation Committee Meetings before scoring begins.

• Many states require and score breadth and depth discussion on DBE utilization in technical proposal.

• Adjectival scoring including the use of executive committees is used by many states. See NCHRP Report 561 Best-Value Procurement for Highway Construction and NCHRP Synthesis 471 Practices for Developing Transparent Best Value Selection Procedures for examples of adjectival scoring approaches.

• No state at the peer exchange other than South Carolina uses SOQ scores as a part of their weighted criteria formula to determine best value. FDOT uses a hybrid version of qualifications as part of their best value scoring.

• Other states highly recommended having a source selection guideline or Evaluation Committee guide to assist members during review of SOQs and Technical Proposals.

### 1.6 Information Exchange

• GDOT uses RFI for early information exchange on specific projects. Other states had limited use of early information exchanges. Most suggested that early exchanges were conducted within 30 days of the advertisement of the RFQ.
SCDOT typically conducts open forum meetings within 30 days of advertising the RFQ.

SCDOT has used early coordination meetings and Request for Information (RFI) as early exchange tools to identify potential risks, along with one-on-one meetings with RFI responders.

For early information exchange, MNDOT uses site visits to discuss the project with the teams.

Most of the states agreed that information exchanges after advertising the RFQ is through issuance of addenda posted on their website.

Several states indicated that interviews were helpful in evaluating the cohesiveness of the team during the SOQ evaluation process.

WSDOT provides all of the SOQ scores during the debriefs.

Upon written request, SCDOT offers SOQ debriefs to the non-short-listed teams.

While all states may advertise a draft RFP on a project-by-project basis, no states advertise a draft RFQ.

Most states use non-confidential and confidential questions and answers as a form of exchange. Several states require the use of forms to submit questions. There were various responses as to whether states posted the non-confidential question answers on their website. MNDOT posts the non-confidential questions and responses on their website; NCDOT does not post on their website, and only those who ask the question get a written response. GDOT answers questions in writing.

SCDOT only provides the non-confidential questions to all shortlisted proposers and does not provide written answers to non-confidential but will provide written responses upon request to confidential questions. All answers provided verbally are non-binding; only addendums to the RFP and written responses to confidential questions are binding. SCDOT uses open-forum meetings and conference calls with all shortlisted proposers as the means of disseminating answers to non-confidential questions.

Some states provide detailed written explanations to questions; others, only reference back to RFP.

One-on-one meetings for ATC and confidential questions are widely used.

Most states do not distinguish between Clarifications, Communications, and Discussion.

SCDOT applies “clarifications” as a tool to correct clerical mistakes and to fully understand what was written in the technical proposals.

SCDOT applies the “communication” as a tool to confirm, not cure, proposal weaknesses and deficiencies, and then scores the proposal accordingly.

FDOT uses the same “communication” process as SCDOT; however, after confirming the weakness, Florida DOT obtains written commitments from proposers to require compliance with the RFP (called a Book of Commitments), which is made part of the contract and serves as cure.

VDOT uses written clarification correspondence during proposal evaluation to protect the integrity of the procurement. VDOT will document enhancements from the Technical Proposal of the successful Offeror to strengthen VDOT’s position to enforce the delivery of the enhancements during contract administration.
• NCDOT obtains written commitments to fix deficiencies and then does not negatively score. NCDOT does not want to create perception of favoritism, and, as such, allow teams to correct deficiencies in the technical proposal through the “communication” process.
• Oral presentations were found to be a useful tool in understanding the proposal. FDOT uses page-turning sessions, which are a form of oral presentation.
• Except for WSDOT, most states have not used the “discussion/BAFO process” post bid opening.
• SCDOT’s RFPs currently allow the use of either a “discussions only” process or “discussion/BAFO” process post bid opening.

1.7 ATC Process

• Most states utilize ATCs on their projects. NCDOT noted they do not allow ATCs on express projects, which are smaller in nature. SCDOT does not allow ATCs on emergency projects.
• While SCDOT does not, many states utilize consultants to review ATCs and have minimal concern with review accuracy and confidentiality. Consultants generally make recommendations but not final decisions on ATCs.
• Most states do not have a database for tracking ATCs; however, some states track ATCs using spreadsheets or other manual tracking systems. MNDOT noted that recurring ATCs are incorporated into future RFPs. A spreadsheet is used to measure and promote success of design-build program, i.e. ATCs, at MNDOT. SCDOT is in the process of developing a database in ProjectWise that will have a variety of search/sort features, as well as, return metrics such as approval rates.
• Some states do not ask for cost information related to ATCs as they feel the data may be skewed to support an ATC. States that do, indicate they are skeptical of the values provided. However, if costs seem reasonable, they have been used in assigning quality credit points and to determine if ATC is equal or better in overall effect.
• Some states incorporate ATCs into the RFP through an addendum when multiple firms submit the same or very similar ATCs. The goal is a uniform approach when determining if ATCs will be incorporated to not dissuade innovation.
• Most states indicate they take ownership of ATCs through payment of a stipend, which is also permitted by the FHWA. Some states allow use of other team’s ATCs if stipend is provided. Some states negotiate inclusion of other team’s ATC after award if desired by the state or by the selected DB Team.
• Florida noted everything during procurement is subject to FOIA and recommends written responses to questions to protect DOT.
• Colorado noted that “Project Goals” are key to ensure ATCs meet the true intent of the project; and that “coaching” is defensible to allow teams to revise ATCs.
• Multiple meetings are encouraged to ensure both parties fully understand ATCs.
• Some DOTs limits the number of preliminary and formal ATCs based on project complexity.
• FDOT issues an addendum during the ATC process to cover any updates resulting from the process, and allows teams to submit new ATCs related to the addendum.
1.8 Quality Management and Construction Oversight

- Design Review Process should not impede construction progress.
- GDOT uses E-Builder to facilitate the submittal of design documents and track their progress between reviewers.
- SCDOT uses BlueBeam to facilitate the design review process, which is typically performed by a consultant.
- Some states are completing performance evaluations during the project and utilizing them in future SOQ evaluations. SCDOT has implemented Design-Build Performance Evaluations in the last year.
- Some states, including SCDOT, obtain warranty bonds for work, while others will not renew prequalification status if deficient work is not corrected.
- The changing of key personnel (post-award) is an issue with all states. Some implement fines, while others have found fines difficult to defend.
- All states utilize some level of contractor quality acceptance sampling and testing on Design-Build projects. Virginia utilizes a quality assurance program that includes contractor led QC/QA and DOT led owner verification on all D-B projects. SCDOT will implement a similar quality assurance program on an upcoming project.
CONCLUSION

The peer exchange met SCDOT’s objectives for information sharing. The Key Takeaways outlined herein have either confirmed that SCDOT’s processes are generally consistent with other states or identified delivery method concepts that should be further investigated by SCDOT to determine if incorporation of the subject concept into SCDOT’s current process would further benefit the efficiency and/or effectiveness of the delivery method. The attendee’s design-build experience was diverse with some states having more mature programs than others; so, the information shared may have been more beneficial to the newer programs. However, based on feedback obtained during adjournment, all states in attendance acknowledged some key takeaways for their state. In addition, networking contacts were made with the attending states and FHWA representatives which will allow for information to be continually shared.
APPENDIX A: REGISTRATION LIST
## 2018 SCDOT DESIGN-BUILD PEER EXCHANGE ATTENDEE LIST

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<th>Agency/Organization</th>
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<td><strong>STATE DOTS</strong></td>
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<tr>
<td>North Carolina</td>
<td>Teresa Bruton</td>
<td><a href="mailto:tbruton@ncdot.gov">tbruton@ncdot.gov</a></td>
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<tr>
<td>Georgia</td>
<td>Darryl VanMeter</td>
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<td>Colorado</td>
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<td>University of Colorado</td>
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<tr>
<td>Headquarters Construction</td>
<td>Clay Richter</td>
<td><a href="mailto:KlineLC@scdot.org">KlineLC@scdot.org</a></td>
</tr>
<tr>
<td>Pavement</td>
<td>Dahae Kim</td>
<td><a href="mailto:KlineLC@scdot.org">KlineLC@scdot.org</a></td>
</tr>
<tr>
<td>District 6 Construction</td>
<td>Daniel Burton</td>
<td><a href="mailto:BurtonD@scdot.org">BurtonD@scdot.org</a></td>
</tr>
<tr>
<td>Mega Projects</td>
<td>David Rister</td>
<td><a href="mailto:RisterGD@scdot.org">RisterGD@scdot.org</a></td>
</tr>
<tr>
<td>Preconstruction Design-Build</td>
<td>Hongfen Li</td>
<td><a href="mailto:LiHongfen@scdot.org">LiHongfen@scdot.org</a></td>
</tr>
<tr>
<td>Preconstruction Design-Build</td>
<td>Jae Mattox</td>
<td><a href="mailto:KlineLC@scdot.org">KlineLC@scdot.org</a></td>
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<tr>
<td>Pavement</td>
<td>Jay Thompson</td>
<td><a href="mailto:ThompsonJU@scdot.org">ThompsonJU@scdot.org</a></td>
</tr>
<tr>
<td>Director of Preconstruction</td>
<td>John Boylston</td>
<td><a href="mailto:BoylstonJ@scdot.org">BoylstonJ@scdot.org</a></td>
</tr>
<tr>
<td>Preconstruction RPG1</td>
<td>Joy Riley</td>
<td><a href="mailto:RileyJ@scdot.org">RileyJ@scdot.org</a></td>
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<tr>
<td>Preconstruction Design-Build</td>
<td>Kaitlin Drafts</td>
<td><a href="mailto:DraftsKR@scdot.org">DraftsKR@scdot.org</a></td>
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<tr>
<td>Headquarters Construction</td>
<td>Katherine Scott</td>
<td><a href="mailto:ScottKD@scdot.org">ScottKD@scdot.org</a></td>
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<tr>
<td>District 3 Construction</td>
<td>Kimberly Bishop</td>
<td><a href="mailto:BishopKA@scdot.org">BishopKA@scdot.org</a></td>
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<td>Kevin Harrington</td>
<td><a href="mailto:HarringtKG@scdot.org">HarringtKG@scdot.org</a></td>
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<tr>
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<td>Josh Quattlebaum</td>
<td><a href="mailto:QuattlebB@scdot.org">QuattlebB@scdot.org</a></td>
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<td>Ladd Gibson</td>
<td><a href="mailto:GibsonLS@scdot.org">GibsonLS@scdot.org</a></td>
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<td>Laura Kline</td>
<td><a href="mailto:KlineLC@scdot.org">KlineLC@scdot.org</a></td>
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<td>Preconstruction Design-Build</td>
<td>Maria Ott</td>
<td><a href="mailto:OttEM@scdot.org">OttEM@scdot.org</a></td>
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<td>Michael Pitts</td>
<td><a href="mailto:PittsME@scdot.org">PittsME@scdot.org</a></td>
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<td>Right of Way</td>
<td>Mike Barbee</td>
<td><a href="mailto:BarbeeMW@scdot.org">BarbeeMW@scdot.org</a></td>
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<tr>
<td>Headquarters Construction</td>
<td>Nick Waites</td>
<td><a href="mailto:WaitesNT@scdot.org">WaitesNT@scdot.org</a></td>
</tr>
<tr>
<td>District 4 Construction</td>
<td>Shane Parris</td>
<td><a href="mailto:ParrisSL@scdot.org">ParrisSL@scdot.org</a></td>
</tr>
<tr>
<td>Preconstruction Design-Build</td>
<td>Trapp Harris</td>
<td><a href="mailto:HarrisMD@scdot.org">HarrisMD@scdot.org</a></td>
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<tr>
<td>District 5 Construction</td>
<td>Travis Patrick</td>
<td><a href="mailto:PatrickTM@scdot.org">PatrickTM@scdot.org</a></td>
</tr>
<tr>
<td>Environmental</td>
<td>Will McGoldrick</td>
<td><a href="mailto:KlineLC@scdot.org">KlineLC@scdot.org</a></td>
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APPENDIX B: AGENDA
<table>
<thead>
<tr>
<th>TUESDAY NOVEMBER 27 Day 1</th>
<th>Session Topic</th>
<th>Facilitator/Presenter(s)</th>
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<tbody>
<tr>
<td>9:00-9:30 am  (30 min)</td>
<td>Sign in and Registration</td>
<td>Austin Purgason - SCDOT</td>
</tr>
<tr>
<td>9:30-9:40 am  (10 min)</td>
<td>Welcome and Opening Remarks</td>
<td>SCDOT Senior Leadership</td>
</tr>
<tr>
<td>9:40-9:50 am  (10 min)</td>
<td>State Introductions</td>
<td>Tad Kitowicz – FHWA-SC</td>
</tr>
<tr>
<td>9:50-10:10 am  (20 min)</td>
<td>Peer Exchange Program Purpose</td>
<td>Presenter: Jeff Lewis – FHWA RC</td>
</tr>
<tr>
<td>10:10-10:30 am  (20 min)</td>
<td>Overview of SCDOT Program</td>
<td>Presenter: Chris Gaskins – SCDOT</td>
</tr>
<tr>
<td>10:30-11:30 am  (60 min)</td>
<td>SEP-14 and Innovative Contracting</td>
<td>Presenter: Jerry Yakowenko – FHWA HQ</td>
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<tr>
<td>11:30 am-12:00 pm  (30 min)</td>
<td>State of the DBIA</td>
<td>Presenter: Richard Thomas – DBIA</td>
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<tr>
<td>12:00-1:15 pm</td>
<td>LUNCH ON YOUR OWN</td>
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</tr>
<tr>
<td>1:15-3:00 pm  (1:45 min)</td>
<td>Design-Build Prep</td>
<td>Facilitator: Brad Reynolds - SCDOT Presenters: Kathy Thomas - Florida David Simmons - Missouri Jeff Roby - Virginia</td>
</tr>
<tr>
<td>3:00-3:15 pm</td>
<td>BREAK</td>
<td></td>
</tr>
<tr>
<td>3:15-5:00 pm  (1:45 min)</td>
<td>Risk Allocation</td>
<td>Facilitator: Tad Kitowicz - FHWA Presenters: Jolena Missildine - Washington Peter Davich - Minnesota Matthew Pacheco - Colorado</td>
</tr>
<tr>
<td>5:00 pm</td>
<td>DINNER ON YOUR OWN</td>
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## 2018 Design-Build Peer Exchange
### AGENDA
Columbia, SC – Tuesday, November 27 - Thursday, November 29, 2018

<table>
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<tr>
<th>WEDNESDAY NOVEMBER 28 Day 2</th>
<th>Session Topic</th>
<th>Facilitator/Presenter(s)</th>
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| 8:00-10:00 am (2 hours) | Effectiveness Metrics (Quality, Cost, Time) | Facilitator: Keith Molenaar - Univ. of Colorado  
Presenters: Jolena Missildine - Washington  
Jesse Gutierrez - Arizona  
Peter Davich – Minnesota |
| 10:00-10:15 am | BREAK | |
| 10:15 am-12:00 pm (1:45 min) | Conceptual Estimating | Facilitator: Jae Mattox - SCDOT  
Presenters: David Simmons - Missouri  
Darryl VanMeter - Georgia  
Keith Molenaar - Univ. of Colorado |
| 12:00-1:15 pm | LUNCH ON YOUR OWN | |
| 1:15-3:00 pm (1:45 min) | Best Value Evaluation and Cost Proposal Analysis | Facilitator: Chris Gaskins - SCDOT  
Presenters: Keith Molenaar - Univ. of Colorado  
Darryl VanMeter - Georgia  
Jeff Roby - Virginia |
| 3:00-3:15 pm | BREAK | |
| 3:15-5:00 pm (1:45 min) | Information Exchange | Facilitator: Barbara Wessinger - SCDOT  
Presenters: Jolena Missildine - Washington  
David Simmons - Missouri  
Peter Davich – Minnesota |
| 5:00 pm | DINNER ON YOUR OWN | |
## 2018 Design-Build Peer Exchange
### AGENDA
Columbia, SC – Tuesday, November 27 - Thursday, November 29, 2018

<table>
<thead>
<tr>
<th>THURSDAY NOVEMBER 29 Day 3</th>
<th>Session Topic</th>
<th>Facilitator/Presenter(s)</th>
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</table>
| 8:00-10:00 am (2 hours)    | ATC Process   | Facilitator: Ben McKinney - SCDOT  
Presenters: Kathy Thomas - Florida  
Matthew Pacheco - Colorado  
Darryl VanMeter - Georgia |
| 10:00-10:15 am             | BREAK         |                         |
| 10:15 am–12:00 pm (1:45 min) | Quality Management and Construction Oversight | Facilitator: Clay Richter - SCDOT  
Presenters: Jesse Gutierrez - Arizona  
Matthew Pacheco – Colorado  
Jeff Roby - Virginia |
| 12:00 pm                   | Adjourn       |                         |
APPENDIX C: POLL QUESTIONS
What percentage of plans do you produce when doing Design-Build Prep?

- < 10%: 1
- 10% to 30%: 5
- 30% to 60%: 3

How do you handle Interchange Modification Reports?

- DB Prep: 4
- Allow Contractor: 3

7 votes - 7 participants
How much Utility Coordination do you do?

- None: 2
- Preliminary Report: 15
- Final Report: 2

Should design-build projects include incentive/disincentive clauses for material quality (i.e., concrete strength, rideability, etc.)?

- Yes: 16
- No: 1
- Only Disincentive Clauses: 8
- Other: 2

27 votes - 27 participants
How satisfied are you with your approach to measuring design-build performance?

- Very Satisfied: 0
- Mostly Satisfied: 4
- Somewhat Satisfied: 15
- Not Satisfied: 0

19 votes - 19 participants

How do you measure the performance of your design-build projects?

- Within the design-build program: 4
- Within the overall design and construction: 2
- Only on a project-by-project basis: 6
- Do not measure their performance: 2

14 votes - 14 participants
Generally, how accurate are the engineer’s estimates for your design-build projects?

- +/- 1%: 0
- +/- 3%: 1
- +/- 5%: 1
- +/- 10%: 12
- > 10%: 0

14 votes - 14 participants

What is your typical Consultant involvement with generating cost estimates?

- No Involvement: 1
- Full Estimate: 5
- Quantities Only: 0
- Other: 0

6 votes - 6 participants
How are you estimating the cost associated with RISK?

- Standard Percentage: 0
- Not Included: 0
- Other Methodology: 4

What contingency amount do you include in your estimates?

- 5%: 1
- 10%: 0
- Other: 3

4 votes - 4 participants
What is your typical Consultant involvement with generating cost estimates?

- No Involvement: 1
- Full Estimate: 5
- Quantities Only: 0
- Other: 0

6 votes - 6 participants

What contingency amount do you include in your estimates?

- 5%: 1
- 10%: 0
- Other: 3

4 votes - 4 participants
What does best value mean to you?

- Quality: 13 votes
- Expedited Schedule: 0 votes
- Lower cost: 0 votes
- DB Team Qualifications: 1 vote

What Best Value procurement type does your agency predominantly use to deliver design-build projects?

- Adjusted Low Bid: 0 votes
- Fixed Price: 2 votes
- Weighted Criteria: 7 votes
- Negotiated Source Selection: 1 vote

14 votes - 14 participants

10 votes - 10 participants
How soon do you conduct early exchanges of information (early coordination exchanges)?

- 1 year before RFQ: 0 votes
- 6 months before RFQ: 2 votes
- 3 months before RFQ: 3 votes

For early exchange, what methods do you use?

