South Carolina Department of Transportation

U.S. Department of Transportation
Federal Highway Administration

2018 Design-Build Peer Exchange

November 27-29, 2018

Columbia, South Carolina

Final Report

February 4, 2019

TABLE OF CONTENTS

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.

State	Name	Title	D-B Program Age
North Carolina	Teresa Bruton	Design-Build Manager	18 Years
Georgia	Darryl VanMeter	State Innovative Delivery Engineer	11 Years
Georgia	Andrew Hoenig	Innovative Delivery Project Manager	11 Years
Virginia	Jeff Roby	Assistant State Engineer APD	17 Years
Florida	Kathy Thomas	District 2 Design Engineer	20 Years
Minnesota	Peter Davich	Design-Build Program Manager	21 Years
Arizona	Jesse Gutierrez	District Engineer	15 years
Colorado	Matthew Pacheco	Region 6 Project Manager	20 years
Missouri	David Simmons	State Design-Build Coordinator	13 Years
Washington	Jolena Missildine	State Design-Build Engineer	19 Years

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.
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- 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 engineers 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 *NCRHP 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

Agency/Organization	Representative	Email
STATE DOTS		
North Carolina	Teresa Bruton	tbruton@ncdot.gov
Georgia	Darryl VanMeter	dvanmeter@dot.ga.gov
Georgia	Andrew Hoenig	ahoenig@dot.ga.gov
Virginia	Jeff Roby	jeffrey.roby@vdot.virginia.gov
Florida	Kathy Thomas	Kathy.Thomas@dot.state.fl.us
Minnesota	Peter Davich	peter.a.davich@state.mn.us
Arizona	Jesse Gutierrez	jgutierrez@azdot.gov
Colorado	Matthew Pacheco	matthew.pacheco@state.co.us
Missouri	David Simmons	David.J.Simmons@modot.mo.gov
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OTHERS		
University of Colorado	Keith Molenaar	Keith.Molenaar@colorado.edu
University of Colorado	Maria Calahorra	Maria.Calahorra@Colorado.EDU
University of Colorado	Cristina Torres-Machi	Cristina.TorresMachi@Colorado.EDU
DBIA	Richard Thomas	rthomas@dbia.org
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Washington State	Lindsey Handel	lindsey.handel@dot.gov
Resource Center	Jeff Lewis	Jeff.Lewis@dot.gov
Resource Center	Jerry Yakowenko	Gerald.Yakowenko@dot.gov
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South Carolina	Rickele Gennie	carolyn.fisher@dot.gov
South Carolina	Shane Belcher	Jeffrey.Belcher@dot.gov
SCDOT		
District 1 Construction	Ashleigh Sandel	SandelAG@scdot.org
Legal	Barbara Wessinger	WessingeBM@scdot.org
Preconstruction Design-Build	Ben Mckinney	McKinneyWB@scdot.org
Preconstruction Design-Build	Brad Reynolds	ReynoldsBS@scdot.org
Mega Projects	Brian Klauk	KlaukBD@scdot.org
Preconstruction Design-Build	Brooks Bickley	BickleyBJ@scdot.org
Environmental	Chad Long	LongCC@scdot.org

Preconstruction Design-Build	Chris Gaskins	GaskinsCJ@scdot.org
Right of Way	Chris Johnston	JohnstonWC@scdot.org
Mega Projects	Chris Lacey	LacyCR@scdot.org
Headquarters Construction	Clay Richter	KlineLC@scdot.org
Pavement	Dahae Kim	KlineLC@scdot.org
District 6 Construction	Daniel Burton	BurtonD@scdot.org
Mega Projects	David Rister	RisterGD@scdot.org
Preconstruction Design-Build	Hongfen Li	LiHongfen@scdot.org
Preconstruction Design-Build	Jae Mattox	KlineLC@scdot.org
Pavement	Jay Thompson	ThompsonJU@scdot.org
Director of Preconstruction	John Boylston	BoylstonJD@scdot.org
Preconstruction RPG1	Joy Riley	RileyJ@scdot.org
Preconstruction Design-Build	Kaitlin Drafts	DraftsKR@scdot.org
Headquarters Construction	Katherine Scott	ScottKD@scdot.org
District 3 Construction	Kimberly Bishop	BishopKA@scdot.org
Headquarters Construction	Kevin Harrington	HarringtKG@scdot.org
Headquarters Construction	Josh Quattlebaum	QuattlebB@scdot.org
Mega Projects	Ladd Gibson	GibsonLS@scdot.org
Pavement	Laura Kline	KlineLC@scdot.org
Preconstruction Design-Build	Maria Ott	OttEM@scdot.org
Preconstruction Design-Build	Michael Pitts	PittsME@scdot.org
Right of Way	Mike Barbee	BarbeeMW@scdot.org
Headquarters Construction	Nick Waites	WaitesNT@scdot.org
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District 5 Construction	Travis Patrick	PatrickTM@scdot.org
Environmental	Will McGoldrick	KlineLC@scdot.org

APPENDIX B: AGENDA

2018 Design-Build Peer Exchange
AGENDA

Columbia, SC – Tuesday, November 27 - Thursday, November 29, 2018

TUESDAY NOVEMBER 27 Day 1	Session Topic	Facilitator/ Presenter(s)
9:00-9:30 am (30 min)	**Sign in and Registration**	Austin Purgason - SCDOT
9:30-9:40 am (10 min)	**Welcome and Opening Remarks**	SCDOT Senior Leadership
9:40-9:50 am (10 min)	**State Introductions**	Tad Kitowicz – FHWA-SC
9:50-10:10 am (20 min)	**Peer Exchange Program Purpose**	Presenter: Jeff Lewis – FHWA RC
10:10-10:30 am (20 min)	**Overview of SCDOT Program**	Presenter: Chris Gaskins – SCDOT
10:30-11:30 am (60 min)	**SEP-14 and Innovative Contracting**	Presenter: Jerry Yakowenko – FHWA HQ
11:30 am-12:00 pm (30 min)	**State of the DBIA**	Presenter: Richard Thomas – DBIA
12:00-1:15 pm	**LUNCH ON YOUR OWN**	
1:15-3:00 pm (1:45 min)	**Design-Build Prep**	Facilitator: Brad Reynolds - SCDOT Presenters: Kathy Thomas - Florida David Simmons - Missouri Jeff Roby - Virginia
3:00-3:15 pm	**BREAK**	
3:15-5:00 pm (1:45 min)	**Risk Allocation**	Facilitator: Tad Kitowicz - FHWA Presenters: Jolena Missildine - Washington Peter Davich - Minnesota Matthew Pacheco - Colorado
5:00 pm	**DINNER ON YOUR OWN**	

2018 Design-Build Peer Exchange
AGENDA

Columbia, SC – Tuesday, November 27 - Thursday, November 29, 2018

WEDNESDAY NOVEMBER 28 Day 2	Session Topic	Facilitator/ Presenter(s)
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**	

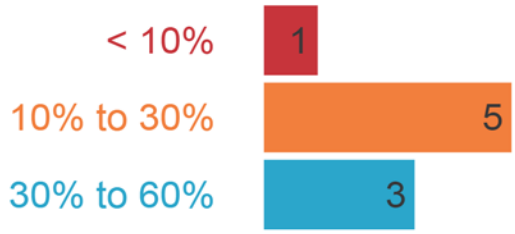
2018 Design-Build Peer Exchange
AGENDA

Columbia, SC – Tuesday, November 27 - Thursday, November 29, 2018

THURSDAY NOVEMBER 29 Day 3	Session Topic	Facilitator/ Presenter(s)
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?



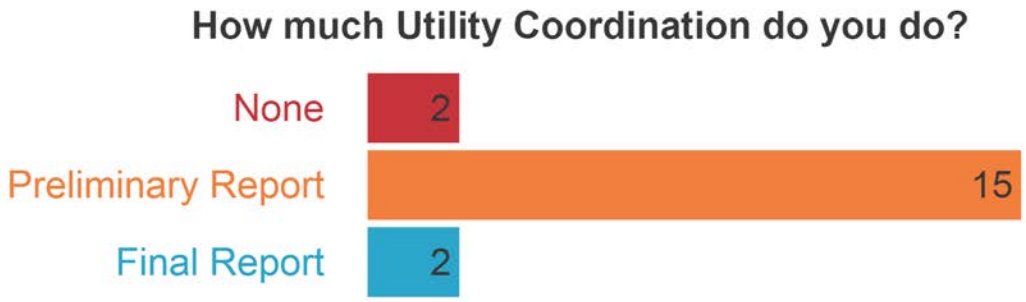
9 votes - 9 participants

Direct Poll

How do you handle Interchange Modification Reports?

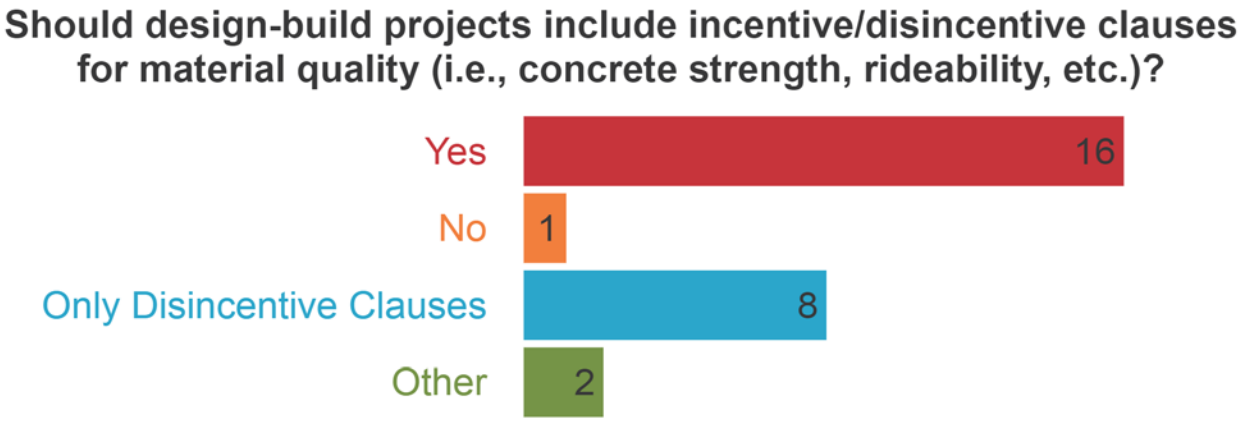
7 votes - 7 participants

Direct Poll



19 votes - 19 participants

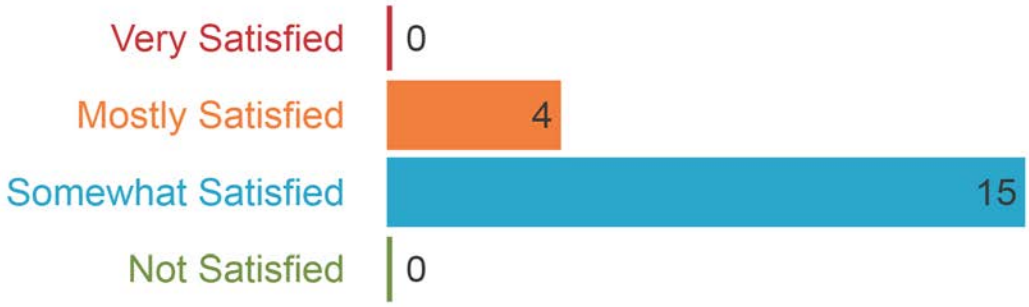
Direct Poll



27 votes - 27 participants

Direct Poll

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



19 votes - 19 participants

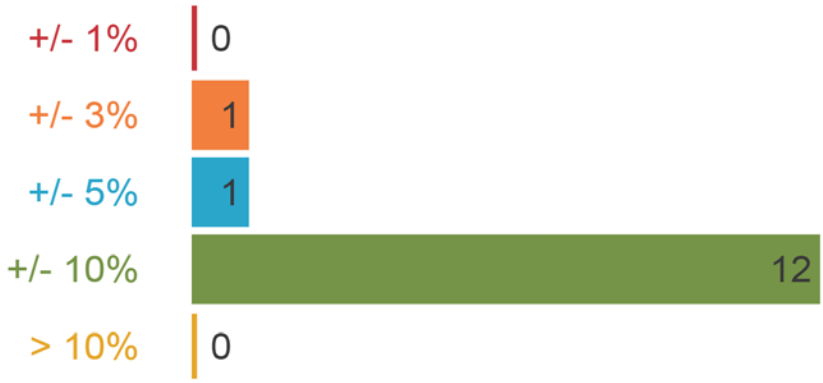
Direct Poll

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

14 votes - 14 participants

Direct Poll

Generally, how accurate are the engineer's estimates for your design-build projects?



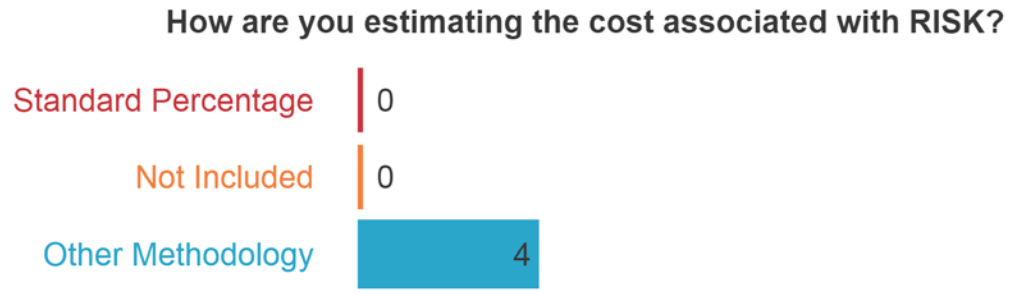
14 votes - 14 participants

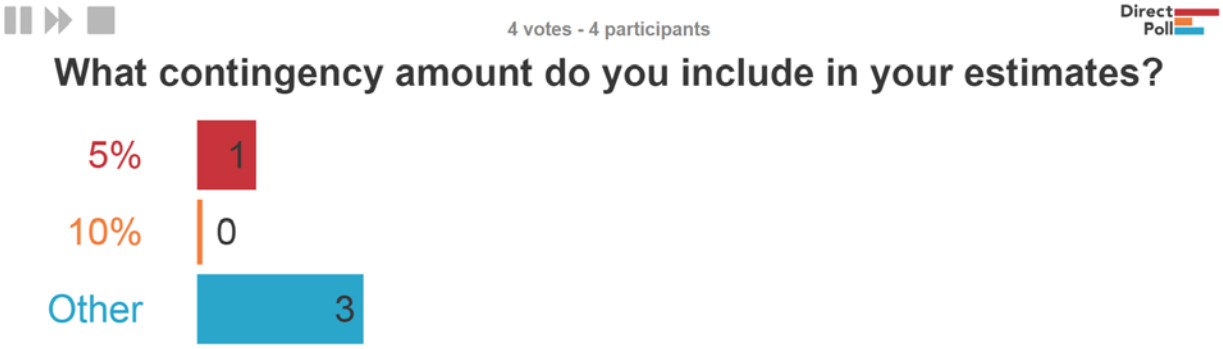
Direct Poll

What is your typical Consultant involvement with generating cost estimates?

6 votes - 6 participants

Direct Poll


How are you estimating the cost associated with RISK?
Standard Percentage
0
Not Included
0
Other Methodology
4


4 votes - 4 participants
Direct Poll
What contingency amount do you include in your estimates?
5%
1
10%
0
Other
3

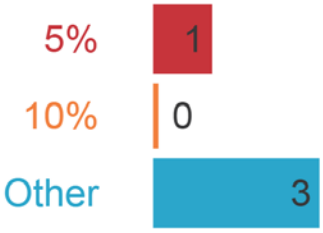

4 votes - 4 participants
Direct Poll

What is your typical Consultant involvement with generating cost estimates?

6 votes - 6 participants

Direct Poll

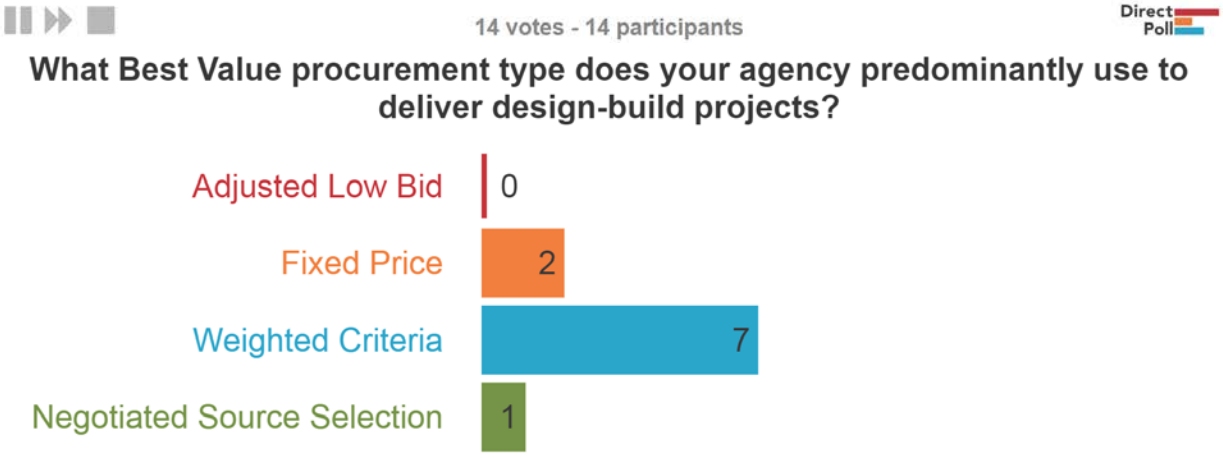
What contingency amount do you include in your estimates?



4 votes - 4 participants

Direct Poll


What does best value mean to you?
Quality
13
Expedited Schedule
0
Lower cost
0
DB Team Qualifications
1


14 votes - 14 participants
Direct Poll
What Best Value procurement type does your agency predominantly use to deliver design-build projects?
Adjusted Low Bid
0
Fixed Price
2
Weighted Criteria
7
Negotiated Source Selection
1

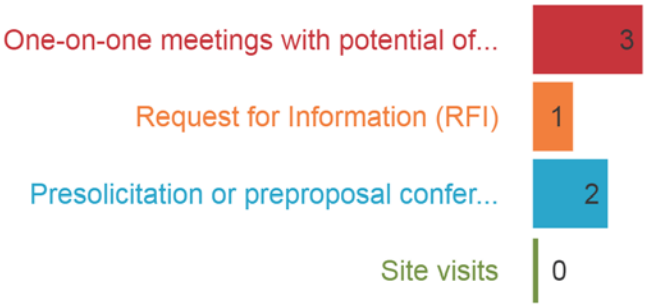

10 votes - 10 participants
Direct Poll

How soon do you conduct early exchanges of information (early coordination exchanges)?

5 votes - 5 participants

Direct Poll

For early exchange, what methods do you use?



6 votes - 5 participants

Direct Poll

APPENDIX D: PRESENTATIONS

SCDOT DESIGN-BUILD PEER EXCHANGE

November 27-29, 2018

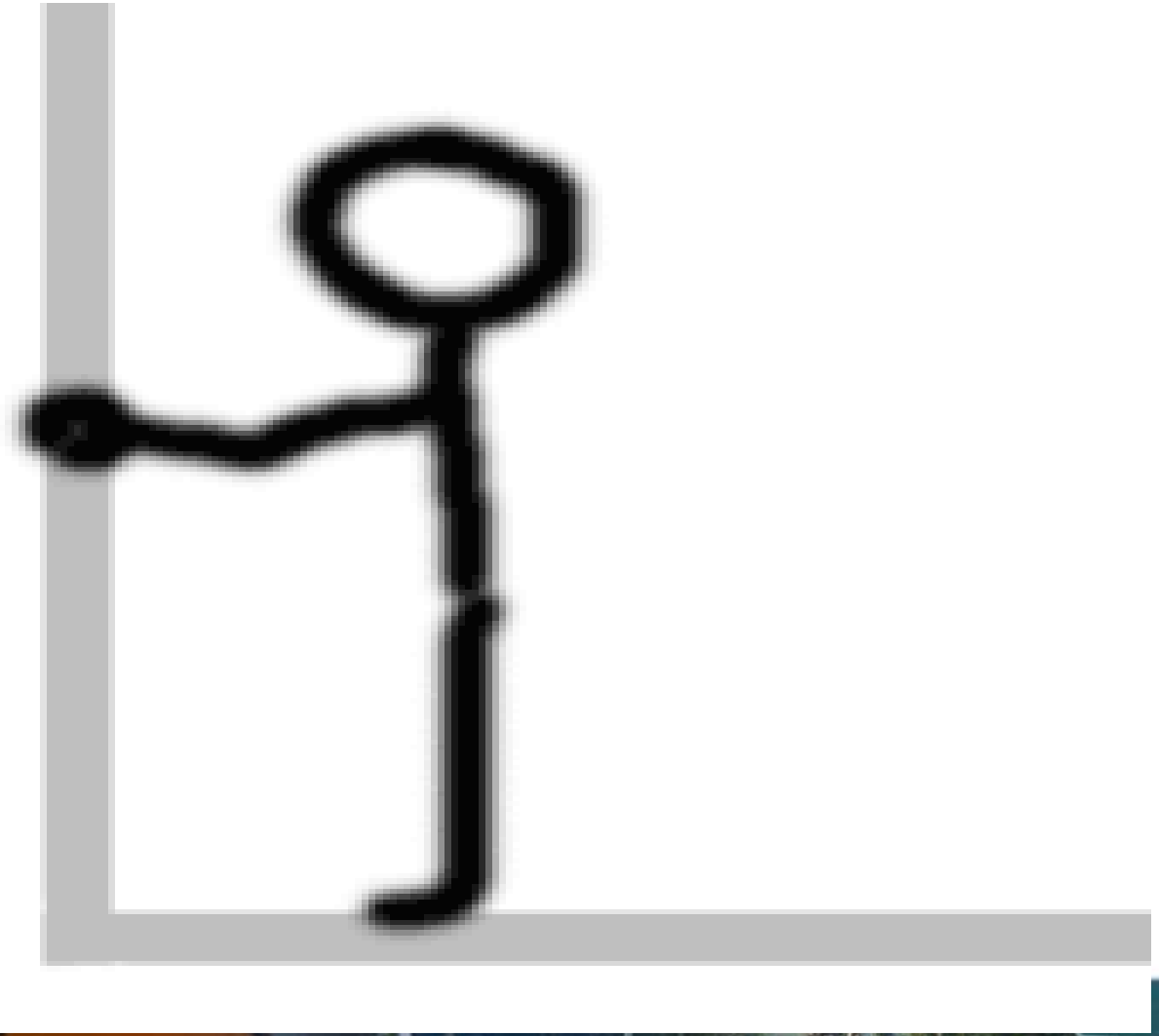
Welcome and Opening Remarks

State Introductions

FHWA's
Peer Exchange Program Purpose

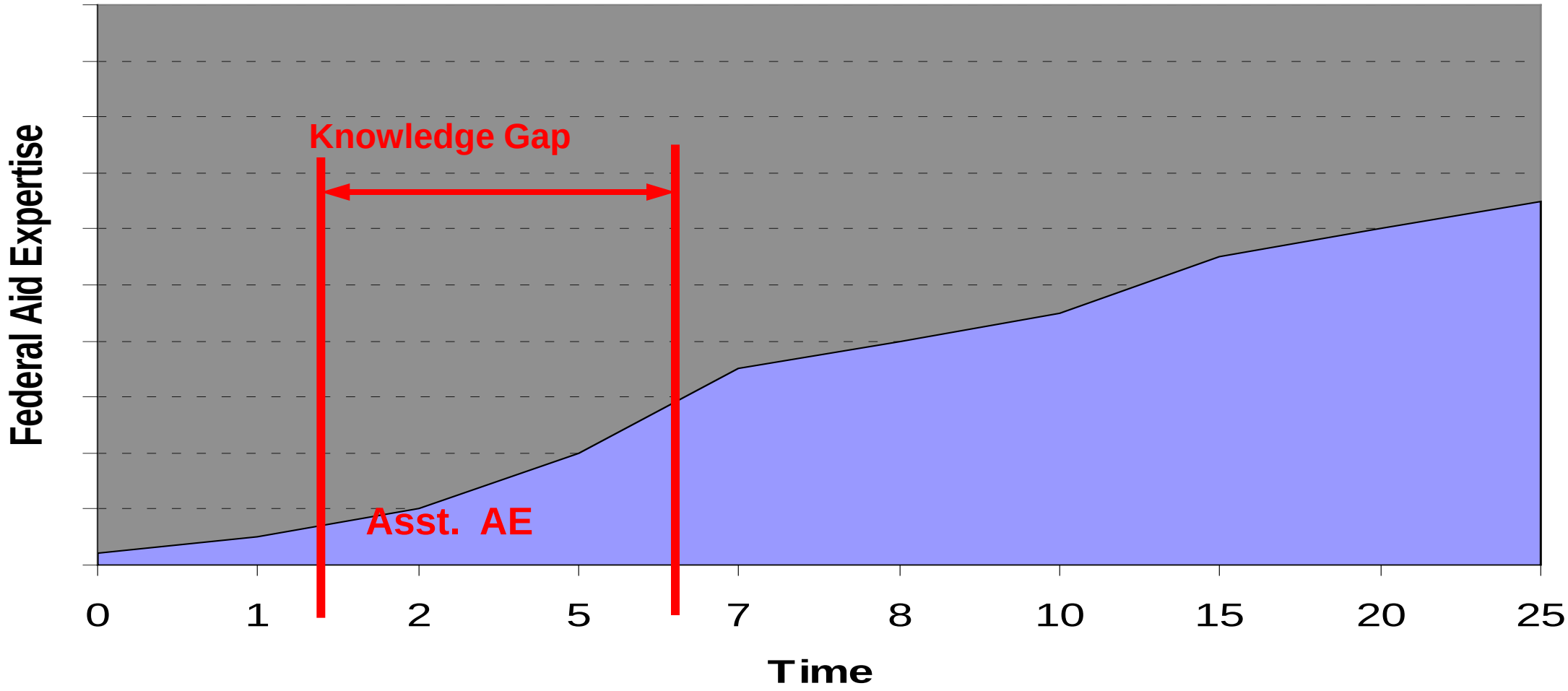
Jeff Lewis
Construction and Contract Administration Engineer
FHWA Resource Center
Columbia, SC
November 27th, 2018

HOW ARE THINGS WORKING TODAY??



FHWA/DOT Staff is Aging

Federal Aid Expertise over Time



Stewardship – Delegation Changing Roles/Responsibilities

PAST

- HQ's
- Regional Offices
- Division Office
- State HQ's
- State Districts
- Local Agencies
- Consultants

PRESENT

- HQ's
  - Resource Center
- Division Office
  - State HQ's (decentralized)
- State Districts
- Local Agencies
- Consultants

Federal Highway Administration

RESOURCE CENTER

Stewardship

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

- Project Development
- Project Delivery
- Maintenance/Operation
- Funds Management

Oversight

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)

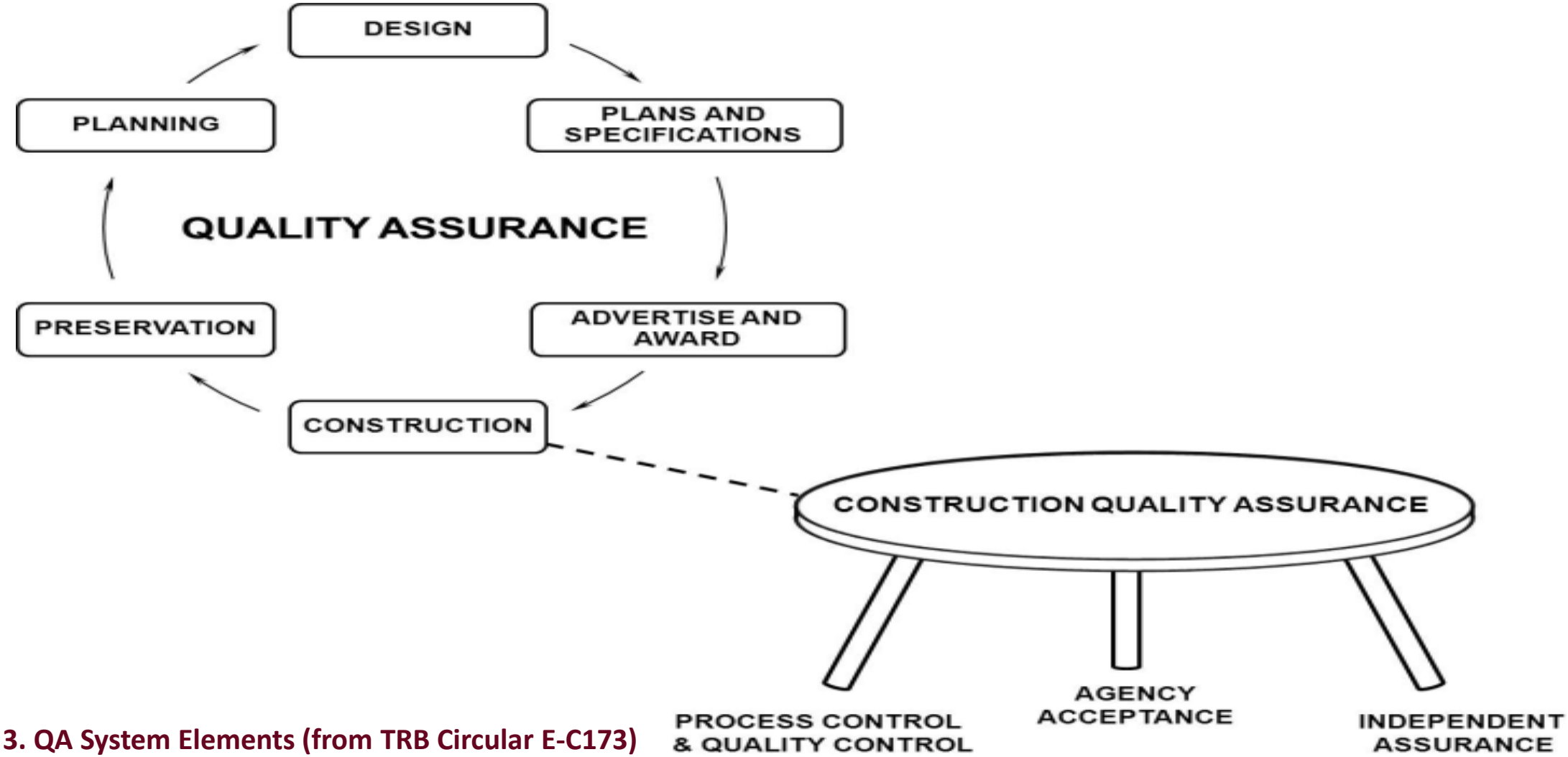
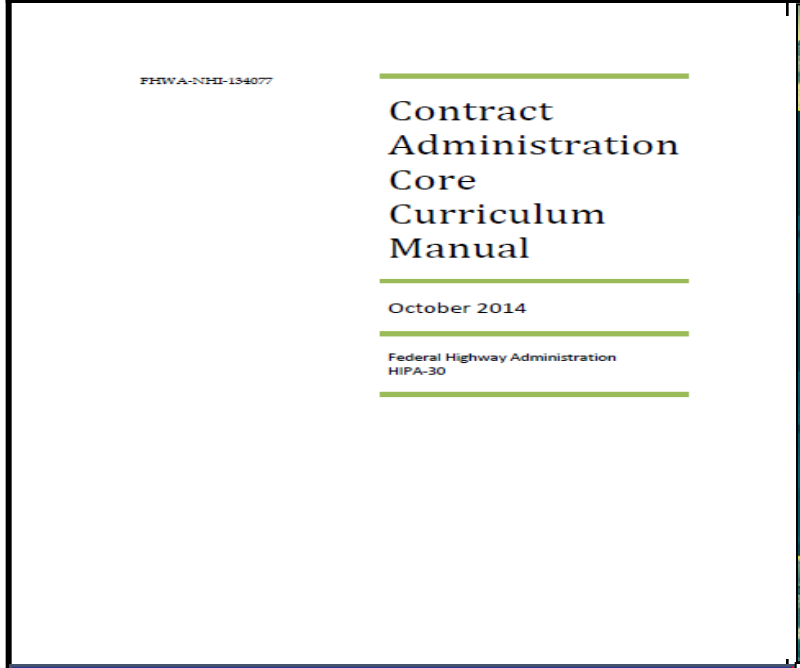


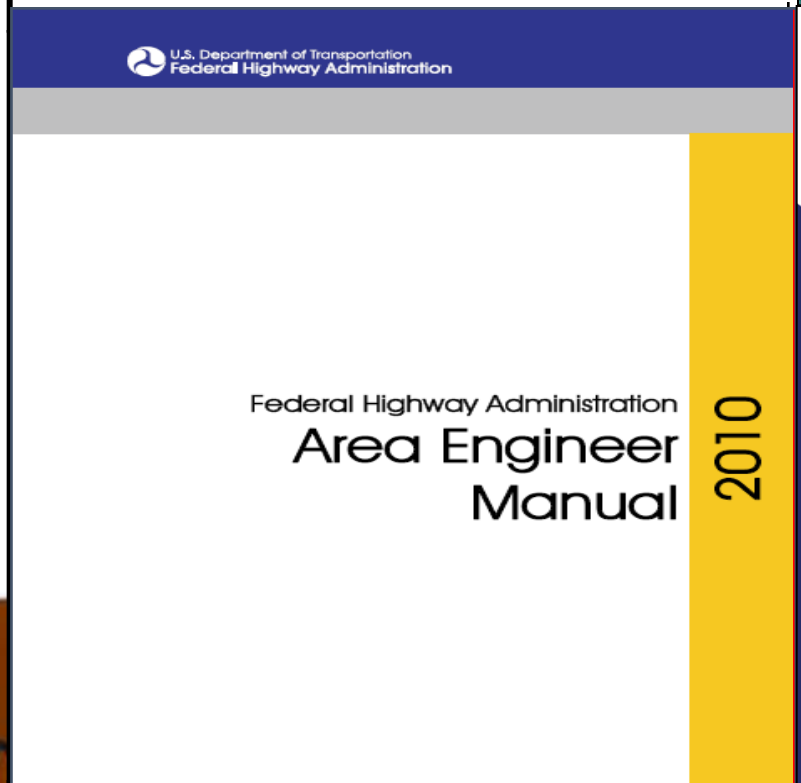
Figure 3. QA System Elements (from TRB Circular E-C173)

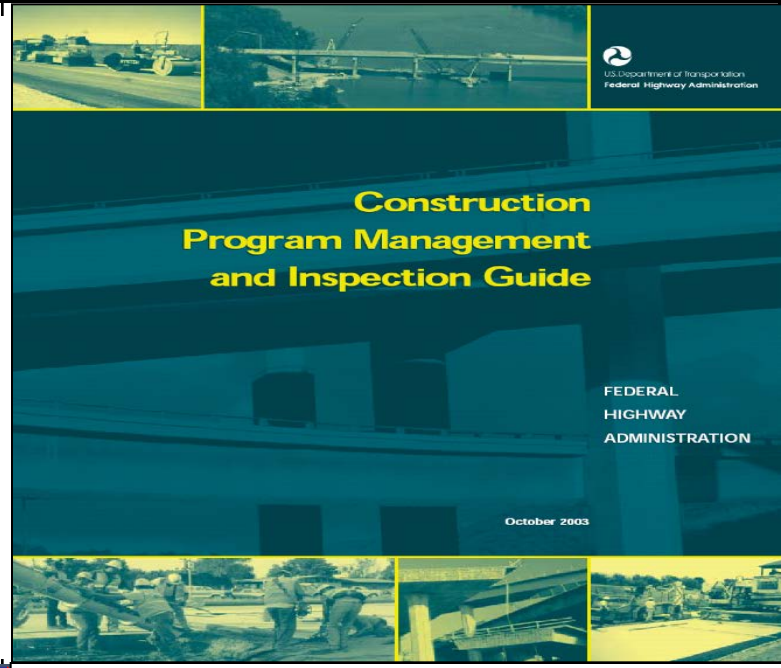
Construction Program Management Discipline

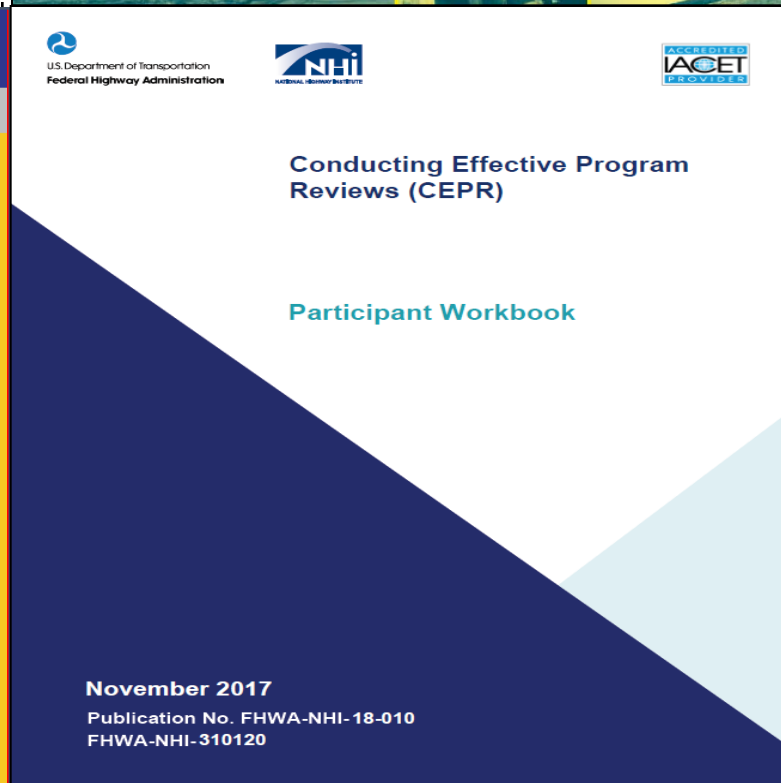
"Cradle to Grave"

CORE FOUR









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

More Information

- Quick Reference, Background Material, and Useful Information

Contacts

- **Rob Elliott**
  FHWA Resource Center (Atlanta)
  404-562-3941
  E-mail Rob
- **Jeff Lewis**
  FHWA Resource Center (Sacramento)
  916-498-5035
  E-mail Jeff

ACM Technical Contacts

ACM Deployment	ATC	CM/GC	D-B
Team Manager Rob Elliott FHWA Resource Center (Atlanta) (404) 562-3941 rob.elliott@dot.gov	**Lead** David Unkefer FHWA Resource Center (Atlanta) (404) 562-3669 david.unkefer@dot.gov	**Lead** Ken Atkins FHWA Resource Center (Lakewood) (720) 963-3416 kenneth.e.atkins@dot.gov	**Lead** Jeff Lewis FHWA Resource Center (Sacramento) (916) 498-5035 Jeff.lewis@dot.gov
Team Lead Jeff Lewis FHWA Resource Center (Sacramento) (916) 498-5035 Jeff.lewis@dot.gov		**Co-Lead** John Haynes Utah Division Office (801) 955-3526 john.haynes@dot.gov	

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

Federal-aid Essentials for Local Public Agencies

Federal-aid Simplified.