- One-on-one meetings with potential offers: 3 votes
- Request for Information (RFI): 1 vote
- Presolicitation or preproposal conference: 2 votes
- Site visits: 0 votes
APPENDIX D: PRESENTATIONS
SCDOT DESIGN-BUILD PEER EXCHANGE

November 27-29, 2018
Welcome and Opening Remarks
State Introductions
FHWA’s Peer Exchange Program Purpose

Jeff Lewis
Construction and Contract Administration Engineer
FHWA Resource Center
Columbia, SC
November 27th, 2018
HOW ARE THINGS WORKING TODAY??
FHWA/DOT Staff is Aging
Federal Aid Expertise over Time

Knowledge Gap

Asst. AE
## Stewardship – Delegation Changing Roles/Responsibilities

<table>
<thead>
<tr>
<th><strong>PAST</strong></th>
<th><strong>PRESENT</strong></th>
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<tr>
<td>• HQ’s</td>
<td>• HQ’s</td>
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<tr>
<td>• Regional Offices</td>
<td>• Resource Center</td>
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<tr>
<td>• Division Office</td>
<td>• Division Office</td>
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<tr>
<td>• State HQ’s</td>
<td>• State HQ’s (decentralized)</td>
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<td>• Local Agencies</td>
<td>• Local Agencies</td>
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<tr>
<td>• Consultants</td>
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</table>
Stewardship

• Program Administration
• Technology Deployment
• Technical Assistance
• Strategic Initiatives

Oversight

• Project Development
• Project Delivery
• Maintenance/Operation
• Funds Management
Stewardship/Oversight Challenges

- Lack of LPA experience & Technical Expertise
- Volume of projects
- Competing priorities/activities
- Non-involvement in prior phases
- Time required for a thorough review
- Pressure to meet advertisement date
- Pressure to obligate available funding (especially at the end of fiscal year)
Quality Assurance – QA (3-legged stool)

Figure 3. QA System Elements (from TRB Circular E-C173)
Construction Program Management Discipline
“Cradle to Grave”

CORE FOUR

Contract Administration Core Curriculum Manual
October 2014
Federal Highway Administration
FHWA-PI-09-000277

Conducting Effective Program Reviews/ Writing Effective Program Reviews

Construction Program Management and Inspection Guide

Federal Highway Administration Area Engineer Manual

Federal Highway Administration
Area Engineer Manual

2010

Construction Program Management and Inspection Guide

SCDOT

Road Work Ahead
Learning Outcomes

• Increase understanding of the entire Federal-aid Highway Program project delivery process and requirements
• Recognize the responsibilities entrusted to FHWA, State DOT’s and LPA’s
• Gain wider perspective of the other DOT process for projects and the program in Innovation
• Familiarized with the FHWA resources of information
NEW! ACM Virtual Library (2014)

www.fhwa.dot.gov/construction/contracts/acm/

What You’ll Find:
• Enabling Legislation
• Sample Manuals of Instruction
• Skill Sets: Essential project management knowledge for public owners
• Procurement Strategies
• Contracting Samples:
  • Request for Proposal (RFP) templates
  • Key elements of construction & services contracts
• Risk Registries and Risk Allocation Guidance
• Performance Measures to Gauge Success

Federal-aid Support & Available Tools
www.fhwa.dot.gov/federal-aidessentials/catmod.cfm?id=81
Alternative Contracting Methods (ACMs) Library

The Federal Highway Administration supports the deployment of Alternative Contracting Methods-Design-Build (D-B), Construction Manager/General Contractor (CM/GC), Alternate Technical Concepts (ATC)-to accelerate project delivery, encourage the deployment of innovation, and minimize unforeseen delays and cost overruns.

In traditional highway construction contracting (design-bid-build), cost is generally the one criterion that determines the winning bid. As State and local agencies strive to meet customer needs, factors such as quality, delivery time, social and economic impact, safety, public perception, and life-cycle costs have gained in importance. Since the 1990s, the FHWA has been supporting the use of these innovative alternative contracting methods to help achieve these goals.

This Library has been assembled to provide access to Samples of documents prepared by State legislatures, and transportation owner agencies in the execution of roadway construction contracting, deploying these methods. It does not constitute a standard, specification, or regulation.

- Design-Build (D-B)
- Construction Manager/General Contractor (CM/GC)
- Alternative Technical Concepts (ATC)
- Quick Reference, Background Material, and Useful Information
- FHWA Division ACM Contacts

ACM Technical Contacts

<table>
<thead>
<tr>
<th>ACM Deployment</th>
<th>ATC</th>
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<td><strong>Lead</strong></td>
<td><strong>Lead</strong></td>
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<tr>
<td>Rob Elliott</td>
<td>David Unkefer</td>
<td>Ken Atkins</td>
<td>Jeff Lewis</td>
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<tr>
<td>FHWA Resource Center (Atlanta)</td>
<td>FHWA Resource Center (Atlanta)</td>
<td>FHWA Resource Center (Sacramento)</td>
<td></td>
</tr>
<tr>
<td>(404) 562-3941</td>
<td>(404) 562-3669</td>
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<td>(916) 498-5035</td>
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<tr>
<td><strong>Team Lead</strong></td>
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<tr>
<td>Jeff Lewis</td>
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<td>FHWA Resource Center (Sacramento)</td>
<td>Utah Division Office</td>
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</table>

http://www.fhwa.dot.gov/construction/contracts/acm/
Federal-aid Essentials for Local Public Agencies

Federal-aid Simplified. Understanding the Essentials.

More and more, transportation agencies must pursue better, faster and smarter ways of doing business. Federal-aid Essentials offers a central online library of informational videos and resources, designed specifically for local public agencies. Each video addresses a single topic—condensing the complex regulations and requirements of the Federal-aid Highway Program into easy-to-understand concepts and illustrated examples.

To learn more, view the video to the left.

Continuing the Conversation

The FHWA launched Federal-aid Essentials on August 27, 2012 at the American Public Works Association (APWA) International Public Works Congress and Exposition. In a conversation with APWA host Emile Barta, FHWA Resource Center Director Bernetta Collins tells us more about this program, Federal-aid Essentials. View the video, Continuing the Conversation.

I want to know more about...

the Federal-aid process

Stay Connected with FHWA
**Kentucky**

Road User Cost = $x = 5,000 / day

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SELECTING THE METHOD OF CONSTRUCTION: CONTRACT OR FORCE ACCOUNT

PROJECT ADVERTISEMENT, BID REVIEW, AND REQUEST FOR CONCURRENCE IN AWARD

PROJECT GEOMETRIC DESIGN REQUIREMENTS

ENVIRONMENTAL REQUIREMENTS

VALUE ENGINEERING REQUIREMENTS FOR FEDERAL-AID PROJECTS

BIKE AND PEDESTRIAN ACCOMMODATION

PEDESTRIAN ACCESSIBLE DESIGN REQUIREMENTS

FORM FHWA-1273

PATENTED OR PROPRIETARY PRODUCTS

BUY AMERICA CONTRACT REQUIREMENTS

UTILITY COORDINATION AND CERTIFICATION REQUIREMENTS

RAILROAD COORDINATION AND CERTIFICATION REQUIREMENTS

RIGHT-OF-WAY COORDINATION AND CERTIFICATION REQUIREMENTS

PURCHASING INTELLIGENT TRAFFIC SYSTEMS (ITS) AND TRAFFIC TECHNOLOGY

SCOPING AND CONDUCTING A TRAFFIC STUDY TO MEET COMMUNITY NEEDS

APPLYING THE MUTCD TO AID SAFETY AND RELIABILITY

AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS FOR RESURFACING PROJECTS

PROJECT CONSTRUCTION AND CONTRACT ADMINISTRATION

INTRODUCTION TO PROJECT CONSTRUCTION AND CONTRACT ADMINISTRATION

SUPERVISING AGENCY REQUIREMENTS (RESPONSIBLE CHARGE)

CONSTRUCTION QUALITY ASSURANCE

DESIGN-BUILD PROCUREMENT

PROJECT CLOSEOUT

CONTRACT TIME AND SCHEDULE MANAGEMENT

CHANGE ORDERS

BUY AMERICA FIELD COMPLIANCE

JOB SITE POSTERS

JOB SITE POSTERS COMPLIANCE

CONTRACTOR PAYROLL SUBMITTALS AND STATEMENTS OF COMPLIANCE

JOB SITE WORKER SAFETY

TRANSPORTATION MANAGEMENT PLAN REQUIREMENTS

WORK ZONE TRAFFIC CONTROL REVIEWS

CONTRACTOR FORCE ACCOUNT

FINANCE

INTRODUCTION TO COST PRINCIPLES

ADMINISTRATIVE REQUIREMENTS

TRANSPARENCY ACT SUB-AWARD REPORTING

INTERNAL CONTROL REGULATIONS AND REQUIREMENTS

INTRODUCTION TO INTERNAL CONTROL

SINGLE AUDIT

DEVELOPING AN INDIRECT COST ALLOCATION PLAN

MATCHING OR COST SHARING REQUIREMENTS

ADVANCE CONSTRUCTION

RIGHT-OF-WAY (ROW)

INTRODUCTION TO RIGHT-OF-WAY REQUIREMENTS AND THE UNIFORM ACT

PROJECT DEVELOPMENT

PROPERTY MANAGEMENT

VALUATION

ACQUISITION AND NEGOTIATION

RELOCATION ASSISTANCE

ENVIRONMENT

OVERVIEW OF NEPA AS APPLIED TO TRANSPORTATION PROJECTS

NEPA COMPLIANCE AND CLASS OF ACTIONS

CATEGORICAL EXCLUSION

ENVIRONMENTAL IMPACT STATEMENT

ENVIRONMENTAL ASSESSMENT

PURPOSE & NEED, AND ALTERNATIVES

PUBLIC INVOLVEMENT

AGENCY COORDINATION

MITIGATION OF ENVIRONMENTAL IMPACTS AND ENVIRONMENTAL COMMITMENT COMPLIANCE

THE SOCIAL ENVIRONMENT

OVERVIEW OF OTHER LAWS AND REQUIREMENTS

SECTION 404 OF THE US DOT ACT OF 1966

SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT

SECTION 404 OF THE CLEAN WATER ACT

ENDANGERED SPECIES ACT

HIGHWAY TRAFFIC NOISE
Questions?
Overview of SCDOT Program

Chris Gaskins – SCDOT
The Evolution of Design-Build

2015 South Carolina Highway Engineers Conference
April 1, 2015

Ladd Gibson, P.E.
SCDOT Design-Build Engineer, Preconstruction
Topics

• Where have we been?
  ➢ A history of design-build at SCDOT

• Where are we now?
  ➢ Design-Build Section

• Where are we going?
  ➢ The future of design-build at SCDOT
  ➢ Challenges
History of Design-Build

• Design-build contracting since the mid 1990’s
• Conway Bypass (SC 22) first design-build project in development
• Reedy River & Enoree River Bridge Replacements first to construction (1996)
History of Design-Build
History of Design-Build

• 20 DB projects over the next 14 years
• Project management dictated by location of project
• Numerous PM’s worked on first 20 projects
History of Design-Build

• Central DB Office named January 2011
• RPG1 led DB efforts for SCDOT
  ➢ Chair Committees
  ➢ Manage RFP Packaging
  ➢ Manage Procurement
• Project development remained with RPGs
History of Design-Build

Early Initiatives

• DB Subcommittee
• DB Best Practices
  ➢ Procurement Procedures
  ➢ Confidential Meetings
  ➢ Stipends
  ➢ DB Prep
  ➢ Issue Papers/RFIs
  ➢ ATC’s
• DB Website

SCDOT
ACEC
AGC
History of Design-Build

Hurdles

• New Evaluation Committee on each project
• Design review based on contract rather than manual
• Educating staff on the process
• Consistency
History of Design-Build

- 32 DB projects
- $2.8 Billion
History of Design-Build

Reedy River Bridge
Greenville County

Enoree River Bridge
Laurens/Spartanburg Counties
History of Design-Build

US 1/601 Bridge over Wateree River
Kershaw County
History of Design-Build

I-95 Honda Interchange
Florence County

1997
History of Design-Build

Conway Bypass
Horry County
History of Design-Build

Carolina Bays Parkway – Phase 1
Horry County
History of Design-Build

Southern Connector
Greenville County

1999
History of Design-Build

SC 170 Widening
Beaufort County
History of Design-Build

Arthur Ravenel, Jr. Bridge
Charleston County

2001
History of Design-Build

Carolina Bays Parkway – Phase 2
Horry County

2003
History of Design-Build

Brockman-McClimon Interchange
(I-85 Access Improvements)
Spartanburg County
History of Design-Build

US 17 Widening (ACE Basin) – Segment 1
Beaufort/Colleton Counties
History of Design-Build

I-520 (Palmetto Parkway)
Aiken County

2006
History of Design-Build

5th Street / River North Drive / US 1 Interchange
Aiken County

2008
History of Design-Build

District 4 Bridge Replacements
Various Counties
History of Design-Build

Ben Sawyer Bridge
Charleston County
History of Design-Build

US 17 Widening (ACE Basin)
Segment 2
Colleton County
History of Design-Build

Johnnie Dodds Boulevard
Charleston County

2009
History of Design-Build

I-385 Widening
Greenville County

2010
History of Design-Build

Intersection Improvements
Richland/Lexington Counties
History of Design-Build

SC 150 Emergency Bridge
Cherokee County
History of Design-Build

Federal Bridge Package “A”
Engineering Districts 4 & 5
History of Design-Build

Laurens Street Emergency Bridge
Aiken County

2012
History of Design-Build

Federal Bridge Package “C”
Engineering Districts 2 & 4
History of Design-Build

Federal Bridge Package “D”
Engineering District 6
History of Design-Build

I-26 Widening & Rehab
Lexington/Calhoun Counties
History of Design-Build

I-95/US 301 Interchange
Orangeburg County
History of Design-Build

Wando Bridge
Berkeley/Charleston Counties
History of Design-Build

Cypress Gardens Emergency Bridge
Berkeley County

2014
History of Design-Build

I-85/385 Interchange
Greenville County
History of Design-Build

Federal Bridge Package E
Various Counties
History of Design-Build

US 701 Bridges
Georgetown/Horry Counties

2015
Topics

• Where have we been?
  ➢ A history of design-build at SCDOT

• Where are we now?
  ➢ Design-Build Section

• Where are we going?
  ➢ The future of design-build at SCDOT
  ➢ Challenges
Design-Build Section

• Industry feedback

• Preconstruction began pursuit of DB section
  ➢ Under Preconstruction
  ➢ Separate from RPG staff
  ➢ Sole responsibility to DB effort

• DB Section started in August 2014
Design-Build Section
Design-Build Section

Mitchell Metts
Director of Preconstruction

Gwen Goodwin
Administrative Coordinator

John Boylston
RPG 1

Michael Barbee
RPG 2

Randall Young
RPG 3

Vacant
RPG 4

Ladd Gibson
Design Build

Jamie Kendall
Precon Support

Brian Ison
Surveys

Mike Fulmer
Program Controls

Brad Reynolds
Program Manager

Michael Hood
Asst. Program Manager

Chris Gaskins
Program Manager

Maria Ott
Hydrology Lead

Binh Nguyen
Roadway Lead

Barry Bowers
Structures Lead

Trapp Harris
Geotech Lead
Design-Build Section

Deputy Secretary for Engineering
- Christy Hall

Chief Engineer for Location & Design
- Ron Patton
  - Director of Preconstruction
    - Mitchell Metts
      - Design-Build Engineer
        - Ladd Gibson

Chief Engineer Operations
- Leland Colvin
  - Director of Construction
    - Todd Steagall
      - State Construction Engineer
        - Charles Eleazer
      - Design-Build & Special Projects Engineer
        - Claude Ipock

Director of Construction
Design-Build Section

FHWA

District

Traffic

Environmental

Legal

Procurement

Precon Support

DB - Construction

DB - Preconstruction
Topics

• Where have we been?
  ➢ A history of design-build at SCDOT

• Where are we now?
  ➢ Design-Build Section

• Where are we going?
  ➢ The future of design-build at SCDOT
  ➢ Challenges
Future of Design-Build

Design-Build Project Status

- Complete: 36 projects
- In Development: 12 projects
- Proposed: 9 projects
- Under Construction: 13 projects
Future of Design-Build

I-77 Widening & Rehab (Richland)

• I-20 to Blythewood Rd
• $60 - $70 M
• RFP(IR) – May 2015
• Bid Open – Oct 2015
Future of Design-Build

I-20 Widening (Lexington)
- US 378 to Longs Pond Road
- $80 - $90 M
- RFP(IR) – Sep 2015
- Bid Open – Jan 2016
Future of Design-Build

I-85 Widening Phase 1 & 2 (Spartanburg/Cherokee)

- Gossett Road to Shelby Highway
- $250 M
- RFQ – Jan 2016
- RFP(IR) – Apr 2016
- Bid Open – Sep 2016
Future of Design-Build

I-85 Widening Phase 3 (Cherokee)

- Shelby Highway to US 29
- $170 M
- Bid Open - ??
Future of Design-Build

Port Access Road (Charleston)
  • New Location/Interchange
  • $270 M
  • RFQ – May 2015
  • RFP(IR) – Aug 2015
  • Bid Open – May 2016
Future of Design-Build

Harbor River (Charleston)

- Bridge Replacement
- $56 M
- RFQ – Jan 2017
- RFP(IR) – Mar 2017
- Bid Open – Aug 2017
Future of Design-Build

I-26 Rehab (Richland/Lexington/Newberry)

- MM 60 – MM 101
- $120 M
- RFQ – Apr 2016
- RFP(IR) – Jun 2016
- Bid Open – Nov 2016
Future of Design-Build

Challenges Ahead

• Project Selection/Risk Analysis
  ➢ Not every project is a good candidate
  ➢ Project Schedule
  ➢ Opportunities for Innovation
  ➢ Level of Design
  ➢ Project Cost
  ➢ Available Funding
  ➢ Market Conditions
  ➢ Risk Assessment
Future of Design-Build

Challenges Ahead

• Conflict of Interest
  ➢ Level Playing Field
  ➢ SC Code of Laws Section 11-35-3005
    o Participation in a report or study used in preparation of design requirements does not disqualify a firm from participating as a proposing team unless the participation provides a competitive advantage
  ➢ 23 CFR 636.116
    o Role of the consultant or sub-consultant was limited to preliminary design, reports, or similar “low-level” documents
    o Do not include assistance in development of instructions to offerors or evaluation criteria, and
    o Information made available to all proposers
Future of Design-Build

Challenges Ahead

• Writing Effective RFP’s
  ➢ Performance Requirements
  ➢ Needs vs. Wants
  ➢ Effectively Communicate
Future of Design-Build

Challenges Ahead

• Alternative Technical Concepts (ATC’s)
  ➢ Goals and requirements for the project
  ➢ Open to design solutions that meet goals
  ➢ Is the concept “equal or better”? 
  ➢ Limit ATC’s?
  ➢ Confidentiality
  ➢ Response to ATC’s
Future of Design-Build

Challenges Ahead

• Consistent Procurement Practices
  ➢ Documented Procurement and Administration Guidelines
Questions?

Ladd Gibson, P.E.
SCDOT Design-Build Engineer
803-737-3511
gibsonls@scdot.org

SCDOT Design-Build Website
An Overview of FHWA’s Special Experimental Project No. 14 (SEP-14) Pilot Program

South Carolina DOT
Design-Build Peer Exchange
November 27-29, 2018
Agenda

• Overview of background and history of SEP-14
• Operational Contracting Methods
  • Design-build (D-B)
  • Construction Manager/General Contractor (CM/GC)
  • Low-cost Indefinite Delivery/Indefinite Quantity (ID/IQ)
• Current SEP-14 projects
  • ID/IQ projects
  • New Mexico Performance Based Prequalification and Procurement program (PBPP)
  • Other
## SEP-14 Milestones

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/13/1990</td>
<td>FHWA initiates SEP-14</td>
</tr>
<tr>
<td>4/29/1991</td>
<td>FHWA approves first SEP-14 Design-Build delivery</td>
</tr>
<tr>
<td>5/4/1995</td>
<td>FHWA declares A+B and Lane Rental operational</td>
</tr>
<tr>
<td>4/19/1996</td>
<td>Final rule – warranties</td>
</tr>
<tr>
<td>12/15/1998</td>
<td>TEA-21 S. 1307 authorizes Design-Build</td>
</tr>
<tr>
<td>12/10/2002</td>
<td>Final Rule – Design-Build</td>
</tr>
<tr>
<td>8/10/2005</td>
<td>SAFETEA-LU S. 1503</td>
</tr>
<tr>
<td>7/6/2012</td>
<td>MAP-21 S. 1303 authorizes CM/GC delivery</td>
</tr>
<tr>
<td>11/8/2012</td>
<td>FHWA declares alternative pavement type bidding operational</td>
</tr>
<tr>
<td>12/2/2016</td>
<td>Final Rule CM/GC</td>
</tr>
</tbody>
</table>
Project Delivery Options

- DBB
- ID/IQ
- CMGC
- DB
- PPP

Agency Risk

Private Risk

Total Risk
Known Issues with the Traditional Design-Bid-Build System

- Low bid may not result in the lowest ultimate cost (base level quality, claims, change orders, etc.)
- Constructability challenges
- Risk allocation
- Adversarial relationships
- Higher level of inspection/testing by the agency
FHWA’s History with Design-Build

• Experimental from 1991 to 1998
• 1998 Congress authorized rules published in 2002
• Regulatory definition:
  • “Design-build contract means an agreement that provides for design and construction of improvements by a contractor or private developer. The term encompasses design-build-maintain, design-build-operate, design-build-finance and other contracts that include services in addition to design and construction. Franchise and concession agreements are included in the term if they provide for the franchisee or concessionaire to develop the project which is the subject of the agreement.”