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 Emilie 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

Go!

Federal-aid Essentials for Local Public Agencies

Federal-aid Simplified.

All Federal-aid Essentials Videos

CIVIL RIGHTS

Overview of FHWAs Civil Rights Program Requirements for Local Public Agencies
Background and Purpose
Nondiscrimination Assurances
Implementation Plans
Compliance and Enforcement
Nondiscrimination Requirements on Construction Contracts
Foundations of the ADA/Section 504
Disability Protections
Transition Plans
Self-Evaluation Basics
Program Overview
Project Contract Administration
Prompt Payment and Return of Retainage
DBE Contract Goals
Evaluating Good Faith Efforts
Commercially Useful Function
Evaluating a Commercially Useful Function (CUF)

PROJECT DEVELOPMENT

Projects and Statewide Planning Requirements
Cost-Effectiveness Determinations and Public-Interest Findings
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

FEDERAL-AID PROGRAM OVERVIEW

Stewardship and Oversight
A Process from "Cradle to Grave"
Key Actions in the Cradle to Grave Process
Funding Basics and Eligibility
Project Requirements
National Bridge Inspection Standards
Consultant Services Overview
Hiring a Consultant Using Competitive Negotiation Procedures
Organizational and Consultant Conflicts of Interest
Stakeholder Partnering
SHRP2: Tools for the Road Ahead
Introduction to the Highway Safety Improvement Program
Certification Programs
Developing a Risk-Based Scour Program
Modeling and Analysis Fundamentals
Process and Requirements
Roadway Safety Fundamentals
Program Overview and Eligibility **New!**
Initial Steps for Requesting ER Funds **New!**
Steps for Receiving Reimbursement of ER Expenses **New!**
Emergency versus Permanent Repairs **New!**
Congestion Mitigation and Air Quality (CMAQ) Program **New!**
Avoiding Waste and Abuse, and Detecting Fraud **New!**

FINANCE

Introduction to Cost Principles
Administrative Requirements

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 **New!**

Avoiding Waste and Abuse, and Detecting Fraud **New!**

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
Documentation and the Environmental Process
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 4(f) of the USDOT 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?


SCDOT
WORK
U.S. Department of Transportation
Federal Highway Administration

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

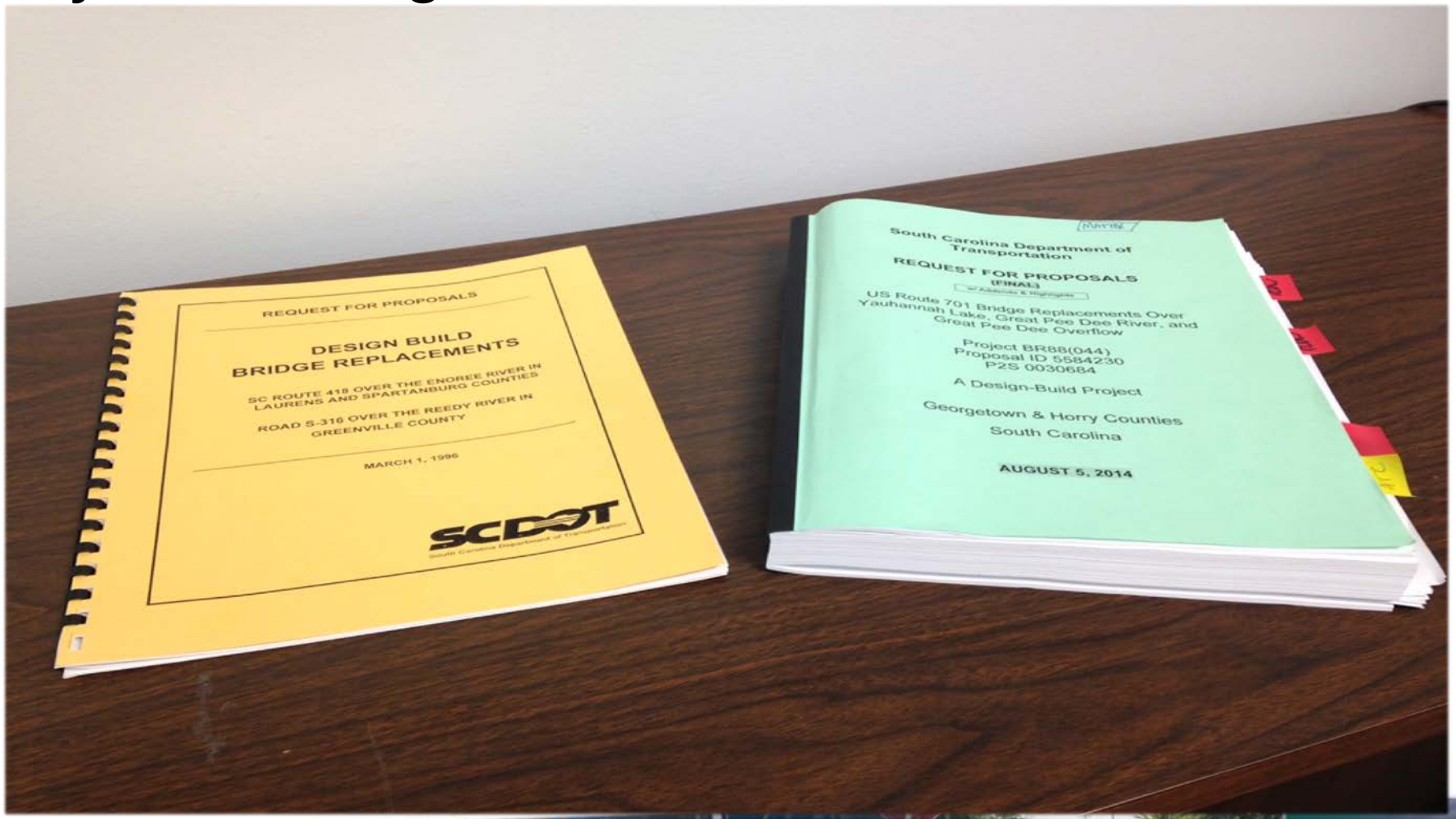
Topics

- 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

SCDOT
South Carolina
Department of Transportation

MEMORANDUM

TO: John V. Walsh, Deputy Secretary for Engineering
Ron K. Patton, Chief Engineer for Planning, Location, & Design
J. C. Watson, Chief Engineer for Operations
Leland Colvin, Director of Construction
Bob Lee, FHWA Division Administrator
Matt Lifsey, Regional Production Group Engineer-1
Mike Barbee, Regional Production Group Engineer-2
Randall Young, Regional Production Group Engineer-3
Tony Fallaw, Regional Production Group Engineer-4
Ken Feaster, Director, Right of Way
Brian Ison, Surveys Manager
Jamie Kendall, Preconstruction Support Engineer

FROM: Mitchell D. Metts, Director of Preconstruction MDM

DATE: January 12, 2011

RE: Preconstruction Innovative Projects Group

The use of design-build and other alternative delivery methods for construction projects is increasingly recognized within the transportation industry and on the rise as an effective way to efficiently deliver complex projects in a timely manner. In an effort to achieve consistency in these projects throughout the state and provide a product that is familiar to the contracting industry, SCDOT is establishing a central office that will administer Innovative Projects through the use of design-build or other alternative delivery methods.

This office will chair all design-build Request for Proposal (RFP) committees, direct the packaging of all design-build and other RFP's, and will, with the help of staff, seek to identify those projects throughout the state which would be potential candidates for this effort.

The Lowcountry Regional Production Group-1 (RPG-1) staff will lead this effort. Individual project development will continue to be the responsibility of the respective Program Manager (PM). The RPG-1 staff assigned to chair the RFP committee will guide the PM in the development of the project for inclusion in a design-build or other type package.

This change is effective immediately and applies to all design-build efforts underway where the RFP has not yet been advertised as well as all future projects identified for design-build.

Your cooperation and assistance, both in the development of existing design-build projects and the identification of new projects for alternative delivery methods, is greatly appreciated as the Department embarks on this effort.

MDM:gg
File: PC

Post Office Box 191
Columbia, South Carolina 29202-0191

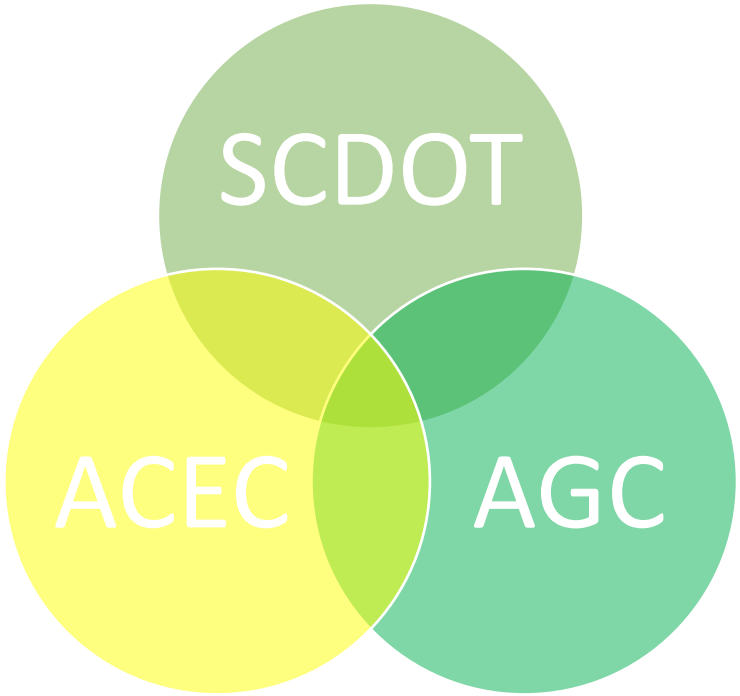
Phone: (803) 737-2314
TTY: (803) 737-3870

AN EQUAL OPPORTUNITY/
AFFIRMATIVE ACTION EMPLOYER

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



History of Design-Build

Hurdles

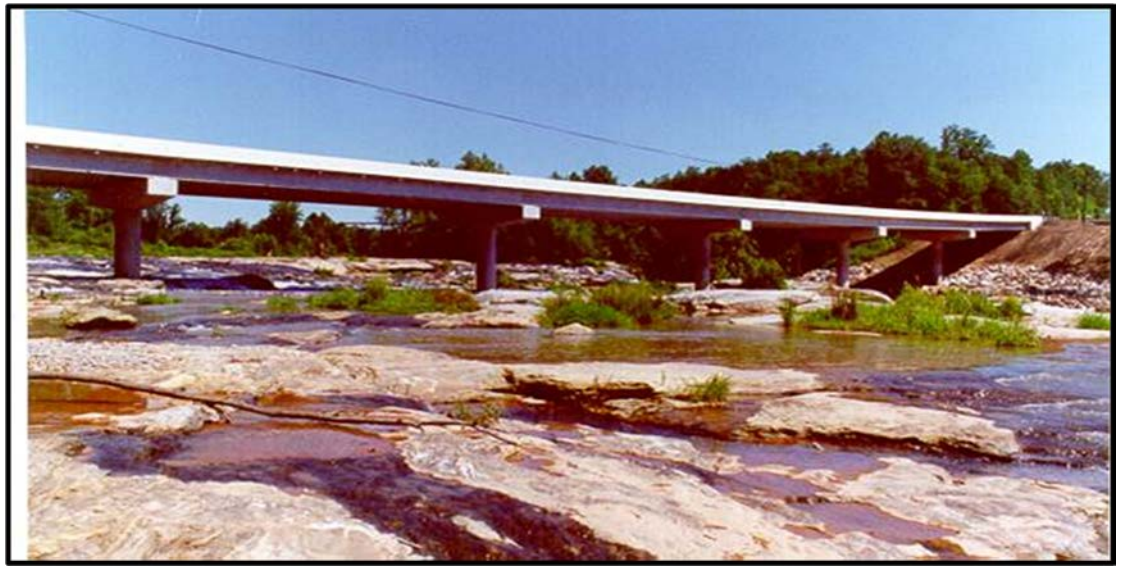
- New Evaluation Committee on each project
- Design review based on contract rather than manual
- Educating staff on the process
- Consistency

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

SCDOT

U.S. Department of Transportation
Federal Highway Administration

History of Design-Build

Conway Bypass
Horry County

History of Design-Build

Carolina Bays Parkway – Phase 1
Horry County

1999

SCDOT

U.S. Department of Transportation
Federal Highway Administration

History of Design-Build

Southern Connector
Greenville County

1999

SCDOT

U.S. Department of Transportation
Federal Highway Administration

History of Design-Build

SC 170 Widening
Beaufort County

History of Design-Build

Arthur Ravenel, Jr. Bridge
Charleston County

History of Design-Build

Carolina Bays Parkway – Phase 2
Horry County

History of Design-Build

Brockman-McClimon Interchange
(I-85 Access Improvements)
Spartanburg County

History of Design-Build

Cooper River Demolition
Charleston County

2005

History of Design-Build

US 17 Widening (ACE Basin) – Segment 1
Beaufort/Colleton Counties

History of Design-Build

I-520 (Palmetto Parkway)
Aiken County

History of Design-Build

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

2008

SCDOT

U.S. Department of Transportation
Federal Highway Administration

History of Design-Build

District 4 Bridge Replacements
Various Counties

History of Design-Build

Ben Sawyer Bridge
Charleston County

2008

U.S. Department of Transportation
Federal Highway Administration

History of Design-Build

US 17 Widening (ACE Basin)
Segment 2
Colleton County

2009

SCDOT

U.S. Department of Transportation
Federal Highway Administration

History of Design-Build

Johnnie Dodds Boulevard
Charleston County

SCDOT

2009

U.S. Department of Transportation
Federal Highway Administration

History of Design-Build

I-385 Widening
Greenville County

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

SCDOT

U.S. Department of Transportation
Federal Highway Administration

History of Design-Build

Federal Bridge Package “C”
Engineering Districts 2 & 4

History of Design-Build

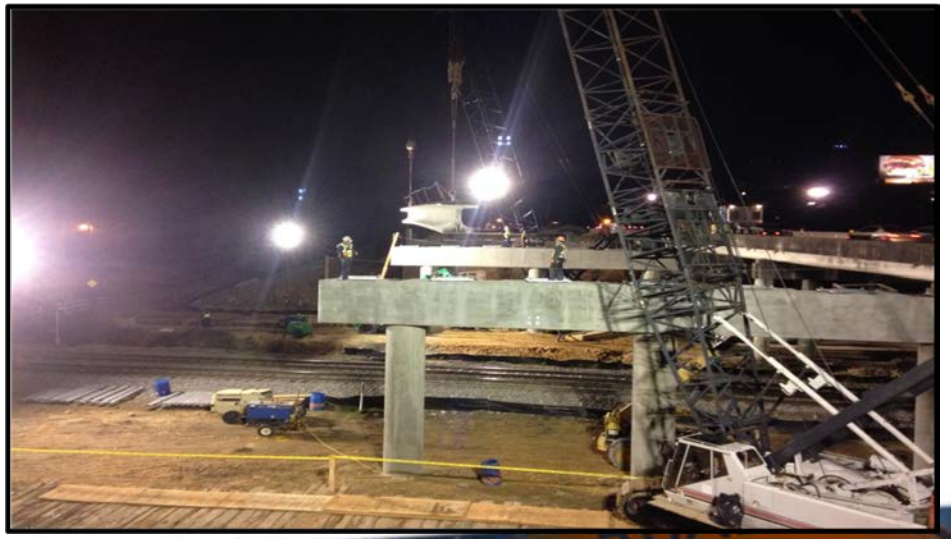
Federal Bridge Package “D”
Engineering District 6

2012

SCDOT

U.S. Department of Transportation
Federal Highway Administration

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

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

SCDOT

U.S. Department of Transportation
Federal Highway Administration

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

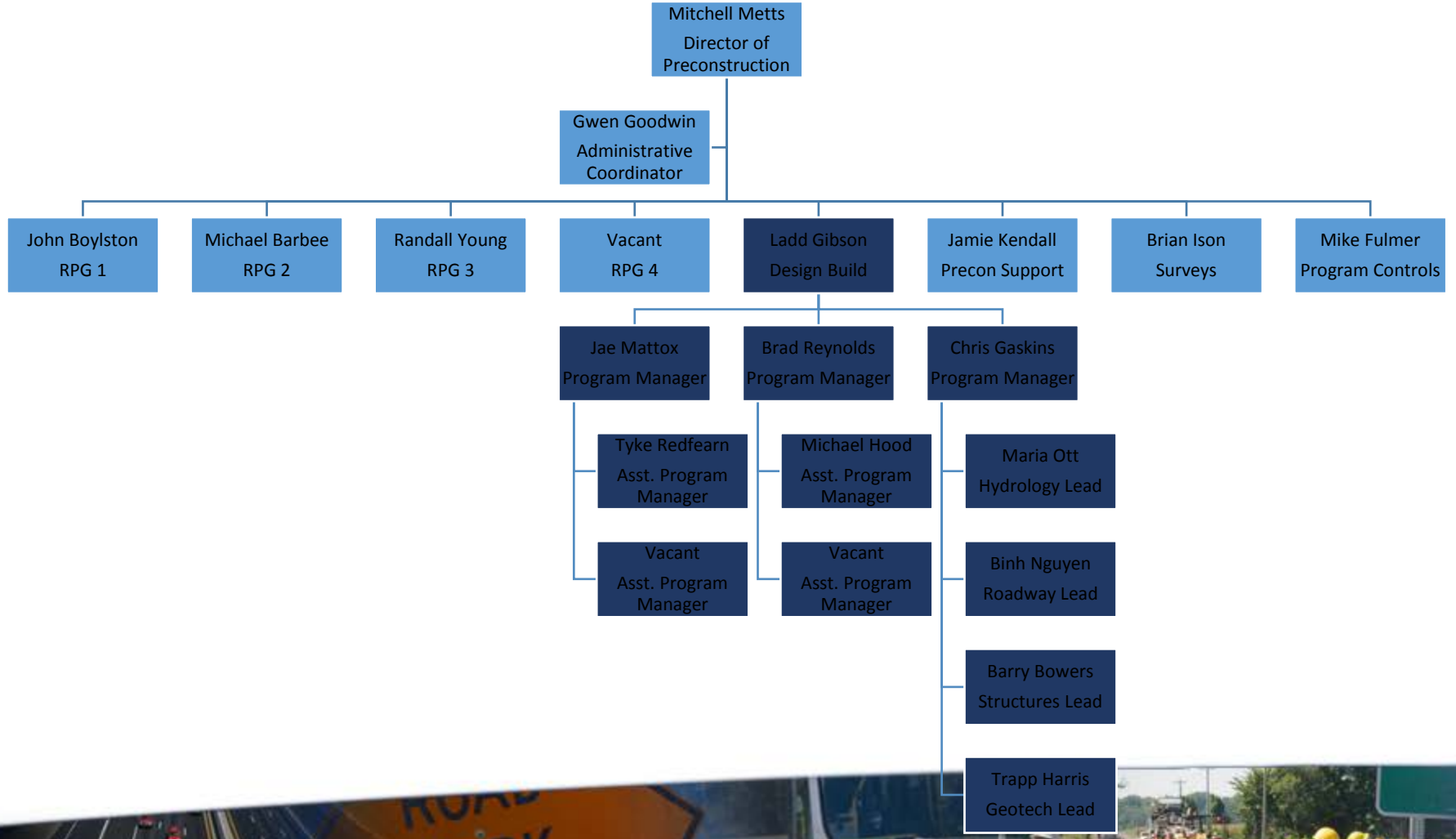




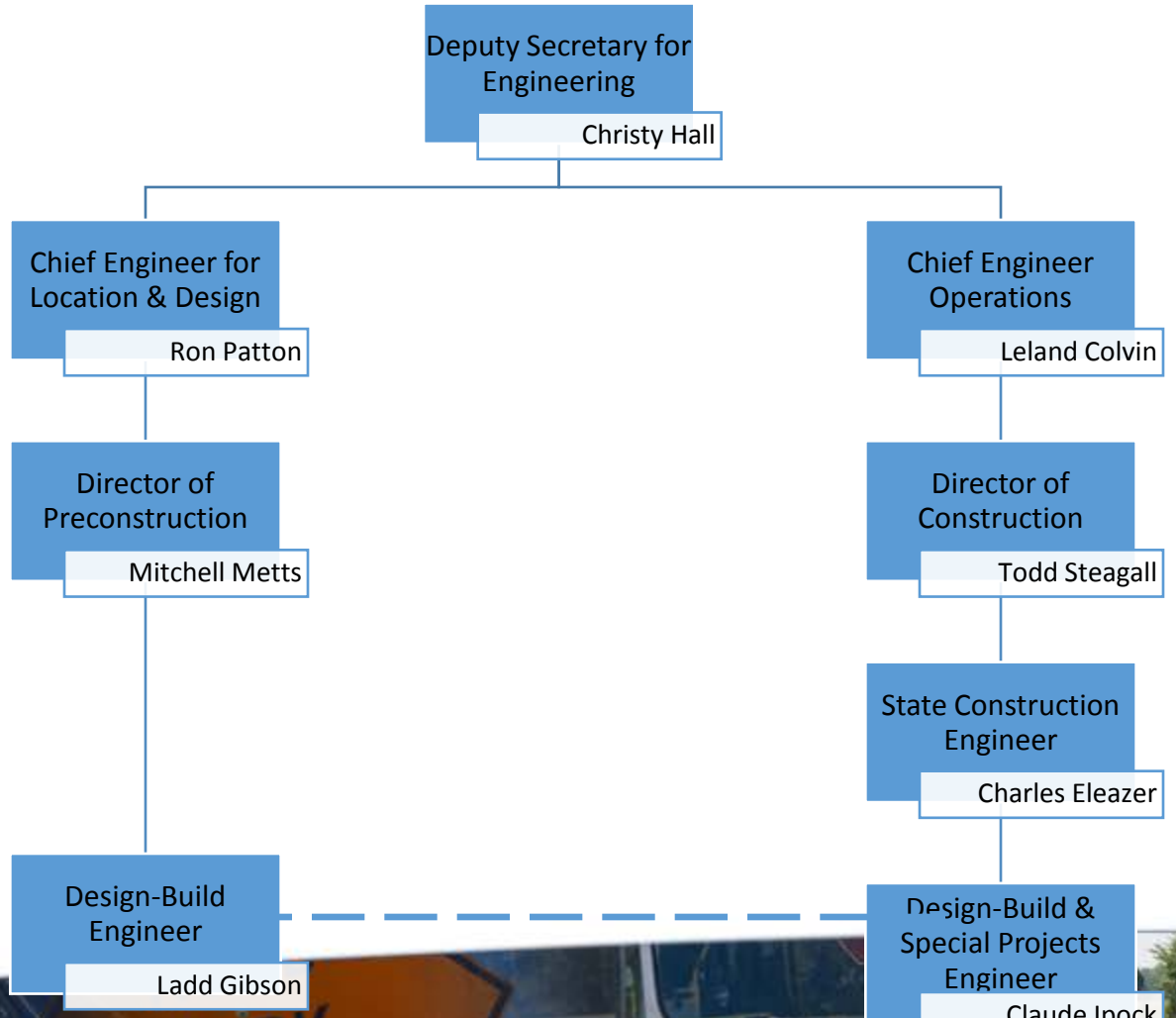




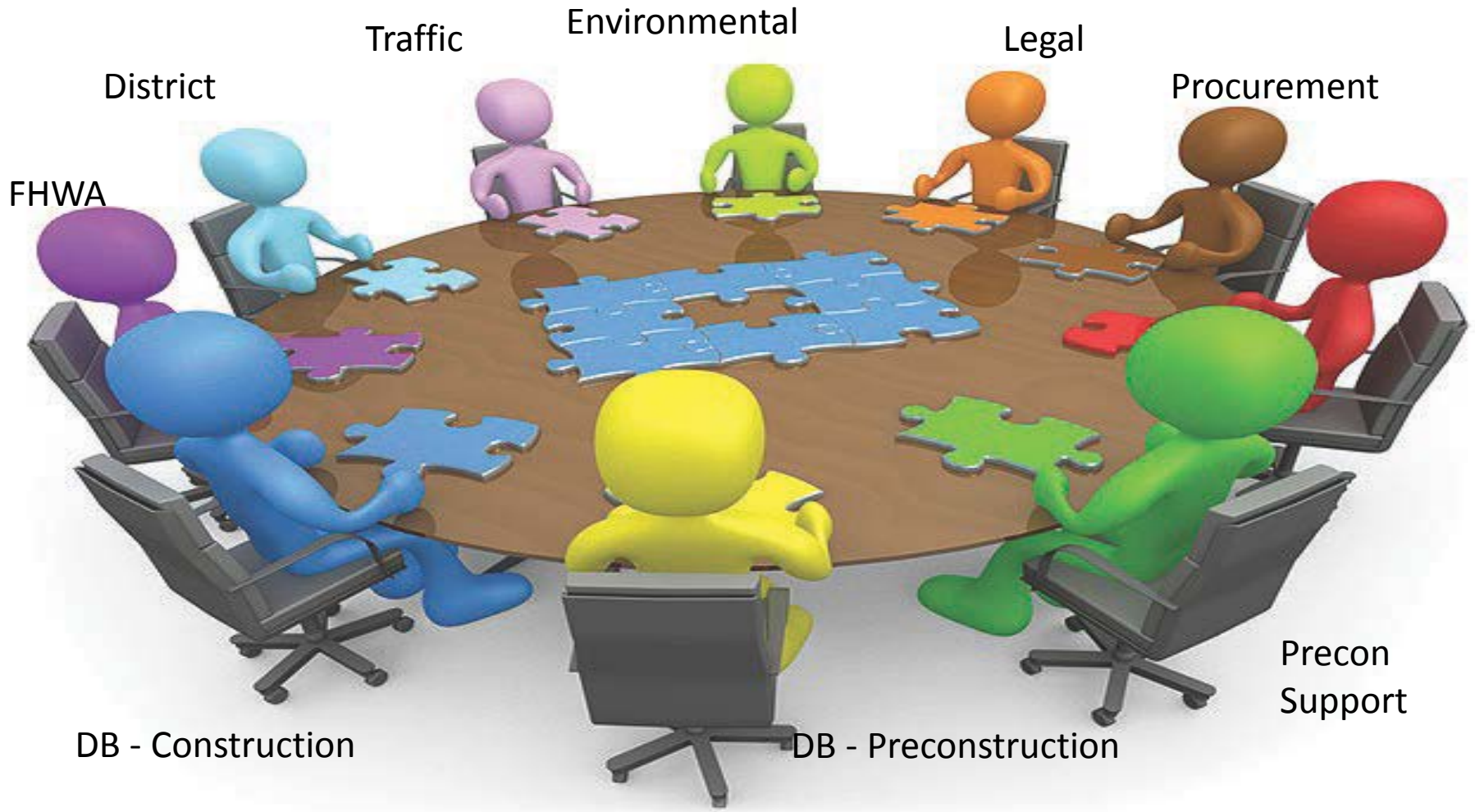

Design-Build Section



Design-Build Section



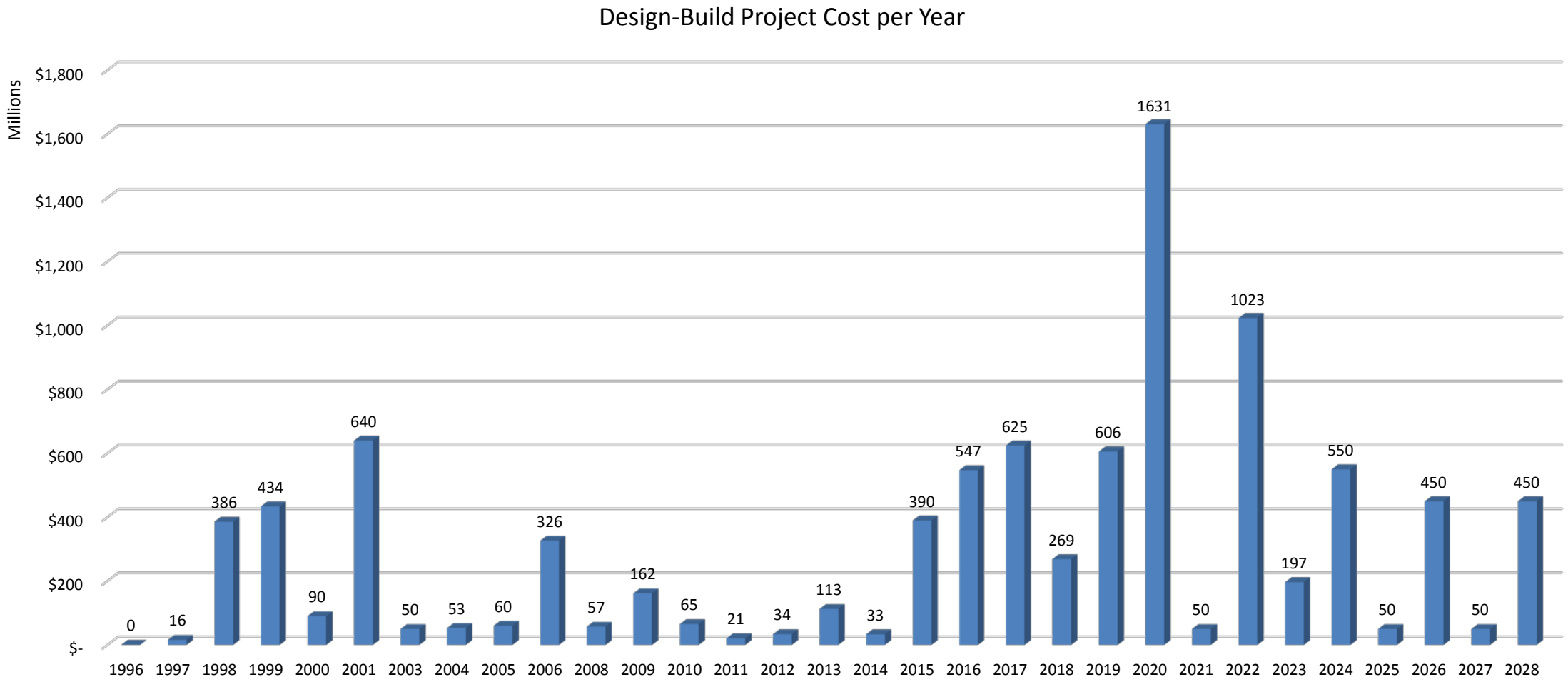
Design-Build Section



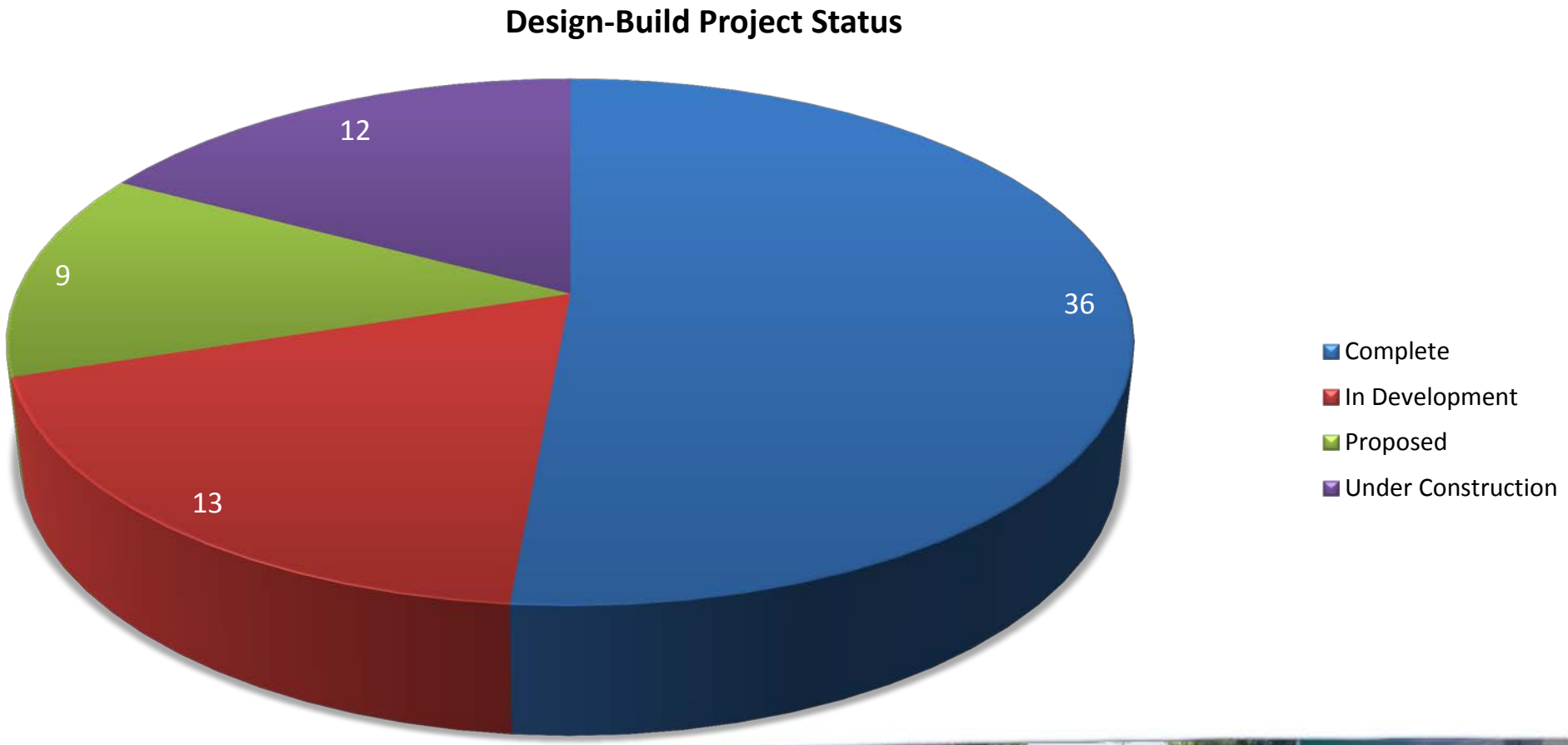
Topics

- 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



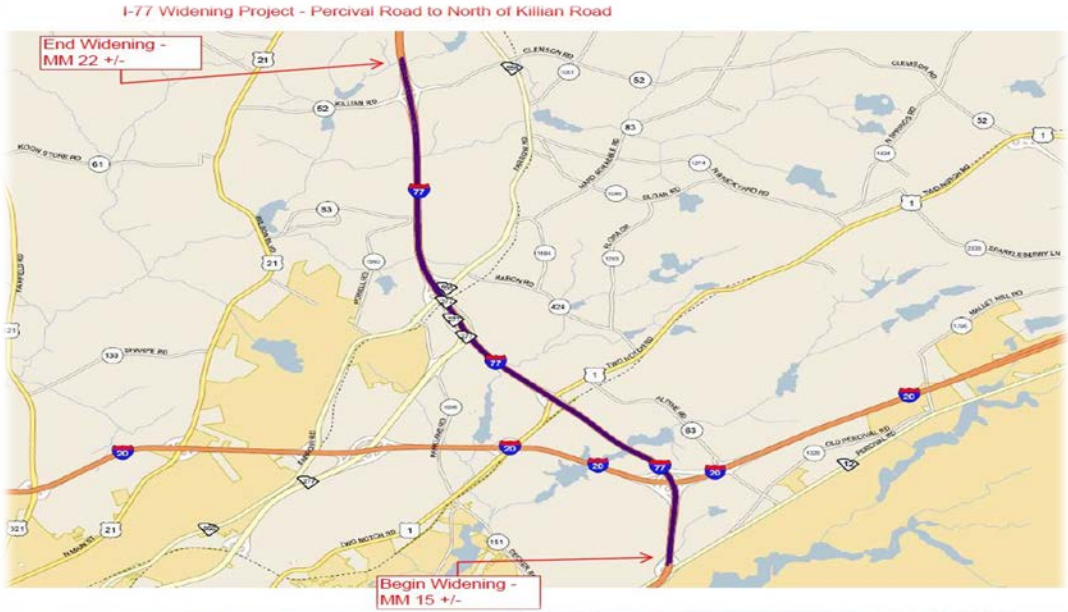
Future of Design-Build



Future of Design-Build

I-77 Widening & Rehab (Richland)

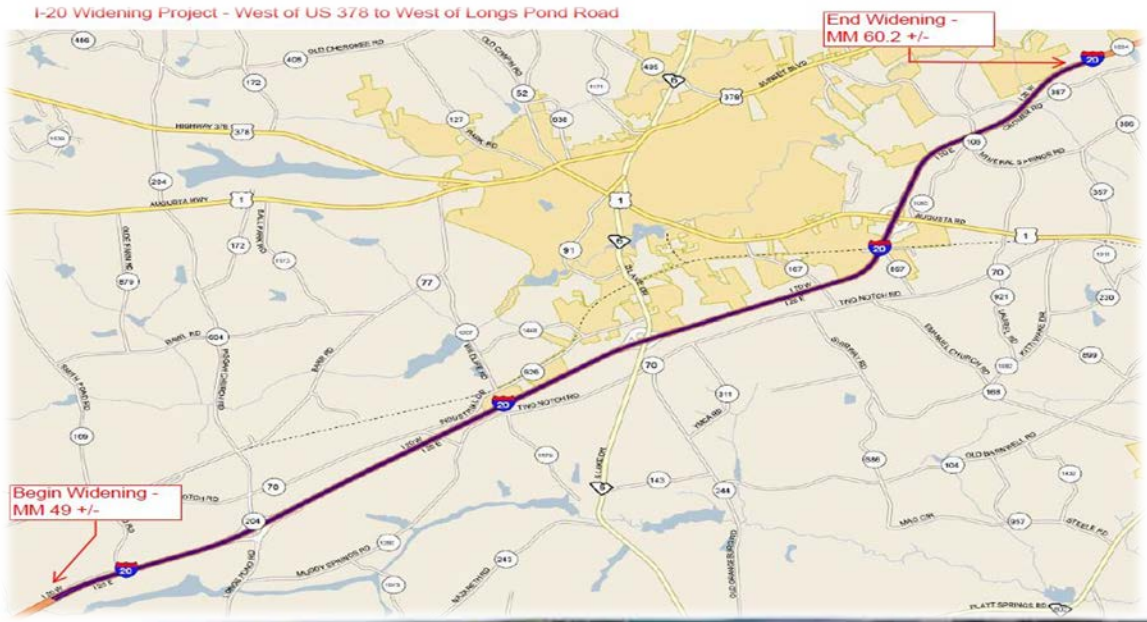
- I-20 to Blythewood Rd
- $60 - $70 M
- RFP(IR) – May 2015
- Bid Open – Oct 2015



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

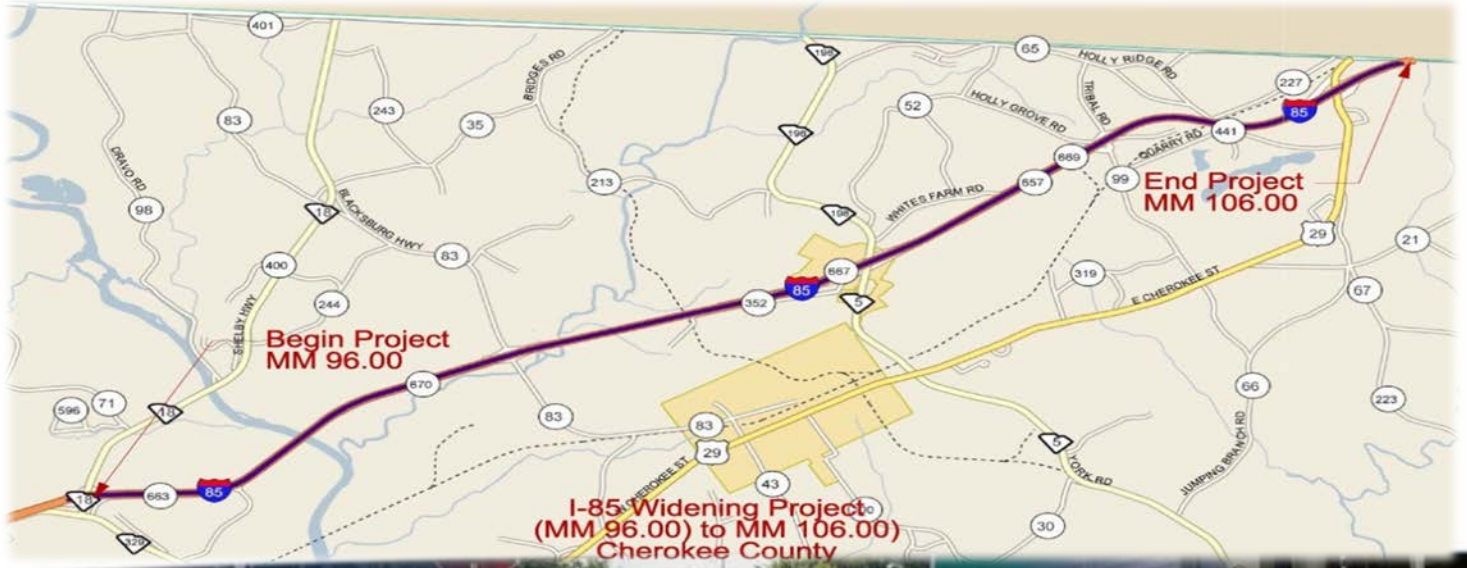
I-85 Widening Phase 1 & 2 (Spartanburg/Cherokee)

- 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
    - 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
    - Role of the consultant or sub-consultant was limited to preliminary design, reports, or similar “low-level” documents
    - Do not include assistance in development of instructions to offerors or evaluation criteria, and
    - 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
http://www.scdot.org/doing/constructionLetting_DesignBuild.aspx

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

All images FHWA unless otherwise noted.