  • June 9, 1998, Section 1307(c) of the Transportation Equity Act for the 21st Century (TEA-21) authorized D-B
  • December 10, 2002 Final Rule Making published to implement 23 CFR 636
Statutory Authority for Design-Build

FHWA Contract No. DTFH6113D000023L – Tools and Technical Assistance for Evaluation of Alternative Contracting Methods, Draft summary report 9/19/2018
Statutory Authority for CM/GC Use

FHWA Contract No. DTFH6113D00023L – Tools and Technical Assistance for Evaluation of Alternative Contracting Methods, Draft summary report 9/19/2018
Experience with CM/GC Delivery

Some experience
States with Significant Transportation Public-Private Partnership Enabling Statutes

- Toll Concession
- Asset Lease
- Pre-Development Agreement
- Design-Build-Finance
- Availability Payment Concession
History of Construction Manager/General Contractor

• Construction Manager-at-Risk widely used in the vertical construction industry
• 2013: FHWA uses the term “CM/GC”
• 7/6/2012: MAP-21 enacted
• 12/2/2016: FHWA published final CM/GC rule
Nevada DOT’s Construction Manager at Risk (CMAR) Process
Use of Alternative Contracting Methods

Fig B2. Authority to use alternate contracting methods (n = 46).

Figure B2 from NCHRP Synthesis 518:
6 state DOTs do not have ACM authority (ND, SD, NJ, OK, WY, IA)
Agencies reporting authority to use D-B (93%), by P3; (45.6%); CM/GC (39%)
Use of Alternative Contracting Methods

From: 2018 NCHRP Synthesis 518 – Staffing for Alternative Contracting Methods

Figure B5.1 and B.5.2 from NCHRP Synthesis 518
Major Project Delivery Methods

**Design-Bid-Build**
- Owner
  - Designer-of-Record
    - Design Subs
  - Constructor/GC
    - Trade Subs

**CM/GC**
- Owner
  - Designer-of-Record
    - Design Subs
  - CM/GC
    - Trade Subs

**Design-Build**
- Owner
  - Design-Build
    - Designer-of-Record
    - Trade Subs
    - Design Subs
Example

NEPA

Traditional Bid-Build

DEIS  EIS  ROD / FONSI

PS&E Approval  Constr Auth.  Oblig $  Bid Opening

Prelim Design  Final Design  Construction
Progressive Design-Build
(Qualifications Based Selection)

- **NEPA**:
  - **DEIS**
  - **EIS**
  - **ROD / FONSI**

- **Progressive D-B**
  - (QBS prior to NEPA Conclusion)
    - **RFP**
    - **QBS / Award**
    - **Agreed Price**
    - **Prelim Design**
    - **Final Design**
    - **Construction**

- **SEP-14 required due to 23 CFR 636.302(a)(1)**

- **Progressive D-B**
  - (QBS after to NEPA Conclusion)
    - **RFP**
    - **QBS / Award**
    - **Agreed Price**
    - **Prelim Design**
    - **Final Design**
    - **Construction**

- **FHWA Final Design/ Construction Auth. / $ Obl**
What’s new in ACMs?

Progressive Design-Build

• “One application of design-build delivery is via a stepped, or progressive process (commonly referred to as Progressive Design-Build or PDB). PDB uses a qualifications-based or best value selection, followed by a process whereby the owner then ‘ progresses’ towards a contract price with the team (thus the term ‘Progressive’).” - Design-Build Institute of America – Progressive Design-Build, A Design-Build Done Right Primer

MD I-270 Progressive Design-Build

• “The SHA is developing a contract to solicit a Design-Builder to reduce congestion and improve reliability along the I-270 corridor. The SHA has not developed any preferred solutions, but is looking for the engineering and construction industries to provide implementable and innovative solutions to increase vehicle throughput, reduce delay and increase reliability along I-270 within the contract’s budget.

• “The contract will have a fixed-price. It will include all work for the contract including design, right-of-way acquisition, utility relocations, construction services, and construction management services.”
MD I-270 Progressive Design-Build
Benefits of Progressive Design-Build over Bridging Design-Build

• Progressive Design-Build introduces the Design-Builder to the project as early as possible
  • Design-Builder becomes a strategic partner in project definition
  • Avoids Spearin liability
  • Facilitates having the Design-Builder involved in permit and other development activity
• Shorter time and cost from initiation to having Design-Builder on board
Alliance Contracting

- “A delivery model where the owner(s), contractor(s) and consultant(s) work collaboratively as an integrated team and their commercial interests are aligned with actual project outcomes.”

- **NCHRP Synthesis 466 – “Alliance Contracting—Evolving Alternative Project Delivery”**

- Primary users – oil and gas industry

- Transportation - Australia, New Zealand, Netherlands, and the United Kingdom.

- Washington State DOT pilot project did not advance
What Is the Most Effective Project Delivery Method?

- **Design-Bid-Build**
  - Owner
  - Designer-of-Record
    - Design Subs
  - Constructor/GC
    - Trade Subs

- **CM/GC**
  - Owner
  - Designer-of-Record
    - Design Subs
  - CM/GC
    - Trade Subs

- **Design-Build**
  - Owner
  - Designer-of-Record
  - Trade Subs
  - Design Subs
What Is the Most Effective Project Delivery Method?

<table>
<thead>
<tr>
<th>Metric</th>
<th>Design-Build vs. Design-Bid-Build</th>
<th>Design-Build vs. CM@R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Cost</td>
<td>6.1% lower</td>
<td>4.5% lower</td>
</tr>
<tr>
<td>Construction Speed</td>
<td>12% faster</td>
<td>7% faster</td>
</tr>
<tr>
<td>Delivery Speed</td>
<td>33.5% faster</td>
<td>23.5% faster</td>
</tr>
<tr>
<td>Cost Growth</td>
<td>5.2% less</td>
<td>12.6% less</td>
</tr>
<tr>
<td>Schedule Growth</td>
<td>11.4% less</td>
<td>2.2% less</td>
</tr>
</tbody>
</table>

Source: Construction Industry Institute (CII)/Penn State research comprising 351 projects ranging from 5K to 2.5M square feet. The study includes varied project types and sectors.

From the Design-Build Institute of America’s web page:
http://www.dbia.org/resource-center/Pages/default.aspx

“Source: Construction Industry Institute (CII) Penn State research comprising 351 projects ranging from 5K to 2.5M square feet. The study includes varied project types and sectors.”

*1998 study – includes only vertical projects.
Quantification of Cost, Benefits and Risk Associated with Alternate Contracting Methods and Accelerated Performance Specifications

• FHWA DTFH61-13-C-00024
• FHWA Publication No: FHWA-HRT-17-100
• Final Report – April 2017
Document benefits, costs & risks DBB, DB, CMGC, ATCs & I/Ds

Quantify the cost, schedule and quality consequences of using alternative contracting methods

Analyzed contract data from 243 DB-DBB project pairs from 6 states with 50+ DB projects

Collected 291 detailed project questionnaires from 29 agencies
FHWA DTFH61-13-C-00024
Sample Population
## Procurement Procedure by Delivery Type

<table>
<thead>
<tr>
<th>Procurement Procedure</th>
<th>D-B-B Ave % (n=134)</th>
<th>D-B Ave % (n=123)</th>
<th>CM/GC Ave % (n=34)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Bid</td>
<td>80%</td>
<td>32%</td>
<td>3%</td>
</tr>
<tr>
<td>Best Value</td>
<td>1%</td>
<td>38%</td>
<td>47%</td>
</tr>
<tr>
<td>Qualification Based</td>
<td>1%</td>
<td>0%</td>
<td>41%</td>
</tr>
<tr>
<td>A + B (cost + time)</td>
<td>13%</td>
<td>11%</td>
<td>0%</td>
</tr>
<tr>
<td>Other</td>
<td>4%</td>
<td>13%</td>
<td>6%</td>
</tr>
</tbody>
</table>
Cost Growth (Award to Final)

<table>
<thead>
<tr>
<th>Contract Method</th>
<th>Mean (%)</th>
<th>Median (%)</th>
<th>Standard Deviation (%)</th>
<th>Minimum (%)</th>
<th>Maximum (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-B-B ((n = 129))</td>
<td>4.1</td>
<td>2.3</td>
<td>9.5</td>
<td>-21.8</td>
<td>33.1</td>
</tr>
<tr>
<td>CM/GC ((n = 31))</td>
<td>0.9</td>
<td>0.8</td>
<td>6.0</td>
<td>-12.0</td>
<td>14.5</td>
</tr>
<tr>
<td>D-B/LB ((n = 36))</td>
<td>2.8</td>
<td>0.7</td>
<td>5.7</td>
<td>-5.6</td>
<td>19.0</td>
</tr>
<tr>
<td>D-B/BV ((n = 74))</td>
<td>4.0</td>
<td>1.9</td>
<td>5.5</td>
<td>-4.5</td>
<td>19.6</td>
</tr>
<tr>
<td><strong>Total</strong> ((n = 270))</td>
<td><strong>3.5</strong></td>
<td><strong>1.9</strong></td>
<td><strong>7.8</strong></td>
<td><strong>-21.8</strong></td>
<td><strong>33.1</strong></td>
</tr>
</tbody>
</table>
Table 15. Impact of change order categories as an average percentage of contract value.

<table>
<thead>
<tr>
<th>Change Orders</th>
<th>D-B-B (n = 65)</th>
<th>CM/GC (n = 19)</th>
<th>D-B/LB (n = 21)</th>
<th>D-B/BV (n = 57)</th>
<th>Total (n = 162)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency directed</td>
<td>1.2%</td>
<td>0.7%</td>
<td>1.6%</td>
<td>1.9%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Plan quantity changes</td>
<td>1.1%</td>
<td>0.3%</td>
<td>0.6%</td>
<td>0.2%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Unforeseen conditions</td>
<td>2.4%</td>
<td>1.5%</td>
<td>1.8%</td>
<td>1.8%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Plan errors and omissions</td>
<td>0.9%</td>
<td>0.6%</td>
<td>0.1%</td>
<td>0.5%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Other</td>
<td>0.1%</td>
<td>0.2%</td>
<td>0.8%</td>
<td>0.3%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Total impact as a percentage of award cost*</td>
<td>5.8%</td>
<td>3.4%</td>
<td>5.0%</td>
<td>4.7%</td>
<td>5.0%</td>
</tr>
</tbody>
</table>
FHWA DTFH61-13-C-00024
Lessons Learned White Papers

• The Relationship Between Project Delivery Methods and Change Order Types on Highway Construction Projects
• The Use and Performance of Alternative Contracting Methods on Small Highway Construction Projects
• Qualifications-Based Selection and Best Value Procurement for Construction Manager/General Contractor Highway Construction
• The Role of the Independent Cost Estimator in Construction Manager/General Contractor for Highway Construction
• Construction Manager/General Contractor Work Packaging Lessons Learned
Lessons Learned White Papers

• Effective Use of Stipends on Design-Build Projects
• Project Delivery Methods Procurement Durations and Their Impact on Performance Factors
• An Empirical Study of the State-of-Practice in Alternative Technical Concepts in Highway Construction Projects
• How Agencies Are Enhancing the ATC Process: A Focus on Confidentiality and Its Effect on Innovation
• Evaluation of the Effectiveness (Benefits and Risks) of Quality Assurance Organizations in Alternative Contracting Methods
2.5 Construction Quality Strategy

Promote quality during construction and enforce requirements of the D-B contract. While agencies often select D-B contracts for their potential time and cost savings, it is important to maintain excellent project quality. All quality assurance (QA) and quality control (QC) methods that apply to D-B-B projects apply to D-B projects. Additionally, the D-B contracting approach provides agencies with opportunities to implement alternative QA/QC methods that align with project goals.

The primary difference between D-B and traditional D-B-B construction quality approaches occurs in the QA/QC roles and responsibilities, not necessarily in any QA/QC process changes. Since the D-B process involves the contractor early and provides an opportunity for specifying construction means and methods, agencies can request that the D-B firm be responsible for various QC activities. Tools to support the construction quality strategy can include 22 Contractor-controlled QC testing, 23 Contractor involvement in establishing QC standards, 24 Incentive/disincentive program for superior quality, and 26 Dual construction engineering inspector roles. Moreover, the tool 25 Real-time electronic quality management information provides an organizational system to record and access quality-related information in a central location, track non-compliance issues, and ensure that all areas of concern are documented and closed out.
Selecting Project Delivery Methods

Project Delivery Selection Matrix

Next Generation Transportation Construction Management Pooled Fund Study

http://www.colorado.edu/tcm/project-delivery-selection-matrix
Project Delivery Selection Matrix

- Create project description checklist
- Develop project goals and identify project constraints
- Evaluate the primary factors
  - Delivery schedule
  - Complexity & innovation
  - Level of design
  - Cost
  - Initial project risk assessment
- Evaluate the secondary factors
  - Staff experience / availability
  - Level of oversight and control
  - Competition and contractor experience
1) Delivery Schedule

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Obstacles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schedule is more predictable and more manageable</td>
<td>Requires time to perform a linear design-bid-construction process</td>
</tr>
<tr>
<td>Milestones can be easier to define</td>
<td>Design and construction schedule can be unrealistic due to lack of industry input</td>
</tr>
<tr>
<td>Projects can more easily be &quot;de-coupled&quot;</td>
<td>Errors in design lead to change orders and schedule delays</td>
</tr>
<tr>
<td>Shortest procurement period</td>
<td>Low bid selection may lead to potential delays and other adverse outcomes</td>
</tr>
<tr>
<td>Elements of design can be advanced prior to permitting, construction, etc.</td>
<td></td>
</tr>
<tr>
<td>Time to communicate issues; design well with stakeholders</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Obstacles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can better account schedule through parallel design-build process</td>
<td>Request for proposal development and procurement can be lengthy</td>
</tr>
<tr>
<td>Shifting schedule risk to DB team</td>
<td>Undesired events or conditions found after procurement, but during design can impact schedule and cost</td>
</tr>
<tr>
<td>Encourages construction funds more quickly</td>
<td>Time required to define technical requirements and expectations through RFP development can be lengthy</td>
</tr>
<tr>
<td>Fewer chances for delays between agency and design-builders</td>
<td>Time required to gain acceptance of project plan</td>
</tr>
<tr>
<td>More efficient procurement of long-lead items</td>
<td>Requires agency and stakeholder commitments to an expedited review of design</td>
</tr>
<tr>
<td>Ability to start construction before entire design, ROA, etc. is complete (i.e., phased design)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Obstacles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to start construction before entire design, ROA, etc. is complete (i.e., phased design)</td>
<td>Potential for not reaching GMP and substantially delaying schedule</td>
</tr>
<tr>
<td>More efficient procurement of long-lead items</td>
<td>GMP negotiation can delay the schedule</td>
</tr>
<tr>
<td>Daily identification and resolution of design and construction issues (e.g. utility, ROA, and earthwork)</td>
<td>Scheduled division goals may drive up cost</td>
</tr>
<tr>
<td>Improved procurement schedule than DB</td>
<td>Design-engineer-agency disagreements can add delays</td>
</tr>
<tr>
<td>Team involvement for schedule optimization</td>
<td>Strong agency management is required to control schedule</td>
</tr>
<tr>
<td>Continuous constructability reviews and feedback</td>
<td></td>
</tr>
<tr>
<td>Maintenance of Traffic improves with contractor input</td>
<td></td>
</tr>
</tbody>
</table>
## Case Study – CDOT Ilex Interchange

### PROJECT DELIVERY METHOD OPPORTUNITY/OBSTACLE SUMMARY

<table>
<thead>
<tr>
<th>Secondary Evaluation Factors</th>
<th>DBB</th>
<th>DB</th>
<th>CM/GC</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Staff Experience/Availability (Owner)</td>
<td>NA</td>
<td>pass</td>
<td>NA</td>
</tr>
<tr>
<td>7. Level of Oversight and Control</td>
<td>NA</td>
<td>pass</td>
<td>NA</td>
</tr>
<tr>
<td>8. Competition and Contractor Experience</td>
<td>NA</td>
<td>pass</td>
<td>NA</td>
</tr>
</tbody>
</table>

### Primary Evaluation Factors

<table>
<thead>
<tr>
<th></th>
<th>DBB</th>
<th>DB</th>
<th>CM/GC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Delivery Schedule</td>
<td>X</td>
<td>++</td>
<td>-</td>
</tr>
<tr>
<td>2. Project Complexity &amp; Innovation</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>3. Level of Design</td>
<td>-</td>
<td>++</td>
<td>+</td>
</tr>
<tr>
<td>4. Cost</td>
<td>NA</td>
<td>++</td>
<td>+</td>
</tr>
<tr>
<td>5. Initial Project Risk Assessment</td>
<td>NA</td>
<td>Risk can be properly allocated in a DB delivery</td>
<td>NA</td>
</tr>
</tbody>
</table>

[http://www.colorado.edu/tcm/project-delivery-selection-matrix](http://www.colorado.edu/tcm/project-delivery-selection-matrix)

FHWA Contract No. DTFH6113D00023L – Tools and Technical Assistance for Evaluation of Alternative Contracting Methods, Draft summary report 9/19/2018
Recent SEP-14 Activity

- Indefinite Delivery/Indefinite Quantity (ID/IQ)
- New Mexico PBPC
- Michigan Voluntary Incentive Program
- Alternative Technical Concepts for Bid-Build Projects
- Kentucky Reverse Auction
What Is ID/IQ – JOC?

• ID/IQ Contracting is a method that “provides for an indefinite quantity, within stated limits, of supplies and services during a fixed period” (GSA 2005)

• ID/IQ = Indefinite Delivery/Indefinite Quantity Contracting, also known as:
  • Job Order Contracts (JOC)
  • Delivery Order Contracts
  • On-Call Contracts
  • Push-Button Contracts

• Term Agreements
• Master Contracts
• Framework Contracts
• Task Order Contracts
Why Is FHWA Making ID/IQ Operational?

Senate Report Language:
FY 2017 (114-243 p. 45) and FY 2018 (115-138 p. 52) Senate reports:

“Job Order Contracting.—The Committee directs FHWA to approve job order contracting, as currently allowed through the Special Experimental Projects No. 14 Program, as an operational contracting technique for all Federal-aid Highway Program funded projects within 30 days of enactment of this act.”
Recent SEP-14 ID/IQ or JOC Approvals

- Minnesota DOT ID/IQ for preventive maintenance
- Wisconsin DOT ID/IQ clearing contracts Northern Long Eared Bat (NLEB) Protection
- Michigan DOT ID/IQ for Traffic Signals
- Virginia DOT ID/IQ for bridge maintenance
- Ohio DOT ID/IQ Bridge and ITS equipment preservation
- Florida DOT ID/IQ (Pushbutton) Traffic Signals and ITS equipment
NCHRP Synthesis 473:
“Indefinite Delivery/Indefinite Quantity Contracting Effective Practices”
### NCHRP Synthesis 473

<table>
<thead>
<tr>
<th>Policies and Procedures</th>
<th>Answers and Observations</th>
<th>Frequency of Observations (out of 41)</th>
<th>Frequency %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery Method used for IDIQ Contracts</td>
<td>DBB</td>
<td>17</td>
<td>51%</td>
</tr>
<tr>
<td></td>
<td>DB</td>
<td>5</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td>CMGC</td>
<td>4</td>
<td>10%</td>
</tr>
<tr>
<td>Type of Work</td>
<td>Design</td>
<td>38</td>
<td>93%</td>
</tr>
<tr>
<td></td>
<td>Construction</td>
<td>24</td>
<td>59%</td>
</tr>
<tr>
<td></td>
<td>Maintenance</td>
<td>32</td>
<td>78%</td>
</tr>
<tr>
<td>Average Number of IDIQ Contracts Awarded per Year</td>
<td>1-2</td>
<td>3</td>
<td>7%</td>
</tr>
<tr>
<td></td>
<td>3-5</td>
<td>5</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td>6-10</td>
<td>3</td>
<td>7%</td>
</tr>
<tr>
<td></td>
<td>&gt;10</td>
<td>15</td>
<td>37%</td>
</tr>
<tr>
<td>Classification by Location(s)</td>
<td>City-wide</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>County-wide</td>
<td>5</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td>District-wide</td>
<td>18</td>
<td>44%</td>
</tr>
<tr>
<td></td>
<td>State-wide</td>
<td>19</td>
<td>46%</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>4</td>
<td>10%</td>
</tr>
<tr>
<td>Use of Multiple Award IDIQ Contracts</td>
<td>Yes</td>
<td>17</td>
<td>41%</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>9</td>
<td>22%</td>
</tr>
<tr>
<td></td>
<td>Unknown</td>
<td>15</td>
<td>37%</td>
</tr>
<tr>
<td>Use of IDIQ Contracts in Emergency Situations</td>
<td>Yes</td>
<td>13</td>
<td>32%</td>
</tr>
<tr>
<td></td>
<td>Unknown</td>
<td>28</td>
<td>68%</td>
</tr>
</tbody>
</table>

NCHRP Synthesis 473, Table 6
Low-cost ID/IQ Projects

- States no longer need to submit an SEP-14 workplan for “low-cost” competitively bid ID/IQ contracts
- Low-cost
  - 1 - 2 year contracts
  - Categorical Exclusion
  - Work orders < $2 million/year
- Extensions allowable; May not exceed 5-year term
- Must comply with all applicable Federal-aid requirements where applicable (NEPA, DBE, other part 635 requirements, etc.)
- Does not include best value or multiple-award contracts
Steps to Operationalize ID/IQ


? FHWA Notice - provides guidance for FHWA office to authorize and approve ID/IQ projects (anticipated in mid-to late 2018)

? Notice of Proposed Rulemaking (TBD)

? Final Rule (TBD)
Best-Value Procurement Programs by State DOTs (Not Including Design-Build)
New Mexico SEP-14 Performance-Based Contractor Prequalification and Procurement Program

• A system that uses contractor performance ratings in the procurement process
• Goals
  • Reward construction contractors that perform well
  • Encourage poor performers to improve
New Mexico SEP-14 Performance-Based Contractor Prequalification and Procurement Program

• Combination of Performance Factors
  • Claims (Pfc) = 15%
  • Quality related disincentives (Pfd) = 30%
  • Liquidated Damages (Pfld) = 30%
  • Non Conformance for contract submittal requirements (Pfn) = 10%
  • Safety - EMR (Pfs) = 5%
  • Subcontractor payment issues (Pfsc) = 10%
New Mexico SEP-14 Performance-Based Contractor Prequalification and Procurement Program

Sample Calculation

- Bid adjustment may change the order of bidders
- Minimum $P_{qfra}$ (no violations) = 0.900

<table>
<thead>
<tr>
<th></th>
<th>Contractor A</th>
<th>Contractor B</th>
<th>Contractor C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unadjusted Bid</td>
<td>$9,978,418.96</td>
<td>$10,543,216.91</td>
<td>$11,263.988.11</td>
</tr>
<tr>
<td>$P_{qfra}$</td>
<td>1.059</td>
<td>0.951</td>
<td>0.911</td>
</tr>
<tr>
<td>Adjusted Bid</td>
<td>$10,567,145.68</td>
<td>$10,026,599.28</td>
<td>$10,261,493.17</td>
</tr>
</tbody>
</table>
New Mexico SEP-14 Performance-Based Contractor Prequalification and Procurement Program

• New Mexico’s Experiment
  • Annual evaluations
  • SEP-14 programmatic review after two 3-year cycles
  • $5 Million minimum project threshold
  • Contractors with no data Pqfra= 1.000 (Applies to new and out-of-state contractors as well)
<table>
<thead>
<tr>
<th>Contractor</th>
<th>2015 Pqfra</th>
<th>2016 Pqfra</th>
<th>2017 Pqfra</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albuquerque Asphalt, Inc.</td>
<td>0.95</td>
<td>0.917</td>
<td>0.976</td>
</tr>
<tr>
<td>AUI, Inc.</td>
<td>0.953</td>
<td>0.919</td>
<td></td>
</tr>
<tr>
<td>C &amp; E Concrete, Inc.</td>
<td>1.005</td>
<td>0.953</td>
<td></td>
</tr>
<tr>
<td>Constructors, Inc.</td>
<td>0.95</td>
<td>0.936</td>
<td></td>
</tr>
<tr>
<td>El Terrero Construction, LLC</td>
<td>0.95</td>
<td>0.933</td>
<td>0.927</td>
</tr>
<tr>
<td>Fisher Sand &amp; Gravel New Mexico, Inc.</td>
<td>0.95</td>
<td>0.917</td>
<td>0.900</td>
</tr>
<tr>
<td>FNF Construction, Inc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hasse Contracting Company Inc.</td>
<td>0.95</td>
<td>0.921</td>
<td></td>
</tr>
<tr>
<td>Highway Supply, LLC</td>
<td>0.95</td>
<td>0.917</td>
<td></td>
</tr>
<tr>
<td>Interstate Highway Construction, Inc.</td>
<td>0.956</td>
<td>0.966</td>
<td></td>
</tr>
<tr>
<td>K. Barnett &amp; Sons, Inc.</td>
<td>0.95</td>
<td>0.967</td>
<td></td>
</tr>
<tr>
<td>Kimo Constructors, Inc.</td>
<td>0.987</td>
<td>0.943</td>
<td></td>
</tr>
<tr>
<td>La Calerita Construction, LLC</td>
<td></td>
<td></td>
<td>0.959</td>
</tr>
<tr>
<td>MANS Construction Company</td>
<td></td>
<td></td>
<td>1.208</td>
</tr>
<tr>
<td>Meridian Contracting, Inc.</td>
<td>0.987</td>
<td>0.921</td>
<td></td>
</tr>
<tr>
<td>Mountain States Constructors, Inc.</td>
<td>0.95</td>
<td>0.917</td>
<td>0.900</td>
</tr>
<tr>
<td>MWI Inc.</td>
<td>0.95</td>
<td>0.987</td>
<td></td>
</tr>
<tr>
<td>Northern Mountain Constructors, Inc.</td>
<td></td>
<td>0.95</td>
<td></td>
</tr>
<tr>
<td>Oldcastle SW Group, Inc.</td>
<td></td>
<td>0.95</td>
<td></td>
</tr>
<tr>
<td>R.T. Electric, Inc.</td>
<td></td>
<td>0.987</td>
<td></td>
</tr>
<tr>
<td>RAM Construction Services of Michigan, Inc.</td>
<td>0.965</td>
<td>0.977</td>
<td></td>
</tr>
<tr>
<td>San Bar Construction Corp.</td>
<td></td>
<td>0.95</td>
<td></td>
</tr>
<tr>
<td>The Truesdell Corporation</td>
<td></td>
<td>0.95</td>
<td></td>
</tr>
<tr>
<td>Villalobos Construction Co., Inc.</td>
<td></td>
<td>0.95</td>
<td></td>
</tr>
<tr>
<td>Vital Consulting Group, LLC</td>
<td>0.967</td>
<td>0.928</td>
<td></td>
</tr>
</tbody>
</table>

Not qualified as of 12/30/2017

G. Sandoval Construction, Inc

Information from NMDOT Prequalified contractors and Subcontracts List April 20, 2018
http://dot.state.nm.us/content/dam/nmdot/Contractor_Prequal/Prequal_List.pdf
NMDOT April 2018 Update

• Significant reductions in the frequency and severity of change orders and claims
  - To date, no claims received have gone past the Cabinet Secretary level
  - Current cost of total change orders per project less 1% of the total project cost

• Before 2017, PQFRA affected order of bids on 2 projects

• In 2017, PQFRA affected project award
  - Contractor #1 Bid = $7,191,955.00 (PQFRA = 1.00)
  - Contractor #2 Bid = $7,275,000.00 (PQFRA = 0.933)
  - Contractor #3 Bid = $7,407,740.70 (PQFRA = 1.005)
    • Contractor #2 was the adjusted low bidder at: $6,787,575.00
Michigan DOT Experimental VIP Program

Traditional
- OJT contract requirements *assigned to projects* by State DOT based on State-wide goals
- 23 CFR 230

Alternate Non-Traditional OJT Program - Contractor-based OJT
- Trainees *assigned to contractors* based on average gross receipts
- MI, ND, OH, CO
- Contractors may keep trainees on multiple contracts
- Trainees benefit from long-term employment
Michigan DOT Experimental On-the-Job Training Program
Voluntary Incentive Program (VIP)

- May be used on certain projects
- Provides a bid incentive for contractors:

1) Electing to fill more training slots than those allocated for a calendar year, and

2) Who have used all OJT Program and VIP Pilot trainees the minimum required 800 hours

For every additional training slot achieved, prime receives a $50,000 bid incentive (NTE either 50 times advertised net classification or NTE or $500,000)
Alternate Technical Concepts for Bid-Build

- Missouri DOT – continued use/evaluation
- Alabama
  - Remove and replace bridges in Birmingham CBD along I-59/I-20
- Kentucky
  - Programmatic request for 2 to 4 projects over a 2-year period
Kentucky Multi-step Competitive Sealed Bidding (Reverse Auction)

- NOT for construction services
- Applicable only to statewide commodity contracts
  - Steel Strain Poles
  - Traffic Signal Cabinets
  - Traffic Signal Components
  - Traffic Signal Controllers
  - Communications components
  - Guardrail and components
  - Pipes
  - Box Culverts (precast or aluminum)
  - Headwalls
  - Metal End Sections
### Will SEP-14 Ever End?

**SEP-14 Active Project List (not including design-build prior to 1/1/2003)**

<table>
<thead>
<tr>
<th>State</th>
<th>Contracting / Project Delivery Technique</th>
<th>Brief Description / Location</th>
<th>Workplan</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>MI</td>
<td>Alternate Pavement Type Bidding</td>
<td>M-6 Southbelt and other projects</td>
<td>September 01, 2000</td>
<td>August 01, 2001 July 19, 2009</td>
</tr>
<tr>
<td>KY</td>
<td>Alternate Pavement Type Bidding</td>
<td>US 27 Laurel County</td>
<td>July 09, 2004</td>
<td>April 08, 2008</td>
</tr>
<tr>
<td>MI</td>
<td>Alternate Pavement Type Bidding</td>
<td>M-31</td>
<td>March 09, 2012 (pdf)</td>
<td></td>
</tr>
<tr>
<td>KY</td>
<td>Alternate Pavement Type Bidding</td>
<td>1-65 Simpson County</td>
<td>December 14, 2005</td>
<td>April 08, 2008</td>
</tr>
<tr>
<td>OH</td>
<td>Alternate Pavement Type Bidding</td>
<td>US 70 in Clark and Madison counties</td>
<td>March 02, 2004</td>
<td>December 01, 2004</td>
</tr>
<tr>
<td>IN</td>
<td>Alternate Pavement Type Bidding</td>
<td>Ten projects at various locations in Indiana</td>
<td>November 17, 2009</td>
<td></td>
</tr>
<tr>
<td>AL</td>
<td>Alternate Pavement Type Bidding</td>
<td>Appalachia corridor projects</td>
<td>June 22, 2004</td>
<td></td>
</tr>
<tr>
<td>KS</td>
<td>Alternate Pavement Type Bidding</td>
<td>K-18 from Manhattan to I-70</td>
<td>October 01, 2005</td>
<td></td>
</tr>
</tbody>
</table>

[http://www fhwa dot gov/programadmin/contracts/sep14list cfm?sort=technique](http://www.fhwa.dot.gov/programadmin/contracts/sep14list.cfm?sort=technique)
Questions?

Alternative Contracting Methods (ACMs) Library

The Federal Highway Administration supports the deployment of Alternative Contracting Methods-Design-Build (DB), Construction Manager/General Contractor (CM/GC), Alternate Technical Concepts (ATC)-to accelerate project delivery, encourage the deployment of innovation, and minimize unforeseen delays and cost overruns.

In traditional highway construction contracting (design-bid-build), cost is generally the one criterion that determines the winning bid. As State and local agencies strive to meet customer needs, factors such as quality, delivery time, social and economic impact, safety, public perception, and life-cycle costs have gained in importance. Since the 1990s, the FHWA has been supporting the use of these innovative alternative contracting methods to help achieve these goals.

This Library has been assembled to provide access to samples of documents prepared by State legislatures, and transportation owner agencies in the execution of roadway construction contracting, deploying these methods. It does not constitute a standard, specification, or regulation.

- Design-Build (DB)
- Construction Manager/General Contractor (CM/GC)
- Alternate Technical Concepts (ATC)
- Best Practices, Background Material, and Useful Information

ACM Technical Contacts

http://www.fhwa.dot.gov/construction/contracts
Early Pioneers?

• AASHTO Design-Build Task Force (2003)
Design-Build
Best Practices
Peer Exchange

Richard Thomas
Director, State & Local
Government Affairs
Design-Build Institute of America

11.27-29.2018
DBIA and Advocacy

“DBIA promotes the value of design-build project delivery and teaches the effective integration of design and construction services to ensure success for owners and design and construction practitioners.”
Emerging Trends in Design-Build

DBIA Update

• Training/Networking
• Owner Outreach
• Market Research/Resources
Emerging Trends in Design-Build

• Design-Build authorization and utilization continues to grow

• The alternative delivery market share continues to expand

• P3s authorization and utilization continues to expand but at a slower rate than the last few years

• States are adopting (and codifying) best practices design-build variations
Alternative delivery and financing in the transportation sector continue to grow.

- Nationally, nearly half of all of the alternative delivery bills are transportation related.
- Over 60% are transportation, P3, and/or local design-build bills.
- 122 alternative delivery related bills were introduced in 2018.
- 22 P3 related bills were introduced in 11 states.

According to DBIA’s 2016 survey of state DOT’s.
1993 Design-Build Authorization for Transportation

- **Gray**: Design-build is not specifically authorized
- **Light Orange**: Design-build is authorized with certain limitations
- **Orange**: Design-build is widely permitted
- **Red**: Design-build is fully authorized

[Map showing state designations]
Alternative delivery in building-sector continues to grow

- Nationally, just under 3/4 of all non-residential building projects use design-build and Construction Management at Risk (CMGC/CMAR)
- Design-build is expected to grow to nearly half of the building-sector market by 2021.
## Design-Build Spending by Segment

<table>
<thead>
<tr>
<th>Segment</th>
<th>2018 (Trillion $)</th>
<th>2021 (Trillion $)</th>
<th>CAGR (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>$44</td>
<td>$53</td>
<td>6.6%</td>
</tr>
<tr>
<td>Educational</td>
<td>$42</td>
<td>$49</td>
<td>5.8%</td>
</tr>
<tr>
<td>Highway/Street</td>
<td>$38</td>
<td>$46</td>
<td>7.0%</td>
</tr>
<tr>
<td>Commercial</td>
<td>$36</td>
<td>$41</td>
<td>4.6%</td>
</tr>
<tr>
<td>Office</td>
<td>$35</td>
<td>$40</td>
<td>4.9%</td>
</tr>
<tr>
<td>Transportation</td>
<td>$22</td>
<td>$26</td>
<td>5.6%</td>
</tr>
<tr>
<td>Healthcare</td>
<td>$17</td>
<td>$21</td>
<td>7.1%</td>
</tr>
<tr>
<td>Lodging</td>
<td>$11</td>
<td>$13</td>
<td>4.7%</td>
</tr>
<tr>
<td>Amusement &amp; Rec.</td>
<td>$10</td>
<td>$11</td>
<td>3.9%</td>
</tr>
<tr>
<td>Water/Wastewater</td>
<td>$8</td>
<td>$9</td>
<td>4.8%</td>
</tr>
<tr>
<td>Communications</td>
<td>$9</td>
<td>$11</td>
<td>3.9%</td>
</tr>
</tbody>
</table>

*2018-2021 CAGR: 5.7%*
Owners like design-build

8.7 out of 10 owners would use design-build again in the future

2016 DBIA Survey of State DOTs
Design-Build Project Types

States use design-build for these project types:

- 91% highways
- 65% bridges
- 9% railroads
Project Size

The typical range in value of design-build projects (In millions of dollars)

- Over 200
- 150-200
- 100-150
- 50-100
- 25-50
- 0-25
Historically, design-build has been used on large projects. Recently, we have seen a growing use of design-build on smaller projects."

“When we have a multimillion-dollar project we look towards design-build. Generally, we believe that we get a better value for the investment with design-build."

“The trend is for larger and more complex projects to be design-build. We will continue to see bigger projects going design-build.”
Specific Design-Build Department

Do you have a centralized design-build department?

- Yes: 58%
- No: 42%
Why Use Design-Build?

Relative Importance of Factors Considered in Deciding Whether to Use Design-Build

- Federal Program Initiatives: 3.6
- Lack of In-House Resources: 3
- State Program Initiatives: 4
- Quality: 3.9
- Cost of Project: 4.2
- Opportunity for Risk Transfer: 3.9
- Opportunity for Innovation: 4.6
- Urgency of Project: 5.6

DB Program Survey: Q #1, 29 responses
Top Factors Influencing Design-Build Delivery

“Acceleration is one of the more governing factors for selecting design-build. We want to get the work out on the street fast and create jobs.”

“Design-build projects are typically larger and more complex, which requires risk management.”

“New construction for design-build is more challenging and requires greater risk. They tend to be bigger cost projects.”
Summary of Findings

After 20 years...

- **Cost Growth (%)**
  - DBB: 4.8%
  - CMR: 3.4%
  - DB: 2.2%
  - 1998

- **Schedule Growth (%)**
  - DBB: 4.4%
  - CMR: 0.0%
  - DB: 0.0%
  - 1998

- **Delivery Speed (ft²/month)**
  - DBB: 3250
  - CMR: 4712
  - DB: 6842
  - 1998

*Images and data suggest comparisons between DB, DBB, CMR, and DB in terms of cost, schedule, and delivery speed over the year 1998.*
The best performing projects differentiated themselves by:

- **Emphasizing a relational project culture:** Owners issued early expectations to the team to not tolerate arguments, unprofessionalism or unfairness

- **Repeated relationships:** Design and/or builder often worked with the Owner on prior projects
The **worst performing** projects were characterized by:

- **Lack of experience**: First-time project managers or the Owner’s first time working with the project delivery method

- **Poor communication**: Breakdowns in communication leading to unrealistic expectations and delayed decision-making

- **Turnover in the team**: Understaffing created high work loads, stress and errors
What DBIA is doing

• Training/Networking

• Owner Outreach

• Market Research/Resources
DBIA In-House Training (Owner & Industry)

<table>
<thead>
<tr>
<th>Year</th>
<th>Owner</th>
<th>Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>14</td>
<td>12</td>
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<tr>
<td>2016</td>
<td>16</td>
<td>13</td>
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<td>2017</td>
<td>14</td>
<td>20</td>
</tr>
<tr>
<td>July 2018</td>
<td>11</td>
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</tbody>
</table>
Certification Means Business

DBIA Credential Holders

![Graph showing the growth of DBIA Credential Holders from 2009 to 2018.](image-url)

- **DBIA**
- **Associate DBIA**
- **Total**

- 2009: DBIA 500, Associate DBIA 1000, Total 1500
- 2018: DBIA 2200, Associate DBIA 1590, Total 3790

*Note: The graph shows the trend of DBIA Credential Holders over the years.*
Market Research

FMI Market Share Study
Alternative delivery in building-sector continues to grow

- Nationally, just under 3/4 of all non-residential building projects use design-build and Construction Management at Risk (CMGC/CMAR)
- Design-build is expected to grow to nearly half of the building-sector market by 2021.
Showcasing Excellence

- Includes all DBIA Project Awards submissions
  - Currently only projects from past three years; but the pool is expanding!
- No deadlines to “share” projects
- dbia.org/projects-database
Owner Outreach

*Design-Build is Only as Successful as the Owners Who Implement It*

**DBIA is Here to Help**

- Owners forums
  - 200+ Owners attended the Portland Forum
- Design-Build Done Right™ Owners Education
- Owners Hotline (866) USE-DBIA
- Customized In-House Training
- Transportation Owners Webinar
- Best Practices Resources
- Transportation Committee
Owner Outreach
Questions?