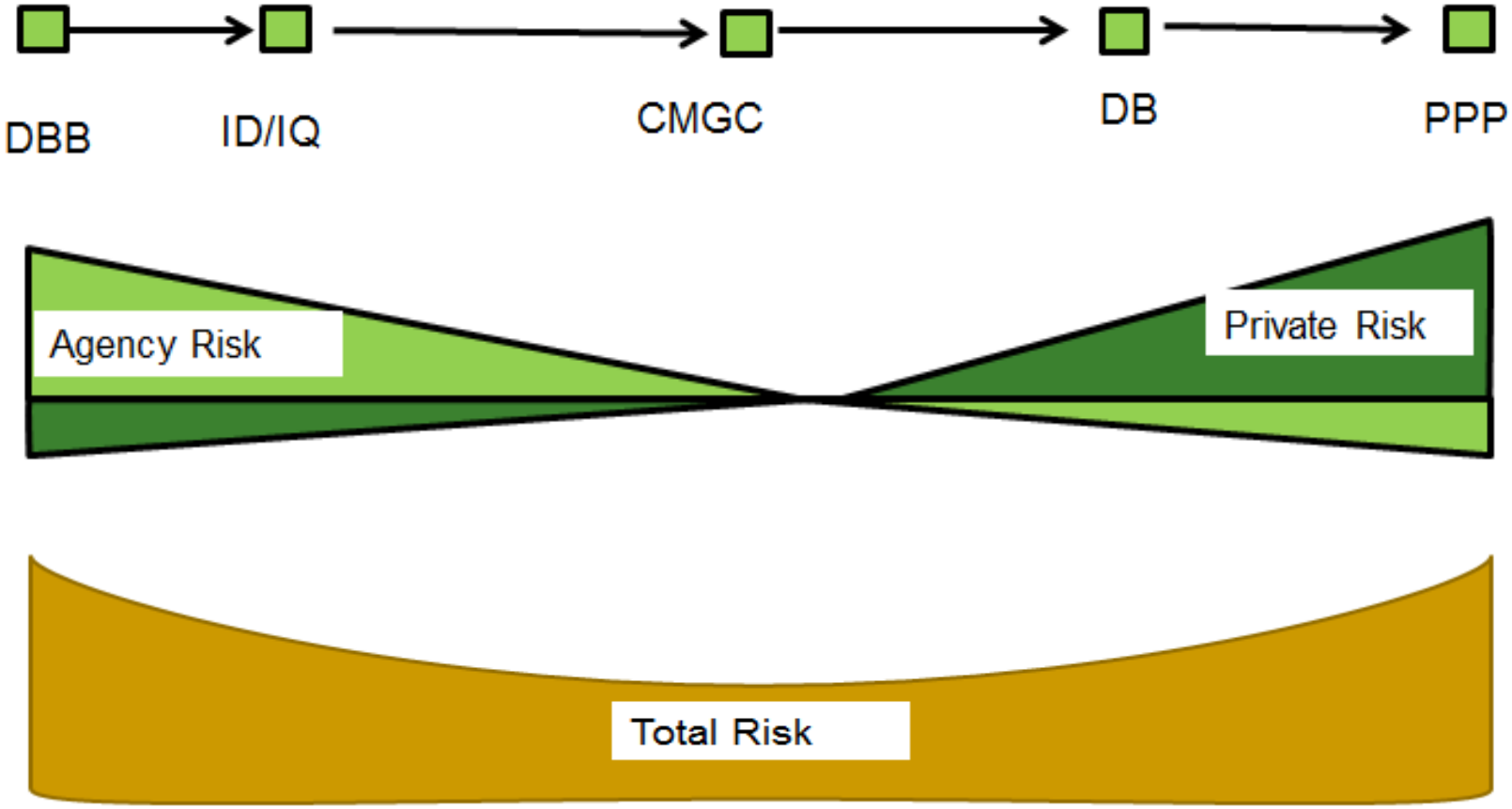
Agenda

- 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

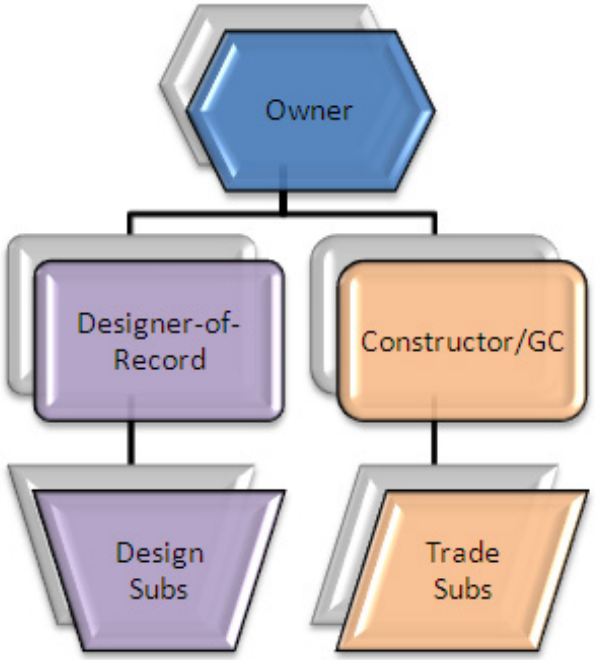
2/13/1990	FHWA initiates SEP-14
4/29/1991	FHWA approves first SEP-14 Design-Build delivery
5/4/1995	FHWA declares A+B and Lane Rental operational
4/19/1996	Final rule – warranties
12/15/1998	TEA-21 S. 1307 authorizes Design-Build
12/10/2002	Final Rule – Design-Build
8/10/2005	SAFETEA-LU S. 1503
7/6/2012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

Project Delivery Options

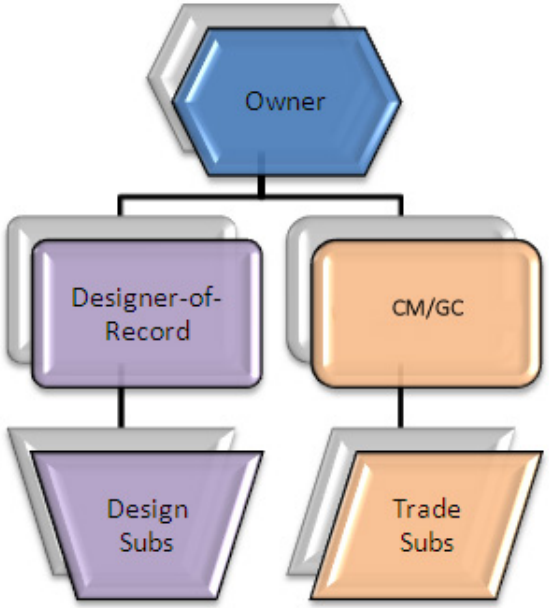


Project Delivery Options

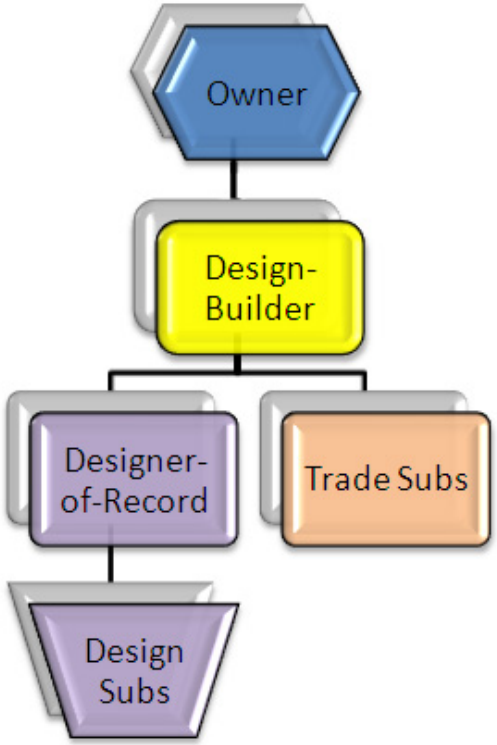
Design-Bid-Build



CMGC

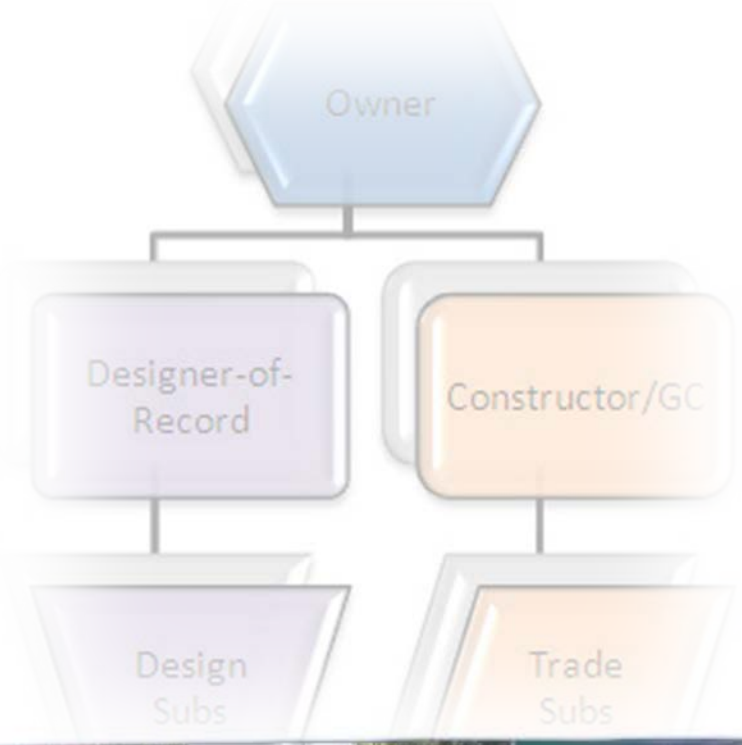


Design-Build



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

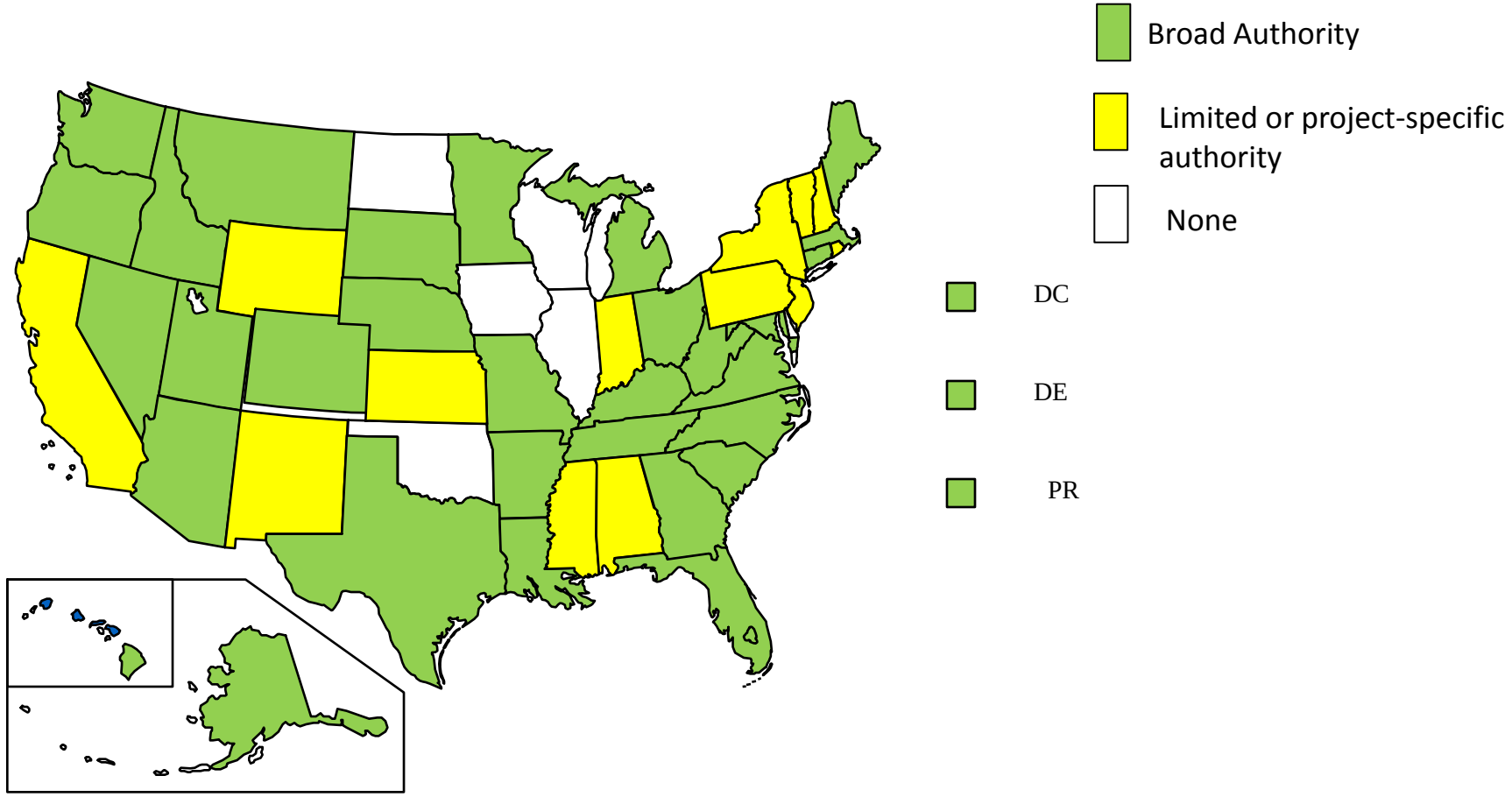


FHWA's History with Design-Build

- 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."*

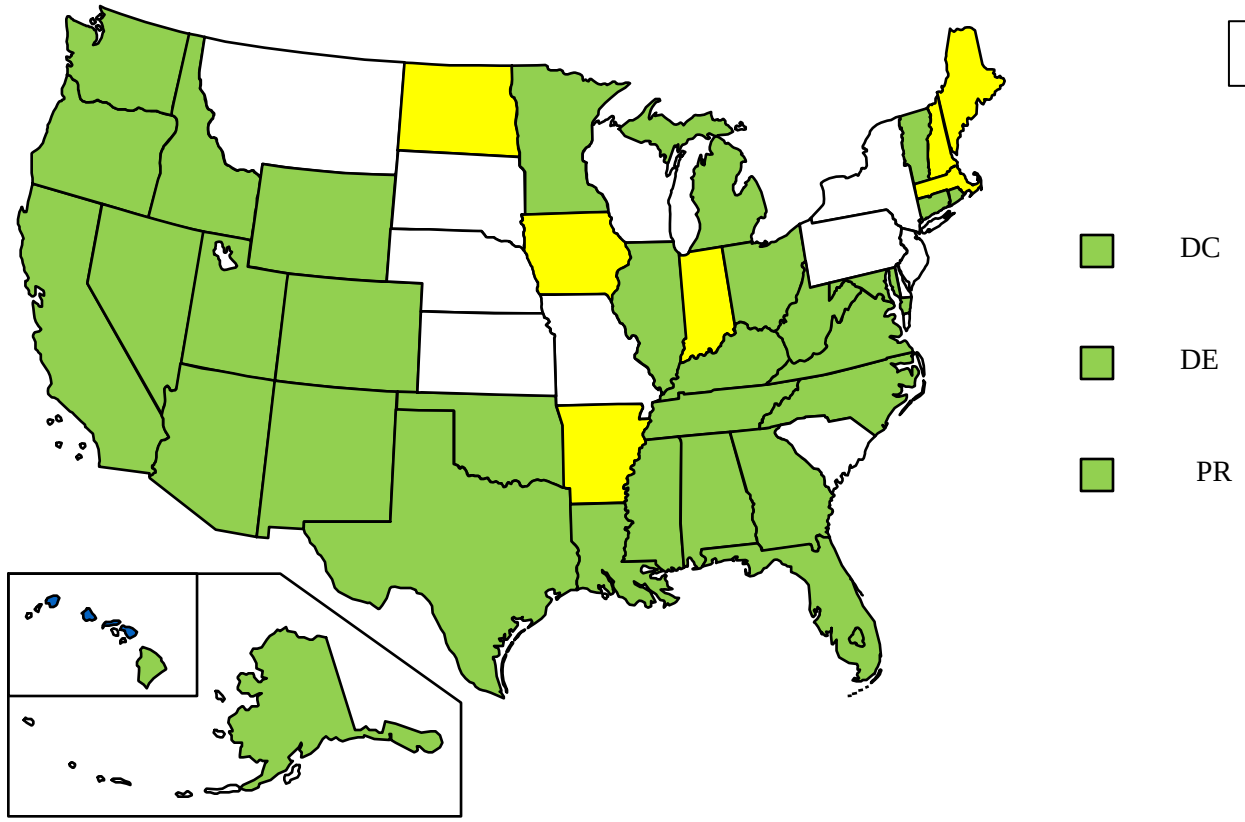
- June 9, 1998, Section 1307(c) of the Transportation Equity Act for the 21st Century (TEA-21)authorized D-B
- December 10, 2002 Final Rule Making published to implement 23 CFR 636

Statutory Authority for Design-Build



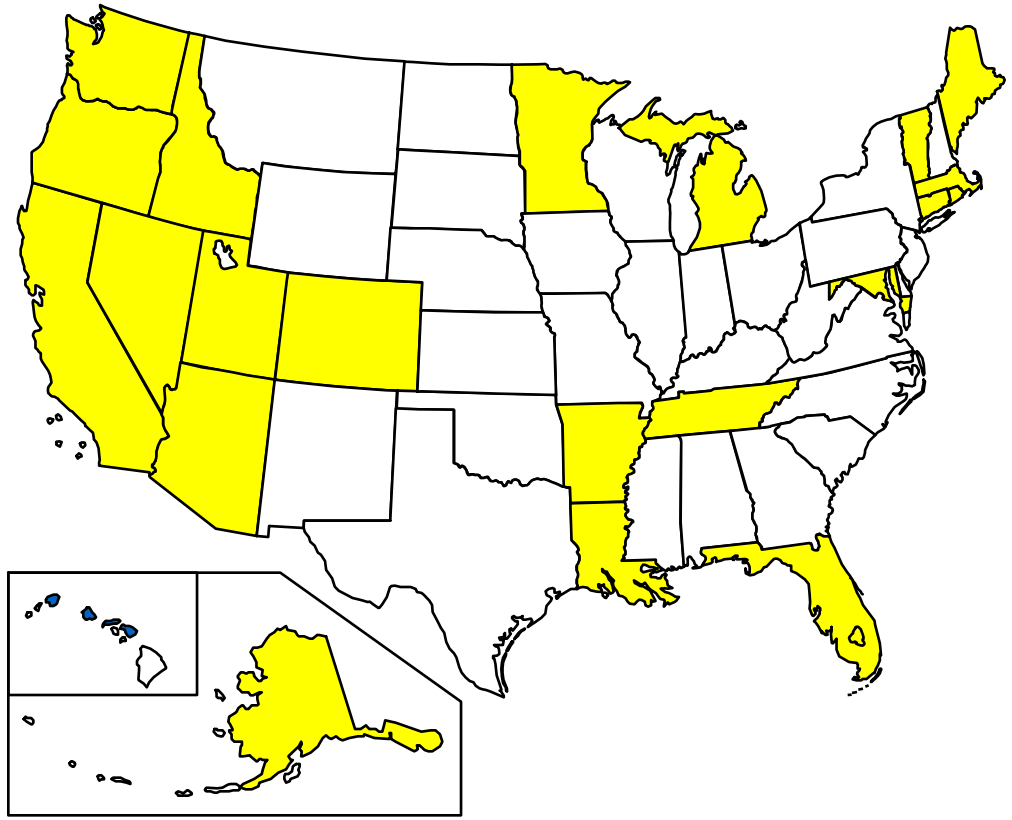
FHWA Contract No. DTFH6113D00023L –Tools and Technical Assistance for Evaluation of Alternative Contracting Methods , Draft summary report 9/19/2018

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



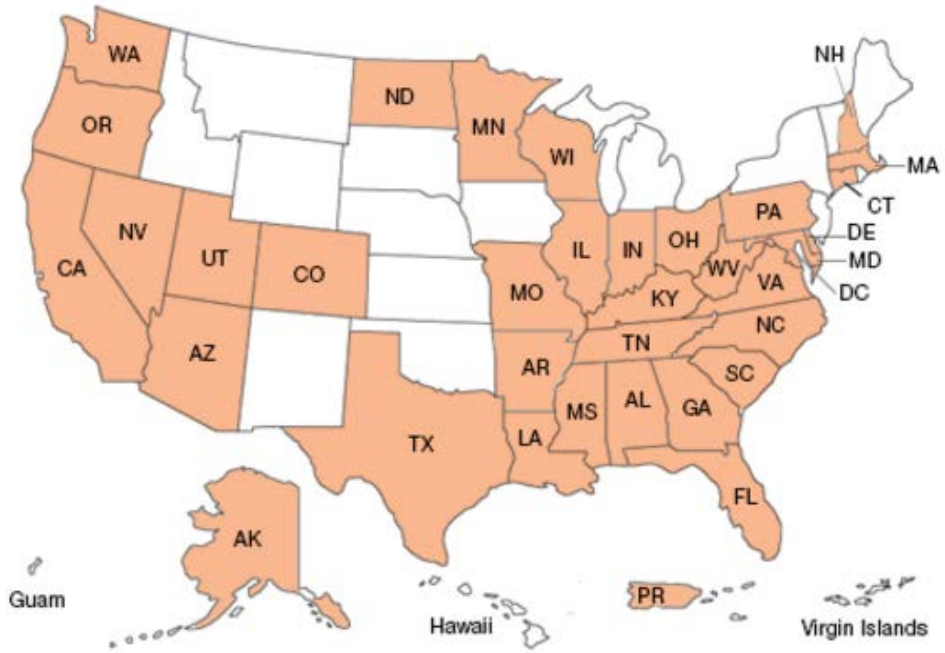
DC

DE

PR

Some experience

States with Significant Transportation Public-Private Partnership Enabling Statutes

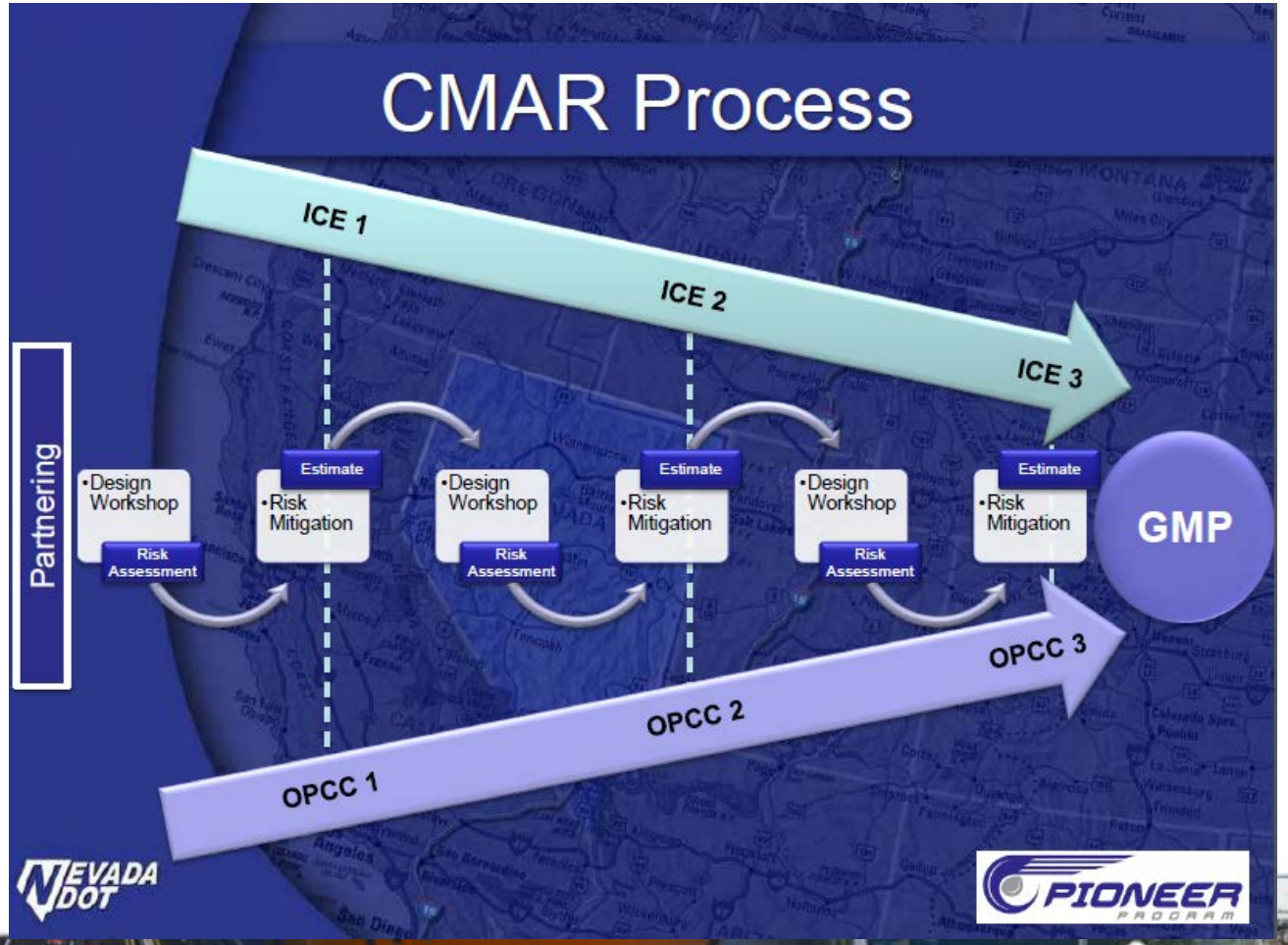


- Toll Concession
- Asset Lease
- Pre-Development Agreement
- Design-Build-Finance
- Availability Payment Concession

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



Information and graphic source: Nevada DOT

Use of Alternative Contracting Methods

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

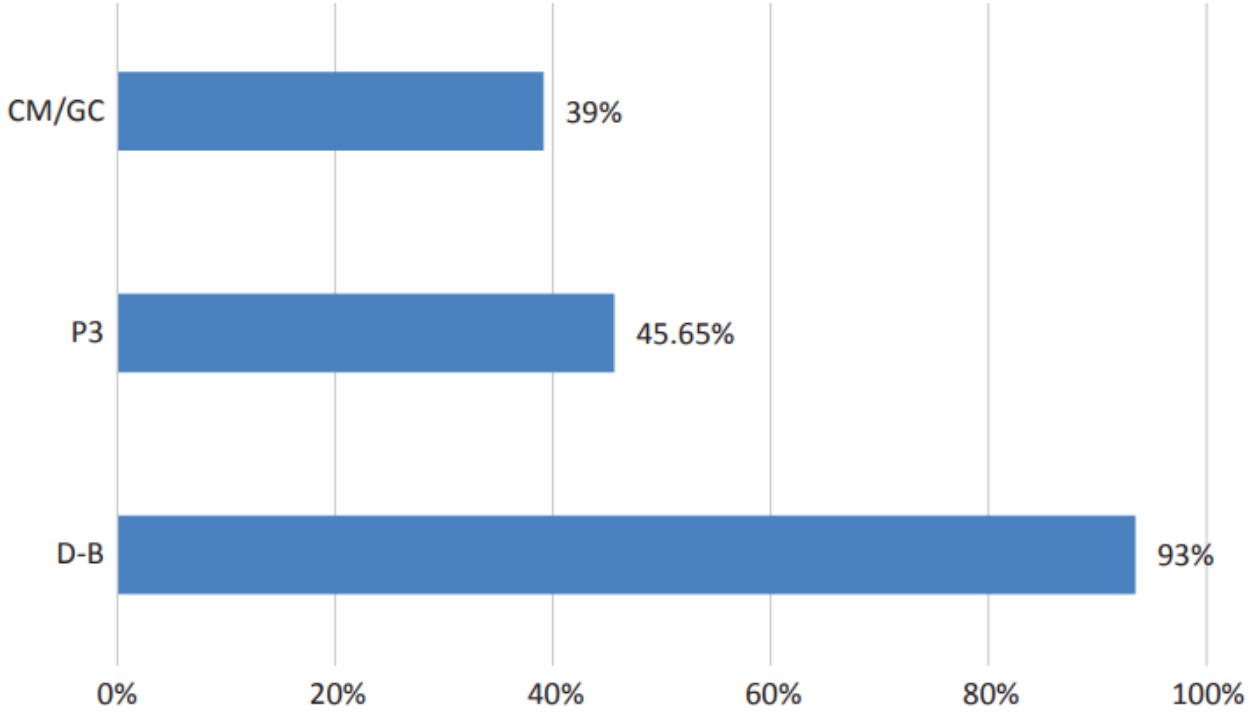


Fig B2. Authority to use alternate contracting methods (n = 46).

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

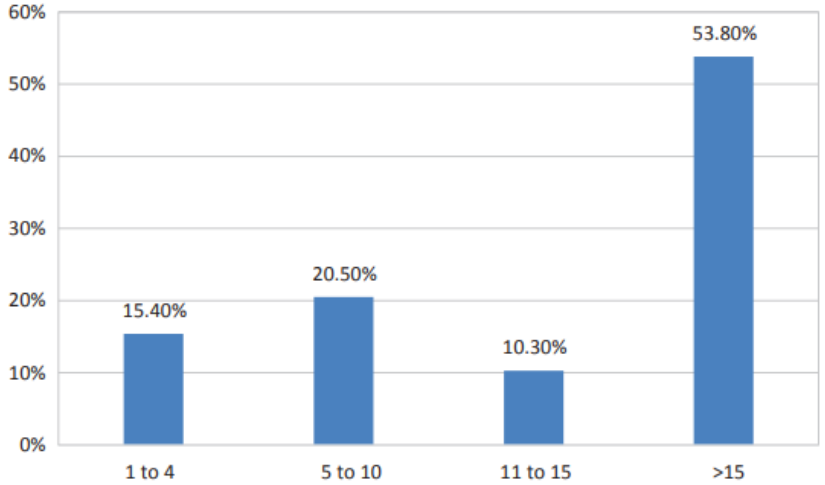


Fig B5.1. Number of projects delivered by the agencies with D-B (n = 39).

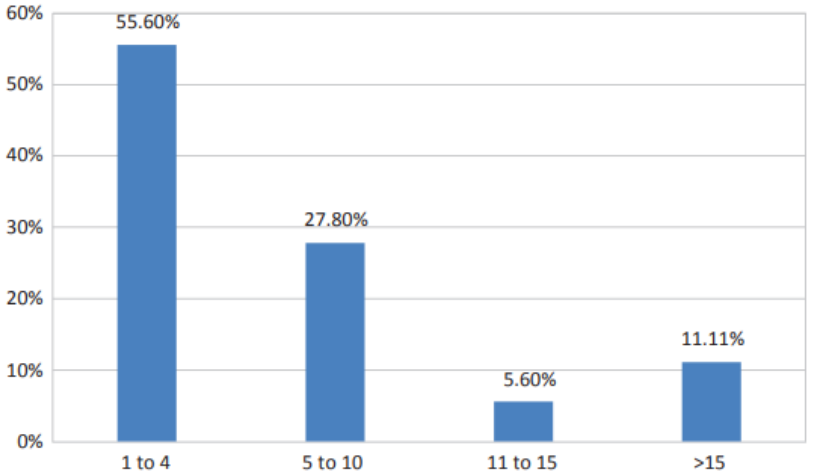
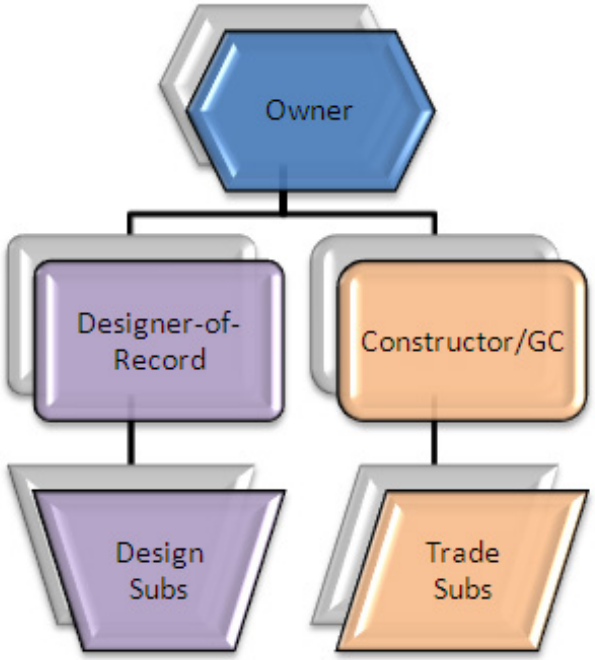


Fig B5.2. Number of projects delivered by the agencies with CM/GC (n = 18).