Richard Thomas
Director, State & Local Government Affairs
rthomas@dbia.org
202-454-7516
Design-Build Preparation

• Facilitator
  • Brad Reynolds, P.E., DBIA – South Carolina

• Presenters
  • Kathy Thomas - Florida
  • David Simmons - Missouri
  • Jeff Roby - Virginia
Design-Build Preparation

- What is DB Prep.?
- How is DB Prep. services procured in SC?
- How is DB Prep. information used in DB contracts in SC?
- Where is SC going with level of DB Prep. needed in DB Contracts?
Design-Build Preparation

- Strong Unified Committed Team supporting the Project Manager
  - Active participation from the Planning, Preliminary Design & Environment (PD&E), and Design Department Heads
  - Customary to overlap the PD&E and Design Phases
  - BMP – 1 Hour Bi-weekly Meeting with Department Heads from Planning, PD&E, Design, and Program Management/Finance
  - Communication...Communication....Communication
Design-Build Preparation

• Amount and Quality of Information provided is directly proportional to the shift of risk and reflected in the bid price.

• Key to have a well thought out concept that is detailed enough to be a good measuring point for Alternative Technical Concepts.

• Development of the Request for Proposal (RFP) package is another key.
Design-Build Preparation

Overall FDOT Process leading up to Advertisement of the Design-Build

• Acquire Consultant as Engineer of Record (EOR) for both PD&E & Design Phases
  • Fully evaluate all alternatives and know why that alternative was not chosen
• Acquire a separate consultant as an RFP writer
  • Prefer to use a continuing services contract so we can take the lessons learned and bring them forward into the next contract.
• Both of these consultants work along with the Department through to the end of the Design-Build contract.
Design-Build Preparation

Overall FDOT Process leading up to Advertisement of the Design-Build

• Include all functional areas during RFP development
  • Construction
  • Maintenance
  • Technical Review Committee

• Approximately 1 Month before advertisement hold one-on-one marketing meetings with prospective DB Firms
Design-Build Preparation

Contractually Binding Requirements of the RFP

• Horizontal Layout
• Typical sections for all roadways, bridges, and ramps
• Minimum Pavement Design
• R/W Maps
• Department Commitments through NEPA and R/W acquisition
• Guidesign Locations and Requirements
• ITS Package and General Tolling Requirements
• Aesthetics Package
Design-Build Preparation

Documents Provided for Reference and General Information Only

- Survey
- Traffic Model
- Permit
- VE Study
- Advance Utility Coordination Data
- Concept Plans & Design Documentation
- CADD Files
- Geotechnical
- PD&E and NEPA Documents
- Interchange Reports
- Existing Roadway & Bridge Plans
- Bridge Inspection Reports
- Bridge Hydraulic Reports
Design-Build Preparation

• Contact Information
  Kathy Thomas, P.E.
  District 2 Design Engineer
  386-961-7533
  Kathy.Thomas@dot.state.fl.us

  Larry Ritchie
  Construction Office
  850-414-4168
  Larry.Ritchie@dot.state.fl.us
Design-Build Preparation

Design-Build Best Practices Peer Exchange, Columbia, SC

David J. Simmons, PE, DBIA
Missouri Department of Transportation
State Design-Build Coordinator/Design Liaison Engineer

September 18, 2018
Design-Build Preparation

*Generally 30%, but not always. Strategy is to target enough design to identify key risks:*

- Utilities (Level B or better, Utility Information Sheets)
- Environmental
  - Permitting
  - Path to NEPA Clearance
- ROW
- Communication
- Scope of work
- Traffic modeling
- Geotechnical information
- Third party agreements (City/County/RR)
- Surveying
- Hydraulics

**Drainage** – Bridge hydraulics, etc. Models Lie and Liars Model.

**Level of Survey** – Lidar, Utilities – Transmission line example – Lidar. Pothole (Fiber) also. ROW if we are close, will pick up Lines.

**Early ROW Acquisition** – Only if we feel it’s a definite need. Easements, etc. If we feel it can be avoided, we put it in the Contract.

Champ Clark Gas Station example
Information Only

Stuff we don’t want to stand behind.
• Opinion pieces (Geotech generalities) - NOT BORINGS
• General utility information cost, responsibility of relocation, schedule impacts
• Public information, fall festivals, school schedules, bus routes
• Previous flood information
• Inspection reports (bridge)
• Agreements not yet executed
• As-builts
Conflict of Interest

• Rules – anyone who participates in the preparation of the RFP is out.
• Owner Consultants are out.
• DBE’s and support type work we would consider releasing.
• This is currently developing in Missouri.
  • Scoping work – not guaranteeing that they will be allowed to participate. Listing that in consultant solicitation. Not saying no, but not saying yes either.
• NEPA Work
Preliminary Engineering & NEPA

NEPA –
• Corps of Engineers and 408 Permits
• Public outreach – sell the goals strategy - informed consent
• Re-Evaluation paths
  • Establishing what’s needed to answer “commitments”
  • Strategically writing EAs to be more performance based

AJRs-
• Traffic Safety and Operation Thumbs up
  • Close coordination with our Traffic folks and FHWA
• Work in Progress – Signing Plans
Railroads

• We are moving more to trying to do everything up front with railroads
• They have become more and more difficult to work with
• Lock it down in Contract
• Unfortunate, it’s costing us
• Erection plan is an emerging issue as well
  • Defining level of RR consultant authority and cost
Programming

• We need get better at this
  • Currently not very organized on programming
  • We are working to get this better processed
• Financing is another issue; we are running our DB projects in a DBB funding programming model
  • Causes internal constraints and confusion
• Always difficult to fit APD monies into DBB STIP database format
• Work early and often with financial departments to meet deadlines and be as transparent as possible
VDOT Design-Build Prep

Design-Build Best Practices Peer Exchange, Columbia, SC

Jeff Roby, PE, DBIA
Virginia Department of Transportation
Assistant State Engineer - Alternative Project Delivery Division

November 27-29, 2018
Code of Virginia amended to allow CTB authority to award D-B contracts

Code of Virginia amended to remove restriction on number of D-B contracts awarded per FY

Code of Virginia amended to allow the use of Alternative Technical Concepts (ATCs)

2001

2005

2010

2015

2018

1st D-B Transportation Contract APM Terminal
Hampton Roads District

50th D-B Contract Awarded Mark Center Ramp
Northern Virginia District

High Rise Bridge Awarded 1st Project with ATC's
Largest D-B Contract to Date ($410M)
Hampton Roads District

100th D-B Contract Awarded Warrenton Southern Interchange
Culpeper District
Request For Qualifications (RFQ)

- Finding of Public Interest
- RFQ contains the following:
  - Scope of Work
  - Status of NEPA
  - Estimated Contract Value
  - Project Schedule
  - Disadvantaged Business Enterprise (DBE) Goal
  - Conflict of Interest Determination
  - RFQ Evaluation Criteria
  - Conceptual Plans
  - RFQ Information Package
Request For Proposal (RFP)

- Scope of Work Description
- Risk Analysis
- STIP & TIP Verification/FHWA Approval
- NEPA Document
- Preliminary Permit Determination
- Noise Analysis
- Survey
- Right of Way Limits/Advance Acquisitions
- Utilities
- Geotechnical Data Report (GDR)
- Minimum Pavement Design
- Drainage Study
- RFP Conceptual Plans
- RFP Technical Requirements
- Design Waivers/Exceptions
- Traffic Analysis
- Contextual Features
- Third Parties – Railroad, FAA
- Public Involvement
- RFP Evaluation Criteria
- Trainee Goal
Design-Build Prep – Lessons Learned

• Perform Risk Analysis
• Obtain NEPA Prior to Award
• Survey (Design & SUE)
• Thorough/In-Depth GDR
• Estimate
• Condition Assessment of Existing Structures
• Evaluation Criteria to Match Project Needs
• Maintenance Responsibilities
• Consider Options (Scope Alternatives)
Questions?
Risk Allocation

• Facilitator
  • Tad Kitowicz—FHWA

• Presenters
  • Peter Davich - Minnesota
  • Jolena Missildine - Washington State
  • Matthew Pacheco - Colorado
RISK ALLOCATION

• SCDOT’s allocation of risk has evolved over the years

• Initial mindset – “Assign all risk to DB team”

• Current approach – Assess risk to determine project delivery method and establish a project specific risk matrix

• SCDOT uses several approaches to continuously evaluate the appropriate allocation of project risk
MnDOT “Alternative Delivery”

• 20 Year History
  • 1996: First Design-Build project
  • 2001: “Modern” DB legislation and first project
  • 2007: Design-Bid-Build Best Value Authority
  • 2013: CMGC Authority and first project

• 46 Projects
  • 29 Best-Value Design-Build ($1 - 234 Million)
  • 11 Low-Bid Design-Build ($0.5 - 19 Million)
  • 6 CMGC ($30 - 165 Million)
  • Typically 4-5 “Alt Delivery” projects per year (of 230ish total)
  • No P3 or Progressive Design-Build
MnDOT “Alt Delivery” Staffing

• Full-Time Staff
  Central Office:  2  (Peter Davich, Ashley Grzybowski)
  Central Bridge Unit:  1  (Tony Lesch)
  Districts/Technical Units:  0  (Some “usual suspects”)

• Internal Staff Functions
  • Program Development
  • Project Selection
  • Project Management Assistance/Training
  • Lead scoring/1 on 1 meetings
  • Project Controls “Gatekeeper”
  • Structures-specific oversight (Tony)
  • Verification Management (Ashley)
  • Preliminary Design

• GEC Functions
  • RFP Writing
  • Programmatic studies
MnDOT Risk Allocation

• Begin With Scoping
  • Identify risks (sometimes with formal Register)
  • Investigate important risks, then hold...

• Delivery Method Selection Workshop ---->

• Design-Build Good For:
  • Grading or other quantity risks
  • Constructability risks
  • Maintenance of Traffic difficulties/risks

• Other Methods Good For:
  • Lingering third party risks (i.e. aesthetic/historic issues)
  • Procedural risks (potential schedule changes, funding shifts)
MnDOT Risk - Investigations

• Strategic Investigations
  • Take roadway and bridge borings per manuals
  • Supplement strategically with “areas of interest”
  • If possible, ask teams about “areas of interest”
  • Acquire accurate utility (SUE) locates...where necessary

• Risk-Based Surveying Files
  • Collect information needed to design and bid
  • Decide what is guaranteed
    • If guaranteed, consider (low?) level of accuracy
    • If not guaranteed, provide dates/methods in the RID
  • Consider Spearin Doctrine (?)!
    • Does the Contractor need to trust the RID?
MnDOT Risk - Contract

• **Design Risks**
  - Almost always assigned to Contractor
  - ATC risks (third-party Approvals, etc) assigned to Contractor
  - Quantity risks assigned to Contractor
  - Percentage paid for design/warranty risk in Change Orders

• **Construction Risks**
  - Almost always assigned to Contractor
  - Material (fuel, bit) cost adjustments sometimes paid
  - Workmanship (W/C ratio, smoothness) incentives usually paid
  - Acceptance, not Approval
  - MnDOT inspectors trained not to “suggest” solutions to problems
MnDOT Risk - Contract

- **Contamination Risk**
  - Complete review/investigation based on Prelim Design
  - Think: where is excavation encouraged/discouraged?
  - Make Exhibit with “Known”/”Unknown” lines
  - Ask Contractor to study unanticipated excavation areas

- **Soil Risk**
  - Consider whether investigations are reasonably thorough
  - Consider Spearin Doctrine (?)!
  - Decide what is guaranteed
    - Boring accuracy alone (no interpretation between investigations)?
    - Geotech Baseline Report (interpretation guaranteed)?
  - MnDOT does not usually provide Baseline Report
MnDOT Risk - Contract

• **Weather Risk**
  • Define “Extreme Rainfall Event” for schedule/cost relief
    • For MnDOT, often 100-year storm
  • Define maximum high water (river?) elevation for relief
    • 10 year? 100 year? Depends.
  • Define expectations for temporary drainage/etc
    • For MnDOT, often design for 2-year storm

• **“Large” Risks**
  • Consider sharing risk
    • “Contractor pays up to $2,000,000 for contamination X”
    • “Contractor must allow for 30 Days for railroad review”
  • Consider scoring or other incentives to encourage evasion of DOT risks
  • Review insurance provisions
    • MnDOT typically doesn’t ask for Builder’s Risk coverage
WSDOT Design-Build
Risk Allocation

Jolena Missildine, PMP, Assoc. DBIA, CCM
State Design-Build Engineer
WSDOT State Construction Office
Identify and Discuss

1. Identify and Discuss Project Risk
2. Assess and Analyze the Risk
3. Mitigate and Minimize the Risk
4. Allocate the Risk
5. Monitor and Manage the Risk
Typical Risks in Transportation

• Site Conditions
• Environmental
• Right of Way
• Third parties
  • Utilities
  • Railroads
  • Adjacent Jurisdictions
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
Assess and Analyze

- Identify and Discuss Project Risk
- Mitigate and Minimize the Risk
- Monitor and Manage the Risk
- Allocate the Risk
- Assess and Analyze the Risk
Risk Register

**Tool used throughout the project**

- Identified and numbered
- Status
- Assessment with Risk Level
- Strategy and Response
- Allocation
Quantitative and Qualitative Risk Analysis
Quantitative Risk Management Meeting

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Method</td>
</tr>
<tr>
<td>2.</td>
<td>Prep meeting</td>
</tr>
<tr>
<td>3.</td>
<td>Review estimates (cost and schedule)</td>
</tr>
<tr>
<td>4.</td>
<td>Advance risk elicitation and identify uncertainty, initial</td>
</tr>
<tr>
<td>5.</td>
<td>Meeting convened – elicit risk and identify uncertainty, final</td>
</tr>
<tr>
<td>6.</td>
<td>Analysis and documentation</td>
</tr>
<tr>
<td>7.</td>
<td>Implement risk response actions, monitor and control</td>
</tr>
</tbody>
</table>
Mitigate and Minimize

Identify and Discuss Project Risk

Monitor and Manage the Risk

Allocate the Risk

Assess and Analyze the Risk

Mitigate and Minimize the Risk
Mitigate and Minimize Risk

- Craft Appropriate Conceptual Design
- Identify Permit Parameters
- Shortlist Highly Qualified Teams
Allocate

Identify and Discuss Project Risk

Monitor and Manage the Risk

Assess and Analyze the Risk

Mitigate and Minimize the Risk

Allocate the Risk
Risk Allocation Matrix

• Typical risk allocation
• Risks are carefully balanced and vary with each project
• WSDOT has worked extensively with the industry

GOAL: Fairly assign the risk to the party best able to manage the risk
Monitor and Manage

- Identify and Discuss Project Risk
- Assess and Analyze the Risk
- Mitigate and Minimize the Risk
- Allocate the Risk
- Monitor and Manage the Risk
CDOT Risk Allocation

• Common Risks-
  • Funding gaps
  • Political Atmosphere
  • Railroad Coordination
  • Utilities in general
  • Right of Way
  • Drainage
  • Storm Water Quality (Temporary and Permanent)
CDOT Risk Allocation

- Common Risks that we absorb:
  - Third Party Agreements
  - Scope Development
  - ROW Acquisition
  - Right of Way
  - NEPA

- Common Risks that we transfer:
  - Escalation
  - Critical Path and Scheduling
  - Materials and Commodities
  - Phasing
  - Maintenance
  - Synchronicity
  - Errors and Omissions/differing Site Conditions (Spearin Doctrine)

- Common Risks that we share:
  - Public Information
  - Utilities
  - Railroad
  - Hazardous Materials
  - Right of Way
CDOT Risk Allocation

• We use a combination of Qualitative and Quantitative Risk Techniques
  • Qualitative Analysis helps us inform our Project Development and the Request for Proposals.
    • Ensuring that we are able to write our contract so that they :
      • Absorb those risks
      • Share those risks
      • Transfer those risks
      • Retire those risks
CDOT Risk Allocation

• We use a combination of Qualitative and Quantitative Risk Techniques
  • Quantitative Analysis helps us inform our Schedule Development and our Estimate.
    • Impacts to Cost and schedule are added as a project level contingency.
    • Contingencies are including at project the planning level
    • Contingencies are not included in the Request for Proposal milestones.
CDOT Risk Allocation

• Major Projects will hold a Workshop to fill out their Quantitative and Qualitative risk registers.
• Workshops can be half day to a few days long.
  • Challenges to the workshops have been:
    • Education on Risk
    • Teams trying to address the mitigate risk during the workshop.
    • Risk Fatigue
    • Teams balancing their budgets with contingency
Questions?
Effectiveness Metrics

• Facilitator
  • Keith Molenaar - University of Colorado

• Presenters
  • Peter Davich - Minnesota
  • Jolena Missildine - Washington State
  • Jesse Gutierrez - Arizona
Effectiveness Metrics

Discussion of Effectiveness Metrics

• Quality
• Team Performance
• Agency Staffing and Program Management
• Cost
• Schedule
• Safety
Effectiveness Metrics

New Research by Alan Therrien

• How can state transportation agencies measure the performance of their alternative project delivery methods such as D-B and CM/GC at the program level?
Effectiveness Metrics

Data collection questionnaire

1. How accurate would the following performance measures be at reflecting the performance of an alternative project delivery method program?

2. How available is the required data for the following performance measures?
Effectiveness Metrics

41 completed responses
Effectiveness Metrics

Top-tier metrics
- Proposals from Qualified Contractors
- Milestone Dates
- Construction Duration
- Total Project Cost
- Project Cost at Award
- Accepted ATCs

Second-tier metrics
- Procurement Duration
- Overall Project Duration
- Change Orders
- Disputes
- Use of Contingency and Risk Pools
How do delivery methods relate to project performance?

Research Data Collection
- 291 projects
  - 134 D-B-B projects
  - 34 CM/GC projects
  - 39 D-B/LB projects
  - 84 D-B/BV projects
- 28 agencies
- Completed 2004-2015
How do delivery methods relate to project performance?

Timing of Award for **D-B-B, CM/GC & D-B/LB** Projects between **$10M-50M**

- **D-B-B**
- **D-B/BV**
- **CM/GC**

*Cost Certainty*
How do delivery methods relate to project performance?

Average Impact (% of cost growth) of Change Order Categories

<table>
<thead>
<tr>
<th>Change Orders</th>
<th>D-B-B (n = 65)</th>
<th>CM/GC (n = 19)</th>
<th>D-B/LB (n = 21)</th>
<th>D-B/BV (n = 57)</th>
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</thead>
<tbody>
<tr>
<td>Agency Directed</td>
<td>1.2%</td>
<td>0.7%</td>
<td>1.6%</td>
<td>1.9%</td>
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<tr>
<td>Plan Quantity Changes</td>
<td>1.1%</td>
<td>0.3%</td>
<td>0.6%</td>
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<td>1.8%</td>
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<tr>
<td>Plan Errors and Omissions</td>
<td>0.9%</td>
<td>0.6%</td>
<td>0.1%</td>
<td>0.5%</td>
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<tr>
<td>Other</td>
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<td>0.2%</td>
<td>0.8%</td>
<td>0.3%</td>
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<td>Total</td>
<td>5.8%</td>
<td>3.4%</td>
<td>5.0%</td>
<td>4.7%</td>
</tr>
</tbody>
</table>
Effectiveness Metrics

Discussion of Effectiveness Metrics

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• Schedule
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  • Verification Management (Ashley)
  • Preliminary Design

• GEC Functions
  • RFP Writing
  • Programmatic studies
MnDOT Effectiveness Metrics

• **Important Topic**
  - Need to verify whether Project Delivery Method result was ‘correct’
  - Need to determine how much Design-Build costs in relation to DBB
  - Need to determine how much was saved via ATCs or ‘innovation’
  - Need to determine how the design was enhanced via ATCs or ‘innovation’
  - Need to determine if we are succeeding
  - Need to make the case for (or against) Design-Build!

• **Difficult Topic**
  - Can’t let a project both DB and DBB and compare
  - ...therefore, everything is somewhat subjective
  - It takes a long time (decades?) to generate a meaningful track record
MnDOT Effectiveness Metrics

• MnDOT Metrics
  • ATC Response Time (75% within 10 Days)
  • Schedule (85% of projects let within 1 week of the date set in RFQ)
  • Budget (85% of projects within 15% of budgeted amount)
  • Cost Growth (80% of projects with cost growth lower than 4.0%)
  • Clarifications Issued (80% of projects below normalized number of clarifications)

• Problems with MnDOT Metrics
  • Measures were being developed by PM group previously…but implementation incomplete
  • Project budgets were never established by PM group as envisioned
  • Cost growth takes a long time to determine
  • Clarifications aren’t necessarily “bad” (even when adjusted by # teams and project size)
MnDOT Effectiveness Metrics

- **ATC Response Times**
  - No “preliminary” submittals
  - 10 Days is a challenging goal
  - Varies by project size/complexity
  - Varies by district (staff motivations?)
  - Must balance speed versus quality of decision
  - Must prepare reviewers beforehand (“clear the decks”)
  - Must allow reasonable number of ATCs (5-15)
  - Must use good tracking tool and motivate staff constantly
  - 75% goal appropriate/realistic?
MnDOT Effectiveness Metrics

• RFQ Letting Date
  • In the past 5 years RFQ letting dates have been met within one week 16 of 19 times.
  