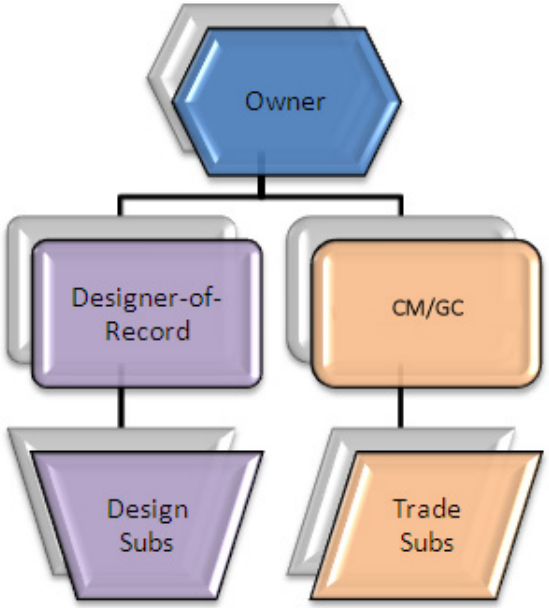
Figure B5.1 and B.5.2 from NCHRP Synthesis 518

Major Project Delivery Methods

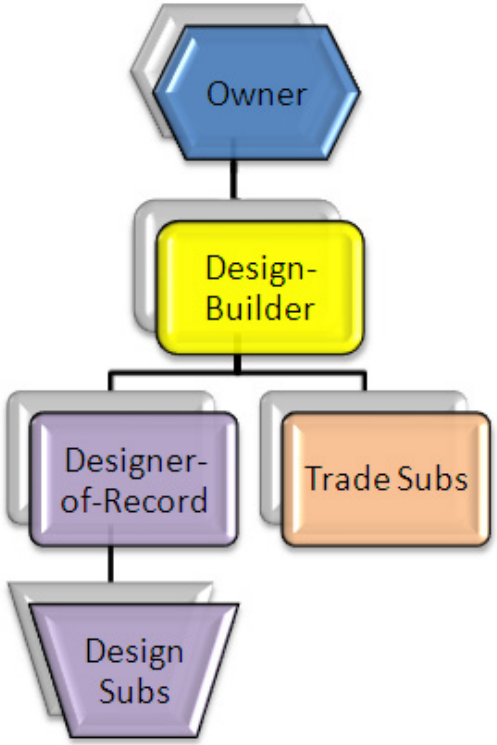
Design-Bid-Build



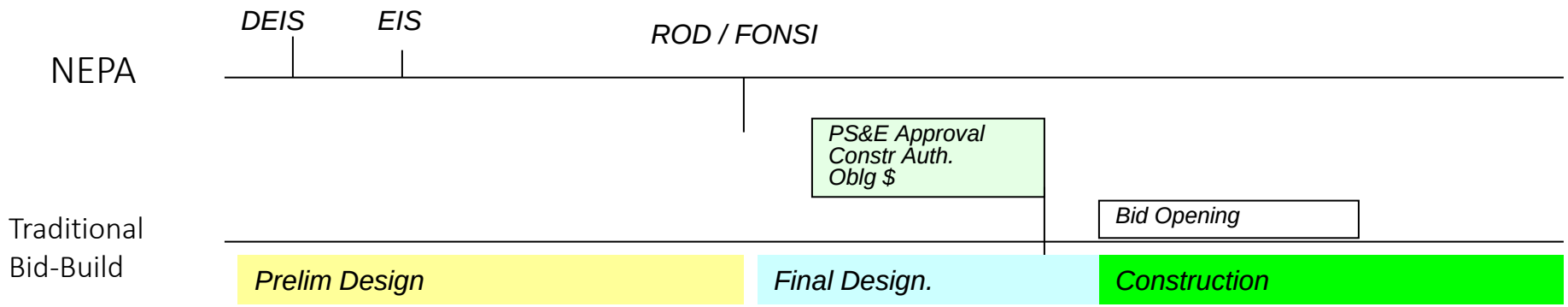
CM/GC



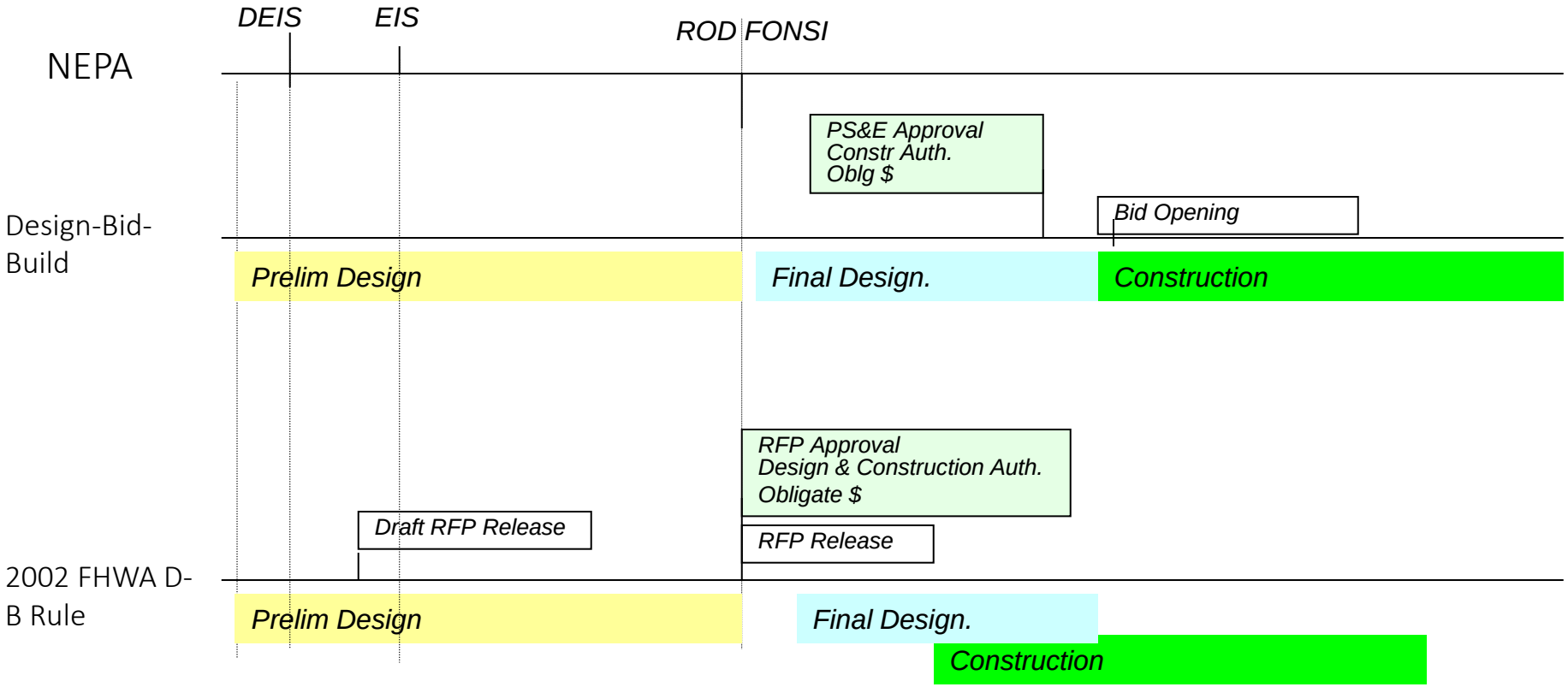
Design-Build

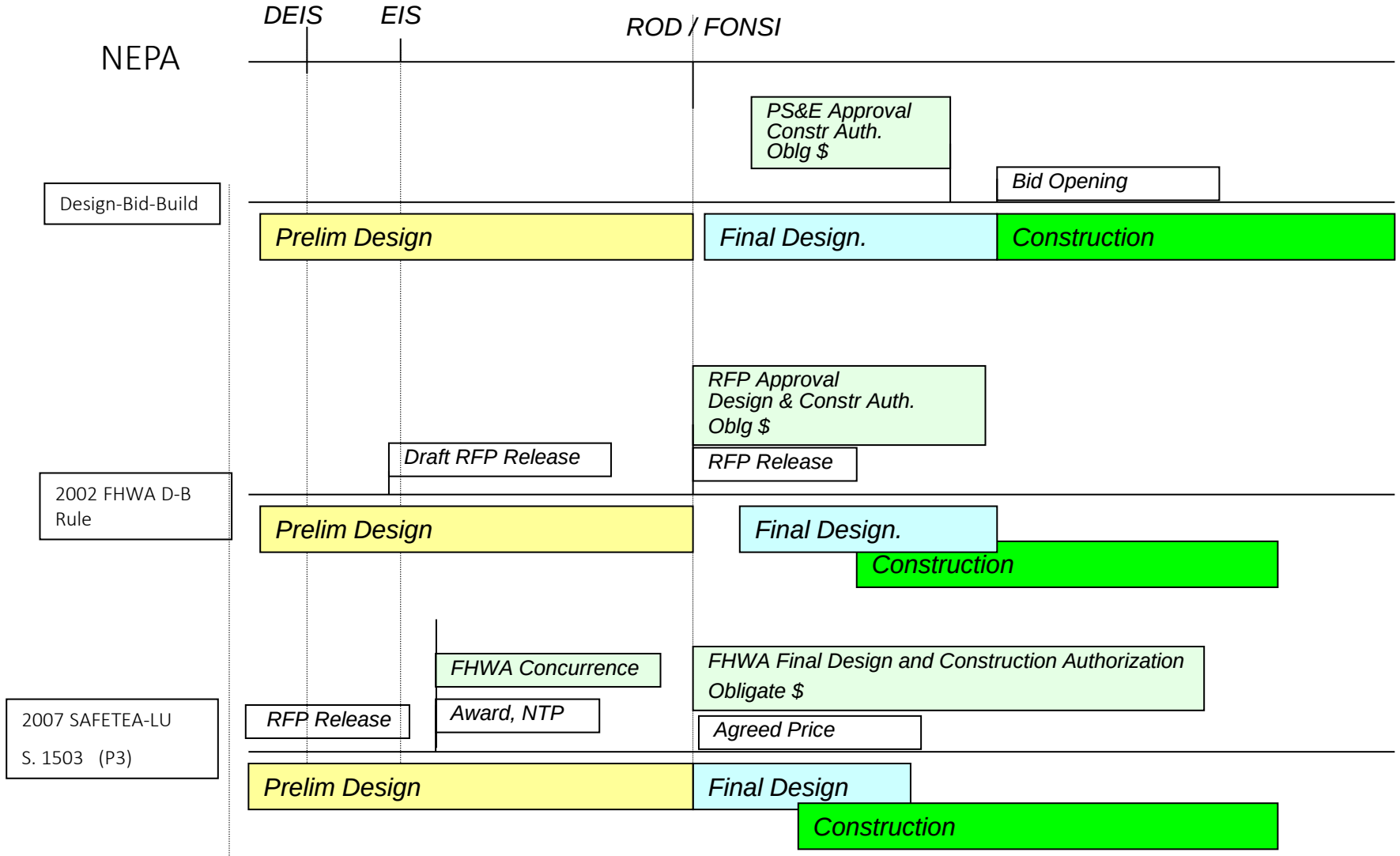


Example

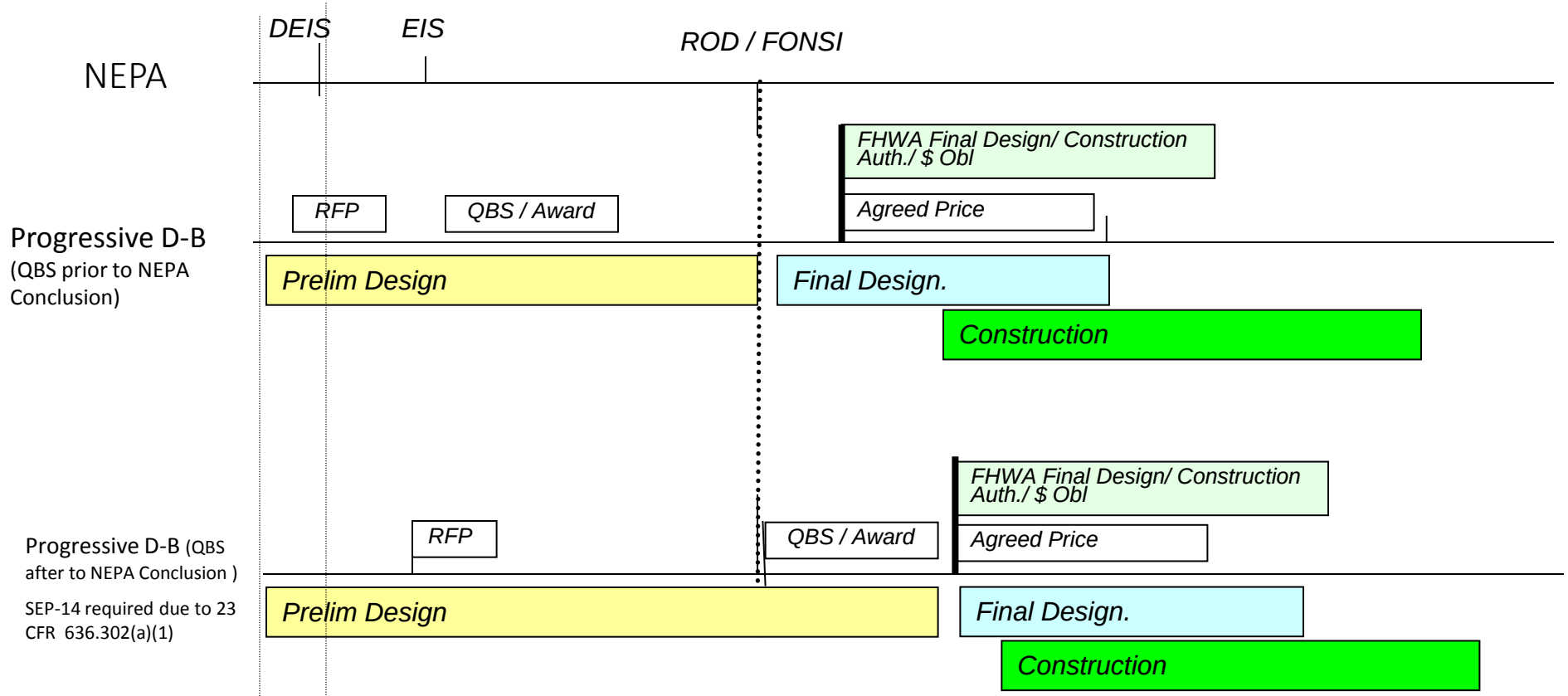

NEPA
DEIS
EIS
ROD / FONSI
PS&E Approval
Constr Auth.
Oblg $
Bid Opening
Traditional
Bid-Build
Prelim Design
Final Design.
Construction

Example


DEIS
EIS
ROD
FONSI
NEPA
PS&E Approval
Constr Auth.
Oblg $
Bid Opening
Design-Bid-Build
Prelim Design
Final Design.
Construction
RFP Approval
Design & Construction Auth.
Obligate $
Draft RFP Release
RFP Release
2002 FHWA D-B Rule
Prelim Design
Final Design.
Construction


NEPA
DEIS
EIS
ROD / FONSI
PS&E Approval
Constr Auth.
Oblg $
Bid Opening
Design-Bid-Build
Prelim Design
Final Design.
Construction
RFP Approval
Design & Constr Auth.
Oblg $
Draft RFP Release
RFP Release
2002 FHWA D-B Rule
Prelim Design
Final Design.
Construction
FHWA Concurrence
FHWA Final Design and Construction Authorization
Obligate $
2007 SAFETEA-LU
S. 1503 (P3)
RFP Release
Award, NTP
Agreed Price
Prelim Design
Final Design
Construction

Progressive Design-Build (Qualifications Based Selection)



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*

https://www.dbia.org/resource-center/Documents/Progressive_Design_Build_Primer.pdf

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."*

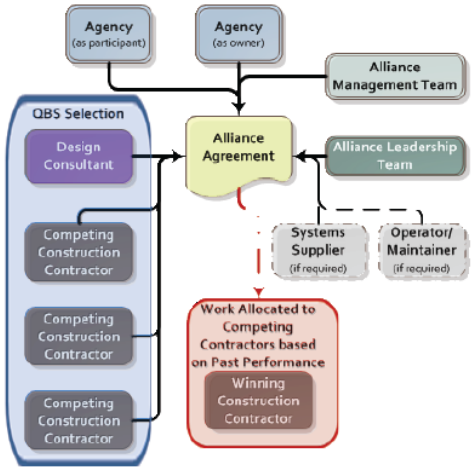
MD SHA I-270 Innovative Congestion Management Contract Industry Meeting January 13, 2016

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

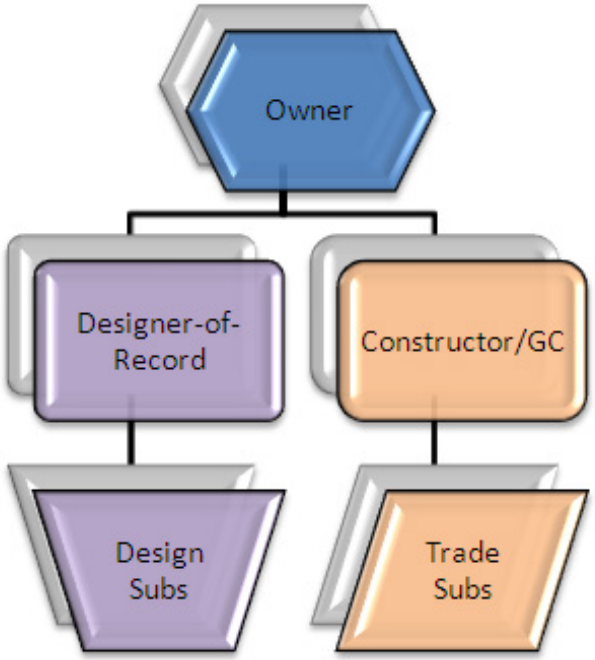
Alliance Contracting

- “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

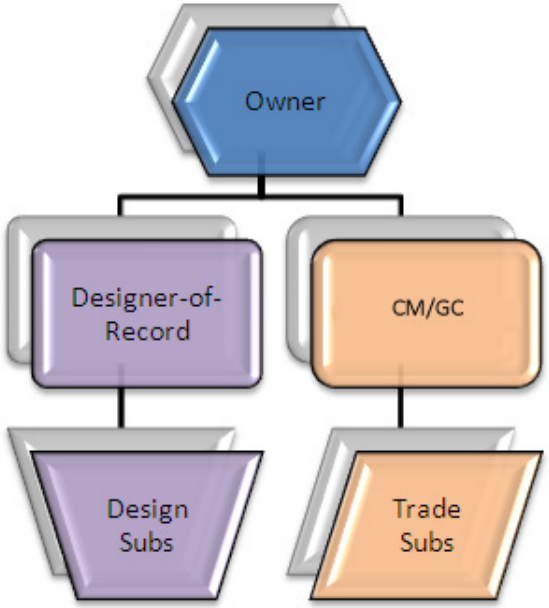


What Is the Most Effective Project Delivery Method?

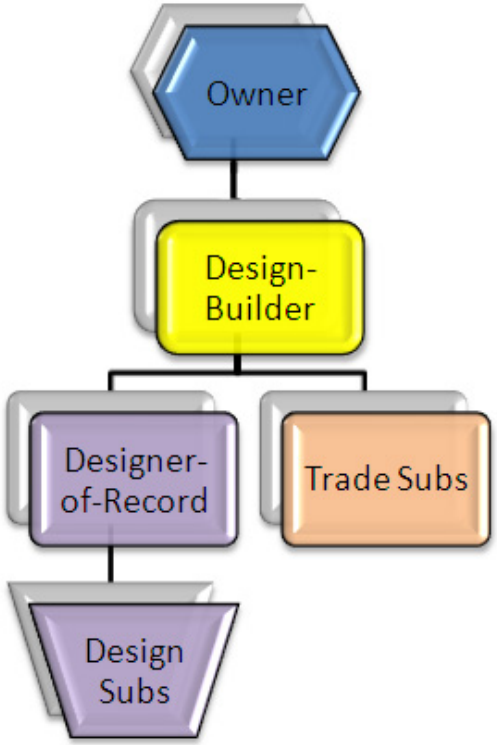
Design-Bid-Build



CM/GC



Design-Build



What Is the Most Effective Project Delivery Method?

Metric	Design-Build vs. Design-Bid-Build	Design-Build vs. CM@R
Unit Cost	6.1% lower	4.5% lower
Construction Speed	12% faster	7% faster
Delivery Speed	33.5 % faster	23.5% faster
Cost Growth	5.2% less	12.6% less
Schedule Growth	11.4% less	2.2% less

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.*

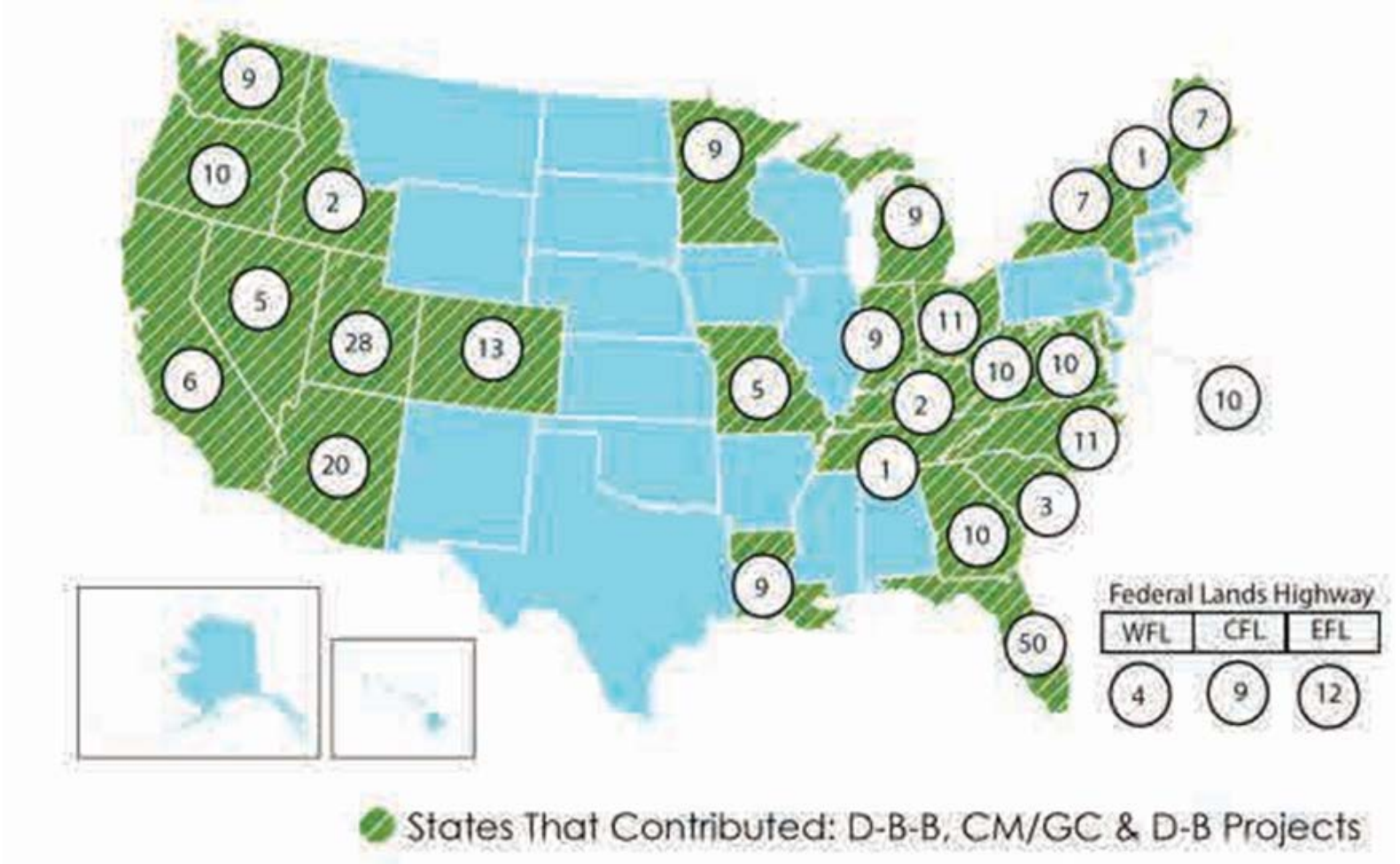
Quantification of Cost, Benefits and Risk Associated with Alternate Contracting Methods and Accelerated Performance Specifications

- FHWA DTFH61-13-C-00024
- FHWA Publication No: FHWA-HRT-17-100
- Final Report – April 2017
- https://www.fhwa.dot.gov/publications/research/infrastructure/17100/17100.pdf

FHWA DTFH61-13-C-00024
Primary Project Goals

- 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

Procurement Procedure	D-B-B Ave % (n=134)	D-B Ave % (n=123)	CM/GC Ave % (n=34)
Low Bid	80%	32%	3%
Best Value	1%	38%	47%
Qualification Based	1%	0%	41%
A + B (cost + time)	13%	11%	0%
Other	4%	13%	6%

Cost Growth (Award to Final)

Table 14. Cost growth (award to final).

Contract Method	Mean (%)	Median (%)	Standard Deviation (%)	Minimum (%)	Maximum (%)
D-B-B (*n* = 129)	4.1	2.3	9.5	–21.8	33.1
CM/GC (*n* = 31)	0.9	0.8	6.0	–12.0	14.5
D-B/LB (*n* = 36)	2.8	0.7	5.7	–5.6	19.0
D-B/BV (*n* = 74)	4.0	1.9	5.5	–4.5	19.6
Total (*n* = 270)	**3.5**	**1.9**	**7.8**	**-21.8**	**33.1**

Reasons for Changes

Table 15. Impact of change order categories as an average percentage of contract value.

Change Orders	D-B-B (*n* = 65)	CM/GC (*n* = 19)	D-B/LB (*n* = 21)	D-B/BV (*n* = 57)	Total (*n* = 162)
Agency directed	1.2%	0.7%	1.6%	1.9%	1.5%
Plan quantity changes	1.1%	0.3%	0.6%	0.2%	0.6%
Unforeseen conditions	2.4%	1.5%	1.8%	1.8%	2.0%
Plan errors and omissions	0.9%	0.6%	0.1%	0.5%	0.6%
Other	0.1%	0.2%	0.8%	0.3%	0.3%
Total impact as a percentage of award cost*	**5.8%**	**3.4%**	**5.0%**	**4.7%**	**5.0%**

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
- Developing Engineering Estimates for Alternative Contracting Methods: Industry Estimating Performance and Best Practices

FHWA DTFH61-13-C-00024
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

NCHRP 08-104 - A Guidebook for Post-Award Contract Administration for Highway Projects Delivered Using Alternative Contracting Methods

- $500,000
- Staff Responsibility: Edward T. Harrigan
- Research Agency: University of Colorado at Boulder
- Principal Investigator: Keith Molenaar
- Effective Date: 9/16/2016
- Completion Date: 12/31/2018

2.5 Construction Quality Strategy

CONSTRUCTION QUALITY

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.

Because of the contractor's knowledge of design, materials, and methods in the D-B process, agencies are more apt to involve them in QC activities.

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

Example

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

1) Delivery Schedule

DESIGN-BID-BUILD	
Opportunities	**Obstacles**
☐ Schedule is more predictable and more manageable ☐ Milestones can be easier to define ☐ Projects can more easily be "shelved" ☐ Shortest procurement period ☐ Elements of design can be advanced prior to permitting, construction, etc. ☐ Time to communicate/discuss design with stakeholders	☒ Requires time to perform a linear design-bid-construction process ☐ Design and construction schedules can be unrealistic due to lack industry input ☐ Errors in design lead to change orders and schedule delays ☐ Low bid selection may lead to potential delays and other adverse outcomes.

DESIGN-BUILD	
Opportunities	**Obstacles**
☒ Potential to accelerate schedule through parallel design-build process ☐ Shifting schedule risk to DB team ☐ Encumbers construction funds more quickly ☐ Industry input into design and schedule ☐ Fewer chances for disputes between agency and design-builders ☐ More efficient procurement of long-lead items ☐ Ability to start construction before entire design, ROW, etc. is complete (i.e., phased design)	☐ Request for proposal development and procurement can be lengthy ☐ Undefined events or conditions found after procurement, but during design can impact schedule and cost ☐ Time required to define technical requirements and expectations through RFP development can be lengthy ☐ Time required to gain acceptance of quality program ☐ Requires agency and stakeholder commitments to an expeditious review of design

CM/GC	
Opportunities	**Obstacles**
☒ Ability to start construction before entire design, ROW, etc. is complete (i.e., phased design) ☐ More efficient procurement of long-lead items ☐ Early identification and resolution of design and construction issues (e.g., utility, ROW, and earthwork) ☐ Can provide a shorter procurement schedule than DB ☐ Team involvement for schedule optimization ☐ Continuous constructability review and VE ☐ Maintenance of Traffic improves with contractor inputs	☒ Potential for not reaching GMP and substantially delaying schedule ☒ GMP negotiation can delay the schedule ☐ Schedule-driven goals may drive up cost ☒ Designer-contractor-agency disagreements can add delays ☐ Strong agency management is required to control schedule

Case Study – CDOT Ilex Interchange

PROJECT DELIVERY METHOD OPPORTUNITY/OBSTACLE SUMMARY			
	DBB	**DB**	**CM/GC**
Primary Evaluation Factors			
1. Delivery Schedule	**X**	**++**	**-**
2. Project Complexity & Innovation	**-**	**+**	**+**
3. Level of Design	**-**	**++**	**+**
4. Cost	**NA**	**++**	**+**
5. Initial Project Risk Assessment	**NA**	Risk can be properly allocated in a DB delivery	**NA**
Secondary Evaluation Factors			
6. Staff Experience/Availability (Owner)	**NA**	**pass**	**NA**
7.Level of Oversight and Control	**NA**	**pass**	**NA**
8. Competition and Contractor Experience	**NA**	**pass**	**NA**

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

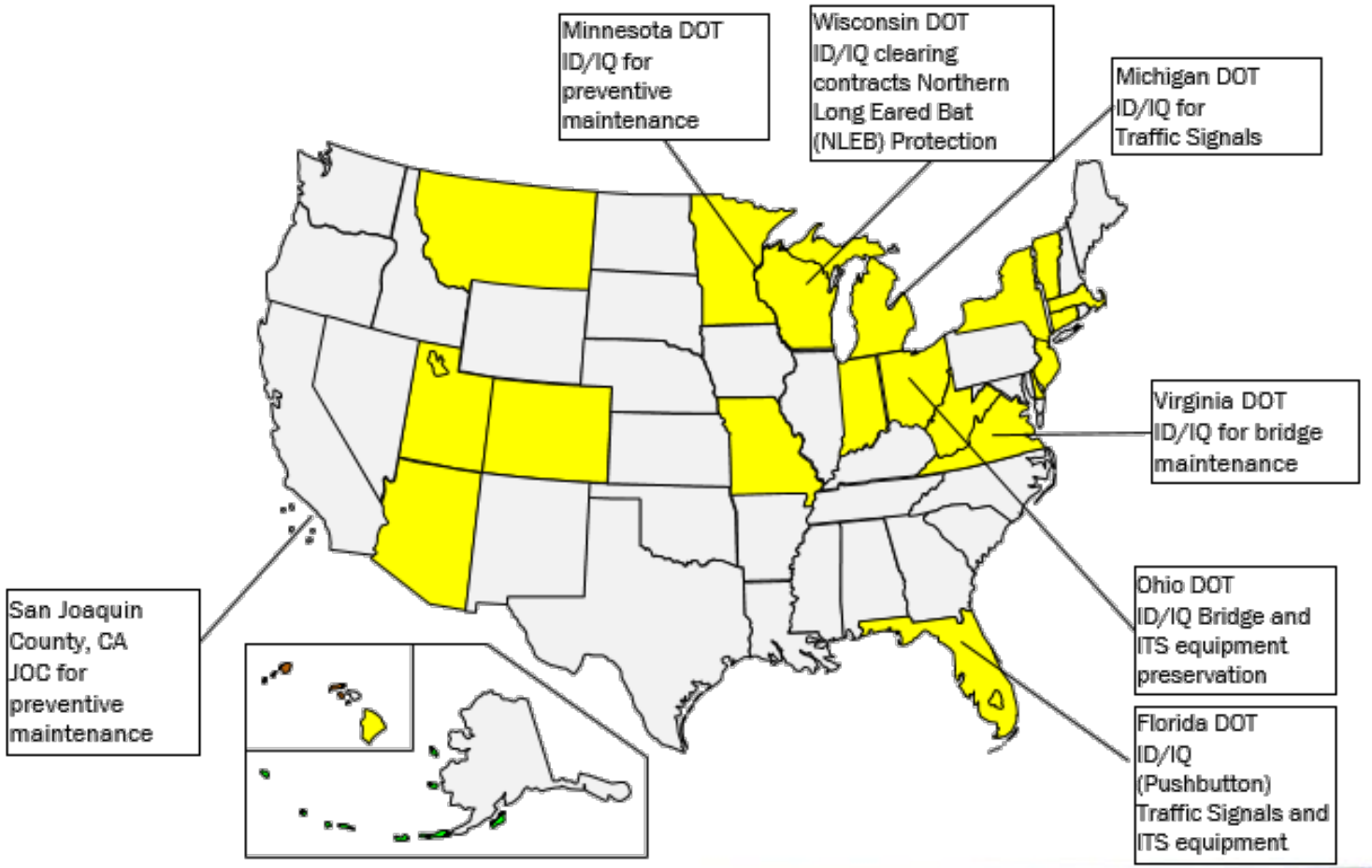
Why Is FHWA Making ID/IQ Operational?

Senate Report Language:

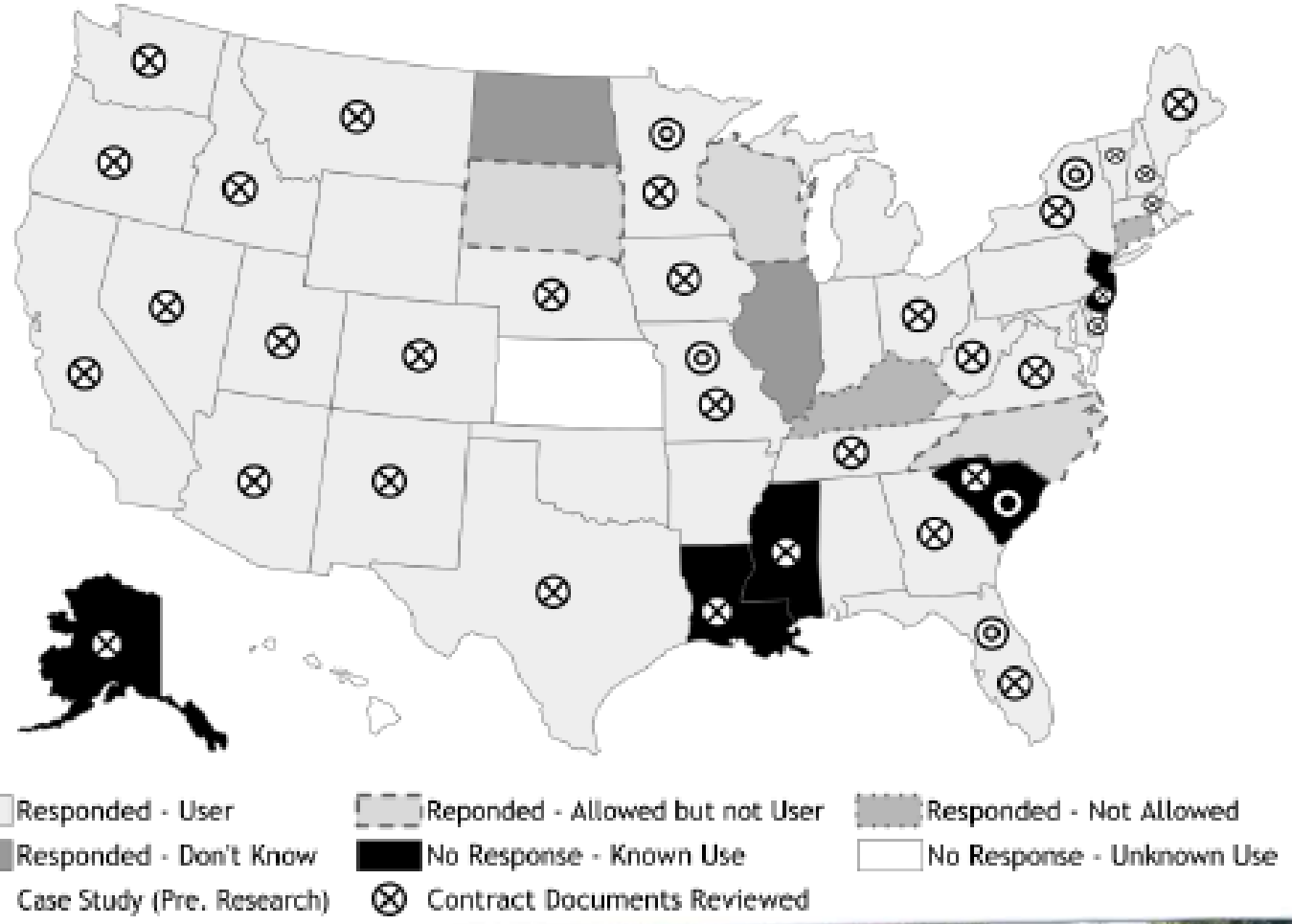
FY 2017 (114-243 p. 45) and FY 2018 (115-138 p. 52) Senate reports:

"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



NCHRP Synthesis 473:
"Indefinite Delivery/Indefinite Quantity Contracting Effective Practices"



NCHRP Synthesis 473, Figure 8

NCHRP Synthesis 473

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

NCHRP Synthesis 473, Table 6

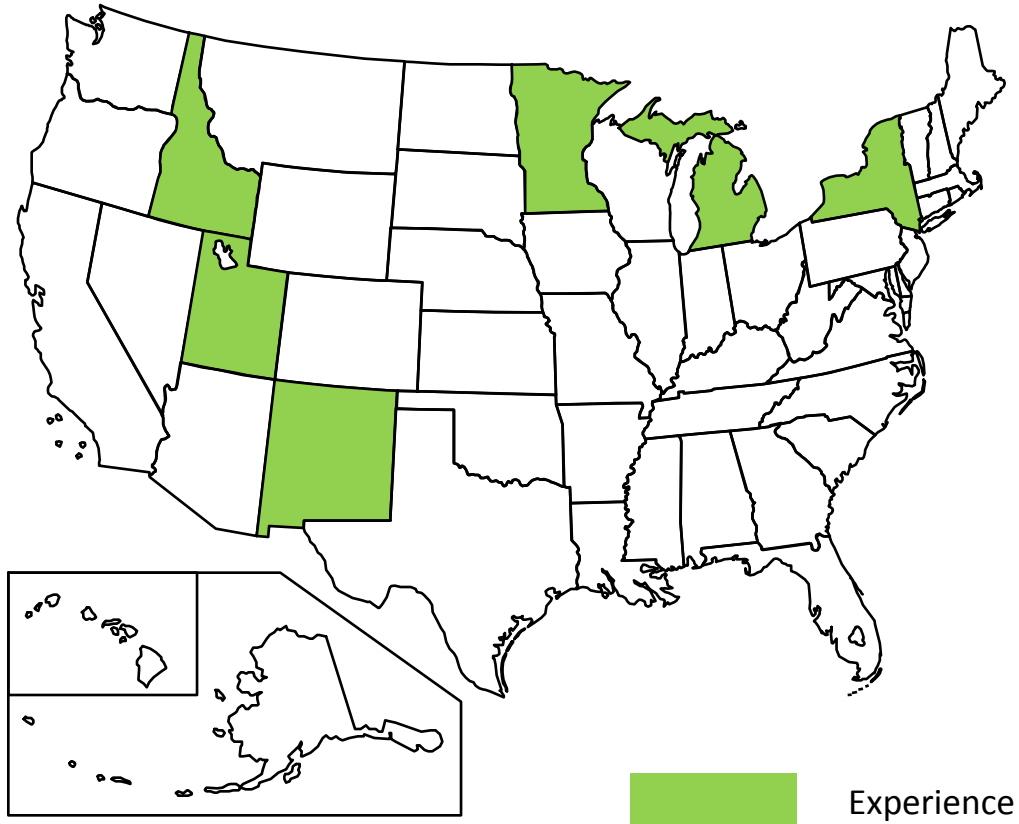
Low-cost ID/IQ Projects

- 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

- ✓ Federal Register Notice and Request for Comments to operationalize IDIQ for "low-cost" ID/IQ contracts (published May 2, 2018) https://www.regulations.gov/docket?D=FHWA-2018-0003
- ✓ Advance Notice of Proposed RuleMaking (published June 26, 2018) https://www.regulations.gov/document?D=FHWA-2018-0017-0001
- ? 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)



Experience with Best-Value Projects/Programs

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

	Contractor A	Contractor B	Contractor C
Unadjusted Bid	$9,978,418.96	$10,543,216.91	$11,263.988.11
Pqfra	1.059	0.951	0.911
Adjusted Bid	**$10,567,145.68**	**$10,026,599.28**	**$10,261,493.17**

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)

Contractor	2015 Pqfra	2016 Pqfra	2017 Pqfra
Albuquerque Asphalt, Inc.		0.95	0.917
AUI, Inc.	0.95	0.917	0.976
C & E Concrete, Inc.		0.953	0.919
Constructors, Inc.		1.005	0.953
El Terrero Construction, LLC		0.95	0.936
Fisher Sand & Gravel New Mexico, Inc.	0.95	0.933	0.927
FNF Construction, Inc.	0.95	0.917	0.900
Hasse Contracting Company Inc.		0.95	0.921
Highway Supply, LLC		0.95	0.917
Interstate Highway Construction, Inc.		0.956	0.966
K. Barnett & Sons, Inc.		0.95	0.967
Kimo Constructors, Inc.		0.987	0.943
La Calerita Construction, LLC			0.959
MANS Construction Company			1.208
Meridian Contracting, Inc.		0.987	0.921
Mountain States Constructors, Inc.	0.95	0.917	0.900
MWI Inc.		0.95	0.987
Northern Mountain Constructors, Inc.			0.95
Oldcastle SW Group, Inc.			0.95
R.T. Electric, Inc.			0.987
RAM Construction Services of Michigan, Inc.		0.965	0.977
San Bar Construction Corp.			0.95
The Truesdell Corporation			0.95
Villalobos Construction Co., Inc.			0.95
Vital Consulting Group, LLC		0.967	0.928
Not qualified as of 12/30/2017			
G. Sandoval Construction, Inc			1.083

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)

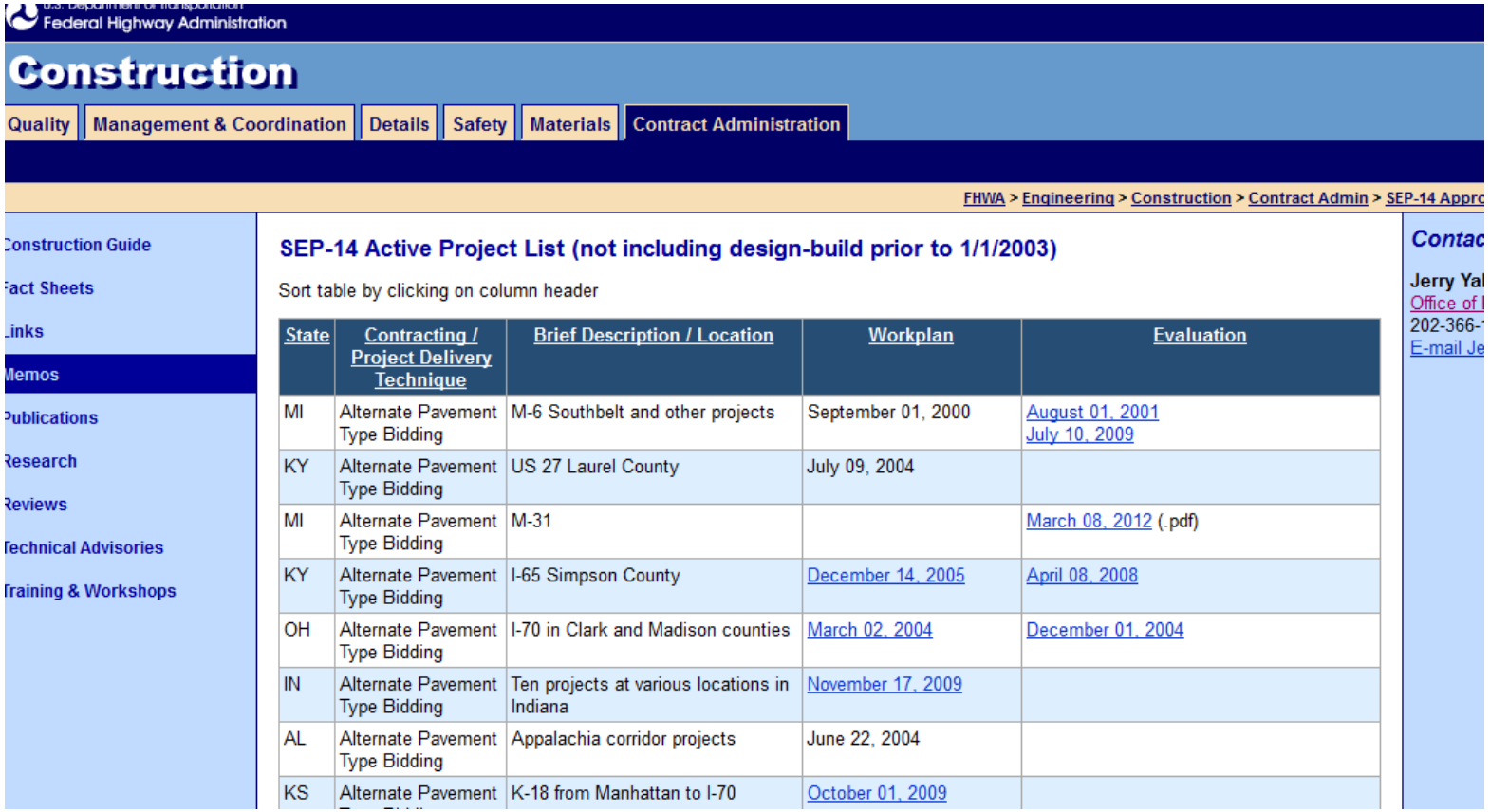
Alternate Technical Concepts for Bid-Build

- 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?



Federal Highway Administration

Construction

Quality | Management & Coordination | Details | Safety | Materials | Contract Administration

FHWA > Engineering > Construction > Contract Admin > SEP-14 Approc

- Construction Guide
- Fact Sheets
- Links
- Memos
- Publications
- Research
- Reviews
- Technical Advisories
- Training & Workshops

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

Sort table by clicking on column header

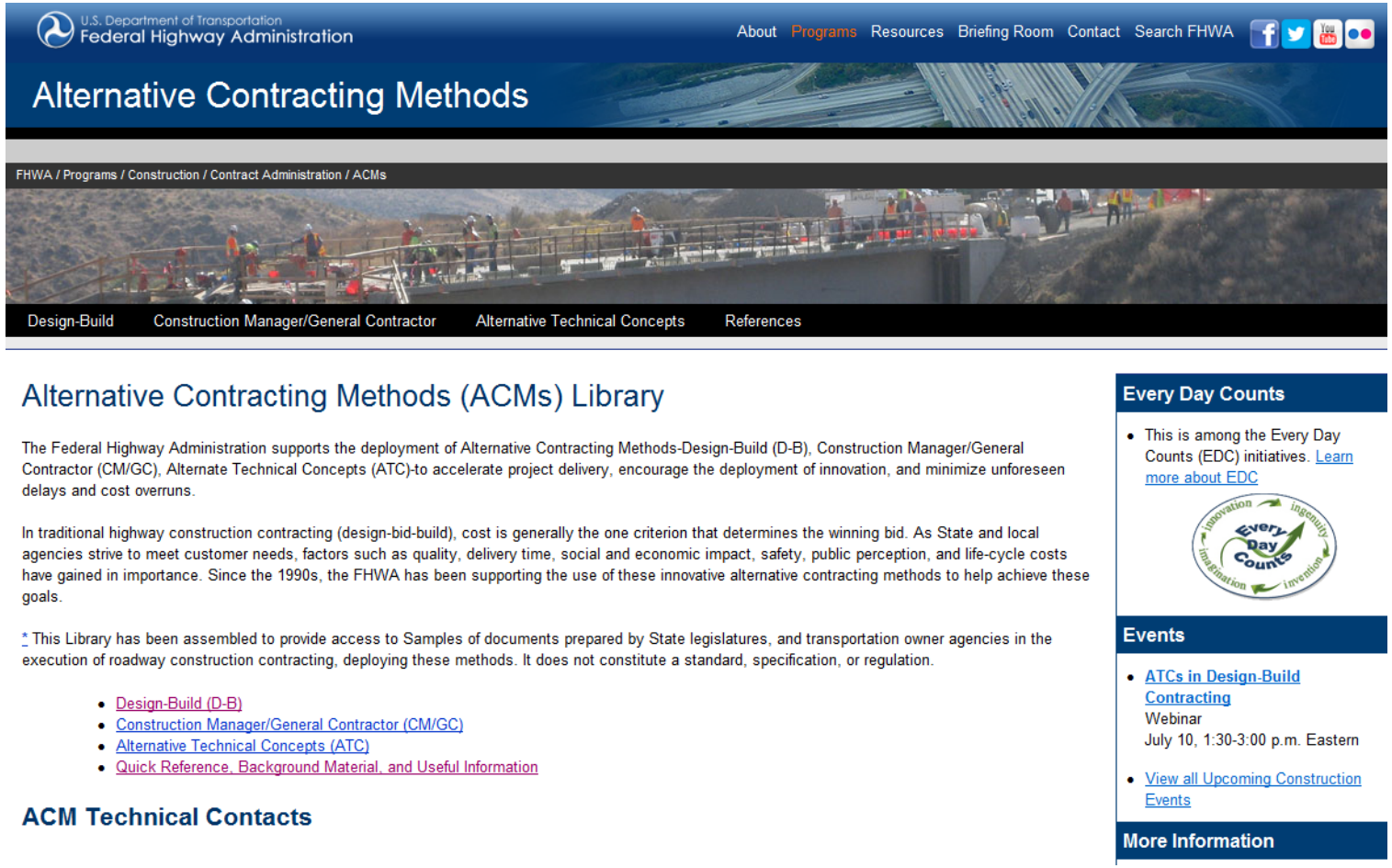
State	Contracting / Project Delivery Technique	Brief Description / Location	Workplan	Evaluation
MI	Alternate Pavement Type Bidding	M-6 Southbelt and other projects	September 01, 2000	August 01, 2001 July 10, 2009
KY	Alternate Pavement Type Bidding	US 27 Laurel County	July 09, 2004	
MI	Alternate Pavement Type Bidding	M-31		March 08, 2012 (.pdf)
KY	Alternate Pavement Type Bidding	I-65 Simpson County	December 14, 2005	April 08, 2008
OH	Alternate Pavement Type Bidding	I-70 in Clark and Madison counties	March 02, 2004	December 01, 2004
IN	Alternate Pavement Type Bidding	Ten projects at various locations in Indiana	November 17, 2009	
AL	Alternate Pavement Type Bidding	Appalachia corridor projects	June 22, 2004	
KS	Alternate Pavement	K-18 from Manhattan to I-70	October 01, 2009	

Contac

Jerry Yal
Office of
202-366-
E-mail Je

http://www.fhwa.dot.gov/programadmin/contracts/sep14list.cfm?sort=technique

Questions?



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

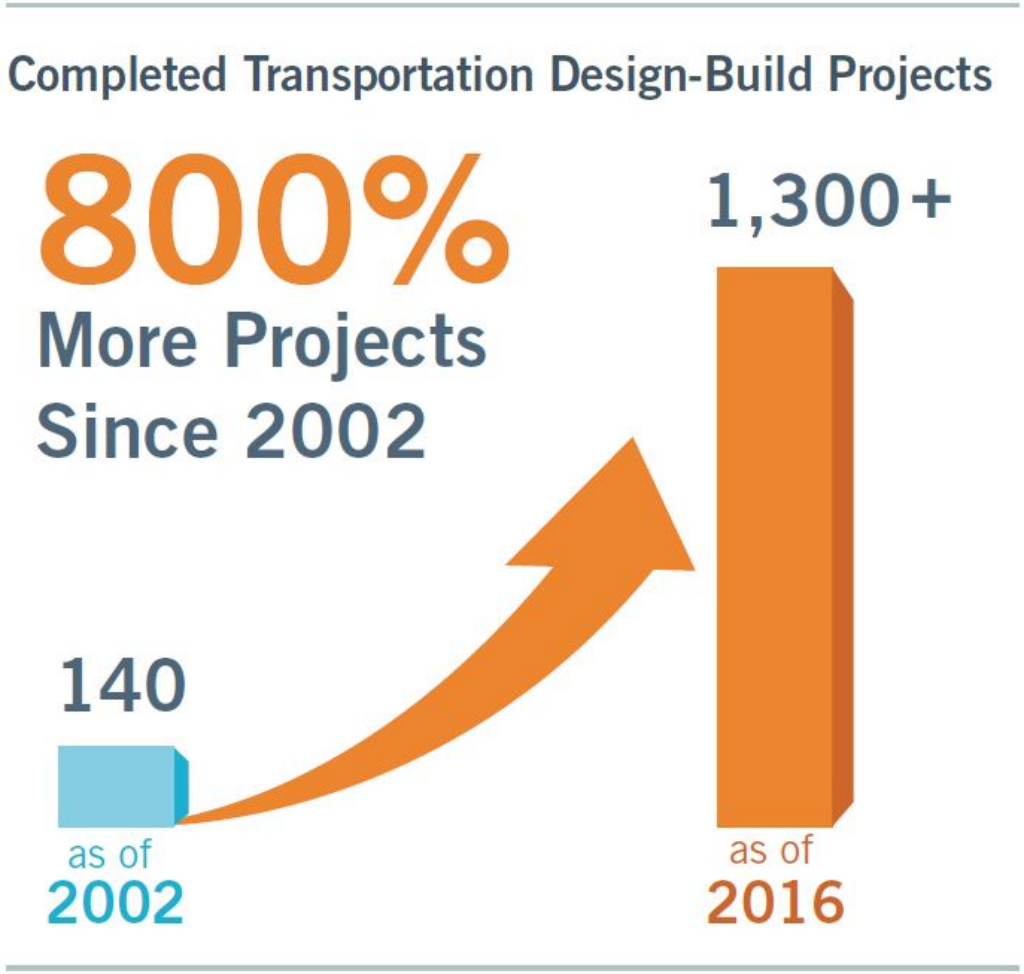
- Training/Networking
- Owner Outreach
- Market Research/Resources

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

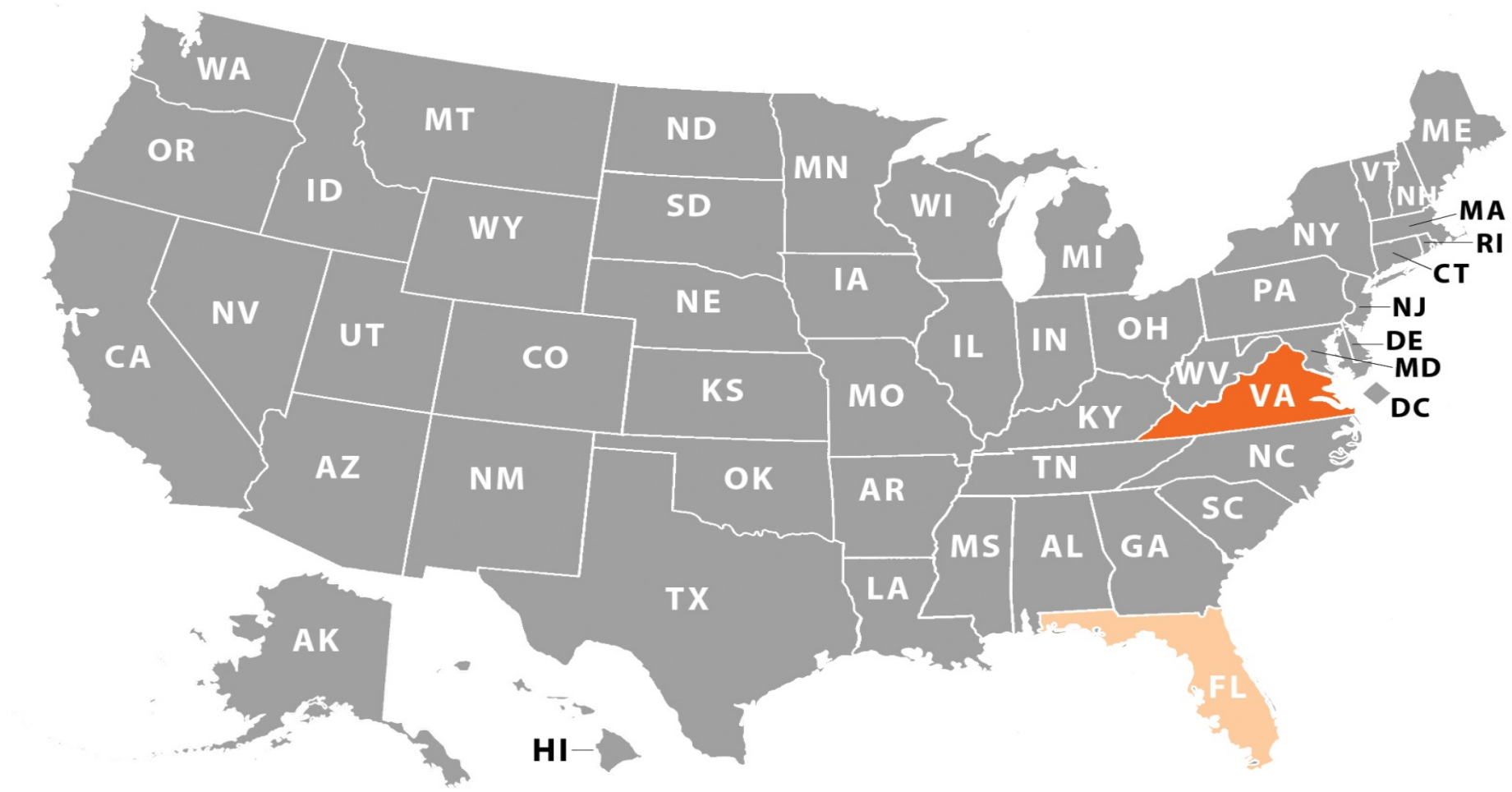
- Nationally, nearly half of all of the alternative delivery bills are transportation related.
- Over 60% are transportation, P3, and/or local design-build bills.
- 122 alternative delivery related bills were introduced in 2018.
- 22 P3 related bills were introduced in 11 states.



According to DBIA's 2016 survey of state DOT's.

1993

Design-Build Authorization for Transportation



Design-build is not specifically authorized

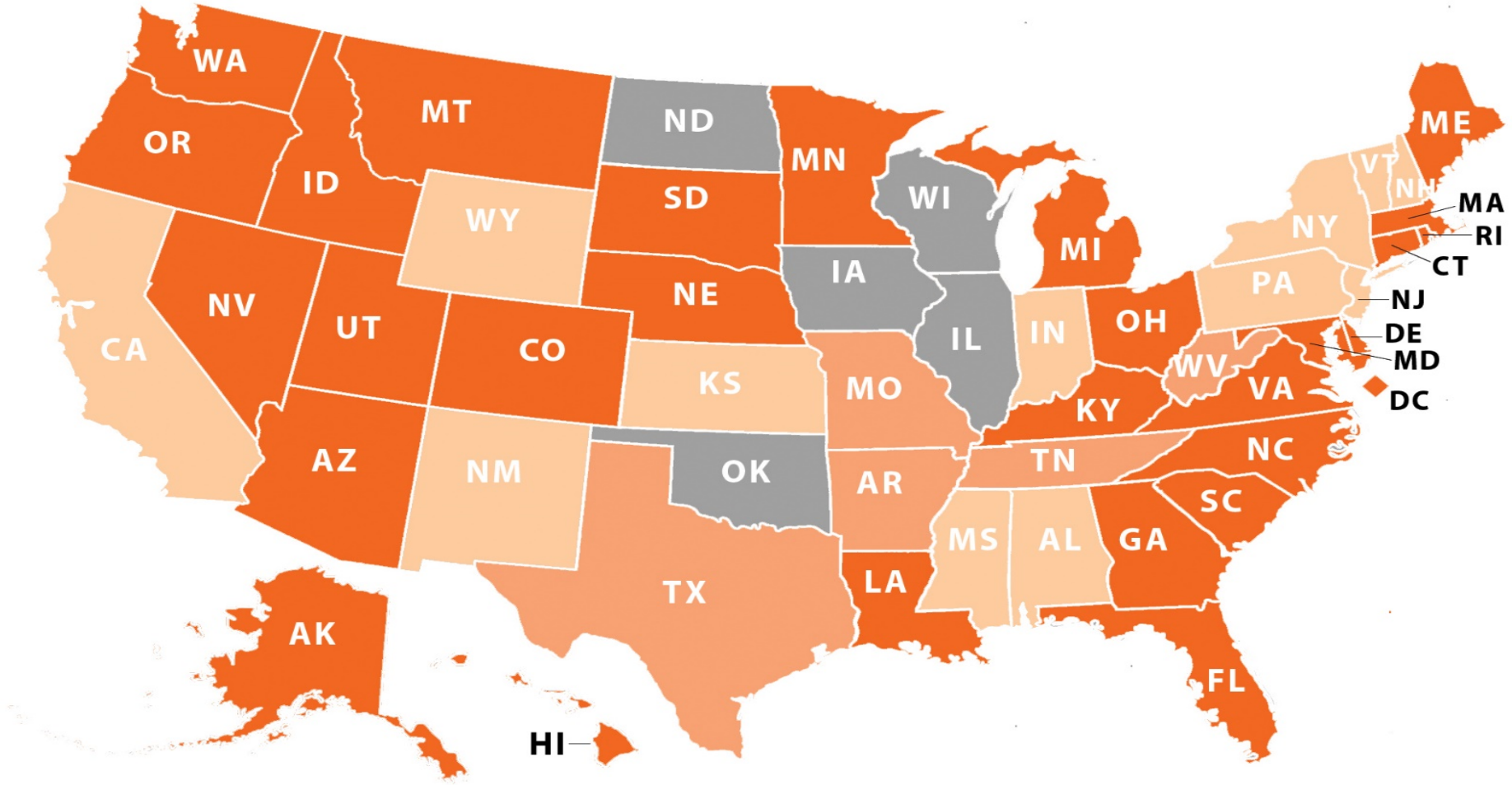
Design-build is widely permitted

Design-build is authorized with certain limitations

Design-build is fully authorized

2018

Design-Build Authorization for Transportation



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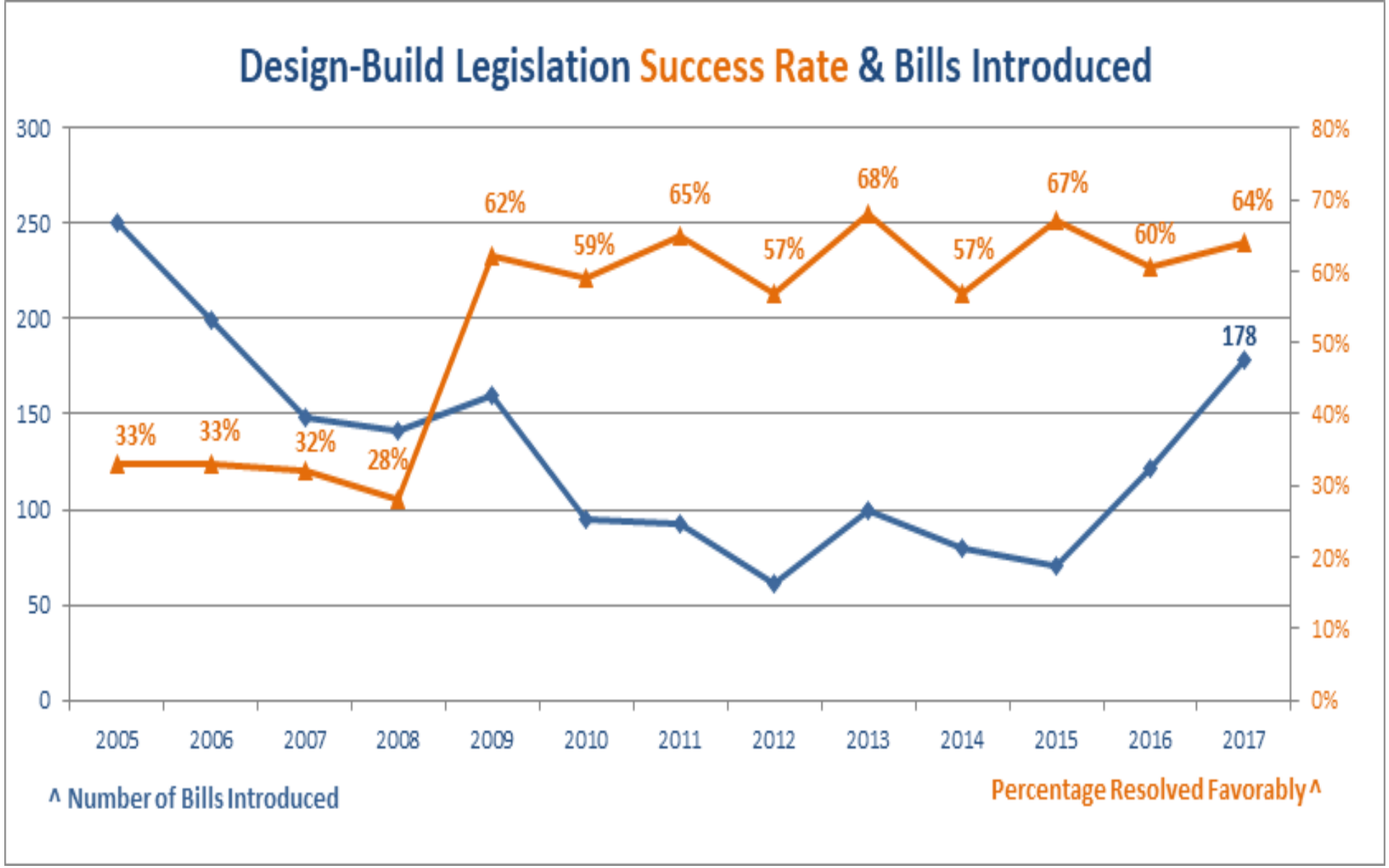
As of January 2018

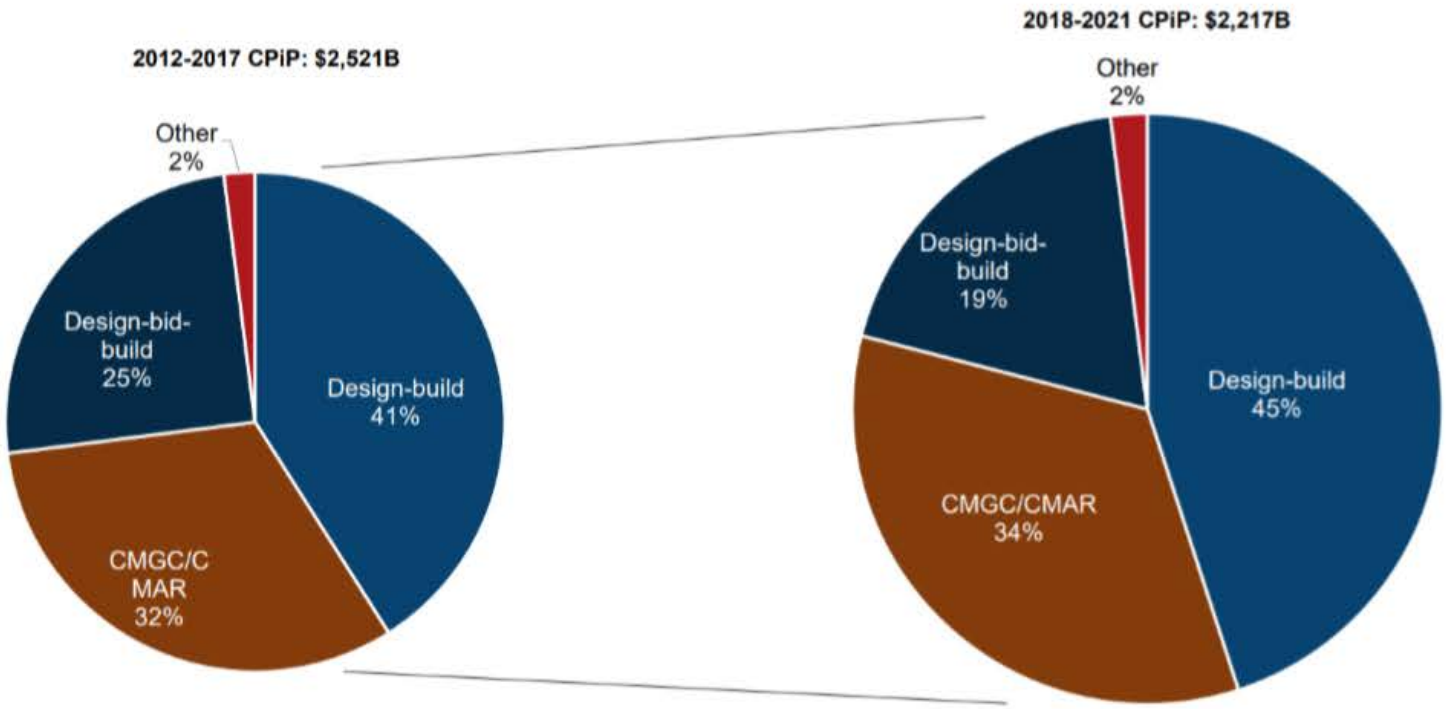

Design-Build Legislation Success Rate & Bills Introduced
300
250
200
150
100
50
0
80%
70%
60%
50%
40%
30%
20%
10%
0%
33%
33%
32%
28%
62%
59%
65%
57%
68%
57%
67%
60%
64%
178
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
^ Number of Bills Introduced
Percentage Resolved Favorably ^


SCDOT
WORK
DBIA
DESIGN-BUILD
U.S. Department of Transportation
Federal Highway Administration

Alternative delivery in building-sector continues to grow

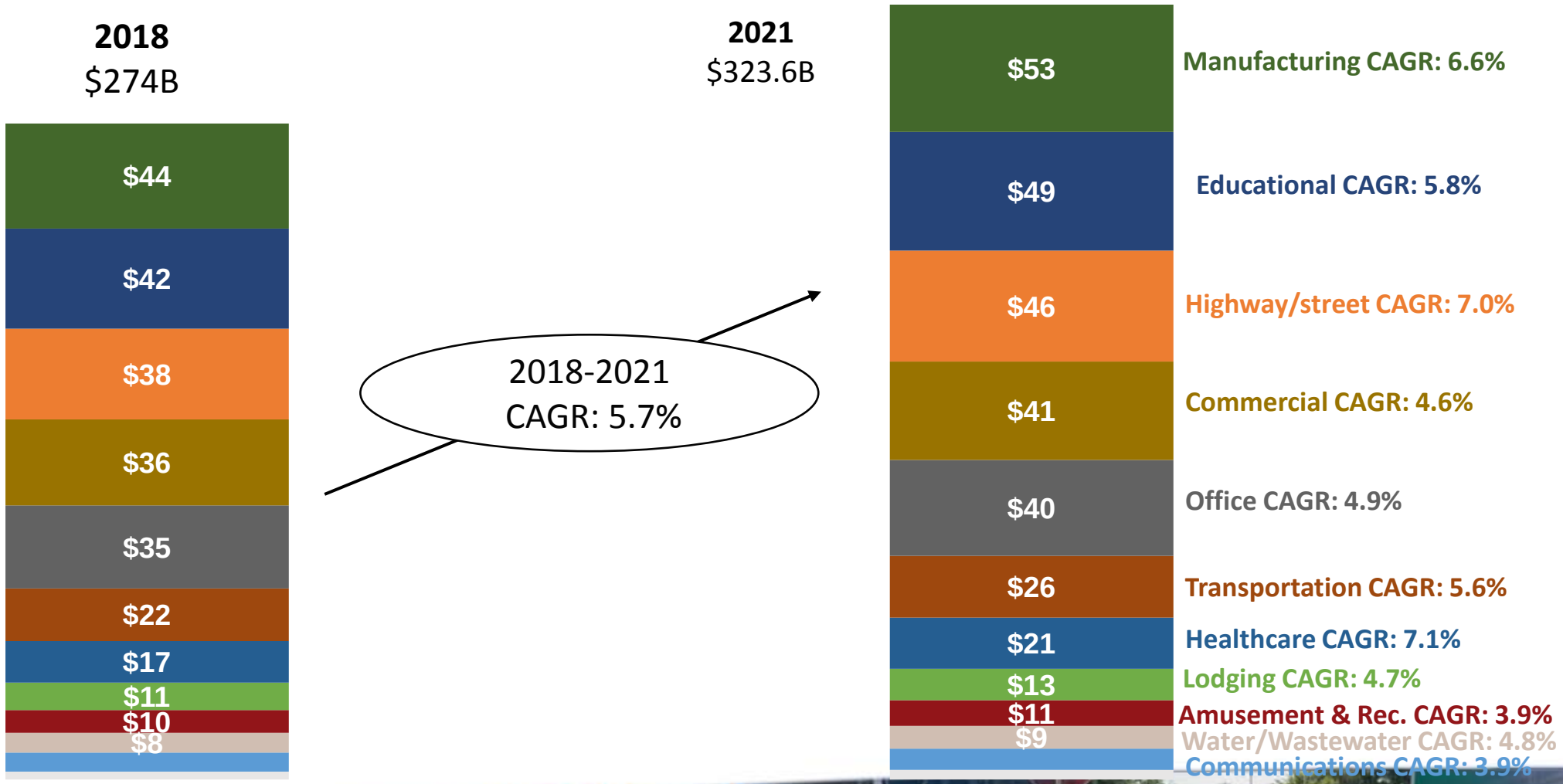
- Nationally, just under 3/4 of all non-residential building projects use design-build and Construction Management at Risk (CMGC/CMAR)
- Design-build is expected to grow to nearly half of the building-sector market by 2021.

Distribution of delivery method utilization
Source(s): FMI analysis of multiple sources



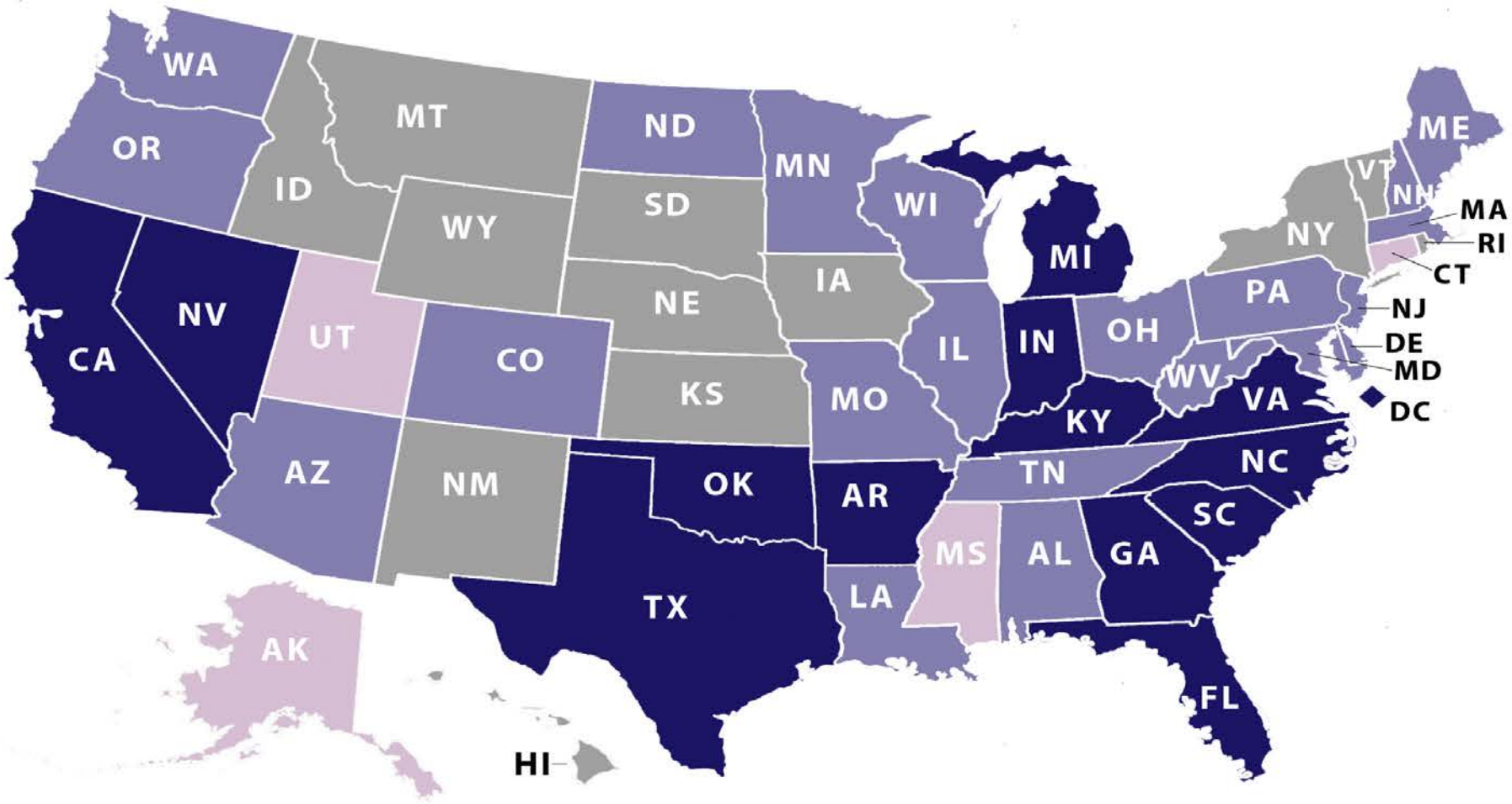
- Dissatisfaction with the adversarial nature and limitations of design-bid-build as well as increasingly challenging project characteristics and demands has resulted in greater interest in and use of design-build and other alternative delivery methods.
- Negative project owner experience and perceptions of design-bid-build are most influenced by limited opportunity for innovation, lack of a fast-track process and higher risk profile for the project owner.