  • The three failures were:
    • 9 Days Nine Mile Creek (RFP finalization delay)
    • 30 Days Forest Lake (Addition of project scope - DDI)
    • 287 Days Willmar Wye (Failure to reach RR agreement)

  • We are relatively good at holding Design-Build letting dates outside of rare agreement/scope issues.

  • We occasionally have short RFP release delays: we slip by 7-10 days even though lettings are held (outside of Nine Mile Creek). Recent point of emphasis
MnDOT Effectiveness Metrics

- **Cost Growth**
  - Average post-letting Cost Growth on MnDOT Design-Build projects is 2.98%, with disclaimers...
  - Excludes a project affected by a government shutdown
  - Excludes a unique $1M signing project which had 29% cost growth due to its experimental nature and small size
  - Excludes one project which had a “second project” (extra bridge) added post-letting
  - Only includes 19 data points total
MnDOT Effectiveness Metrics

RFP Quality

Cost Growth by Fiscal Year
Quality of WSDOT

• HQ Policies and Procedures
• Standardized DB Templates
• ASCE Approval
• Official Observer
• 13 Design-Build Training Modules
  • Over 500 trained
Quality of Design-Builder

- Western Alliance for Quality Transportation Construction (WAQTC)
  - Certified Inspectors
  - Certified Testers
- Construction Audit Tracking System (CATS)
- Form C, Reference Information for Major Participants
Quality of Performance

• Prime Contractor Performance Report
  • WAC 468-16-150

• Design-Builder Performance Evaluation
  • Under Development
Time

- Procurement Schedule
  - RFQ
  - ATCs
  - RFP
- ABV to Execution
- Project Schedule
Estimated Design-Build Expenditures

- Past Design-Build Projects
- Programed as Design-Build Projects
- Predicted to be Design-Build Projects (with estimated aging of the expenditures)

Tunnel and SR 520 Floating Bridge expenditures significantly influence expenditures in this area.
Cost

• Owner of Choice - Consistent & predictable
• Partnership – Trainings
• Estimated amount vs Awarded amount – Higher Engineer Estimate
• Cost Growth – DBB vs DB
Arizona Department of Transportation
South Carolina APDM Peer Exchange

• Project Delivery Metrics and Measurements
Business Review

• July, 2018
<table>
<thead>
<tr>
<th>Performance Metric Titles</th>
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<th>JOP</th>
<th>YTD</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
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<td>7/1/2017</td>
<td>Target</td>
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<td>63%</td>
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<td>78%</td>
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<td>75%</td>
<td>57%</td>
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<td>Target</td>
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<td>95%</td>
<td>100%</td>
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<td>Pavement Treatments (Miles)</td>
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<td>On-Budget Construction Delivery</td>
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<td>Target</td>
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<td>78%</td>
<td>75%</td>
<td>100%</td>
<td>100%</td>
<td>67%</td>
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<td>Bridge Condition</td>
<td>Quality</td>
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<td>37%</td>
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<td>37%</td>
<td>37%</td>
<td>37%</td>
<td>37%</td>
<td>37%</td>
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### Custom Field Legend

- **Speed**: Go Faster (Respond, Decide, Resolve)
- **Quality**: Compliance, Customer Satisfaction
- **Cost**: Dollars Saved
- **People**: Retain Employees / Safe Employees

### Performance to Targets Color Coding:

- **Green**: 100% of Target
- **Yellow**: Within 75% - 99% of Target
- **Red**: Within 0% - 74% of Target

---

Funded by the Federal Highway Administration, U.S. Department of Transportation.
New Contract Execution
240 Days to Target of 90 Days

[Bar chart showing progress towards the 90-day target over the course of the year, with months from July to June and corresponding day counts for each month.]

Jul: 136 days
Aug: 213 days
Sep: 237 days
Oct: 251 days
Nov: 182 days
Dec: 194 days
Jan: 143 days
Feb: 91 days
Mar: 55 days

The chart indicates the progress towards the target of 90 days, with a downward trend from July to June.

[Logos and text for Federal Highway Administration and other related organizations are present at the bottom of the page.]
On-time Construction Delivery

JOP 45% to Target of 75%

11 of 15 Delivered on Time
20-30-30-20

100% is Target

5 of 14 Delivered on Time
- 8 months straight in Defcon 2
- 7 projects delivered which were not in original baseline
Task Order Execution

50 Day Target

Not So- Steady State

- 13 in June – 72 day Avg
- Low 9 Days
- High 116 Days
- PMG (2) - 43
- ROW (2) - 13
- Bridge (3) - 116
- EPG (5) – 88
On-Budget Construction Delivery

- 60% (9/15) did not exceed 5% threshold

Bar chart showing monthly performance with percentages for each month: July: 80%, August: 72%, September: 25%, October: 100%, November: 100%, December: 37%, January: 78%, February: 75%, March: 100%, April: 100%, May: 67%, June: 60%.
<table>
<thead>
<tr>
<th>IDO Design Groups, Project Management, C&amp;S, EPG, and Districts Utilization - FY18</th>
<th>UT based on budget expenditure - not hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Roadway</strong></td>
<td>43% 46% 45% 44% 47% 43% 38% 52% 51% 49% 51% 36%</td>
</tr>
<tr>
<td><strong>Eng Survey</strong></td>
<td>40% 42% 39% 41% 56% 42% 37% 36% 43% 42% 31% 33%</td>
</tr>
<tr>
<td><strong>Bridge</strong></td>
<td>54% 57% 49% 49% 52% 49% 43% 51% 57% 48% 51% 39%</td>
</tr>
<tr>
<td><strong>Traffic</strong></td>
<td>52% 50% 53% 46% 50% 51% 37% 47% 51% 53% 53% 34%</td>
</tr>
<tr>
<td><strong>RoFw</strong></td>
<td>44% 42% 42% 39% 44% 44% 29% 25% 33% 38% 42% 34%</td>
</tr>
<tr>
<td><strong>U&amp;R&amp;RR</strong></td>
<td>39% 41% 61% 58% 57% 49% 41% 44% 55% 49% 47% 38%</td>
</tr>
<tr>
<td><strong>PMG</strong></td>
<td>44% 51% 55% 55% 61% 53% 53% 68% 57% 57% 60% 48%</td>
</tr>
<tr>
<td><strong>C&amp;S</strong></td>
<td>64% 65% 65% 63% 58% 58% 55% 61% 63% 56% 65% 47%</td>
</tr>
<tr>
<td><strong>EPG</strong></td>
<td>22% 29% 29% 28% 35% 35% 32% 37% 35% 38% 35% 27%</td>
</tr>
<tr>
<td><strong>NW Dist</strong></td>
<td>45% 50% 40% 38% 42% 39% 32% 39% 43% 42% 51% 37%</td>
</tr>
<tr>
<td><strong>NC Dist</strong></td>
<td>65% 70% 67% 67% 63% 53% 39% 45% 51% 63% 70% 56%</td>
</tr>
<tr>
<td><strong>NE Dist</strong></td>
<td>57% 53% 47% 46% 43% 35% 31% 36% 44% 51% 54% 37%</td>
</tr>
<tr>
<td><strong>SE Dist</strong></td>
<td>40% 44% 35% 35% 36% 32% 32% 44% 44% 34% 52% 31%</td>
</tr>
<tr>
<td><strong>SC Dist</strong></td>
<td>54% 61% 51% 57% 56% 51% 44% 55% 58% 54% 56% 39%</td>
</tr>
<tr>
<td><strong>SW Dist</strong></td>
<td>52% 58% 63% 60% 60% 50% 46% 51% 60% 57% 59% 45%</td>
</tr>
<tr>
<td><strong>C Dist</strong></td>
<td>57% 65% 63% 57% 64% 61% 57% 64% 69% 66% 70% 47%</td>
</tr>
<tr>
<td><strong>Const&amp;Mat</strong></td>
<td>46% 46% 47% 46% 42% 43% 36% 37% 39% 47% 54% 39%</td>
</tr>
</tbody>
</table>

**Avg % UT**

48% 51% 50% 49% 51% 46% 40% 47% 50% 50% 53% 39%
## Project Delivery Method Score Summary

### Weight of SELECTION FACTOR

#### 40% Project Level

<table>
<thead>
<tr>
<th>SELECTION FACTORS</th>
<th>Weight of Individual Goals</th>
<th>raw DBB score</th>
<th>DBB Weighted score</th>
<th>raw CMAR score</th>
<th>CMAR Weighted score</th>
<th>raw DB score</th>
<th>DB Weighted score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Complexity</td>
<td>20%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Budget</td>
<td>20%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Schedule</td>
<td>20%</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Risk</td>
<td>20%</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Scope</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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#### 20% Agency Level

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<th>DBB Weighted score</th>
<th>raw CMAR score</th>
<th>CMAR Weighted score</th>
<th>raw DB score</th>
<th>DB Weighted score</th>
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<tbody>
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<td>Staffing availability Int/Ext</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Experience Int/ Ext</td>
<td>20%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Agency Goals/Objectives</td>
<td>20%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Agency Control of Project</td>
<td>20%</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<tr>
<td>Third Party Coordination</td>
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<td>0</td>
<td>0</td>
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<tr>
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#### 20% Policy/Regulatory Level

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<th>CMAR Weighted score</th>
<th>raw DB score</th>
<th>DB Weighted score</th>
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<td>Tribal Impacts</td>
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<td>0</td>
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#### 20% Special Considerations

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<td>0</td>
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<td>0</td>
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<td>0</td>
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### FINAL SCORE

- Project Delivery Cost: 0.00
- Agency Level: 0.00
- Policy/Regulatory Level: 0.00
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<td>8</td>
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<td>Experience Int/ Ext</td>
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<td>Agency Control of Project</td>
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<td>Project Life Cycle Costs</td>
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Questions?
Conceptual Estimating

• Facilitator
  • Jae Mattox- South Carolina

• Presenters
  • David Simmons – Missouri
  • Darryl VanMeter - Georgia
  • Keith Molenaar - University of Colorado
Conceptual Estimating

SCDOT develops the following estimates in a typical Design-Build Project:

• Planning Level Cost Estimates
• Final Total Construction Cost Estimate
• Final Engineer’s Estimate
Conceptual Estimating
Project Phasing

Phase
- Pre-let
  - Project Initiation
  - Project Development
  - Prelim Development
  - Procurement BL

Stage
- Sooping
- GEC Procurement
- Schedule/Estimate/Risk Assessment

Gate
- Award
- Concept Report
- ROW Auth
- RFP Ad/NEPA Approval
- Concurrence

Post-Let
- Project Implementation
- O & M
  - O & M Design
  - Construction
  - Env. Permits
  - ROW Acquisition
  - Utility Coord. Agreements
  - Utility Relocation
  - Substantial Completion
  - Handback
  - Final Acceptance
Level

• Project Initiation
  • High level, rough order of magnitude, Class 4 or 3 estimate generated with Georgia DOT oversight at approximately 3-5% design (digitized mapping preferred)

• Concept Development
  • High level, rough order of magnitude, Class 3 estimate generated by GEC with PMC and Georgia DOT oversight using info compiled to date at approximately 10–15% design

• Costing Plan
  • Mid-level, Class 3 estimate generated by GEC with PMC and Georgia DOT oversight using info compiled to date at approximately 25–30% design

• Procurement Plan
  • Mid-level, Class 3 estimate generated by GEC with PMC and Georgia DOT oversight using final NEPA and RFP documents at approximately 30% design
Other Considerations

• Utilities – the number, size and if transverse or along the alignment
• ROW – the number, full or partial, type
• Escalation – assumed inflation rate and availability of resources
• Delivery – DB or DBF, etc.
• Project Risks – specific to each project and type of delivery
Conceptual Estimating

Agenda

• D-B Estimating Expectations for Accuracy
• D-B Estimating Performance
• Estimating Best Practices
Expectations for D-B Estimating Accuracy

2004 Review of SEP-14 Design-Build Projects

<table>
<thead>
<tr>
<th>Cost</th>
<th>Award Growth</th>
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<tbody>
<tr>
<td>Responses</td>
<td>36</td>
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<tr>
<td>Average</td>
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</tr>
<tr>
<td>Median</td>
<td>-0.1%</td>
</tr>
<tr>
<td>Mode</td>
<td>0.0%</td>
</tr>
<tr>
<td>Max</td>
<td>63%</td>
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<tr>
<td>Min</td>
<td>-45%</td>
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<td>Std Dev</td>
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### Expectations for D-B Estimating Accuracy

#### 2006 Review of SEP-14 Design-Build Projects

<table>
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<tr>
<th>State</th>
<th>Project</th>
<th>EE</th>
<th>% from Bid</th>
<th>% Dispersion</th>
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<tbody>
<tr>
<td>Washington</td>
<td>Thurston Way</td>
<td>$20,878,121</td>
<td>23%</td>
<td>7%</td>
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<td></td>
<td>I-5 Everett HOV</td>
<td>$165,080,000</td>
<td>12%</td>
<td>26%</td>
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<tr>
<td></td>
<td>Kirkland Stage 1</td>
<td>$40,000,000</td>
<td>19%</td>
<td>18%</td>
</tr>
<tr>
<td>Minnesota</td>
<td>TH 212</td>
<td>$245,000,000</td>
<td>-3%</td>
<td>17%</td>
</tr>
<tr>
<td></td>
<td>TH 52 Oronoco</td>
<td>$36,000,000</td>
<td>2%</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>HW 10/32 Interchange</td>
<td>$8,500,000</td>
<td>2%</td>
<td>23%</td>
</tr>
<tr>
<td>North Carolina</td>
<td>I-3311A</td>
<td>$76,272,250</td>
<td>-7%</td>
<td>18%</td>
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<td></td>
<td>I-3803A</td>
<td>$76,100,000</td>
<td>15%</td>
<td>17%</td>
</tr>
<tr>
<td></td>
<td>I-2511CB</td>
<td>$64,000,000</td>
<td>32%</td>
<td>6%</td>
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<td></td>
<td>I-4401</td>
<td>$40,293,000</td>
<td>6%</td>
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## Expectations for D-B Estimating Accuracy

### 2016 Review of SEP-14 Design-Build Projects

<table>
<thead>
<tr>
<th>Contract Method</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max.</th>
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<tbody>
<tr>
<td>D-B-B (n=129)</td>
<td>-9%</td>
<td>-8%</td>
<td>18%</td>
<td>-51%</td>
<td>42%</td>
</tr>
<tr>
<td>D-B/LB (n=37)</td>
<td>-5%</td>
<td>-7%</td>
<td>32%</td>
<td>-58%</td>
<td>104%</td>
</tr>
<tr>
<td>D-B/BV (n=71)</td>
<td>-7%</td>
<td>-7%</td>
<td>22%</td>
<td>-51%</td>
<td>77%</td>
</tr>
</tbody>
</table>
D-B Estimating Challenges

Over the past 20 years...

• ~22% std dev between estimate and successful proposal

• Significant dispersion between proposals
D-B Estimating Challenges

1. Timing of the engineer’s estimate
2. Scope differences in RFP vs proposals
3. Design-build items missing from engineer’s estimate
4. Design-builder’s risk not included in engineer’s estimate
D-B Estimating Best Practices

Cost Estimating Steps
1. Determine Estimate Basis
2. Prepare Base Estimate
3. Determine Risk and Set Contingency
4. Review Estimate Total
D-B Estimating Best Practices

Cost Estimating Management Process
1. Obtain Appropriate Approvals
2. Determine Estimate Communication Approach
3. Monitor Project Scope/Conditions
4. Evaluate Potential Impact of Changes
5. Adjust Cost Estimate
Conceptual Estimating

Agenda

• D-B Estimating Expectations for Accuracy
• D-B Estimating Performance
• Estimating Best Practices
Questions?
Best Value Evaluation and Cost Proposal Analysis

• Facilitator
  • Chris Gaskins - South Carolina

• Presenters
  • Keith Molenaar - University of Colorado
  • Darryl VanMeter - Georgia
  • Jeff Roby - Virginia
Best Value Procurement

**NCHRP Report 561**
“…a concern expressed by owners and some of their industry partners is that a system based strictly on the lowest price provides contractors with an incentive to concentrate on cutting bid prices to the maximum extent possible, even when a higher cost product would be in the owner’s best interest. As a result, the low-bid system may not result in the best value for dollars expended or the best performance during and after construction.”

**DBIA**
“…..a selection based primarily on technical, design, management, past performance and other non-cost/price qualitative factors maximizes the likelihood of owner satisfaction with the delivered design-build services.”
Best Value Procurement

• Project Selection Process
• Low Bid and Adjusted Low Bid with Quality Credits - Concerns
• Weighted Criteria = \( \frac{A_{\text{low}}}{A_n} \times x_A + \frac{b_{\text{low}}}{b_n} \times x_B + \frac{C}{100} \times x_C + \frac{D}{100} \times x_D + \frac{E}{100} \times x_E \)

• Typical Weights
• Fixed Price
• SOQs – Likert
• Technical Proposals - Qualitative versus Quantitative Evaluations
• Performance versus Prescriptive
• Quality-based Incentives/Disincentives
• Cost Proposal
Best Value Evaluation and Cost Proposal Analysis

Practices for Developing Transparent Best-Value Selection Procedures
Best-Value Concepts

• Project Goal
  • Best-Value Parameters

• Evaluation Plan
  • Best-Value Evaluation Criteria
  • Best-Value Evaluation Systems
  • Best-Value Award Algorithms

Evaluation Criteria
- Cost
- Time
- Qualifications
- Quality
- Design Alternates

Evaluation Rating Systems
- Go/No-Go
- Adjectival Rating
- Direct Point Scoring

Award Algorithms
- Meets Technical-Low Bid
- Quantitative Cost-Technical Tradeoff
- Fixed Price-Best Prop.
Best-Value Lessons Learned

46 state agencies (88% response)
Best-Value Lessons Learned

30 Agencies Implementing

5 Agencies Considering

- Agencies Implementing Best-Value Procurement
- Agencies Considering Best-Value Procurement
Best-Value Lessons Learned

• Evaluation criteria that support transparency
  • Use the minimum number of criteria
  • Are clear, easy to understand, project-specific and quantitative
  • Convey the weights of evaluation criteria directly in the RFP

• Selection methods that support transparency
  • Direct point evaluation rating system
  • Quantitative cost-technical tradeoff award algorithms
  • Weighted Criteria is preferred
Best-Value Lessons Learned

Evaluation criteria should

• Be completely consistent with project goals
• Be the minimum number required
• Be clear, defensible and easy to understand
• Be tailored to the individual project
• Minimize recycling criteria from project to project
• Focus on items that bring measurable value to the project
Best-Value Lessons Learned

• Clear and comprehensive evaluation plans are a key
• Conduct timely and detailed debriefings
• Provide evaluation comments that are specific, concise, and tied to scoring
• Collaborate with industry in program development and maintenance
• Conduct training to promote transparency, consistency and fairness
Best Value Evaluation and Cost Proposal Analysis
Evaluation Criteria for SR 400 Widening

Technical Proposal (pass/fail )

Price Proposal

• Base bid + bid for up to 10 additional segments to fit within budget

Apparent Successful Proposer

• Passing Technical Proposal
• Highest number of segments within the available budget

In the case of a tie for higher number of segments:
Lowest qualified total price for sum of the base bid and all qualifying segments would be selected.
Evaluation Criteria for Courtland Street Bridge

Technical Proposal (50%)

• Evaluation Criteria included:
  ✓ Bridge Closure Duration  125 points
  ✓ Contract Duration  75 points
  ✓ Stakeholder Involvement and Public Outreach Plan  125 points
  ✓ Staging, Traffic, and Pedestrian Plan  125 points
  ✓ Project Management and Technical Approach  50 points

• Maximum Technical Proposal score  500 points

Price Proposal (50%)

• Price Proposal Score = (Price Proposal \( \frac{\text{Lowest Bid}}{\text{Respective Proposer's Bid}} \)) * 500

• Maximum Price Proposal score  500 points

Maximum Total Proposal Score is based on 1,000 points

50/50 Best Value Procurement
Evaluation Criteria for I-85 Widening

Price and Scope Proposal (75%)

\[ \frac{400 \times \text{Scope of Respective Proposer}}{\text{Most Aggressive Scope}} + \frac{350 \times \text{Low Bid}}{\text{Bid of Respective Proposer}} \]

Price Proposal (35%) Scope Proposal (40%)

Technical Proposal (25%)

- Evaluation Criteria included:
  - Construction Phasing: 100 points
  - Schedule/Duration: 75 points
  - Construction Staging and Traffic Control Plan: 30 points
  - Project Management and Approach: 30 points
  - DBE Approach: 15 points

- Maximum Technical Proposal score: 250 points

Variable Scope – Best Value Procurement
VDOT Best Value Evaluation & Cost Proposal Analysis

Design-Build Best Practices Peer Exchange, Columbia, SC

Jeff Roby, PE, DBIA
Virginia Department of Transportation
Assistant State Engineer - Alternative Project Delivery Division

November 27-29, 2018
VDOT D-B Basis of Award – 2002 to Present

- Single-Phase Best Value: 5%
- Single-Phase Low Bid: 34%
- Two-Phase Best Value: 44%
- Two-Phase Low Bid: 16%
- Two-Phase Fixed Price Variable Scope: 1%
Best Value Process & Cost Proposal Analysis

Current VDOT Best Practices

- Utilize Best Value Procurement with ATC’s
- Perform Responsiveness Reviews on Proposals Received
- Request Clarifications prior to receiving price proposal
- Utilize Consensus Scoring
- 70/30 Numerical Weighting (Price/Technical Score)
- Public Opening of Price Proposals
- Perform Bid Analysis of Successful Offeror
- Review Escrow Documents
Best Value Process & Cost Proposal Analysis – Lessons Learned

- Remain Transparent (There is Nothing to Hide)
- Minimum Technical Score Requirement
- Request Clarifications Prior to Receiving Price Proposal
- Utilize Consensus Evaluation Process
- Expect a Protest when Awarding to 2nd Lowest Price
- Hold Design-Builder to Promises Made in Technical Proposal
Yes - We Really Are Getting Best Value

Out of 40 Best Value Procurements:

- 68% Awarded to High Technical Score, Low Price – Best Case Scenario
  - What are we paying for?
  - Are we paying a premium?
  - Are we being good stewards of public funds?