Design-Build Spending by Segment



2018

Public-Private Partnership (P3) State Laws



P3s are not authorized

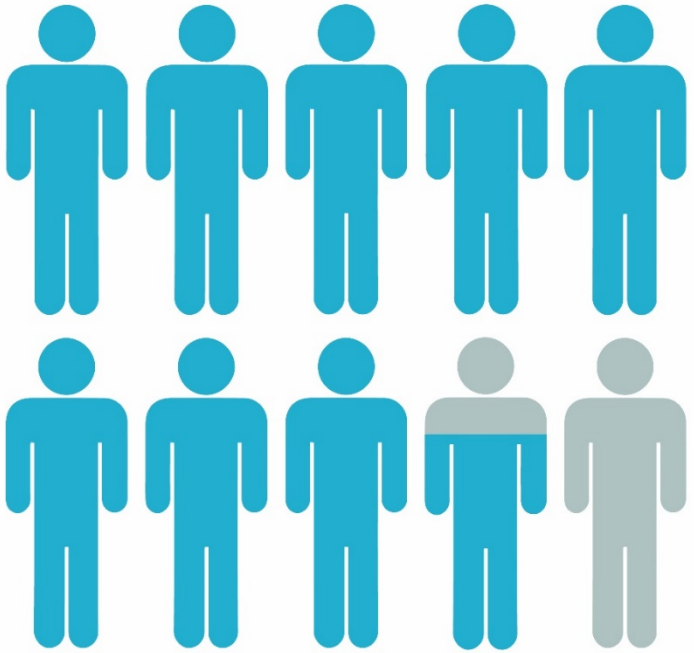
P3s are limited or project specific

P3s are authorized in one primary sector

P3s are widely authorized

As of January 2018

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

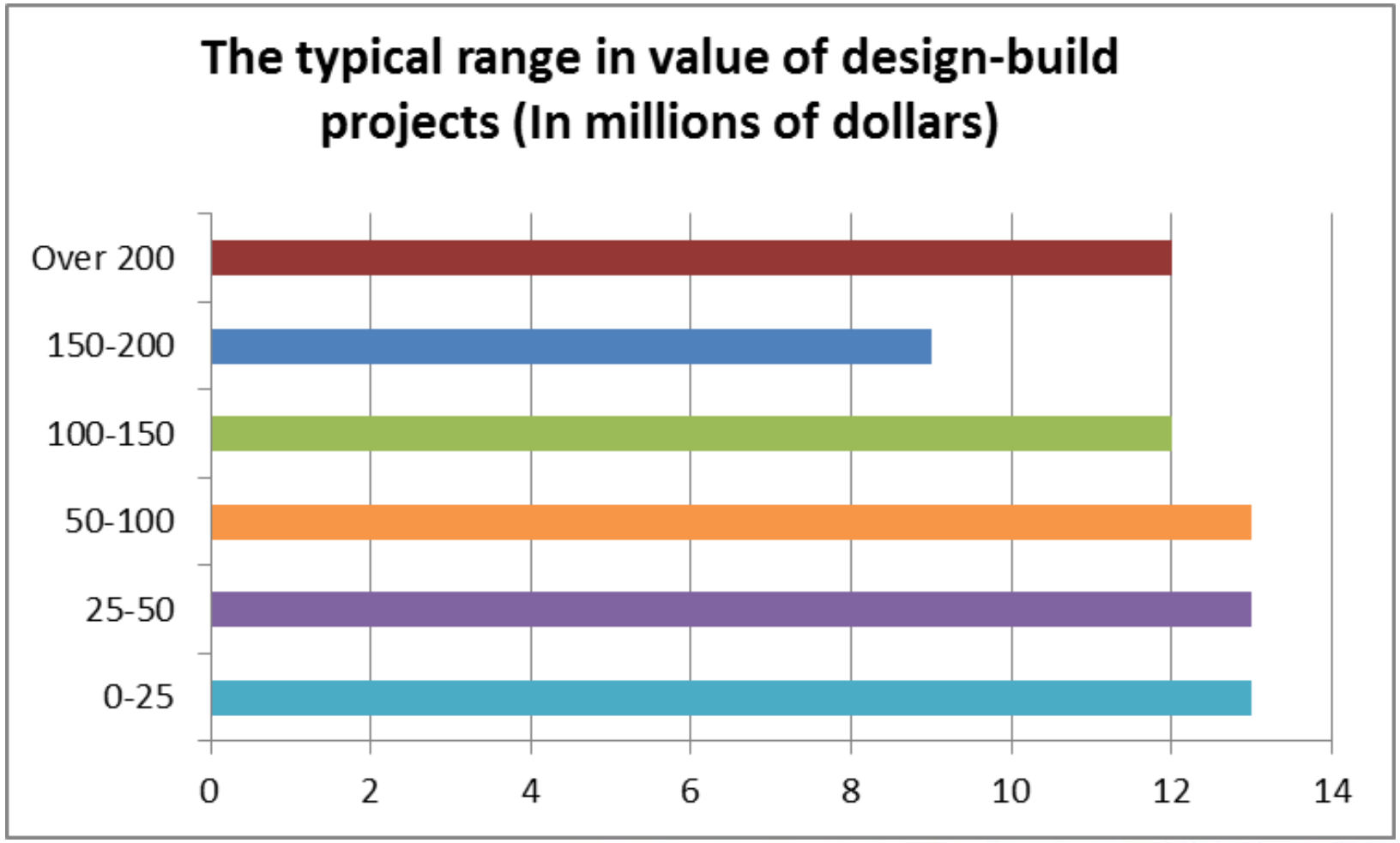
States use design-build for these project types

91% highways

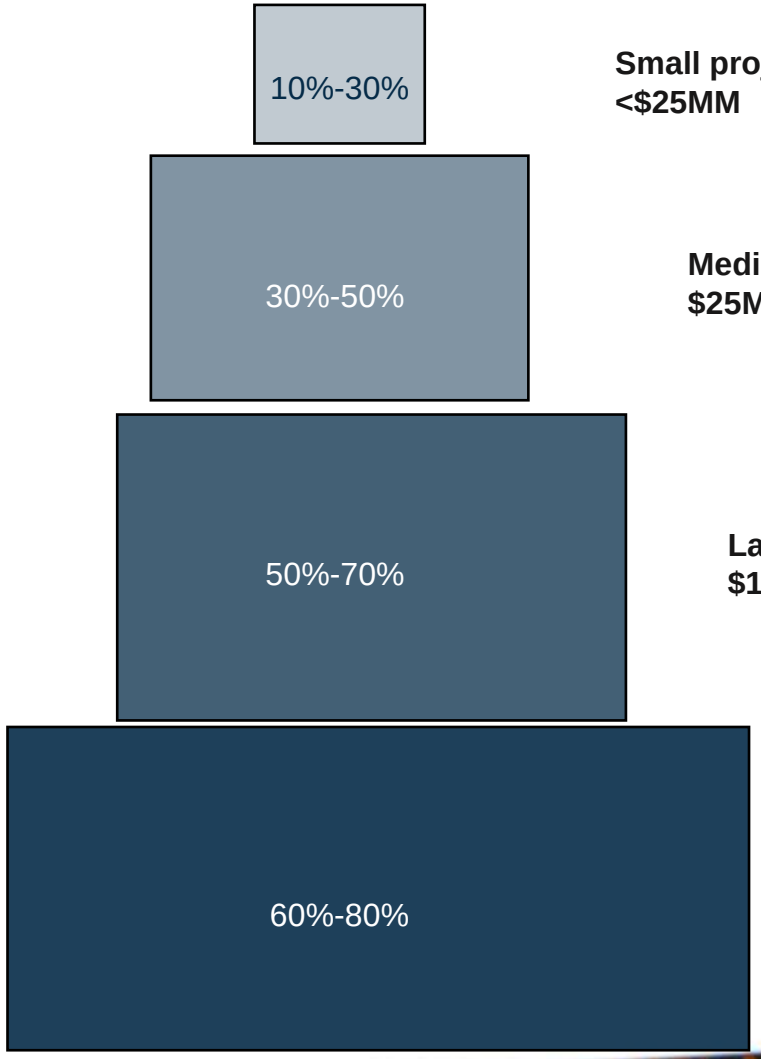
65% bridges

9% railroads

Project Size



Design-Build Utilization by Project Size



Small projects
<$25MM

Medium projects
$25MM-$100MM

Large projects
$100MM-$250MM

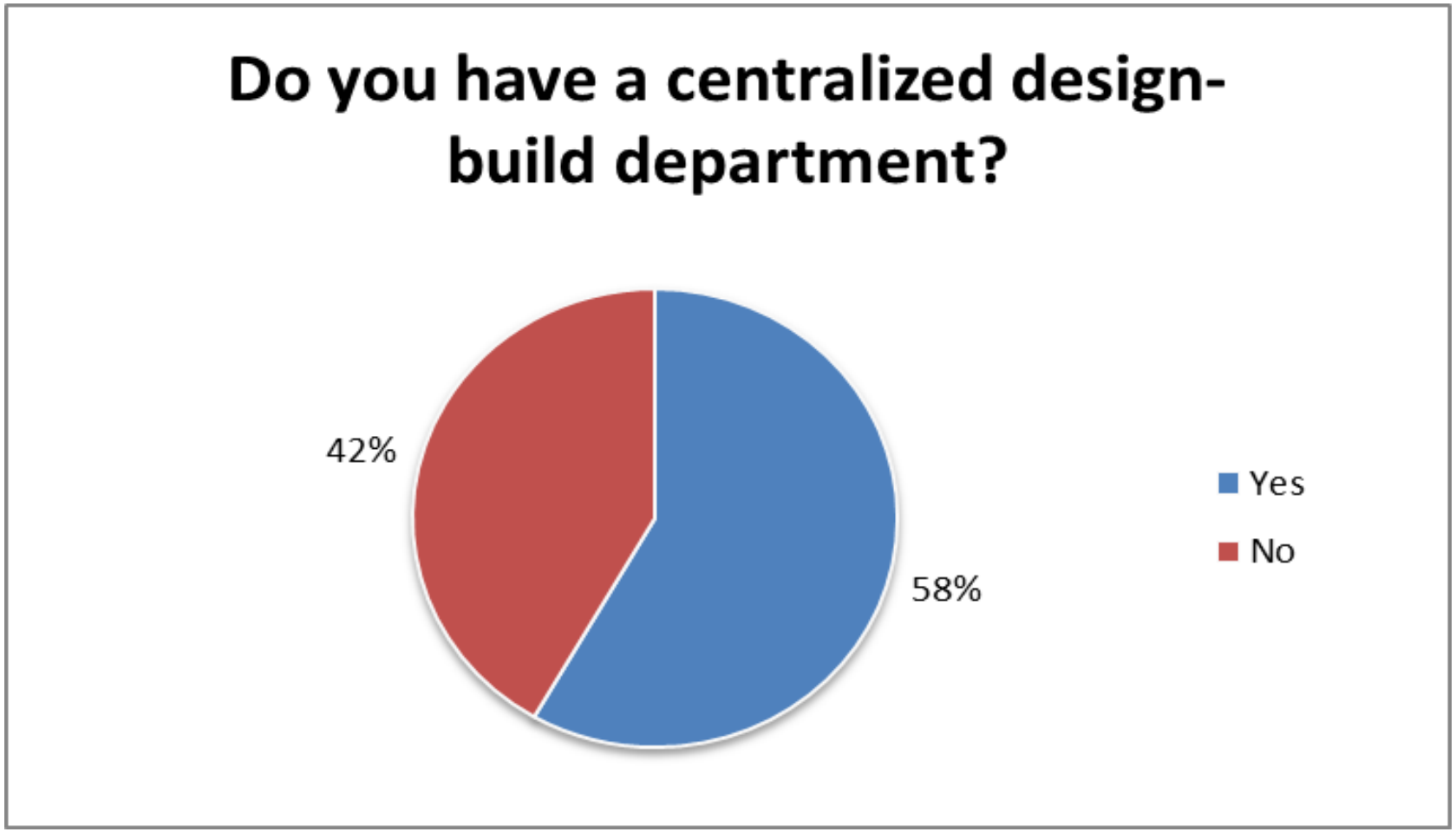
Very large projects
>$250MM

"Historically, design-build has been used on large projects. Recently, we have seen a growing use of design-build on smaller projects. "

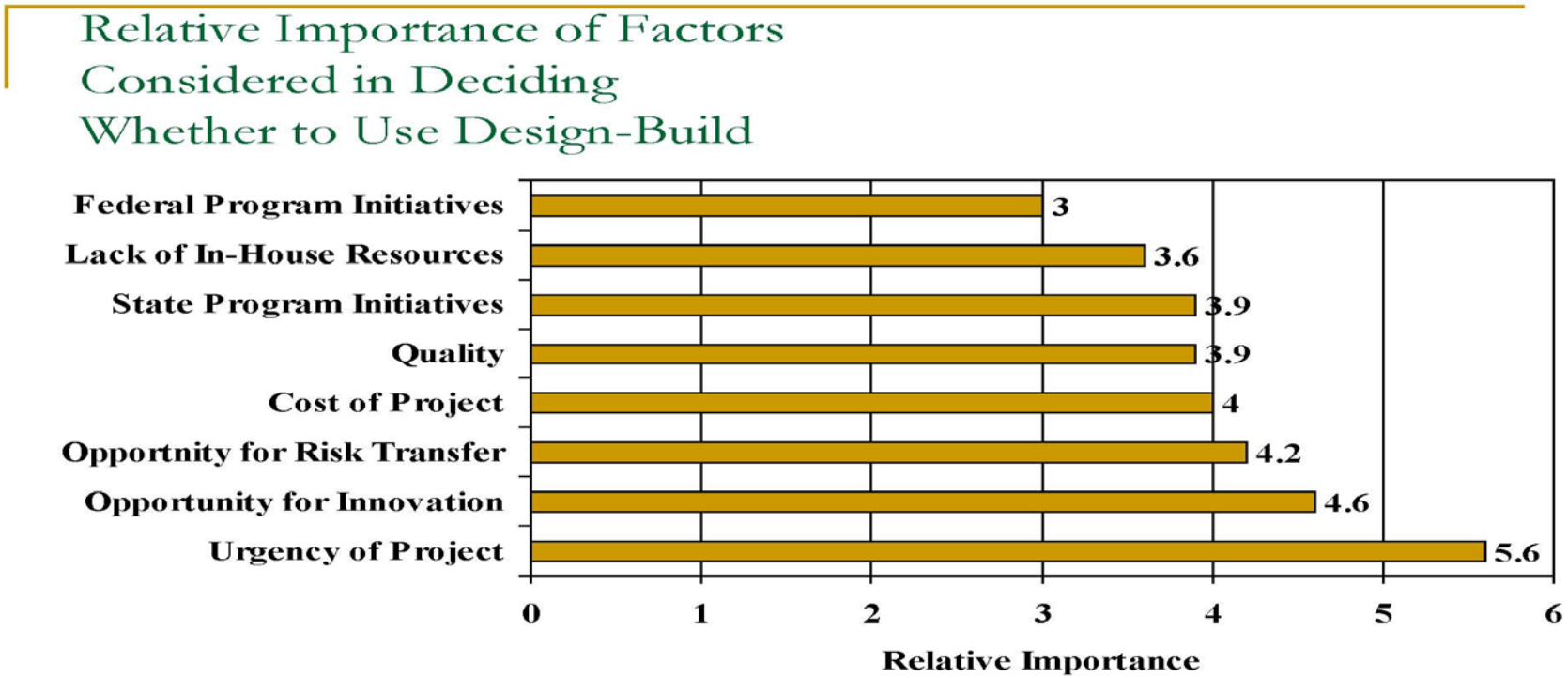
"When we have a multimillion-dollar project we look towards design-build. Generally, we believe that we get a better value for the investment with design-build."

"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

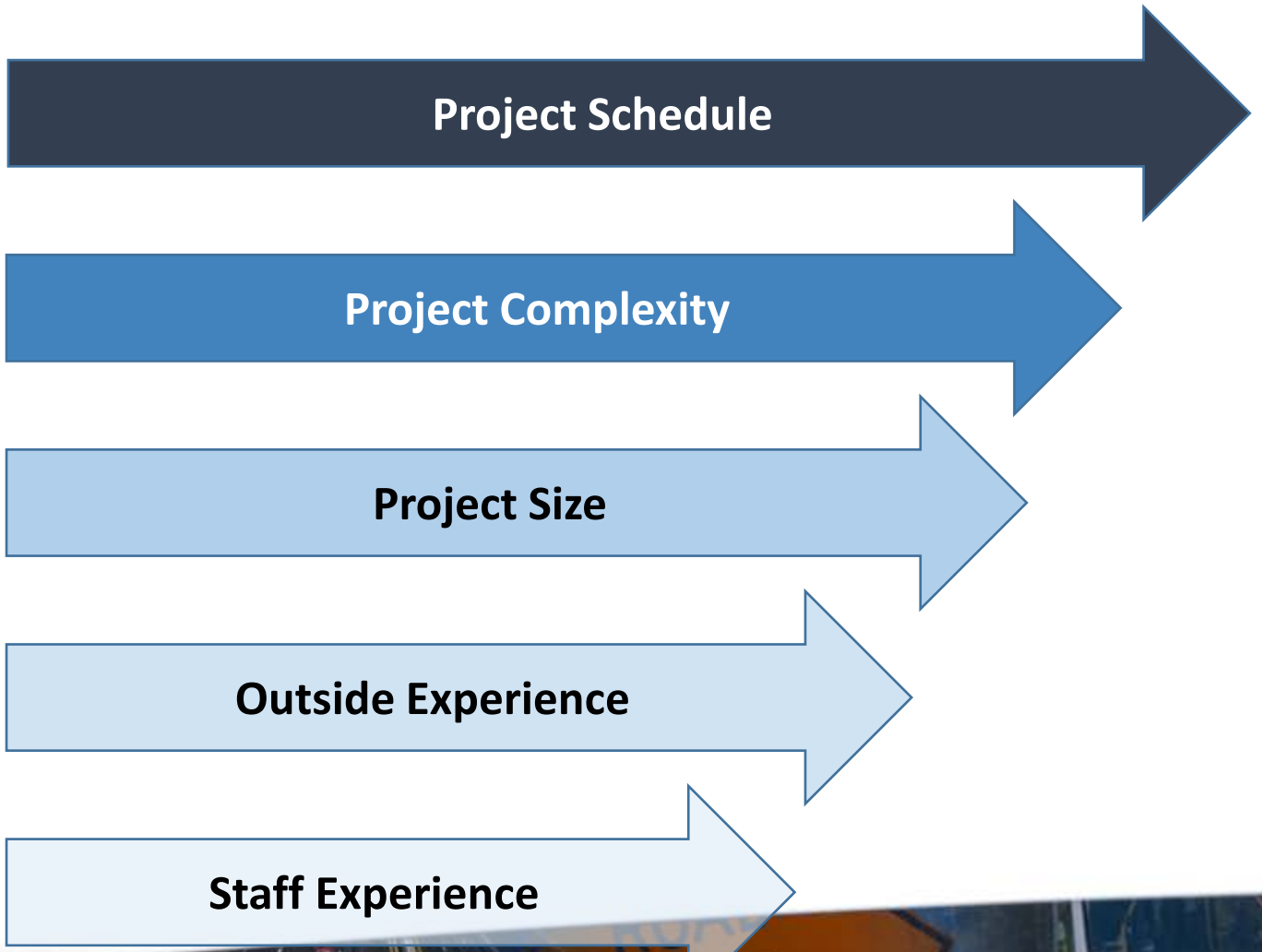


Why Use Design-Build?



DB Program Survey: Q #1, 29 responses

Top Factors Influencing Design-Build Delivery



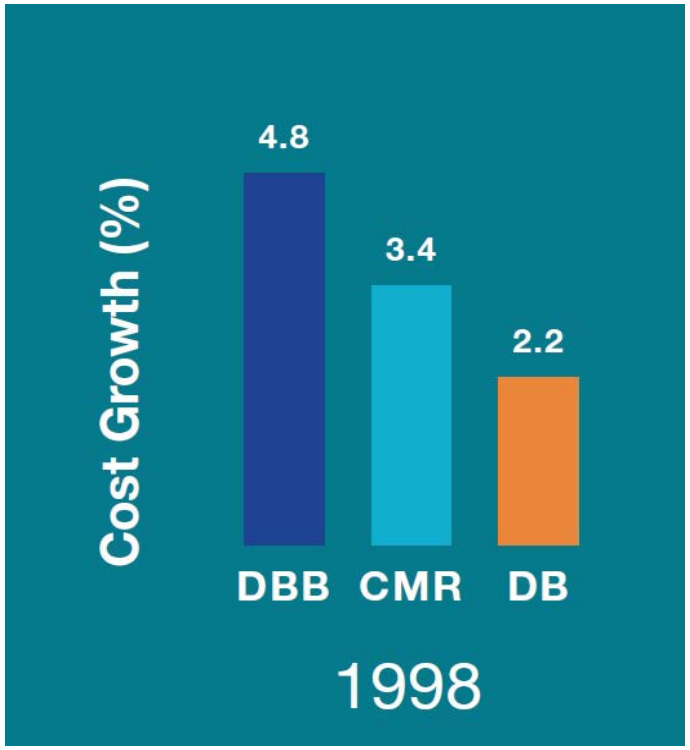
"Acceleration is one of the more governing factors for selecting design-build. We want to get the work out on the street fast and create jobs."

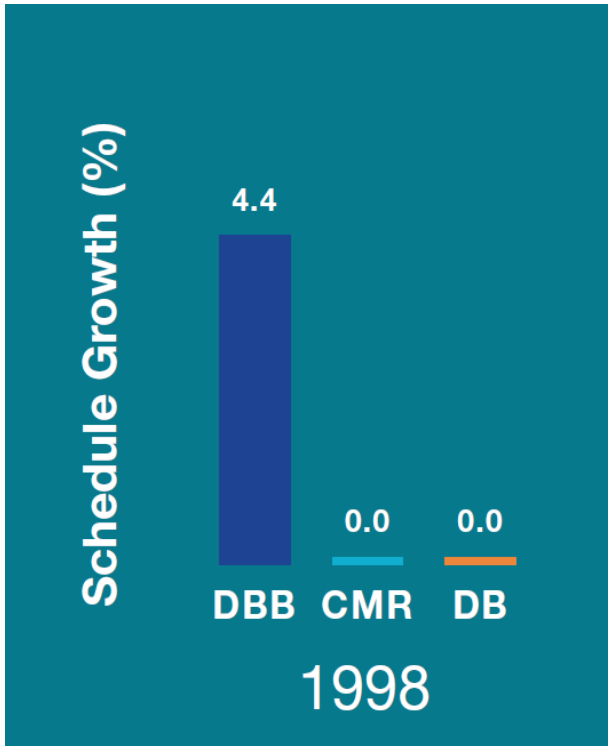
"Design-build projects are typically larger and more complex, which requires risk management."

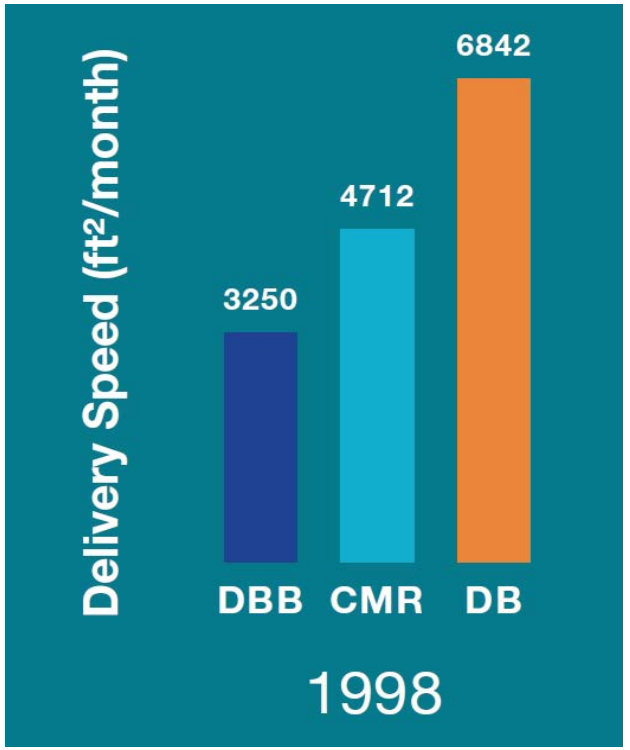
"New construction for design-build is more challenging and requires greater risk. They tend to be bigger cost projects."

Summary of Findings

After 20 years…







Results: Lessons Learned

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

Results: Lessons Learned

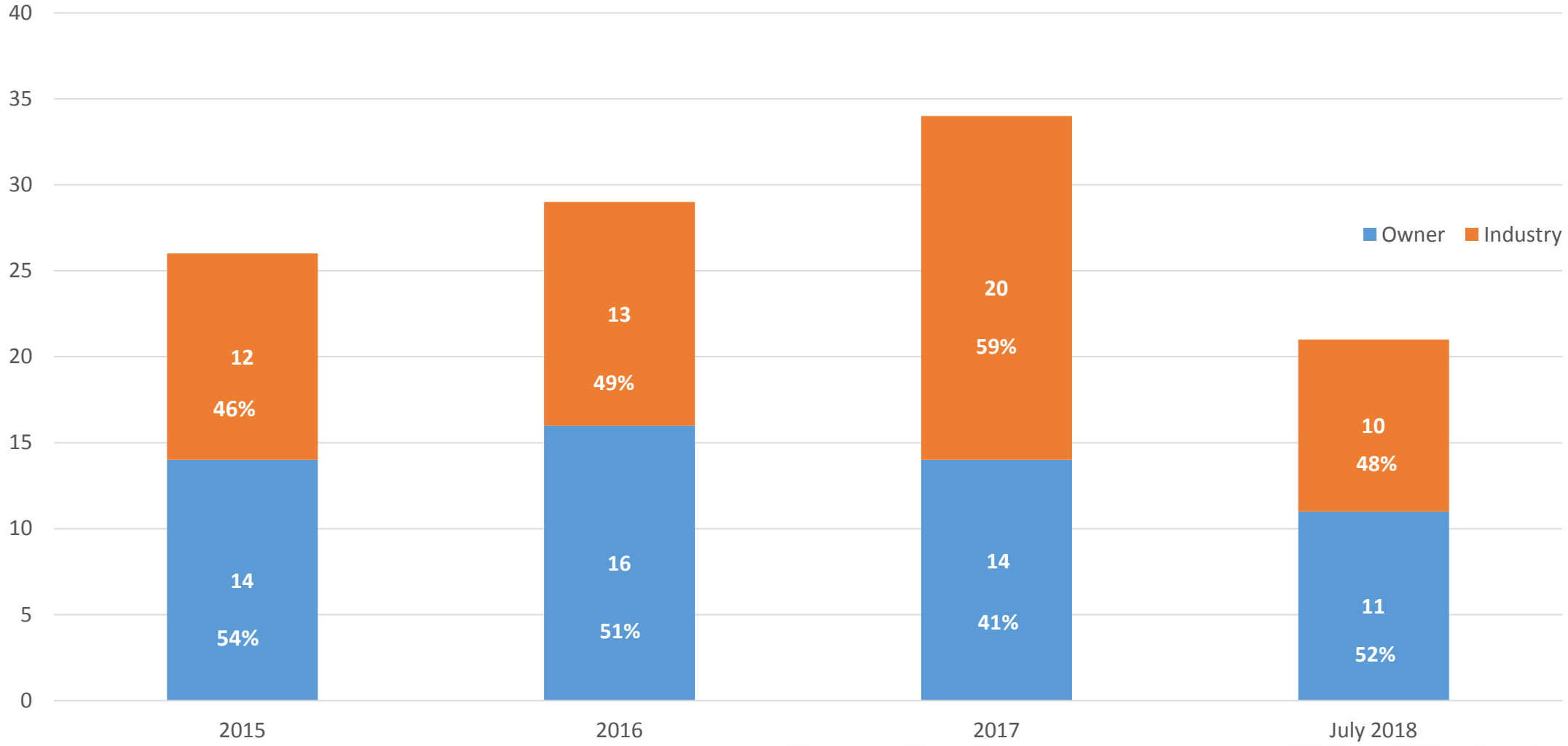
The **worst performing** projects were characterized by:

- **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

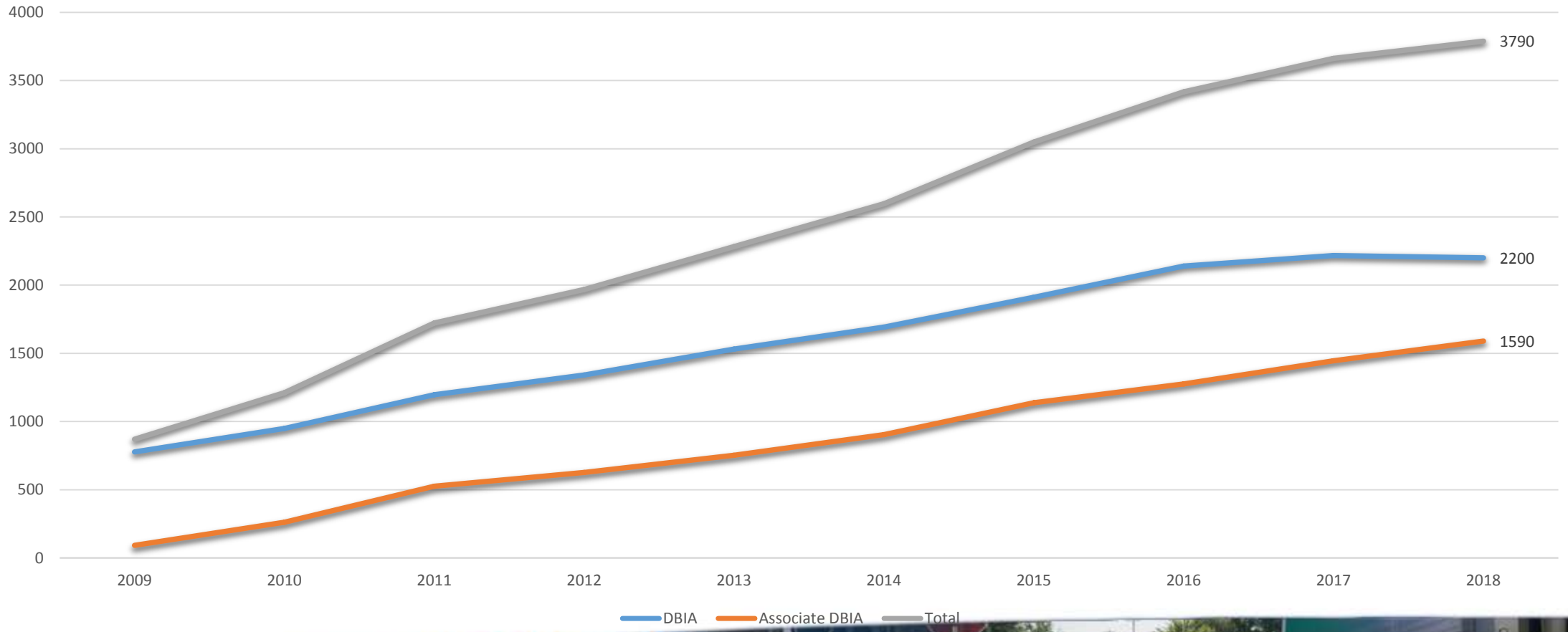
- Training/Networking
- Owner Outreach
- Market Research/Resources

DBIA In-House Training (Owner & Industry)



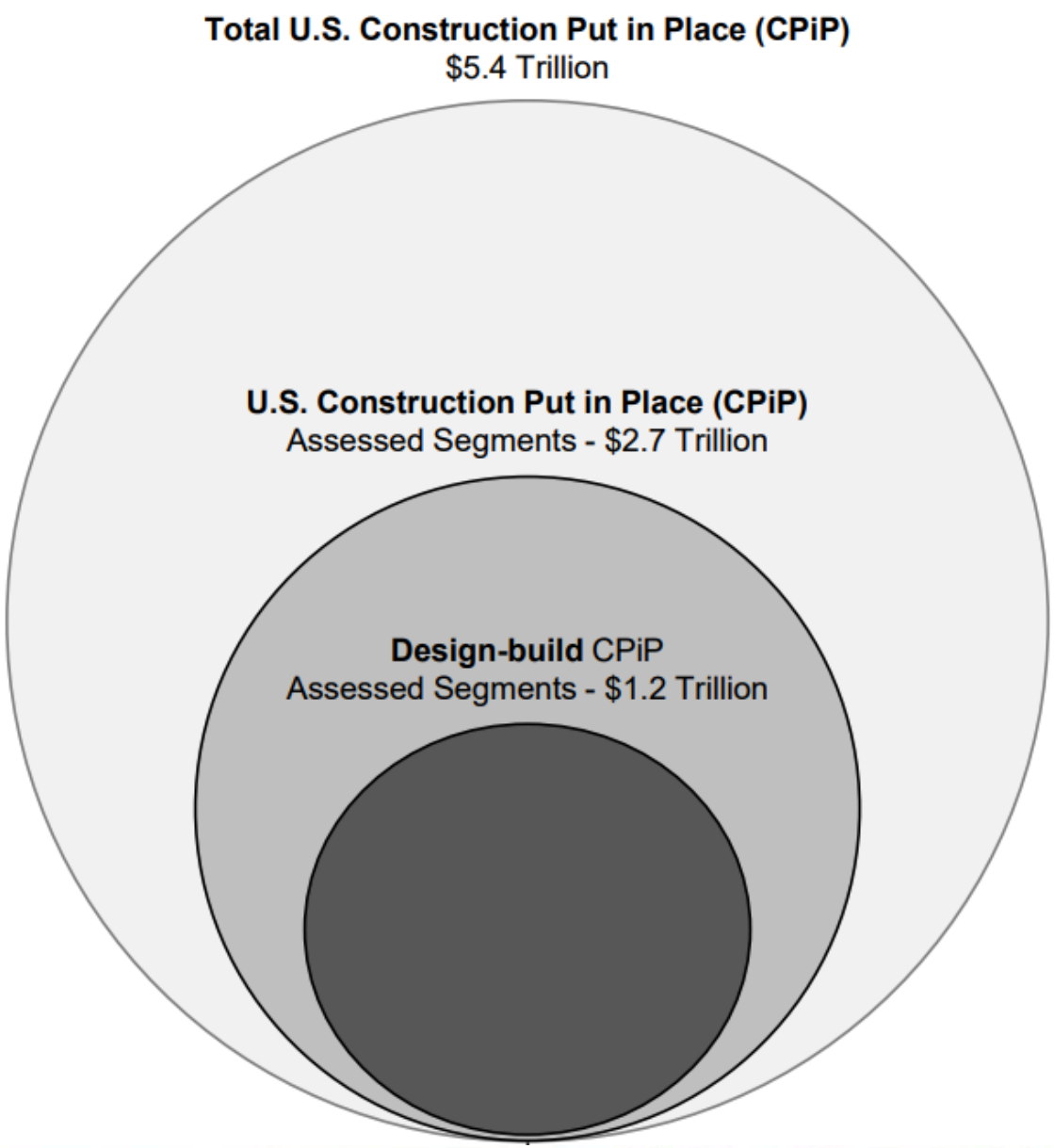
Certification Means Business

DBIA Credential Holders



Market Research

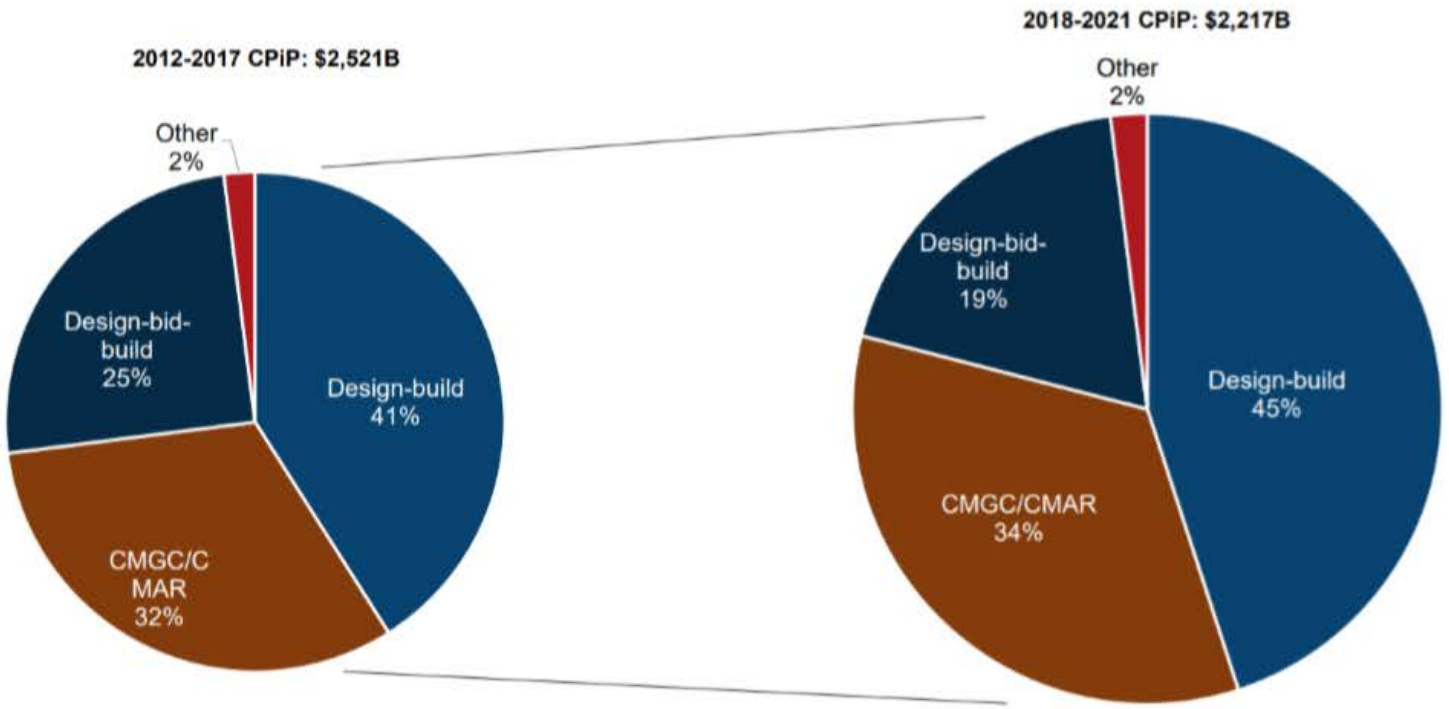
FMI Market Share Study



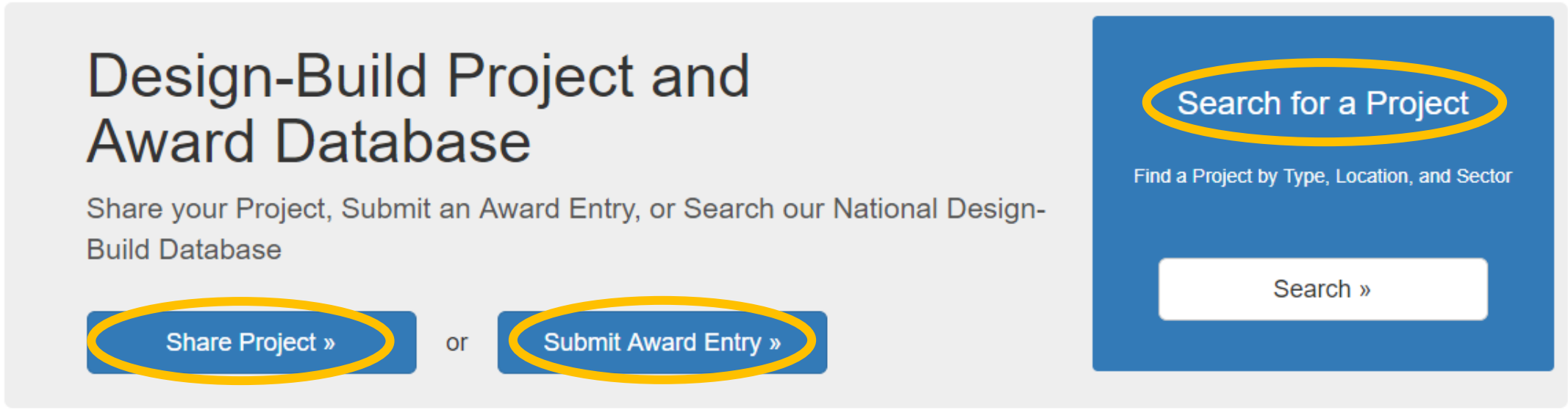
Alternative delivery in building-sector continues to grow

- 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.

Distribution of delivery method utilization
Source(s): FMI analysis of multiple sources



- Dissatisfaction with the adversarial nature and limitations of design-bid-build as well as increasingly challenging project characteristics and demands has resulted in greater interest in and use of design-build and other alternative delivery methods.
- Negative project owner experience and perceptions of design-bid-build are most influenced by limited opportunity for innovation, lack of a fast-track process and higher risk profile for the project owner.



- 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

DBIA
DESIGN-BUILD INSTITUTE OF AMERICA

U.S. Department of Transportation
Federal Highway Administration

SAVE THE DATE

2019 DBIA

DESIGN-BUILD IN TRANSPORTATION

April 8-10, 2019 Cincinnati, OH

#DBIATranspo

Owner Outreach

Questions?

Richard Thomas
Director, State & Local Government Affairs
rthomas@dbia.org
202-454-7516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Federal Highway Administration

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

MoDOT Design-Build

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

MoDOT Design-Build

- 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

MoDOT Design-Build

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

MoDOT Design-Build

- 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

MoDOT Design-Build

- 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

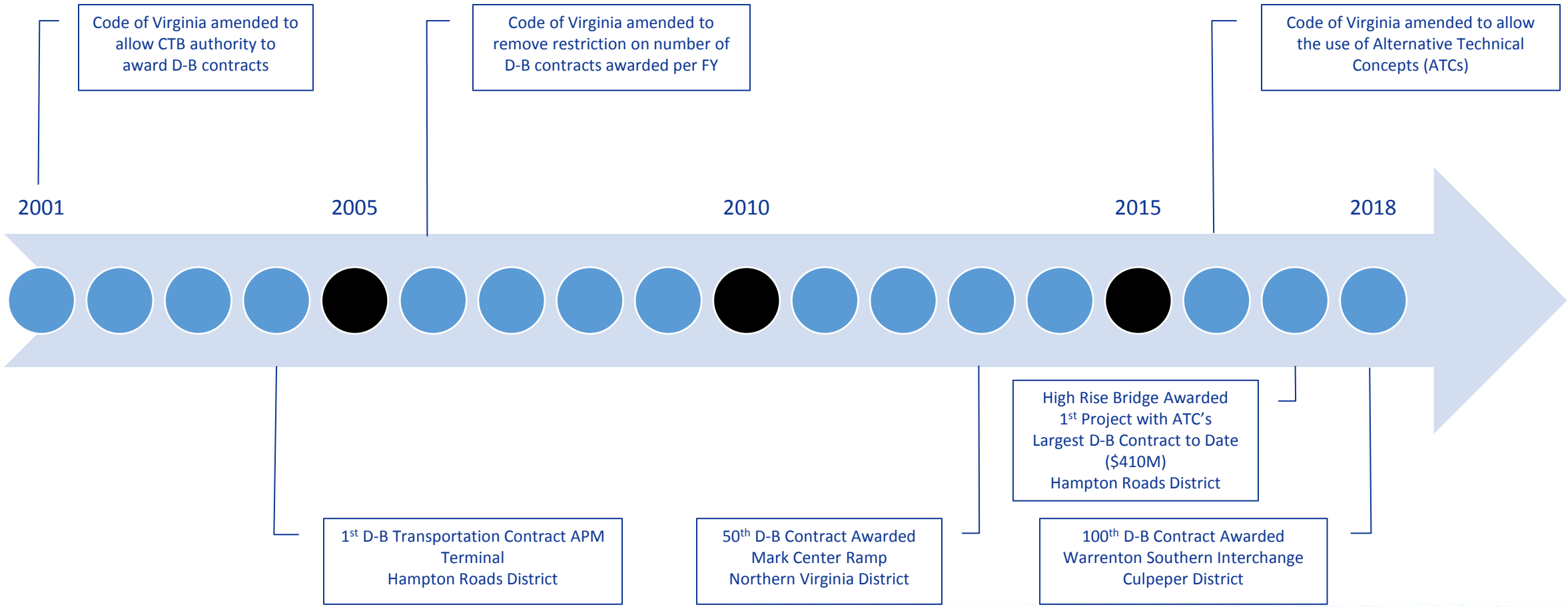
VDOT Design-Build Prep

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

VDOT Design-Build Program Timeline



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?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Federal Highway Administration

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)

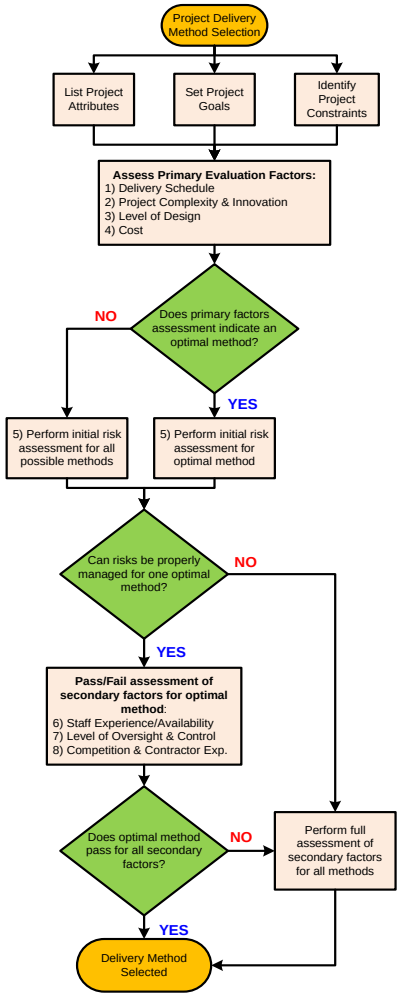
  Central Bridge Unit: 1 (Tony Lesch)

  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)**
- **GEC Functions**
  - **RFP Writing**
  - **Programmatic studies**
  - **Preliminary Design**

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 <u>need</u> 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**

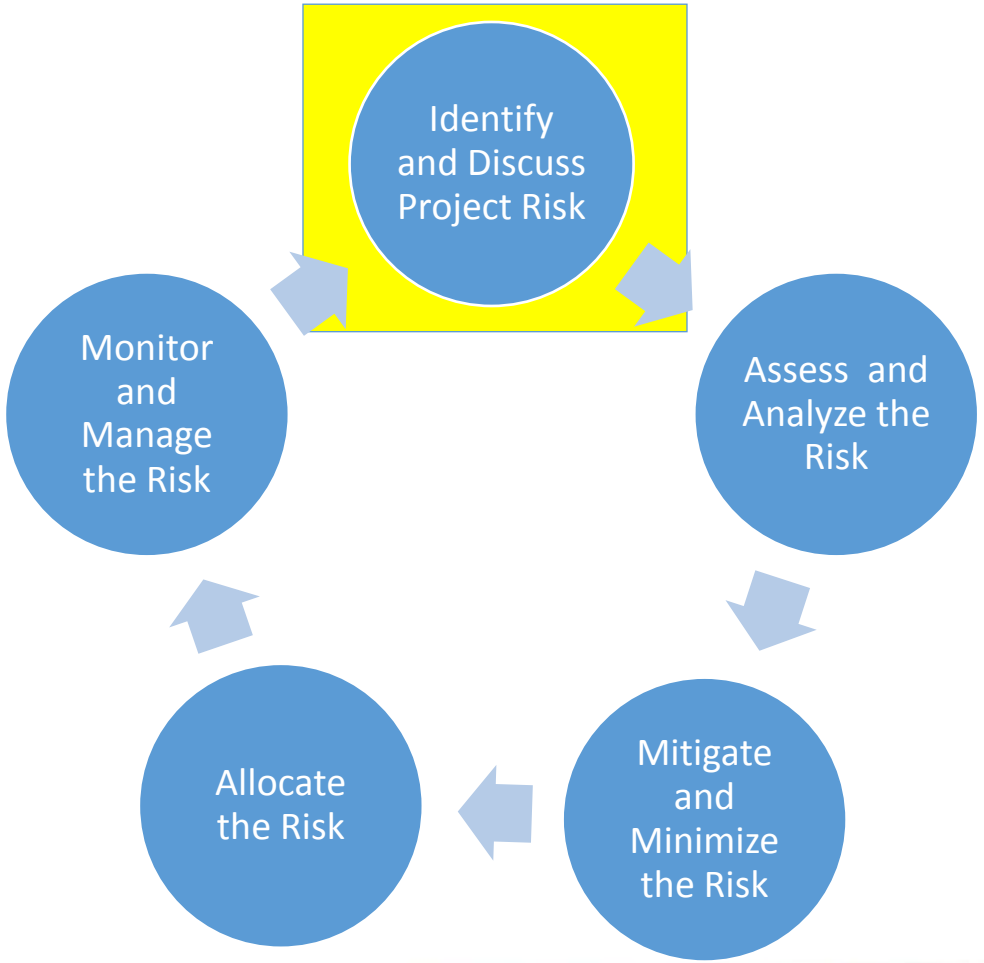
MnDOT Risk - Contract

- **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



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

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

7-Step Process

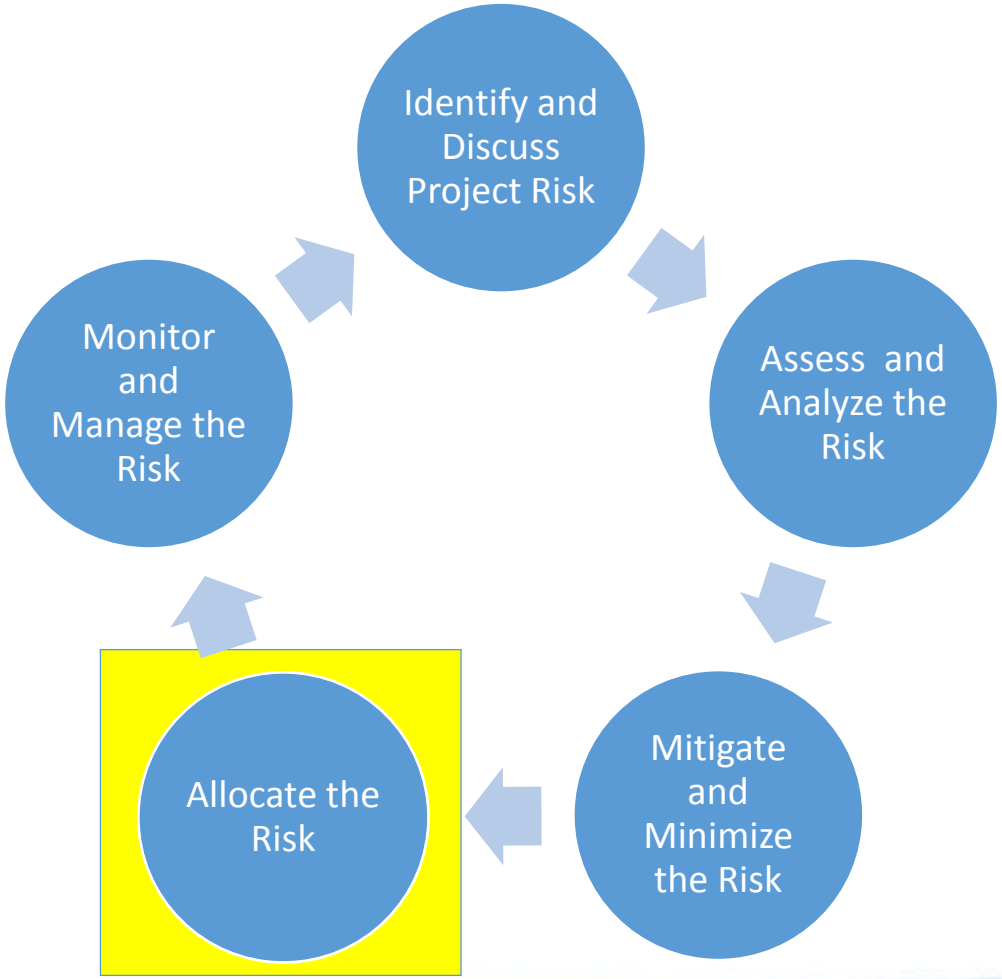
1. Method
2. Prep meeting
3. Review estimates (cost and schedule)
4. Advance risk elicitation and identify uncertainty, initial
5. Meeting convened – elicit risk and identify uncertainty, final
6. Analysis and documentation
7. Implement risk response actions, monitor and control

Mitigate and Minimize

Mitigate and Minimize Risk

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

Allocate

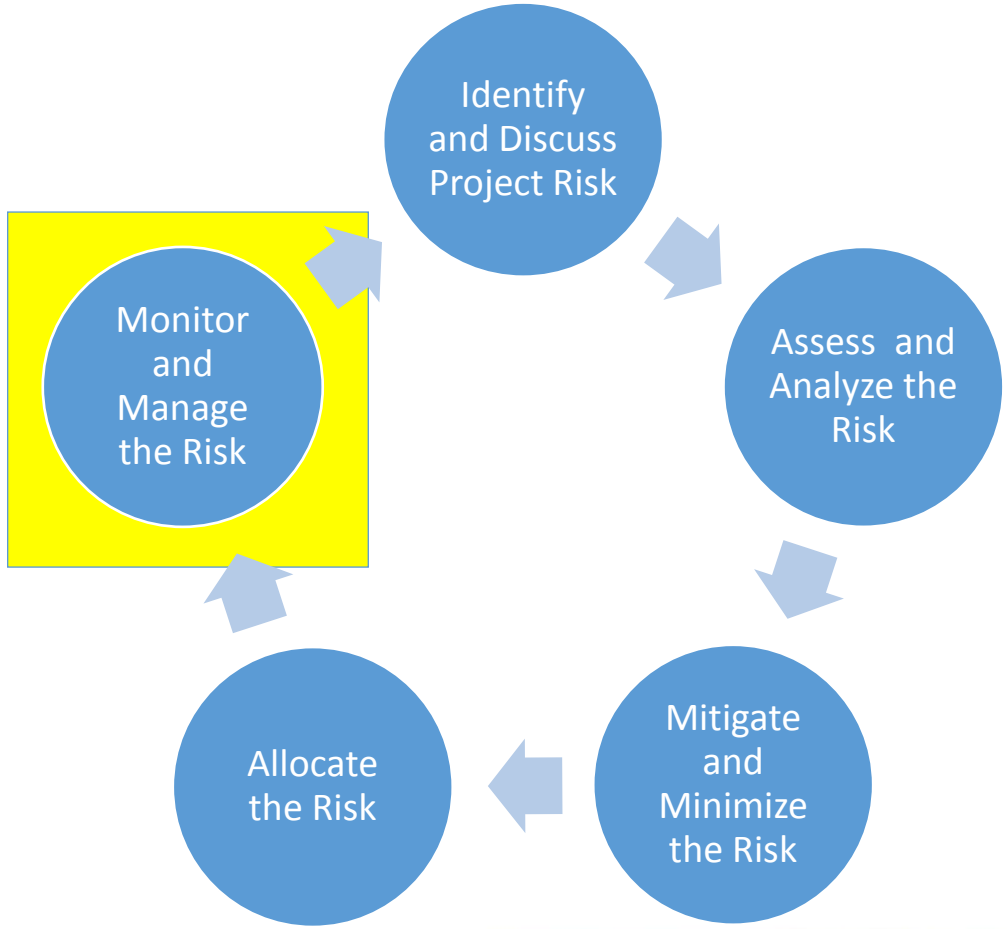

Identify and Discuss Project Risk
Assess and Analyze the Risk
Mitigate and Minimize the Risk
Allocate the Risk
Monitor and Manage the Risk

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



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 Ommisions/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?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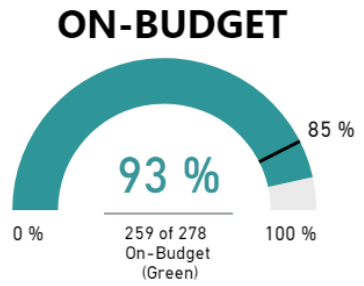
Effectiveness Metrics

- 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

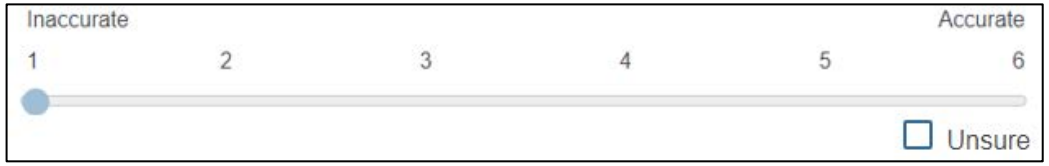
New Research by Alan Therrien

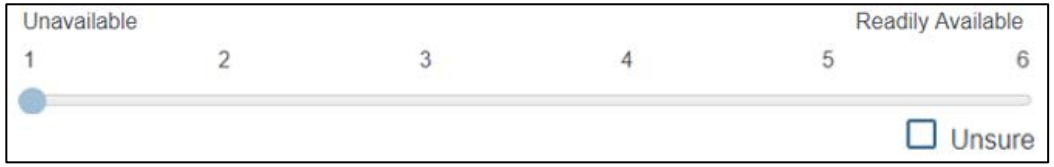
- How can state transportation agencies measure the performance of their alternative project delivery methods such as D-B and CM/GC at the program level?

Effectiveness Metrics

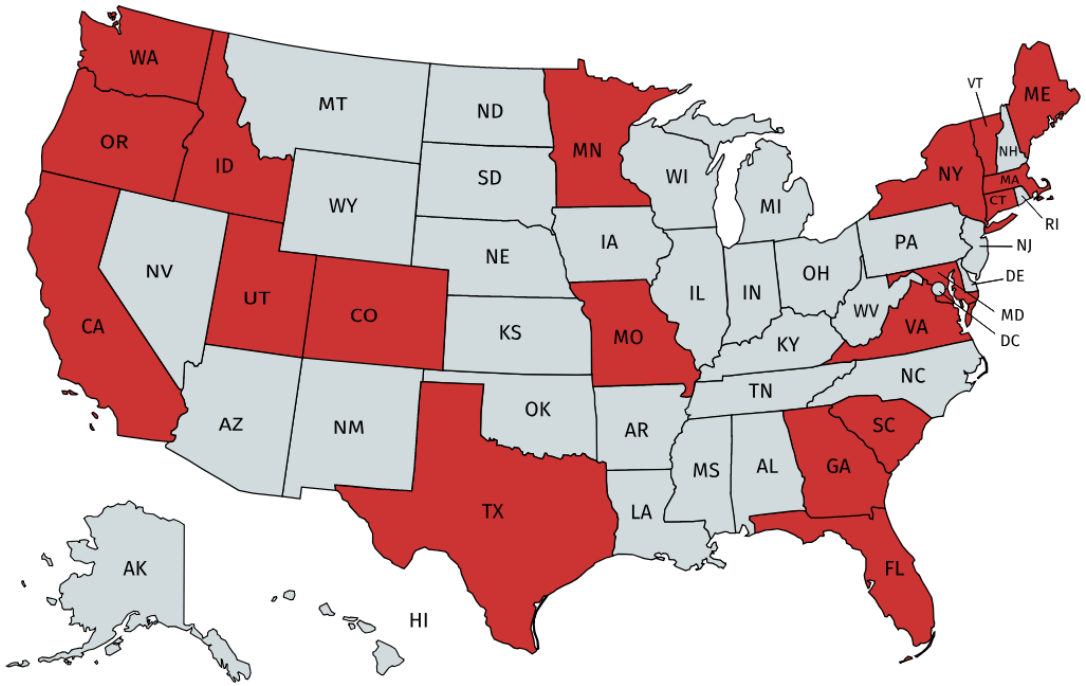
Data collection questionnaire

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?

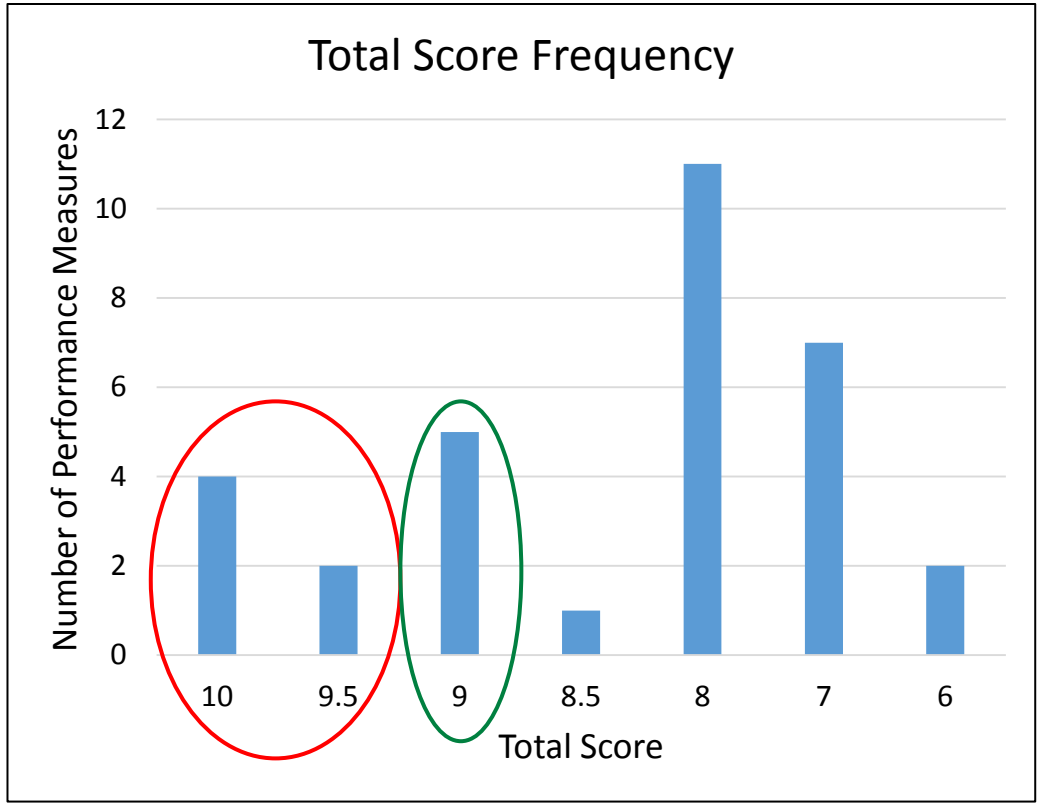




Effectiveness Metrics



41 completed responses



Effectiveness Metrics

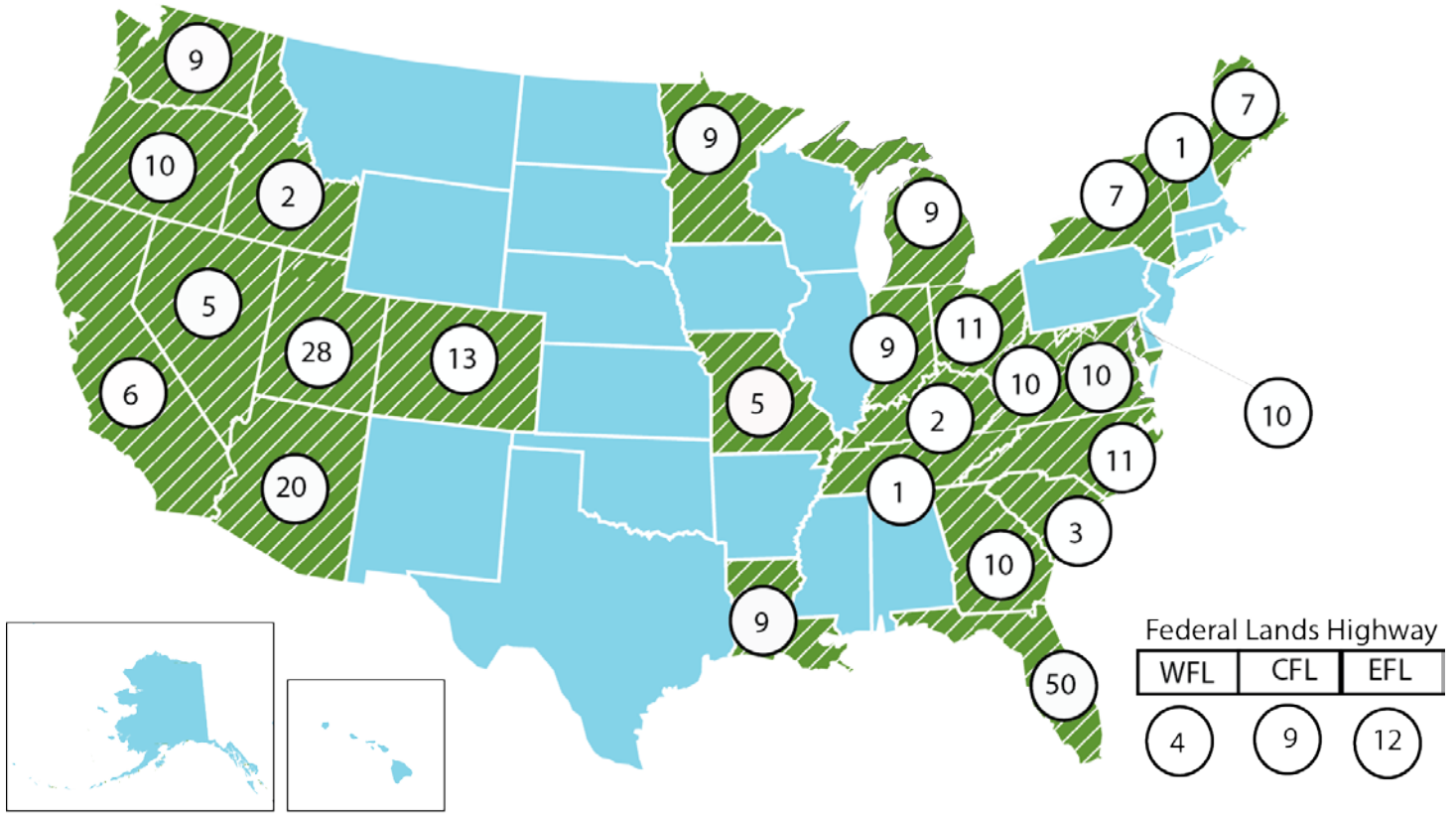
Top-tier metrics

- 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?



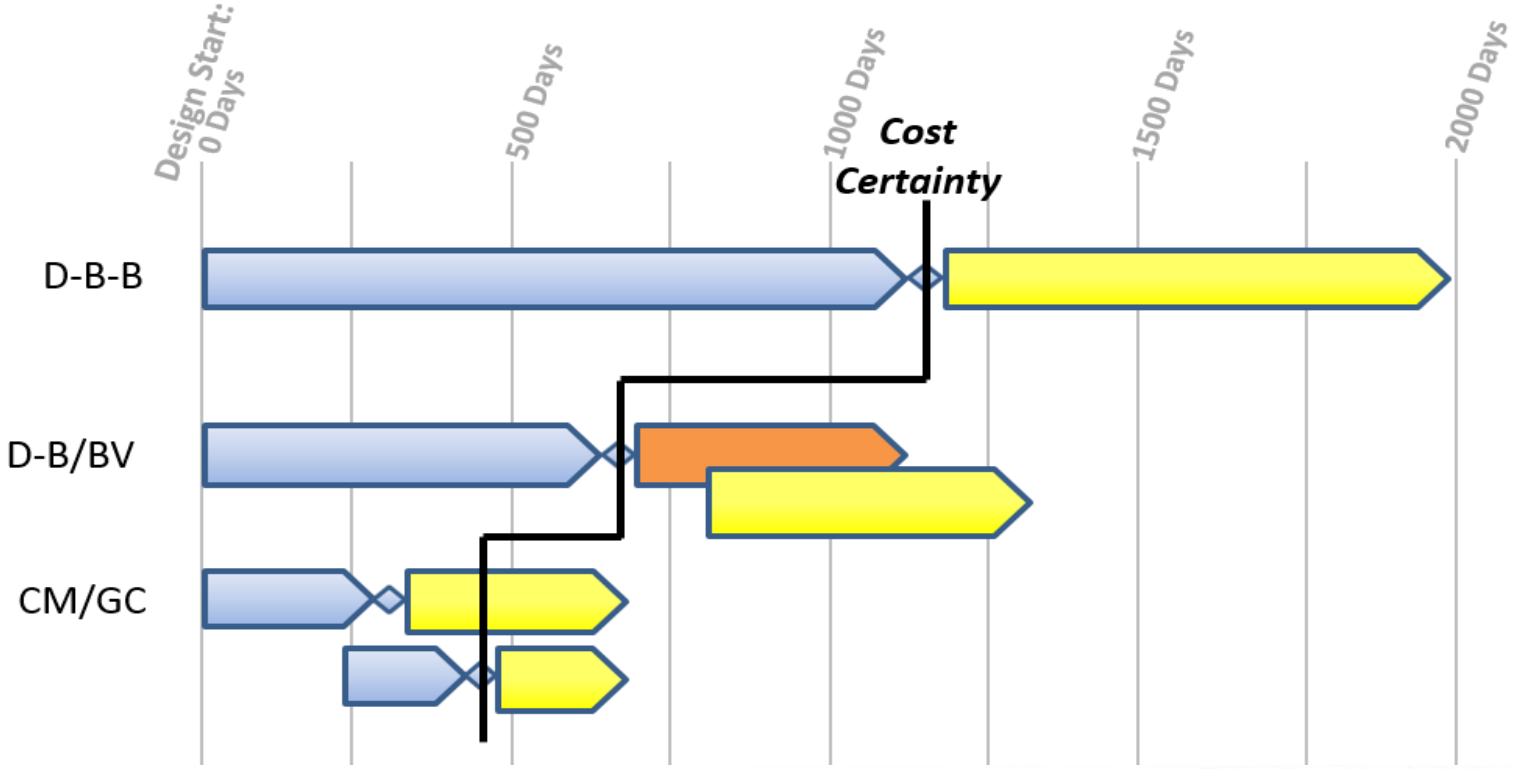
States That Contributed: D-B-B, CM/GC & D-B Projects

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**



How do delivery methods relate to project performance?

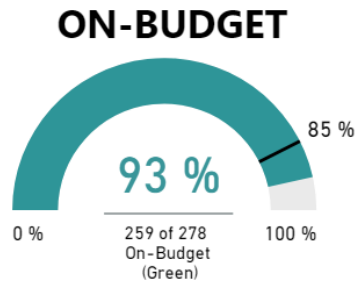
Average Impact (% of cost growth) of Change Order Categories

Change Orders	D-B-B (n = 65)	CM/GC (n = 19)	D-B/LB (n = 21)	D-B/BV (n = 57)
Agency Directed	1.2%	0.7%	1.6%	1.9%
Plan Quantity Changes	1.1%	0.3%	0.6%	0.2%
Unforeseen Conditions	2.4%	1.5%	1.8%	1.8%
Plan Errors and Omissions	0.9%	0.6%	0.1%	0.5%
Other	0.1%	0.2%	0.8%	0.3%
Total	5.8%	3.4%	5.0%	4.7%

Effectiveness Metrics

Discussion of Effectiveness Metrics

- Quality
- Team Performance
- Agency Staffing and Program Management
- Cost
- Schedule
- Safety



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  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)**
- **GEC Functions**
  - **RFP Writing**
  - **Programmatic studies**
  - **Preliminary Design**

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**

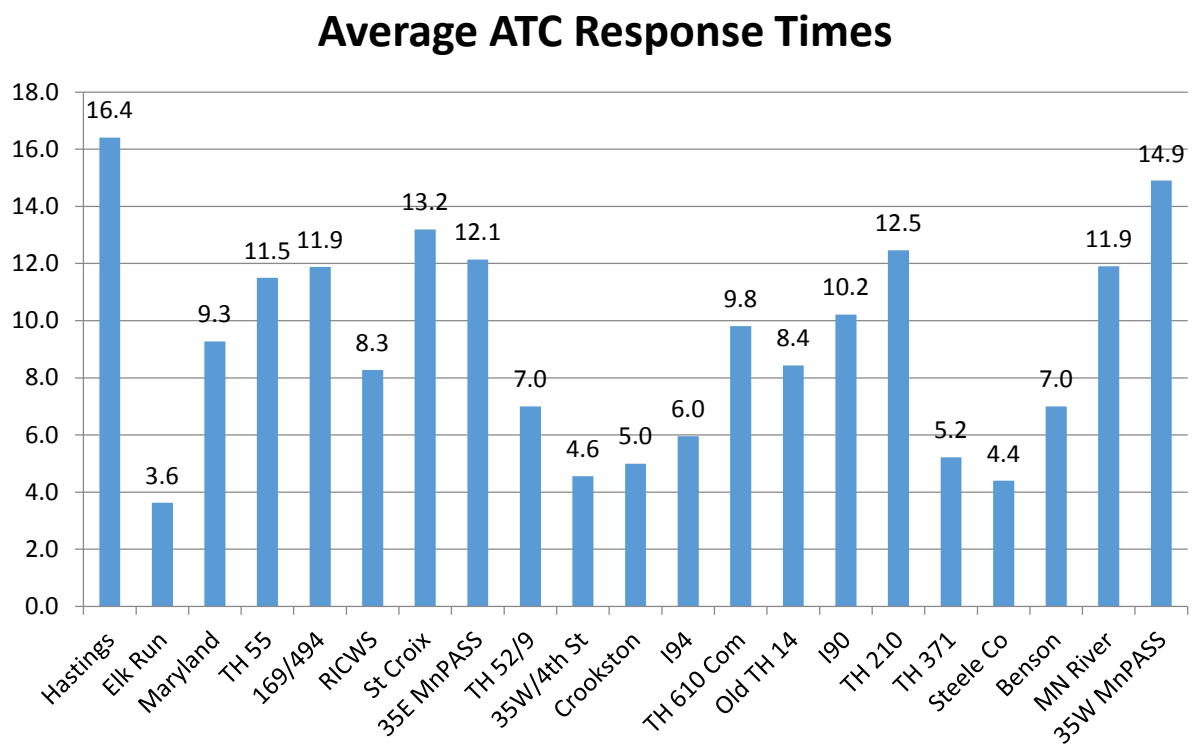
MnDOT Effectiveness Metrics

- **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?**



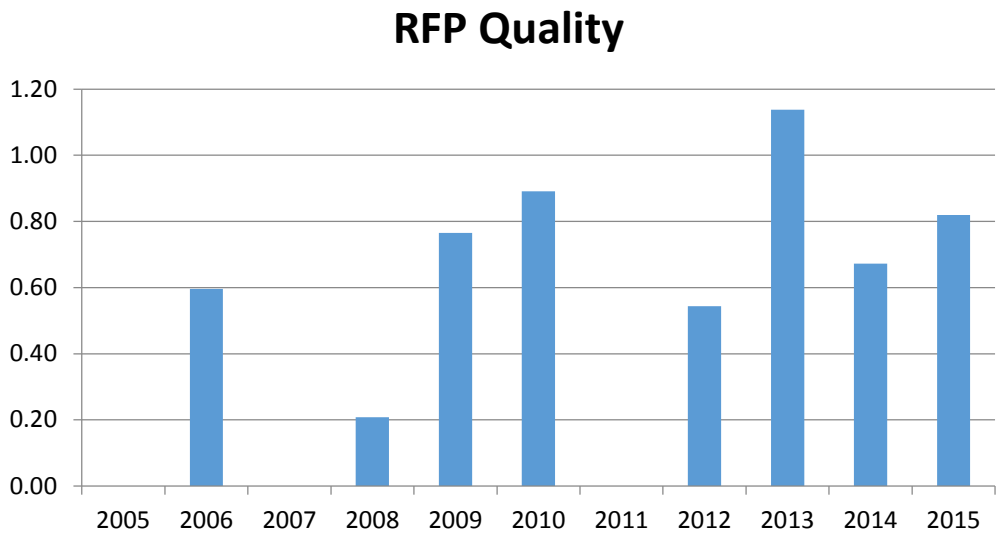
MnDOT Effectiveness Metrics

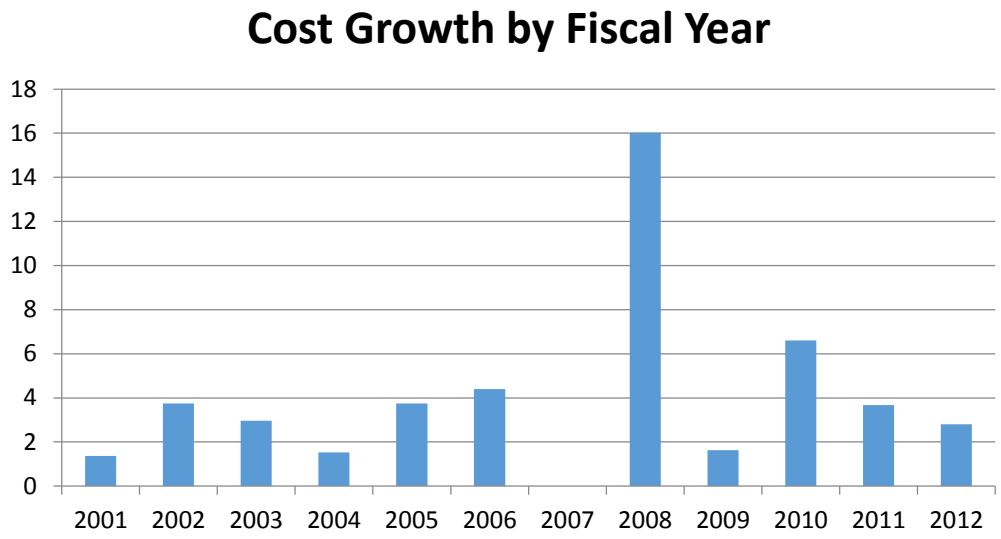
- **RFQ Letting Date**
  - **In the past 5 years RFQ letting dates have been met within one week 16 of 19 times.**
  - **The three failures were:**
    - **9 Days** **Nine Mile Creek (RFP finalization delay)**
    - **30 Days** **Forest Lake (Addition of project scope - DDI)**
    - **287 Days** **Willmar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