- 15% Awarded to High Technical Score, High Price

- 18% Awarded to Low Technical Score, Low Price
  - Are we getting the desired result?
  - Are we losing quality?
  - Are they “buying” the job?
Questions?
Information Exchange

• Facilitator
  • Barbara Wessinger - South Carolina

• Presenters
  • David Simmons - Missouri
  • Jolena Missildine - Washington State
  • Peter Davich - Minnesota
INFORMATION EXCHANGE

• Early coordination meetings
• RFQ
  • Addendum; Non-Responsive Letter; Clarifications; Shortlisting; debriefing of RFQ
• Issuance of RFP Industry Review
  • Non-confidential questions and open-forum meeting
• After issuance of the Final RFP
  • Non-confidential question and open-forum Meetings
  • ATC – one on one meetings
  • Confidential question and one-on-one confidential meetings
INFORMATION EXCHANGE (CONTINUE)

- After receipt of responses to technical proposals
  - clarification, communications, oral presentations
- After scoring and at bid opening
  - possible discussions - one-on-one discussion meetings
  - Possible proposal revision (BAFO)
- Award or Cancellation
- Limited contract negotiations
- Debriefing of Award
Information Exchange

Design-Build Best Practices Peer Exchange, Columbia, SC

David J. Simmons, PE, DBIA
Missouri Department of Transportation
State Design-Build Coordinator/Design Liaison Engineer

September 20, 2018
Pre-Advertising Activities

- Add “Potential Design-Build” to STIP
- Market Research – Share potentials, gauge feedback informally
- Pre-Industry meetings to gage interest and get feedback
- Public Meetings – provide the public information on the DB approach
- Keep any One–on–Ones before procurement is extremely high level
  - Information that is available on the internet
  - Try to avoid if we can
Post-Advertising Activities

- Pre-solicitation notices – provide list of potential projects on website to give industry a heads up of what is to come – make no promise
- Routinely hold an industry meeting prior to each DB project
  - Advertise in National Publication
  - RFQ release
  - Like to have Draft RFP or ITP if possible
RFQ Phase

- Time period allowed for DB teams to ask questions (RFC)
  - Different Methods used
    - Email to Project Director (not recommended, but it happens)
    - All Questions during RFQ phase are public, post questions on SharePoint
  - Global RFC’s
    - Strategy – Be transparent whenever you can be, to protect when you can’t be.
    - Once this time period ends, the project team no longer makes contact with the DB teams until after short-listing

- Tried an interview as part of SOQ process
  - Very positive experience
  - Same questions, no feedback or follow up
RFP Stage

1 on 1 confidential meetings
• Each meeting provides the DB teams an **opportunity** to present their technical proposal approach for feedback
• Typically 3 to 6; meetings per short-listed team
• A time period is allowed for DB teams to ask questions (RFC)
  • Same methods used as in RFQ
    • Some RFC’s may be confidential, some may be made public. MoDOT discretion.
• Once time period ends, project team makes no contact with the DB teams until after closed commission meeting (award).
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<thead>
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<th>ID</th>
<th>Description</th>
<th>Category</th>
<th>Description of AAS</th>
<th>Previously Used By</th>
<th>Response</th>
<th>Date Closed</th>
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<tr>
<td>1</td>
<td></td>
<td>Construction</td>
<td>Various modifications to 2014 MoDOT Standard Specifications, Section 701 for Drilled Shafts.</td>
<td>MoDOT</td>
<td></td>
<td>9/26/2017</td>
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<td></td>
<td>Materials</td>
<td>Use of Narrow Gap Improved Electroslag Welding (NGI-ESW). See attached revised AAS.</td>
<td>TN / NM</td>
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<td>5/24/2017</td>
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<td>3</td>
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<td>Materials</td>
<td>Structural Steel Fabrication: Progressive Steel Girders Assembly. See Revision 1 attached.</td>
<td>MoDOT</td>
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<td>5/24/2017</td>
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<td>4</td>
<td></td>
<td>Bridge Design</td>
<td>AAS to explicitly allow use of NUTB prestressed girders sections. These girders have been used on the MO approach to the Stan Musial bridge and other MoDOT projects.</td>
<td>MoDOT</td>
<td></td>
<td>5/24/2017</td>
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<tr>
<td>5</td>
<td></td>
<td>Bridge Design</td>
<td>Modified specification to allow use of stainless steel reinforcing.</td>
<td>MoDOT</td>
<td></td>
<td>5/24/2017</td>
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<tr>
<td>6</td>
<td></td>
<td>Bridge Design</td>
<td>Modify design requirements in EPS to allow use of higher strength concrete (fc up to 10 ksi) and Grade 75 reinforcing steel.</td>
<td>MoDOT</td>
<td></td>
<td>5/24/2017</td>
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</table>
Standards: MoDOT EPG
Category: Roadway Design
Corresponding Section No.: Please provide the appropriate section number for reference to applicable standard.
Description of AAS: Use the "Attach File" option in the top ribbon under "Actions" to attach reference documentations.
Previously Used by (State):
Response (MoDOT USE ONLY):
Date Closed:
RFP Stage

Time between final 1 on 1 and Technical Proposal Submittal

• Typically 1 to 2 weeks for DB teams to submit final AASs, DE, RFCs, and pre-submittal documents between final Meeting and Proposal Due.
  • Pre-submittal documents – provides the DB teams an opportunity to get some of the paperwork out of the way and approved prior to final submittal of proposal.
  • Workflow using SharePoint – AAS’s, DE’s, RFC’s. Confidential and Global.

• Documents required for Pre-submittal:
  • Equal Employment Opportunity
  • Debarment, Suspension, Ineligibility, and Voluntary Exclusion
  • Buy America Certification
  • Organizational Documents
  • Etc.
RFP Stage

Other Items we may consider:

• EA or EIS Commitments – Need to review and give feedback on acceptability
• Traffic Safety and Operation for AJR Projects
• Sometimes – Proposer defined elements
RFP Stage

Post submittal of Technical Proposal – MoDOT is silent until Award

• clarifications - we can, but we try to avoid
• communications - none until award
• discussions – none until debriefs
• presentations – We have not, but we may in the future
Award Stage

• Call teams after Presentation to Executive Team Presentation
  • As Approved by Exec Team – moving to recommend to the Commission
  • Known before advertised
  • Will only communicate if THAT team is successful or unsuccessful = Nothing else

• Formal recommendation to the Commission – 6 Member Bi-Partisan Commission.
  • Basic concept of the successful proposal – 5 to 6 slides
Award Stage

• Debrief with all teams. 2 – 3 days later
  • Current strategy to sign up when proposal is due
  • Strengths/Weaknesses

• To show the scores or not show the scores
  • Pushback from industry on this
  • Current strategy is to show that team’s score vs. successful team score
  • Everything is confidential until contract signed
    • Lawyer involvement for other requests – FOIA
    • Will provide all proposals to other teams after contract signed and stipend release executed
Sharing Information

• WSDOT/AGC/ACEC Meetings

• **Advance Schedule of Projects**

• **Advertisement Notice**

• Post in Daily Journal of Commerce

• Design-Build Templates

• All Information on [Design-Build Project Page](#)
Project Fact Sheet

• Project Overview
• Project Goals
• Procurement Schedule
• Contract Amount
• Key Personnel
• High-Level Scope
• Quantities and Cost
• PE Information

Design-Build Project Page
I-405 Renton to Bellevue Widening and Express Toll Lanes Project

Project Overview
The Renton to Bellevue project will add new capacity to create a two-lane express toll lane system between SR 167 in Renton and Northeast 56th Street in Bellevue. This project will connect a 40-mile system of express toll lanes that improves safety and trip reliability for all travelers and supports the new I-405 Blue Line Rapid Transit system included in this Sound Transit 3 package.

Project Goals
1. Minimize Impacts - Develop and implement a design-build project plan that reduces, minimizes, or eliminates construction and traffic related impacts on I-405 and to the adjacent communities and businesses.
2. Collaboration - Provide a successful design-build project by collaborating with WSDOT, the Toll Vendor, key stakeholders, and local communities to resolve issues at the Project level.
3. Smooth Toll System Rollout - Provide an efficient, comprehensive rollout plan for the express toll lane system in coordination with WSDOT’s Toll Vendor. This plan should minimize traffic impacts during rollout of the toll system.
4. Effective Start-Up and Close-Out, and Quality Management - Plan and deliver a successful design-build project plan that is deliverable.

Design-Build Contract Amount: $650-710M

Key Personnel
Project Manager
Construction Manager
Design Manager
Inclusion Manager

Procurement Schedule
Request for Qualifications (RFQ) Aug. 15, 2018
Request for Proposal (RFP) Nov. 15, 2018
Bid opening/Appointment Best Value August 2019
Construction Start Fall 2019
Open to Traffic May-July 2023 or 2024

For More Information
Chien-He Chen, P.E., Project Engineer
1-405/SR 167 Program
425-456-6539
chienhe@wsdot.wa.gov
www.wsdot.wa.gov/Projects/I-405_RentonToBellevue

Environmental and other enhancements - Construct two fish passage crossings under NE 44th Street and under I-405 for UNT 06 LW 0283 (formerly referred to as Cypress Creek). Construct a fish passage crossing under I-405 for Stream 77A. Construct a fish passage crossing under I-405 for Stream 77.
- Construct new noise walls and relocates two existing noise walls.
- Construct stormwater management and water quality facilities.
- Other improvements will include pavement markings, permanent signing, luminous intelligent transportation systems, barriers, and landscaping.

Potential added scope - Construct direct access ramps at I-405 interchange.

Quantities and Cost

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<th>ITEMS</th>
<th>APPROX % OF COMBINED (95-100)</th>
<th>UNITS</th>
<th>APPROX QUANTITY</th>
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<td>EARTHWORK (5-10%)</td>
<td>CY</td>
<td>500.000</td>
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<tr>
<td>Common borrow</td>
<td>CY</td>
<td>800.000</td>
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<tr>
<td>PAVEMENT (5-10%)</td>
<td>CY</td>
<td>5.000</td>
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<tr>
<td>PPCP</td>
<td>CY</td>
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<td>HMA overlay</td>
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<td>Sidewalks</td>
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<td>DRAINAGE (5-10%)</td>
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<td>Coverage</td>
<td>Miles</td>
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<td>Stormceptor treatment</td>
<td>DcR</td>
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<td>SPECIALTY ITEMS (10-15%)</td>
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<td>Noise walls</td>
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<td>Culverts for fish passage</td>
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<td>Toll point structures</td>
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<td>STRUCTURES (15-15%)</td>
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<td>New bridges</td>
<td>EA</td>
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<td>Bridge widening</td>
<td>SF</td>
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MSVWBE Contractor Networking Event

Wednesday, Aug. 22, 2018
2 - 4:30 p.m.
Renton Highlands Library
2801 NE 10th St, Renton

The Washington State Department of Transportation (WSDOT) is beginning the two-step contract procurement process of the I-405, Renton to Bellevue Widening and Express Toll Lanes project. WSDOT will hold an informational meeting for potential Submitters regarding the first step, Request for Qualifications, on Aug. 22, 2018.

The project involves road widening and interchange and bridge work. The project will require trucking and hauling, paving, demolition, landscaping, traffic control, and numerous other types of work. Construction is expected to begin in the fall of 2019 and to take four or five years.

We invite minority, small, veteran and women’s business enterprise (MSVWBE) firms to attend and network with the potential prime contractors for the project.

For more information:
Contact Bobby Forch
Phone: 206-805-5418
Email: forchb@consultant.wsdot.wa.gov
Project Contract website:
www.wsdot.wa.gov/biz/contact/Contracts/Renton.html

Accommodation requests for people with disabilities can be made by contacting the WSDOT Diversity/ADA Affairs team at wsdotada@wsdot.wa.gov or by calling toll-free, 855-362-4ADA (4232). Persons who are deaf or hard of hearing may make a request by calling the Washington State Relay at 711.
MnDOT “Alternative Delivery”

• 20 Year History
  • 1996: First Design-Build project
  • 2001: “Modern” DB legislation and first project
  • 2007: Design-Bid-Build Best Value Authority
  • 2013: CMGC Authority and first project

• 46 Projects
  • 29 Best-Value Design-Build ($1 - 234 Million)
  • 11 Low-Bid Design-Build ($0.5 - 19 Million)
  • 6 CMGC ($30 - 165 Million)
  • Typically 4-5 “Alt Delivery” projects per year (of 230ish total)
  • No P3 or Progressive Design-Build
MnDOT “Alt Delivery” Staffing

• **Full-Time Staff**
  - Central Office: 2 (Peter Davich, Ashley Grzybowski)
  - Central Bridge Unit: 1 (Tony Lesch)
  - Districts/Technical Units: 0 (Some “usual suspects”)

• **Internal Staff Functions**
  - Program Development
  - Project Selection
  - Project Management Assistance/Training
  - Lead scoring/1 on 1 meetings
  - Project Controls “Gatekeeper”
  - Structures-specific oversight (Tony)
  - Verification Management (Ashley)
  - Preliminary Design

• **GEC Functions**
  - RFP Writing
  - Programmatic studies
MnDOT Information Exchange

• Program Manager Communication
  • Communicate with industry commonly: calls/meetings
  • Bi-annual AGC meetings
  • ACEC meetings as requested/needed

• Create project website following DB determination
  • 12-18 months prior to letting, ideally
  • Post brief description, rough estimate, assumed schedule, PM name
  • Dump future “RID” info onto link (layouts, NEPA, surveys, etc etc)
  • Speculate whether an oversight contract will be included

• Post Request for Letters of Interest
  • 8-12 months prior to letting, ideally
MnDOT Information Exchange

• Hold Project Informational Meeting (RFQ Kickoff)
  • 6 months prior to letting, ideally
  • “All information presented here is non-contractual”
  • Program Manager describes RFQ and any differences from template
  • Project Manager thoroughly describes project and known risks
  • Program Manager asks questions (teams unlikely to ask with competition there)

• After RFQ released, communication is restricted
  • All project questions must go through PM or Program Manager
  • All documents/investigations from consultants who worked on project previously must be posted
    • At MnDOT, consultants are usually conflicted only if they work on project within 1 year of SOQ due date
  • Formal clarification process initiated
MnDOT Information Exchange

• **RFP Advertisement Period**
  - Communication similar to RFQ
  - Confidential “1 on 1” meetings scheduled every two weeks with core project team
    - Other personnel invited as requested/needed
    - Discuss ATC ideas only (no clarifications, no scoring discussion, etc)
    - “Dead on Arrival” or “Entertainable”
    - Tell teams what information is needed
  - Clarifications/associated addenda common
  - Include deadline for questions

• **Letting**
  - Public in-person announcement common
  - Debriefings for both SOQ and tech proposal processes (all teams, every project)
Questions?
ATC Process

• Facilitator
  • Ben McKinney, P.E., DBIA - South Carolina

• Presenters
  • Kathy Thomas - Florida
  • Darryl VanMeter - Georgia
  • Matthew Pacheco - Colorado
Alternative Technical Concepts

- **Definition** – “equal or better in quality or effect on an overall basis”

- **Preliminary ATCs** – “informal inquiry”, 30 allowed on prescribed form
  - Meeting – “at the request of the Proposers”
  - Response - “Favorable,” “Not Favorable,” “Addendum,” or “Not an ATC”

- **Formal ATCs** - 15 allowed on prescribed form
  - Meeting - “may be scheduled to fully understand the details of any formal ATCs”
  - Response – “Approved, Not approved, Not an ATC, Omission, Multiple”

- **Incorporation into Proposal**
  - Include - any or all approved ATCs
  - Abandonment – revert back to RFP requirements
  - Adopt and use – Stipend receipt = property of SCDOT
Alternative Technical Concepts

- Schedule of events has 3 one on one ATC meetings scheduled
- First ATC meeting is typically 2 to 3 weeks after shortlisting and release of the final RFP
- Second ATC meeting is typically 2 weeks after the first.

Important to have these attendees from the FDOT to provide guidance

- Planning, PD&E, and Design Department Heads; invite FHWA
- Technical Review Committee
- Subject Area Experts
- Consultant Engineer of Record and Consultant RFP writer
Alternative Technical Concepts

What happens in the One on One ATC Meetings?

- DB Firm presents their ATC
- FDOT asks questions and there is open dialogue back and forth
- Before the DB Firm leaves they know the FDOT’s current position on the ATC
  - This is not an ATC the FDOT supports or perhaps is already prohibited by RFP
  - This is an ATC the FDOT would like to see developed and formally submitted
  - This is an ATC the FDOT is not sure about, but these are the questions we still have if you want to develop and formally submit
Alternative Technical Concepts

- 2 weeks following the second ATC is the deadline for formal ATC submittal for consideration. No new ATC’s can be submitted beyond this date.

- Any design exceptions that are to be considered must also be submitted with the ATC.

- The FDOT has 14 days to respond in writing to the ATC and exceptions:
  - Acceptable
  - Not Acceptable
  - Requires Additional Information
Alternative Technical Concepts

- 4 to 6 weeks after the initial ATC submittal date the Department will issue an addendum to the RFP covering any updates necessary as a result of the ATC process
  - FDOT determines additional restrictions and or allowances are needed in RFP
  - Clarifications that may be necessary for existing requirements
  - Publish any approved exceptions
Alternative Technical Concepts

- 2 to 3 weeks following the publication of the Addendum the 3rd ATC meeting is held
  - DB Firm can only present new ATC’s related to the published addendum
  - DB Firm can discuss previously submitted ATC that may not be fully resolved

- 1 week after the 3rd ATC meeting is the deadline for ATC submittal

- Goal to have final resolution on all ATC’s 3 weeks prior to written technical proposal submittal
Alternative Technical Concepts

Keys to Successful ATC process

• Detailed RFP along with a strong, unified, committed FDOT team
• Have the right people at the ATC meeting to expedite the decision process
• Keep an open mind and look for opportunities
• For ATC’s that involve a NEPA re-evaluation and/or an interchange document approach realistically
• Communication….communication….communication
Alternative Technical Concepts

Requirements for ATC Submittal

• ATC layout overlaid in a different color on the RFP horizontal layout drawn at the same scale and the same level of detail
• Written description
• Deviations, if any, from the RFP and where inconsistent recommended language change
• Analysis justifying the use of the ATC and why deviations if any should be allowed
• Impact analysis on permanent traffic operations and during construction, environmental impacts, maintenance impacts, etc.
Requirements for ATC Submittal Continued

- Risks for the FDOT or third parties
- Any changes in operational requirements including ease of operation
- Any changes in maintenance requirements including ease of maintenance
- Any anticipated changes in life cycle
- Any changes that directly or indirectly modify a toll site or related infrastructure
Alternative Technical Concepts

- ATC’s are submitted directly to the District Design Engineer for distribution
  - Distribute to all those included in the ATC meetings for feedback
- FDOT, Consultant EOR and Consultant RFP writer all track the multiple ATC’s
- Although FDOT may accept an ATC it only becomes contractually binding if included in the DB Firms written technical proposal
Alternative Technical Concepts

• Contact Information
  Kathy Thomas, P.E.
  District 2 Design Engineer
  386-961-7533
  Kathy.Thomas@dot.state.fl.us

  Larry Ritchie
  State Construction Office
  850-414-4168
  Larry.Ritchie@dot.state.fl.us
ATC Process
ATC Benefits

- Promote Efficiencies
- Reduce Risks
- Reduce Project Costs
- Innovations
- Accelerate Project Delivery Schedules
ATC History in Georgia (P3)

2003-2004
P3 Legislation

2006
Northwest Corridor Express Lanes (DBF)

2013
Northwest Corridor Express Lanes (DBF)

2016
Transform 285/400 (DBF)

2017
Major Mobility Investment Program

2018

ATC History in Georgia (Design-Build)

2013
Legislation Made Way for ATCs

2014
Weigh-In-Motion

2015
• SR 299 @ I-24
• SR 400 Widening
• I-85 Express Lanes Extension

2017
Courtland Street

2018
Georgia DOT ATCs by the Numbers

- **318** ATCs submitted
- **154** ATCs approved
- **36** ATCs included in awarded firm’s proposal
- **$107M** Total estimated savings
Innovations – Innovative Committee

• MSE Panel (5.5” vs 7”)
• Gravix Precast Wall
• Stone Strong Retaining Wall
• Conc. Sound Barrier (4” vs. 10”)
• LED lighting vs HPS
• Steel diaphragms vs CIP
• Specified Comp Strength (beams)
CDOT Alternative Technical Concepts

• Because of the structure CDOT’s contract we employ two ways to provide value and innovation in our Contracts
  • Alternative Configuration Concepts
    • Changes to Book 2 Section 1 (Requiring Executive Oversight Committee approval)
  • Alternative Technical Concepts
    • Changes to Book 2 Sections 2-20 as allowed in Book 1 (Approval are at the Project Management Team level)
CDOT Alternative Technical Concepts

- We provide a bank of one-on-one meetings to our proposers
  - The amount of one-on-one meetings depends on the complexity of the projects (usually 4-6)
  - We do have consultant technical team members on the review panels, as well as their Owner Counterpart (Blended Team)
  - We require proposers to provide an agenda 3 days prior to the meeting so that we can schedule the decision makers to attend
CDOT Alternative Technical Concepts

• Confidentiality = Investment
  • The more we can reassure that their Ideas will be protected the more willing proposers will pursue Innovation (FRFP),
  • Only decision making team members attend the meetings (need to know only)
  • As the first order of business we read confidentiality brief to remind all participants of what they agreed to and set the tone for the meeting
CDOT Alternative Technical Concepts

• Guidance and responsiveness = Investment
  • We need to be able to verbally provide guidance to the proposers to their presentations
    • Ask questions
    • Thumbs up (keep pursuing this idea)
    • Thumbs down (your investment is better spent elsewhere)
  • Approval of ATC is based off of “Equal or Better”
CDOT Alternative Technical Concepts

• Challenging the Culture of No is difficult
  • Changing the language from “No”, “What will it take to make that happen”
  • Reassure your project teams that, we will not:
    • Ask them to jeopardize their license or integrity
    • Compromise Safety
    • Compromise Quality
    • Compromise Durability

• Keep an open mind but, not so open that your brains fall out.
  • Decisions are made with data, and reasoning.
  • The Lens of the project goals filters the discussions regarding approval.
CDOT Alternative Technical Concepts

• Typically we will receive approximately 30-40 ATC’s
• We will receive 1-3 ACC’s
  • Adding scope
  • or changes to the Basic Configuration
Questions?
Quality Management and Construction Oversight

• Facilitator
  • Clay Richter - South Carolina

• Presenters
  • Jeff Roby - Virginia
  • Matthew Pacheco - Colorado
  • Jesse Gutierrez - Arizona
Quality Management & Construction Oversight - SCDOT

- Design Review and CE&I firms are selected after the Bid Opening
- Design Review services often are performed by the Prep firm
- Design Review is coordinated through Bluebeam software
- QA testing and project management are performed by both internal staff and consultant CE&I firms
- CE&I typically report to a Resident Engineer
- Recently implemented semi-annual Evaluation program may aid in improvements from the Design-Builder throughout the life of the project
VDOT Quality Management & Construction Oversight

Design-Build Best Practices Peer Exchange, Columbia, SC

Jeff Roby, PE, DBIA
Virginia Department of Transportation
Assistant State Engineer - Alternative Project Delivery Division

November 27-29, 2018
VDOT D-B Quality Management

• Design-Builder is responsible for developing a Construction and Design QA/QC Plan in accordance with VDOT’s Minimum Requirements for QA and QC on D-B and PPTA Projects, dated July 2018

• The Design-Builder is responsible for design and construction quality and overall management of the QA/QC programs.

• The Design and Construction QA/QC Plans define the organization, work processes, and systems necessary to provide confidence and objective evidence that contract requirements will be met.
VDOT D-B Construction Oversight

• Design-Builder is responsible for construction **QC AND QA**
• Construction QA organization must be distinct and separate from the QC organization and construction production forces
• Quality Assurance Manager (QAM)
  • Responsible for QA inspection and testing
  • Verify all design related Work Packages have been certified by the Design Manager
  • Ensure adherence to environmental permits and commitments
  • Ensure all work, materials, testing, sampling and work zones meet contract requirements
  • Approve all applications for payment
• VDOT provides Owner Independent Assurance (OIA) and Verification Sampling and Testing (OVST)
Advantages of VDOT’s Construction Oversight Approach

• Limit’s VDOT exposure to liability related to the means and methods of work
• Requires fewer resources from VDOT
• VDOT does not accept liability related to design errors and omissions
• Design-Builder is responsible for coordinating and implementing all field changes due to errors and omissions or nonconforming work.
• VDOT is not “caught in the middle” resolving disputes between the contractor and designer.
• Delays and consequences resulting from untimely response to QA are not borne by VDOT.
• VDOT can ensure quality through rigorous enforcement of the QA/QC Plan.
Quality Management & Construction Oversight Approach – Lessons Learned

- Full-time QAM for Large Projects
- Full-time Lead QA Inspector(s) Required for All Projects
- QA/QC Staffing Plans (Evaluated during Procurement)
- Electronic Document Control (CADAC)
- D-B Performance Evaluation
- Plan Grid – Pilot Project
CDOT Construction Engineering and Inspection

• CDOT is a not a centralized organization and allows the project teams to decide how they will administer the Contract.
• Typically we follow two models
  • Owner Owned Quality Control
  • Independent Contractor Quality Control (ICQC)
## CDOT Construction Engineering and Inspection

<table>
<thead>
<tr>
<th>ICQC</th>
<th>Owner Controlled QC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contractors Role:</strong></td>
<td><strong>Contractors Role:</strong></td>
</tr>
<tr>
<td>• Production Quality control on Design and Construction, and intangibles</td>
<td>• Production Quality on Design and Construction.</td>
</tr>
<tr>
<td>• Quality Control on Design and Construction, and Intangibles</td>
<td>• Quality Assurance on Design</td>
</tr>
<tr>
<td>• Materials Testing and Inspection</td>
<td><strong>Owners Role:</strong></td>
</tr>
<tr>
<td>• Quality Resource management</td>
<td>• Contract Performance Auditing</td>
</tr>
<tr>
<td><strong>Owners Role:</strong></td>
<td>• Acceptance Decision</td>
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<tr>
<td>• Contract Performance Auditing</td>
<td>• Quality Control on Construction and Intangibles.</td>
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<tr>
<td>• Owner Verification Testing*</td>
<td>• Materials Testing and inspection</td>
</tr>
<tr>
<td>• Acceptance Decision</td>
<td>• Quality resource management</td>
</tr>
</tbody>
</table>

*Per FHWA Publication No.: FHWA-HRT-12-039
## CDOT Construction Engineering and Inspection

<table>
<thead>
<tr>
<th>ICQC</th>
<th>Owner Controlled QC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advantages:</td>
<td>Advantages:</td>
</tr>
<tr>
<td>• Quality Program that is integrated into the critical path</td>
<td>• Allows Project Management teams to utilize familiar skills. (no major pivot)</td>
</tr>
<tr>
<td>• Assists Owner in transition to performance based expectations.</td>
<td>• Owner Acceptance Decision is simplified</td>
</tr>
<tr>
<td>• Performance Auditing reinforces the role of the Contract</td>
<td>• Owner more familiar with the Quality expectations</td>
</tr>
<tr>
<td>• Contractor must resource load the Quality program, appropriately to handle their Critical Path.</td>
<td>• Managing quality on intangibles more easily understood and managed.</td>
</tr>
<tr>
<td>• Opportunities for efficiency in resources.</td>
<td></td>
</tr>
<tr>
<td>• Focus of Quality program is improvement</td>
<td></td>
</tr>
<tr>
<td>• Performance Auditing.</td>
<td></td>
</tr>
<tr>
<td>• Risk Based Owner Verification can be used to manage resources more efficiently.</td>
<td></td>
</tr>
<tr>
<td>ICQC</td>
<td>Owner Controlled QC</td>
</tr>
<tr>
<td>------</td>
<td>---------------------</td>
</tr>
<tr>
<td><strong>Challenges:</strong>&lt;br&gt;• Requires project teams to Pivot their skills to meet the new project model.&lt;br&gt;• Consultants struggle with understanding the quality expectations&lt;br&gt;• Accountability for hi-profile issues is difficult to communicate to the public&lt;br&gt;• Quality for the intangibles can be overlooked (i.e., environmental in construction)</td>
<td><strong>Challenges:</strong>&lt;br&gt;• Can encourage a casual approach to Contract Requirements&lt;br&gt;• Quality of deliverables can be seen as secondary&lt;br&gt;• Focus of Quality program is accountability&lt;br&gt;• Staffing a quality program that can respond to the demands of a Construction Schedule can prove difficult.&lt;br&gt;• Reinforces the attitude that the scope of the project is Quantities and Unit cost</td>
</tr>
</tbody>
</table>
Quality Management Databases (QMD’s)

- CDOT has used both Proprietary and non-Proprietary Quality Management Databases to support the Audit process.
- QMD’s are expensive $120k-$170 per year.
- Every technical requirement must at a minimum receive at least one Audit.
- Every deliverable prior to Acceptance or Approval must have a supporting Audit.
- All non-conformances must have been addressed prior to Acceptance or Approval.
- If the Contractor is relieved from fulfilling any requirement it must be managed through the Change Process.

Partnersing cannot be just a platitude-

- When managing a performance based contract, Quality improvement needs to be the primary driver of your audit process.
- Help your contractor understand the expectations.
- Be disciplined with escalating disputes
  - Solve them at the lowest level
  - Do not move to the next level until the process is exhausted at the existing level.

Design-Builds are not “Turn-Key”

- The Contract does not only hold the contractor accountable, but there are requirements for the owners as well.
- Owner needs to be involved
- Have a contract language expert at every taskforce.
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Arizona Department of Transportation
South Carolina APDM Peer Exchange

• Quality Management and Construction Oversight

Jesse Gutierrez
Deputy State Engineer
<table>
<thead>
<tr>
<th>Performance Metric Titles</th>
<th>Custom Field</th>
<th>JOP</th>
<th>YTD</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>June</th>
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<tr>
<td>Task Order Execution</td>
<td>Speed</td>
<td>7/1</td>
<td>Target</td>
<td>50</td>
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<td></td>
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</tr>
<tr>
<td>Speed</td>
<td></td>
<td>7/1</td>
<td>Target</td>
<td>75%</td>
<td>63%</td>
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<td>75%</td>
<td>57%</td>
<td>67%</td>
<td>73%</td>
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<tr>
<td>On-Time Construction Delivery</td>
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<td>Target</td>
<td>100%</td>
<td>90%</td>
<td>95%</td>
<td>100%</td>
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<tr>
<td></td>
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<td>On-Budget Construction Delivery</td>
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<tr>
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<td>Actual</td>
<td>72</td>
<td>78%</td>
<td>75%</td>
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<td>100%</td>
<td>67%</td>
<td>60%</td>
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<tr>
<td>Bridge Condition</td>
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<td>37%</td>
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<tr>
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<td>35.50%</td>
<td>37%</td>
<td>37%</td>
<td>37%</td>
<td>37%</td>
<td>37%</td>
<td>37%</td>
<td></td>
</tr>
</tbody>
</table>

**Custom Field Legend**
- **Speed**: Go Faster (Respond, Decide, Resolve)
- **Quality**: Compliance, Customer Satisfaction
- **Cost**: Dollars Saved
- **People**: Retain Employees / Safe Employees

**Performance to Targets Color Coding:**
- **Green**: 100% of Target
- **Yellow**: Within 75% - 99% of Target
- **Red**: Within 0% - 74% of Target
## Fiscal Year active projects

<table>
<thead>
<tr>
<th>District</th>
<th>Number of Projects</th>
<th>Amount of Contract</th>
<th>Amount Earned to Date</th>
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</thead>
<tbody>
<tr>
<td>Central</td>
<td>26</td>
<td>1,142,289,620.07</td>
<td>722,679,632.76</td>
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<tr>
<td>NorthCent</td>
<td>13</td>
<td>99,375,026.45</td>
<td>70,945,625.86</td>
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<tr>
<td>NorthEast</td>
<td>7</td>
<td>22,986,270.63</td>
<td>17,934,524.17</td>
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<tr>
<td>NorthWest</td>
<td>12</td>
<td>87,343,701.86</td>
<td>64,323,480.18</td>
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<tr>
<td>SouthCent</td>
<td>19</td>
<td>219,635,214.24</td>
<td>166,461,976.98</td>
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<tr>
<td>SouthEast</td>
<td>9</td>
<td>20,539,166.89</td>
<td>15,527,212.27</td>
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<tr>
<td>SouthWest</td>
<td>6</td>
<td>29,635,781.93</td>
<td>30,602,447.24</td>
</tr>
</tbody>
</table>

**Total Projects Under Construction**

92

**Grand Total Amount of Contracts**

1,621,804,782.07

**Total Amount Earned**

1,088,474,899.46

**Total Amount Remaining**

533,329,882.61
South Mountain Design Build
On-time Construction Delivery

JOP 45% to Target of 75%

11 of 15 Delivered on Time
## Arizona Department of Transportation
### Field Reports Section
#### Completed Contracts Fiscal Year 2019

**November, 2018**

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Location District</th>
<th>State Estimate</th>
<th>Contractor</th>
<th>Bid Amount</th>
<th>Final Cost</th>
<th>Monetary</th>
<th>Percent</th>
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</thead>
<tbody>
<tr>
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<td>GLENDALE</td>
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<td>SSSS901C</td>
<td>AVE'S NORTH</td>
<td></td>
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<td></td>
<td>Central District</td>
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<td>Working Days: 171</td>
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<td></td>
<td>Days Used: 171</td>
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<td>171 = 120 + 37 + 14</td>
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<td>Low Bid =</td>
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<td>over State Estimate</td>
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<td>SSS9001C</td>
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<td>130 = 120 + 14 + 14</td>
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<td>Low Bid =</td>
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<td>0.3 %</td>
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<td>($119,768.95)</td>
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<td>under State Estimate</td>
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<td>($26,106.48)</td>
<td>-8.2 %</td>
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</table>
• Full time employees (FTE’S).
• 18 Consultant firms.
• Firms provide temporary technical services.
• Utilize office managers, resident engineers.
• Sometimes utilize up to 130 consultant staff.
• Full Service contracts to administer projects during construction.
• General Engineering Consultant GEC for Design Build Projects
• GEC assists with procurement
• Transportation Technicians-Trans Techs 1,2,3.
North Central

Project Staff which can assist with project delivery

Flagstaff | Williams | Gray Mountain | Little Antelope | Page | Fredonia | Payson | Campe Verde | Winslow
---|---|---|---|---|---|---|---|---
14 | 12 | 11 | 8 | 9 | 12 | 15 | 8 | 12
Consultant Call Outs for Inspectors
Entry level thru Mid Level

Based on experience and training
- Supplement FTE Staff
- Depends on work Load
- Require ATTI Field
- ACI concrete Field level
# On-Budget Construction Delivery

- **60% (9/15)** did not exceed 5% threshold

<table>
<thead>
<tr>
<th>Tracs No</th>
<th>County</th>
<th>Project Name</th>
<th>Bid Date</th>
<th>Bid Amount</th>
<th>Diff btwn 1st and 2nd Bid</th>
<th>Delta btwn 1st and 2nd Bid</th>
<th># of Bidders</th>
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<tbody>
<tr>
<td>H824301C</td>
<td>Maricopa</td>
<td>-17, Happy Valley &amp; Pinnacle Peak TI's</td>
<td>8/31/2018</td>
<td>$50,069,219</td>
<td>$6,910,781</td>
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<td>H894101C</td>
<td>Pinal</td>
<td>-10, Pinal Airpark TI</td>
<td>8/10/2018</td>
<td>$1,678,827</td>
<td>$552</td>
<td>0.0%</td>
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<td>7013201C</td>
<td>Pima</td>
<td>-19, Ajo Way TI Phase 2</td>
<td>5/4/2018</td>
<td>$31,991,712</td>
<td>$867,672</td>
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<td>H892201C</td>
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<td>-8, Paloma</td>
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<td>$8,581,891</td>
<td>$1,168,109</td>
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<tr>
<td>H849001C</td>
<td>Apache</td>
<td>US 160, Chino Wash Bridge</td>
<td>03/02/18</td>
<td>$6,065,103</td>
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<tr>
<td>H865701C</td>
<td>Mohave</td>
<td>US 93, White Hills - 11th St</td>
<td>08/24/18</td>
<td>$9,990,000</td>
<td>$1,284,180</td>
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<td>H893401C</td>
<td>Coconino</td>
<td>-17, Coconino C/L - Flagstaff</td>
<td>02/23/18</td>
<td>$24,450,000</td>
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<td>H871701C</td>
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<td>02/09/18</td>
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<td>$98,386,751</td>
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<td>H869701C</td>
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<td>SR 10, Fairway Tl</td>
<td>09/21/18</td>
<td>$20,807,745</td>
<td>$1,122,255</td>
<td>5.4%</td>
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<tr>
<td>H891801C</td>
<td>Yavapai</td>
<td>SR 89, Paulden Turn Lanes</td>
<td>09/21/18</td>
<td>$1,259,400</td>
<td>$97,730</td>
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<td>H851801C</td>
<td>Yavapai</td>
<td>SR 89, SR 89A - Deep Well Ranch Rd</td>
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<td>$10,361,415</td>
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<td>$11,620,815</td>
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<td>Board District</td>
<td>Contract Time Days</td>
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<td>% Complete</td>
<td>Contract $</td>
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<td>10</td>
<td>The evidence that the delivery method positively aligns with the project objective or issue is of the highest possible order of affirmation.</td>
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<td>8</td>
<td>The delivery method strongly aligns with the objective or issue and is demonstrated in practice. There is a slight risk that the objective or issue may not be beneficial.</td>
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<td>6</td>
<td>Experience and judgment point to the delivery method strongly aligning with the objective or issue. There is a mild risk that the objective may not be beneficial.</td>
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<td>4</td>
<td>Experience and judgment slightly points to the delivery method aligning with the objective. There is a strong risk that the objective will be negatively affected.</td>
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<td>2</td>
<td>There is little benefit to applying the delivery method for this goal or objective. There is a strong likelihood that the object will not be achieved.</td>
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<td>9,7,5,3,1</td>
<td>Intermediate values between two adjacent judgments.</td>
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Questions?
Thank You!
Questions?