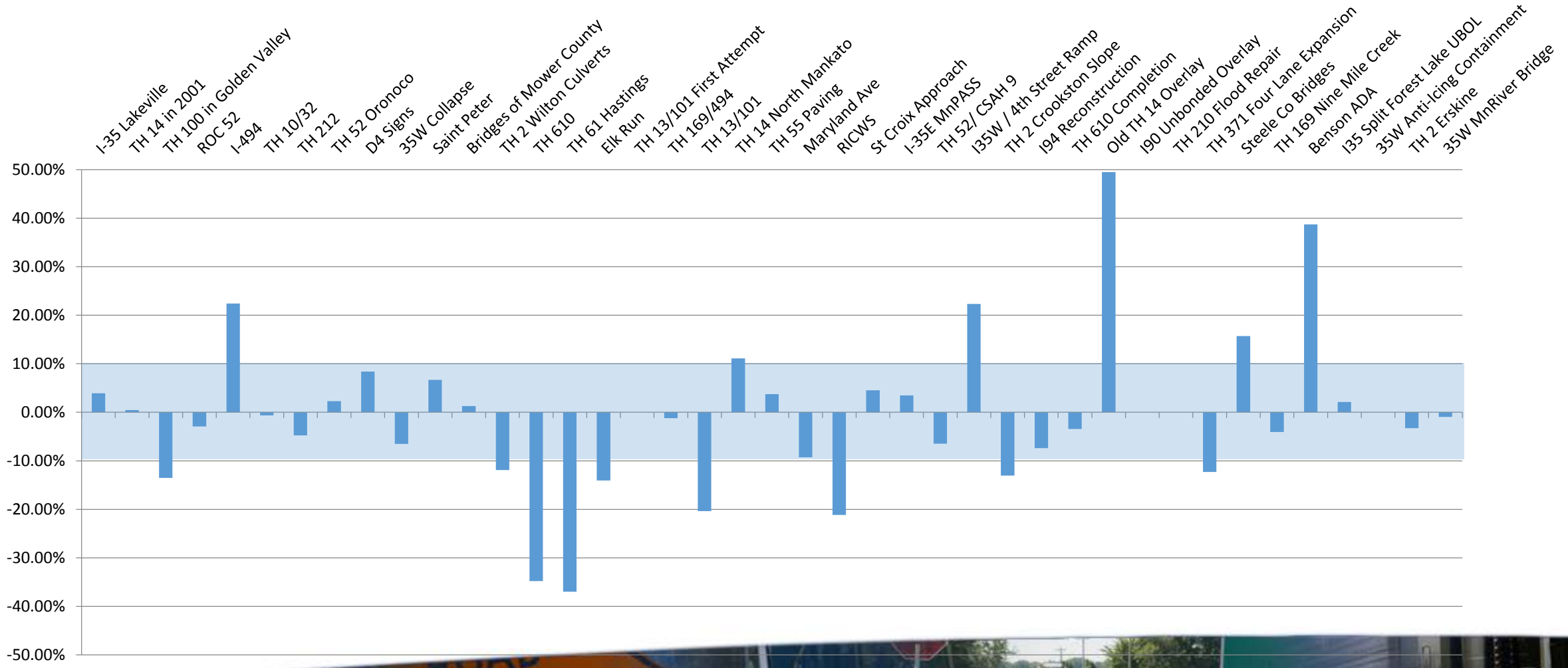
- **Cost Growth**
  - **Average post-letting Cost Growth on MnDOT Design-Build projects is 2.98%, with disclaimers…**
  - **Excludes a project affected by a government shutdown**
  - **Excludes a unique $1M signing project which had 29% cost growth due to its experimental nature and small size**
  -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

MnDOT Effectiveness Metrics





MnDOT Effectiveness Metrics



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

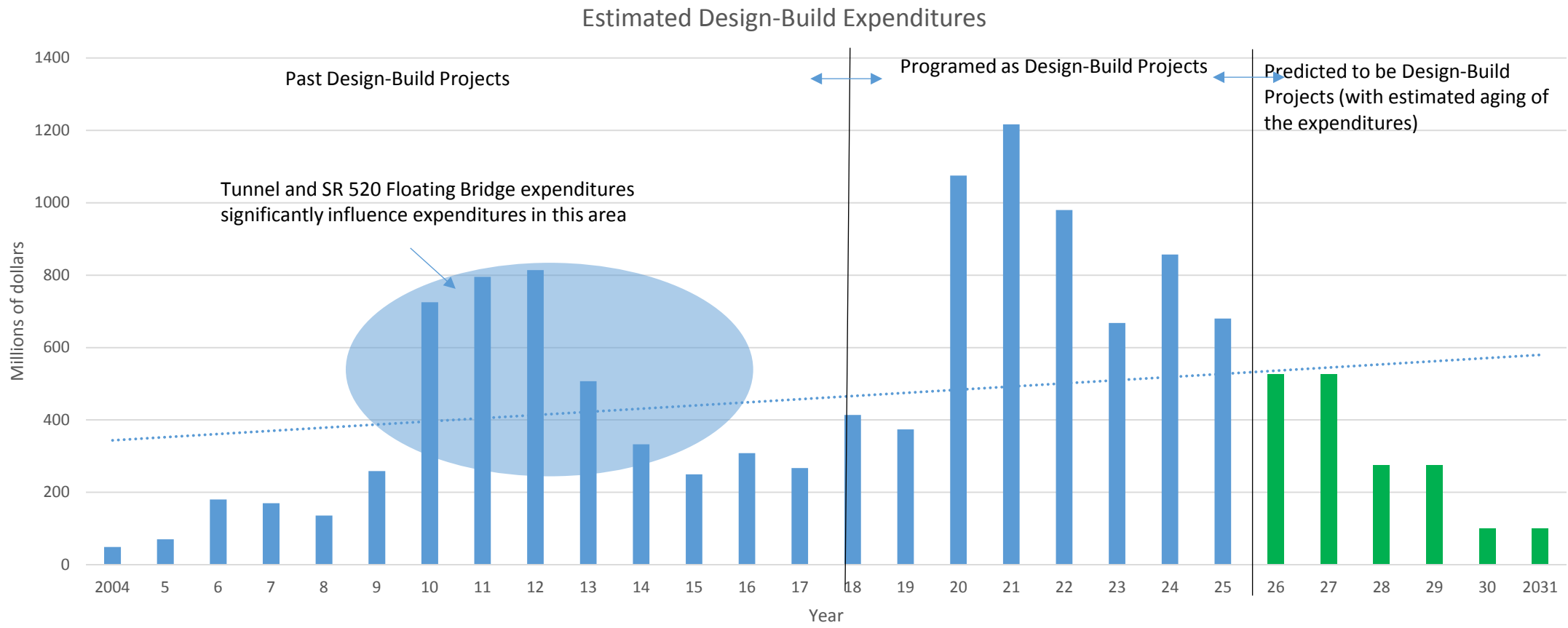
- Prime Contractor Performance Report
  - WAC 468-16-150

- Design-Builder Performance Evaluation
  - Under Development

Time

- Procurement Schedule
  - RFQ
  - ATCs
  - RFP
- ABV to Execution
- Project Schedule

DB Contract Timeframe and Expenditures



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

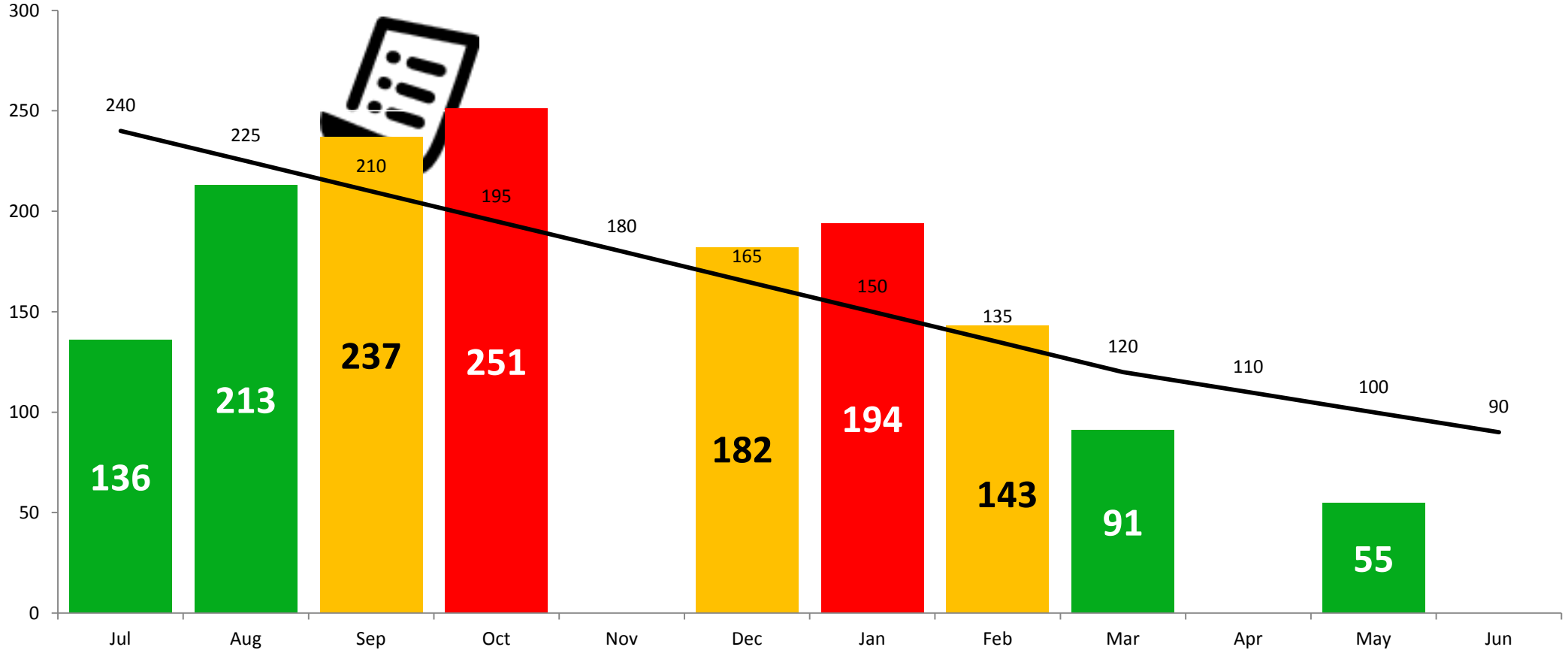
Performance Metric Titles	Custom Field	JOP	YTD		Jan	Feb	Mar	Apr	May	June
Breakthrough Metrics										
Task Order Execution	**Speed**	7/1/2017	Target	50	50	50	50	50	50	50
		69	Actual		52	34	65	33	51	**72**
Contract Execution	**Speed**	7/1/2017	Target	90	150	135	120	110	100	90
		234	Actual		194	143	91	0	55	**0**
Operational / Sustainment Metrics										
On-Time Construction Delivery	**Speed**	7/1/2017	Target	75%	63%	67%	70%	72%	74%	75%
		45%	Actual		78%	63%	75%	57%	67%	**73%**
On-Time Development Delivery	**Speed**	7/1/2017	Target	100%	90%	95%	100%	100%	100%	100%
		58%	Actual		8%	21%	50%	50%	11%	**36%**
Pavement Treatments (Miles)	**Speed**	7/1/2017	Target	3000	0	200	400	400	300	200
		2680	Actual		157	213	219	628	390	**465**
On-Budget Construction Delivery	**Cost**	7/1/2017	Target	90%	90%	90%	90%	90%	90%	90%
		72	Actual		78%	75%	100%	100%	67%	**60%**
Bridge Condition	**Quality**	7/1/2017	Target	37%	37%	37%	37%	37%	37%	37%
		35.50%	Actual		37%	37%	37%	37%	37%	**37%**

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:	
	100% of Target
	Within 75% - 99% of Target
	Within 0% - 74% of Target

New Contract Execution

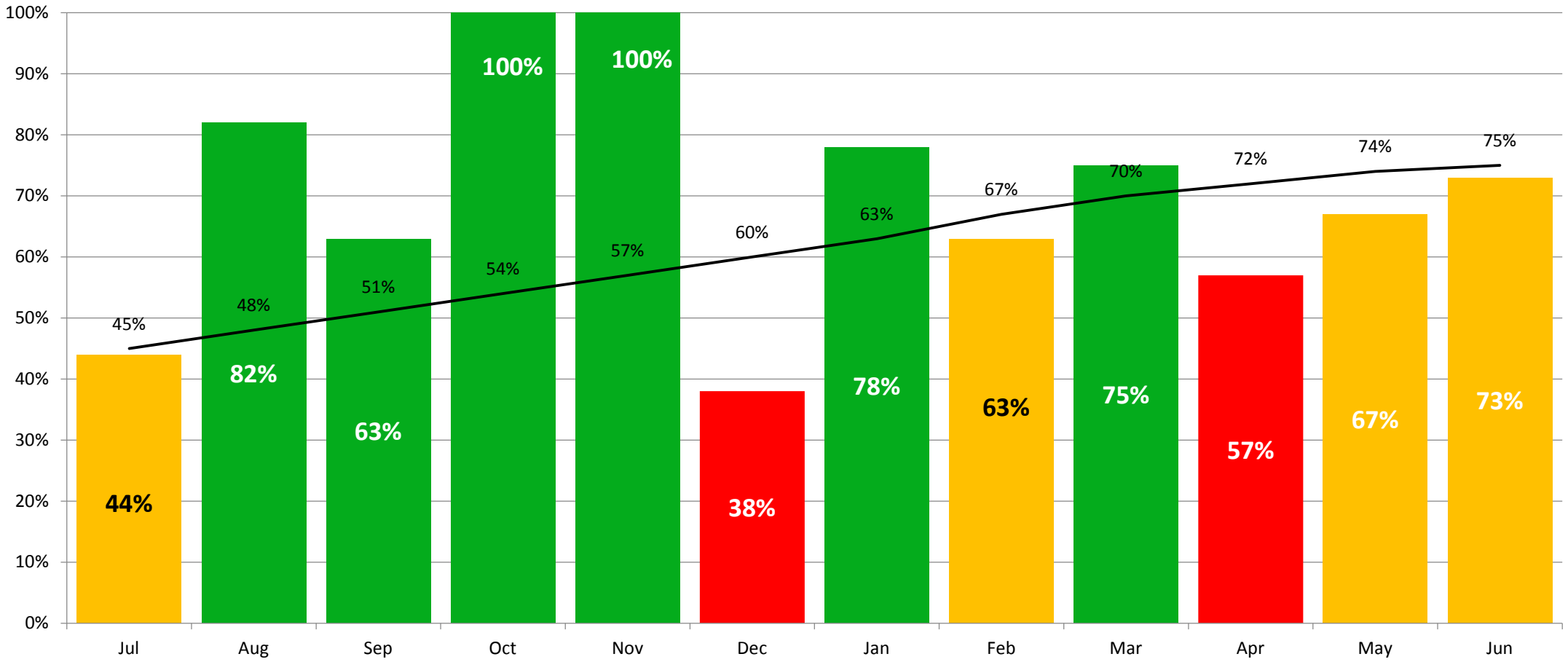
240 Days to Target of **90** Days



On-time Construction Delivery

11 of 15 Delivered on Time

JOP 45% to Target of **75%**

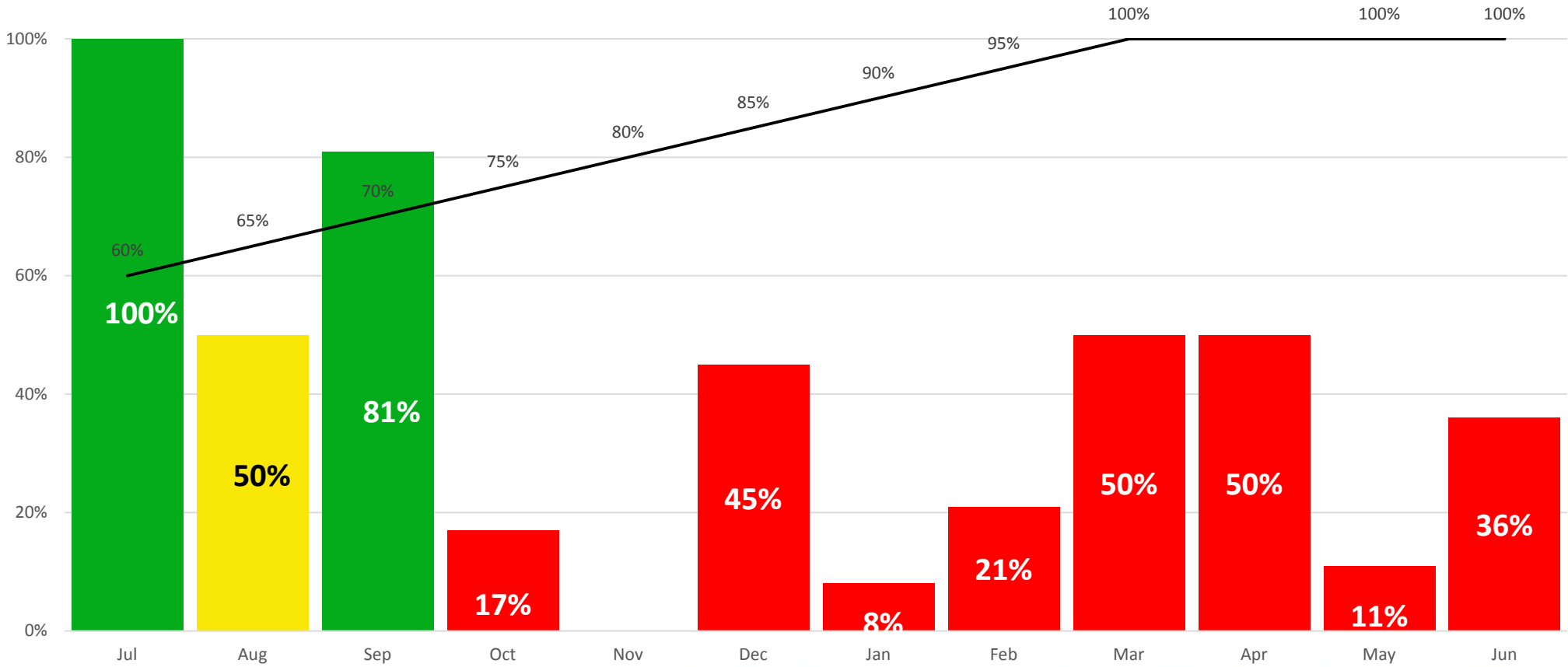


20-30-30-20

100% is Target

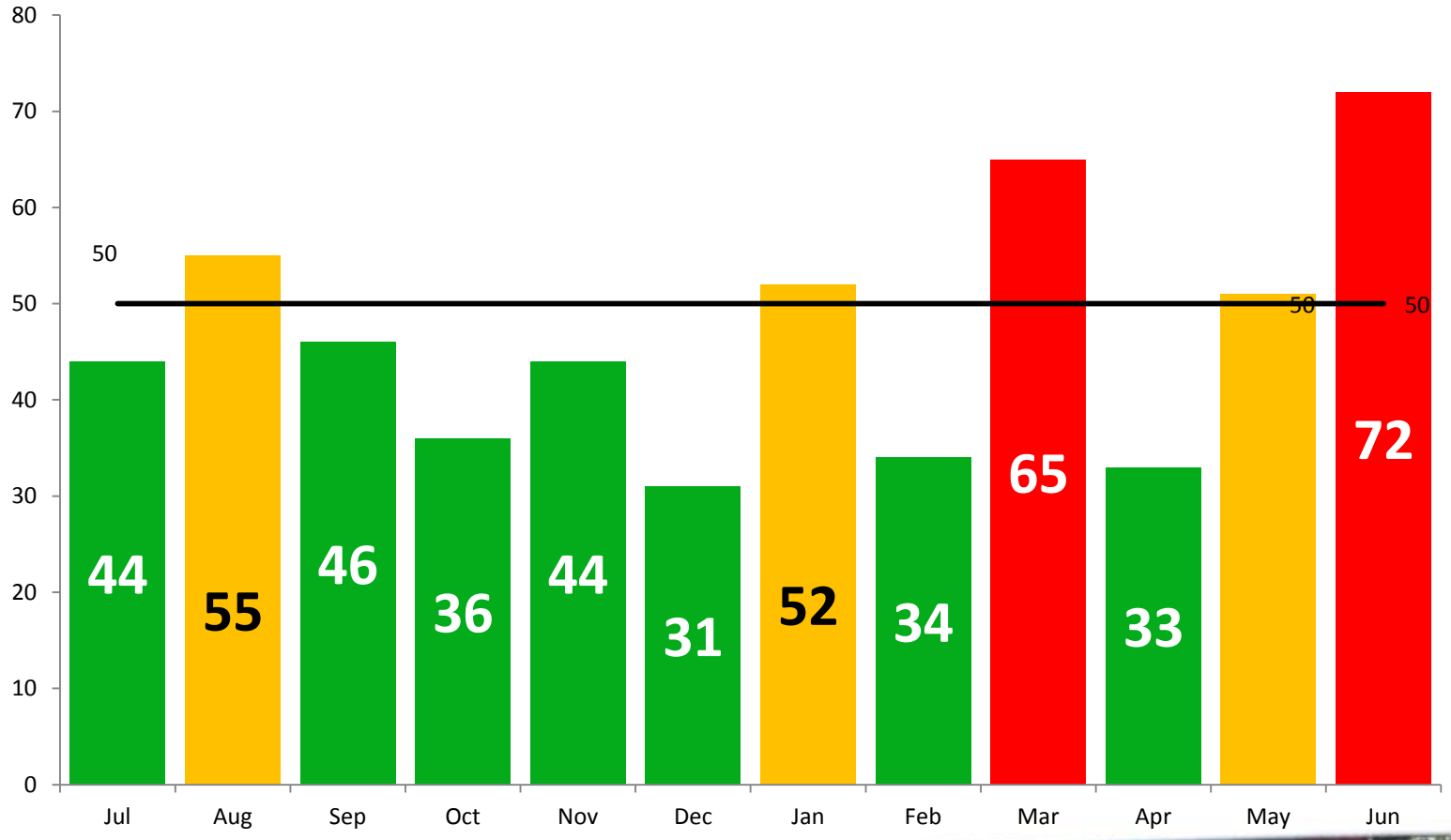
5 of 14 Delivered on Time

- 8 months straight in Defcon 2
- 7 projects delivered which were not in original baseline



Task Order Execution

50 Day Target

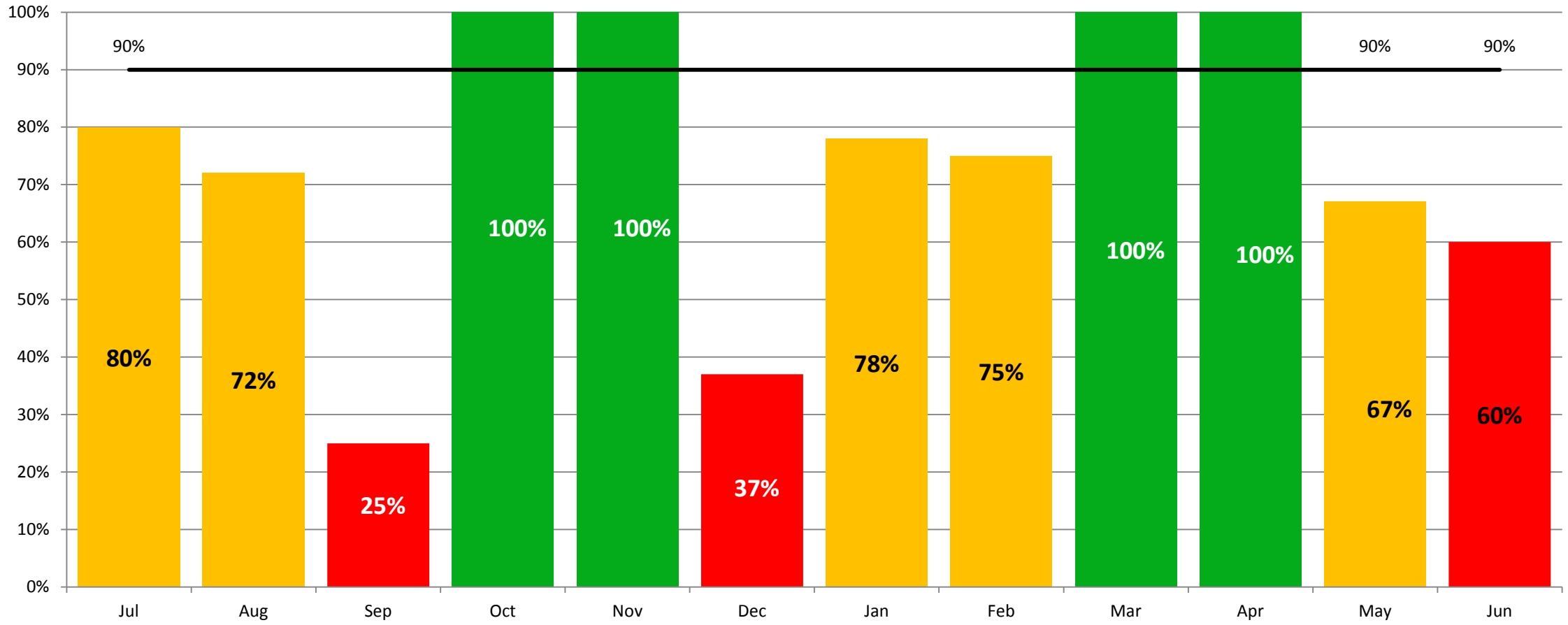


Not So- Steady State

- 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**



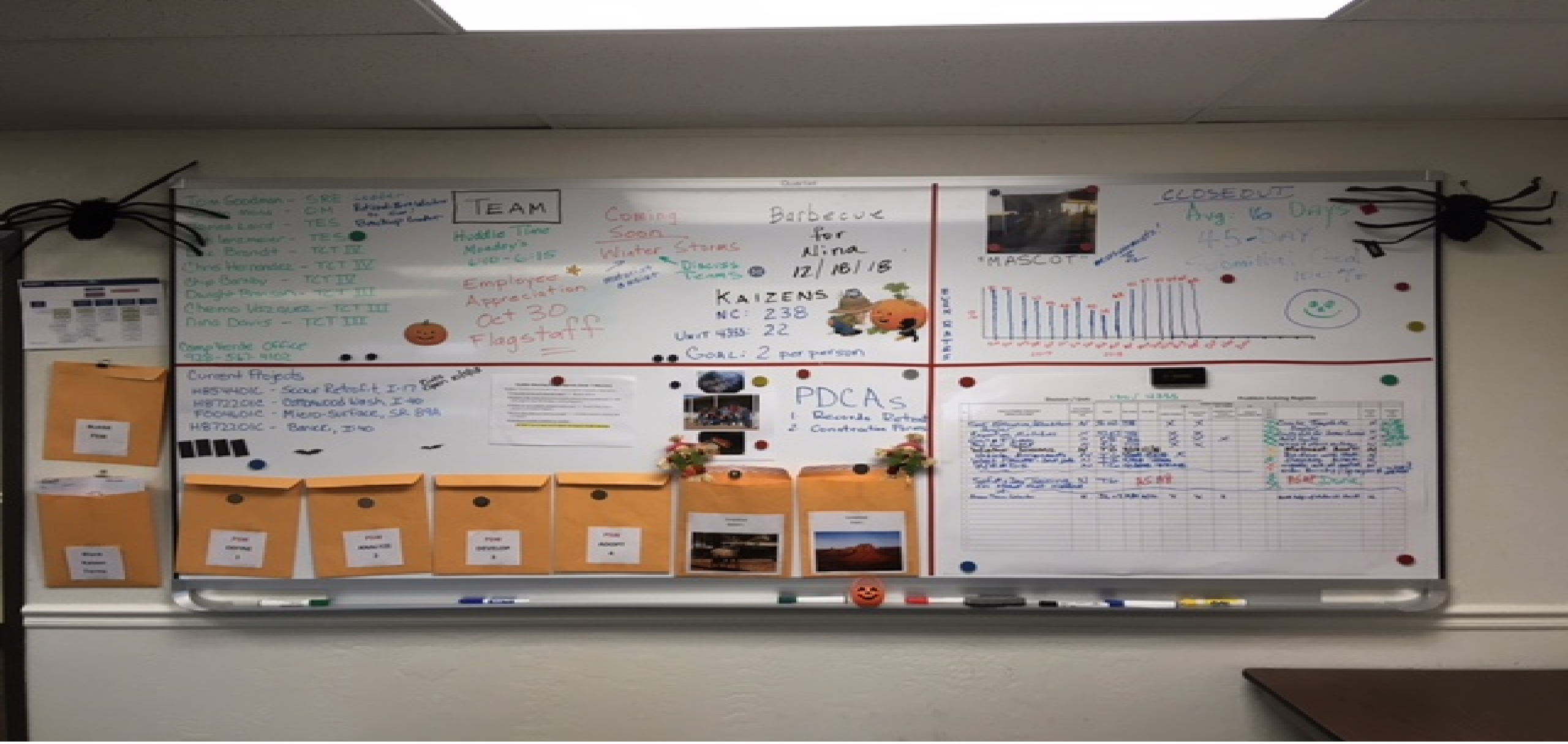
Project Utilization

- **UT Dropped like Rock**

IDO Design Groups, Project Management, C&S, EPG, and Districts Utilization - FY18

UT based on budget expenditure - not hours

	2017						2018					
	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
Roadway	43%	46%	45%	44%	47%	43%	38%	52%	51%	49%	51%	36%
Eng Survey	40%	42%	39%	41%	56%	42%	37%	36%	43%	42%	31%	33%
Bridge	54%	57%	49%	49%	52%	49%	43%	51%	57%	48%	51%	39%
Traffic	52%	50%	53%	46%	50%	51%	37%	47%	51%	53%	53%	34%
RofW	44%	42%	42%	39%	44%	44%	29%	25%	33%	38%	42%	34%
U&RR	39%	41%	61%	58%	57%	49%	41%	44%	55%	49%	47%	38%
PMG	44%	51%	55%	55%	61%	53%	53%	68%	57%	57%	60%	48%
C&S	64%	65%	65%	63%	58%	58%	55%	61%	63%	56%	65%	47%
EPG	22%	29%	29%	28%	35%	35%	32%	37%	35%	38%	35%	27%
NW Dist	45%	50%	40%	38%	42%	39%	32%	39%	43%	42%	51%	37%
NC Dist	65%	70%	67%	67%	63%	53%	39%	45%	51%	63%	70%	56%
NE Dist	57%	53%	47%	46%	43%	35%	31%	36%	44%	51%	54%	37%
SE Dist	40%	44%	35%	35%	36%	32%	32%	44%	44%	34%	52%	31%
SC Dist	54%	61%	51%	57%	56%	51%	44%	55%	58%	54%	56%	39%
SW Dist	52%	58%	63%	60%	60%	50%	46%	51%	60%	57%	59%	45%
C Dist	57%	65%	63%	57%	64%	61%	57%	64%	69%	66%	70%	47%
Const&Mat	46%	46%	47%	46%	42%	43%	36%	37%	39%	47%	54%	39%
Avg % UT	48%	51%	50%	49%	51%	46%	40%	47%	50%	50%	53%	39%


TEAM
Coming Soon
Winter Storms
Barbecue for Alina 12/18/15
Employee Appreciation Oct 30 Flagstaff
KAIZENS
NC: 238
Unit 4355: 22
Goal: 2 per person
"MASCOT"
CLOSEOUT
Avg. 16 Days
Current Projects
PDCAs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ROAD
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U.S. Department of Transportation
Federal Highway Administration

Weight of SELECTION FACTOR	SELECTION FACTORS	Weight of Individual Goals	raw DBB score	DBB Weigted score	raw CMAR score	CMAR Weigted score	raw DB score	DB Weighted score
40%	**Project Level**							
	Project Complexity	20%	0	0	0	0	0	0
	Budget	20%	0	0	0	0	0	0
	Schedule	20%	0	0	0	0	0	0
	Risk	20%	0	0	0	0	0	0
	Scope	20%	0	0	0	0	0	0
	Total	100%	**0**	**0**	0	**0**	0	**0**
20%	**Agency Level**							
	Staffing availabilty Int/Ext	20%	0	0	0	0	0	0
	Experience Int/ Ext	20%	0	0	0	0	0	0
	Agency Goals/Ojectives	20%	0	0	0	0	0	0
	Agency Control of Project	20%	0	0	0	0	0	0
	Third Party Coordination	20%	0	0	0	0	0	0
	Total	100%	**0**	**0**	0	**0**	0	**0**
20%	**Policy/Regulatory Level**							
	Balanced Procurement	30%	0	0	0	0	0	0
	Environmental Regulations	30%	0	0	0	0	0	0
	Tribal Impacts	20%	0	0	0	0	0	0
	Stakeholder/Community	20%	0	0	0	0	0	0
	Total	100%	**0**	**0**	0	**0**	0	**0**
20%	**Special Considerations**							
	Total Project Delivery Cost	30%	0	0	0	0	0	0
	Staffing Pressures	30%	0	0	0	0	0	0
	Modification Opportunities	20%	0	0	0	0	0	0
	Project Life Cycle Costs	20%	0	0	0	0	0	0
	Total	100%	**0**	**0**	0	**0**	0	**0**
FINAL SCORE				**0.00**		**0.00**		**0.00**

Scorer Name John Doe

	SELECTION FACTORS	DBB	CMAR	DB
Project Level	Project Complexity	8	9	7
	Budget	8	9	7
	Schedule	7	9	7
	Risk	6	5	2
	Scope	2	5	3
Agency Level	Staffing availabilty Int/Ext	5	6	8
	Experience Int/ Ext	6	6	5
	Agency Goals/Ojectives	7	8	9
	Agency Control of Project	7	8	9
	Third Party Coordination	9	6	7
Policy/Regulatory Level	Balanced Procurement	2	3	4
	Environmental Regulations	2	5	5
	Tribal Impacts	2	6	6
	Stakeholder/Community	6	8	3
Special Considerations	Total Project Delivery Cost	5	7	6
	Staffing Pressures	8	8	9
	Modification Opportunities	6	6	8
	Project Life Cycle Costs	3	3	1

Questions?


SCDOT
WORK
U.S. Department of Transportation
Federal Highway Administration


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Federal Highway Administration

Conceptual Estimating

- Facilitator
  - Jae Mattox- South Carolina

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

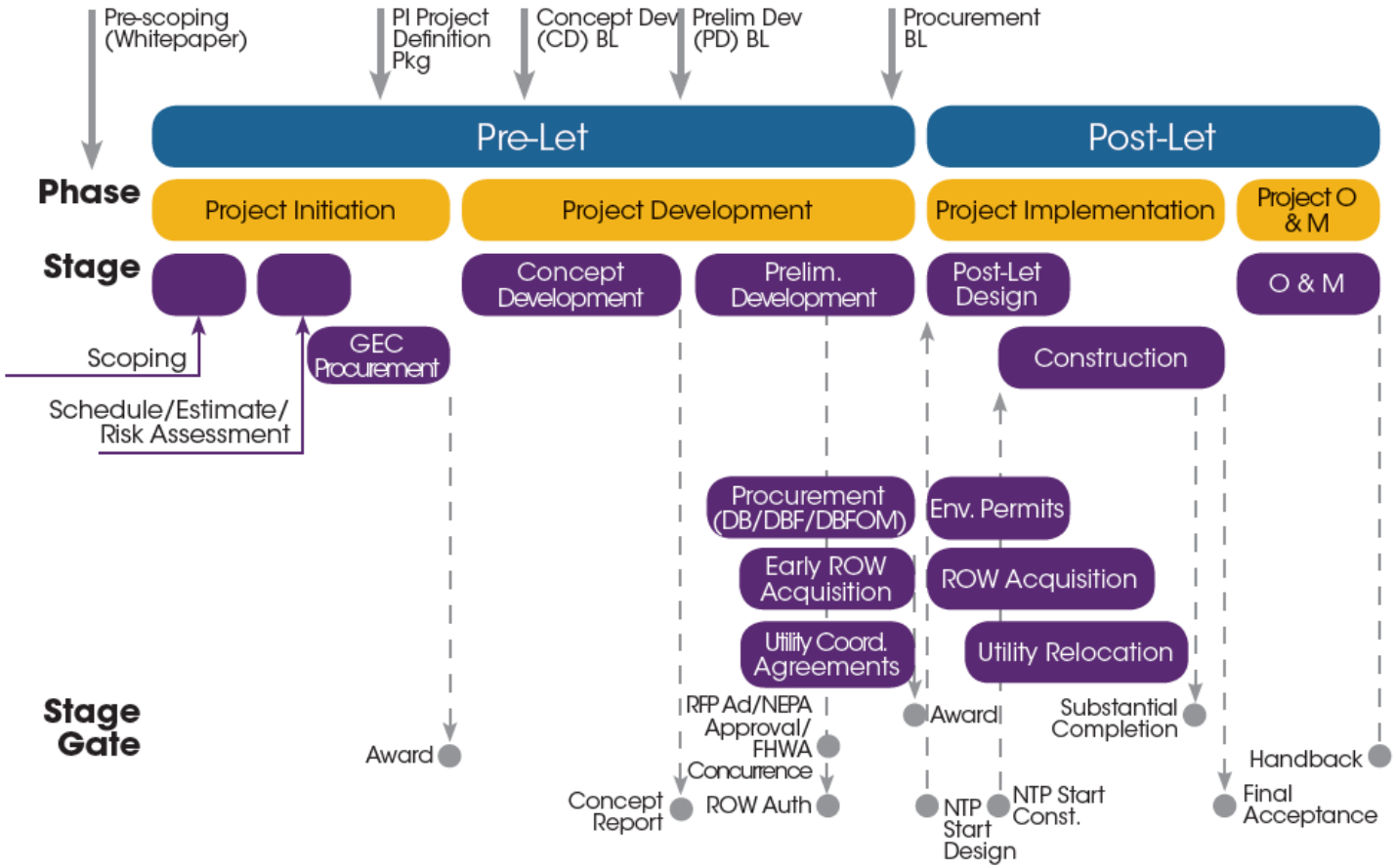
Conceptual Estimating

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



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

Cost	Award Growth
Responses	36
Average	-2.3%
Median	-0.1%
Mode	0.0%
Max	63%
Min	-45%
Std Dev	21%

Expectations for D-B Estimating Accuracy

2006 Review of SEP-14 Design-Build Projects

State	Project	EE	% from Bid	% Dispersion
Washington	Thurston Way	$20,878,121	23%	7%
	I-5 Everett HOV	$165,080,000	12%	26%
	Kirkland Stage 1	$40,000,000	19%	18%
Minnesota	TH 212	$245,000,000	-3%	17%
	TH 52 Oronoco	$36,000,000	2%	25%
	HW 10/32 Interchange	$8,500,000	2%	23%
North Carolina	I-3311A	$76,272,250	-7%	18%
	I-3803A	$76,100,000	15%	17%
	I-2511CB	$64,000,000	32%	6%
	I-4401	$40,293,000	6%	41%

Expectations for D-B Estimating Accuracy

2016 Review of SEP-14 Design-Build Projects

Contract Method	Mean	Median	Std. Dev.	Min.	Max.
D-B-B (n=129)	-9%	-8%	18%	-51%	42%
D-B/LB (n=37)	-5%	-7%	32%	-58%	104%
D-B/BV (n=71)	-7%	-7%	22%	-51%	77%

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

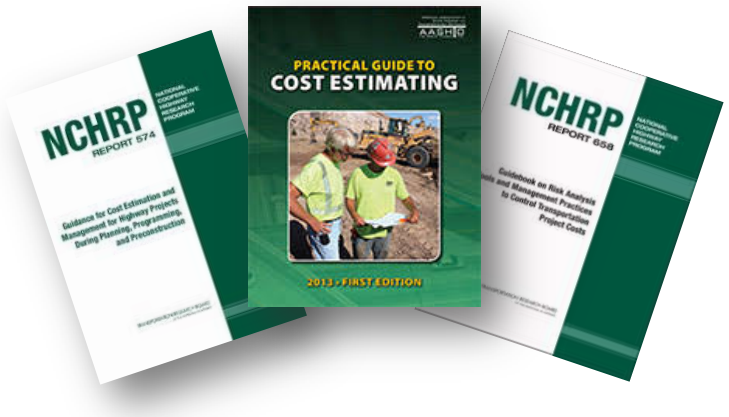
3. Design-build items missing from engineer's estimate

4. Design-builder's risk not included in engineer's estimate

D-B Estimating Best Practices

Cost Estimating Steps

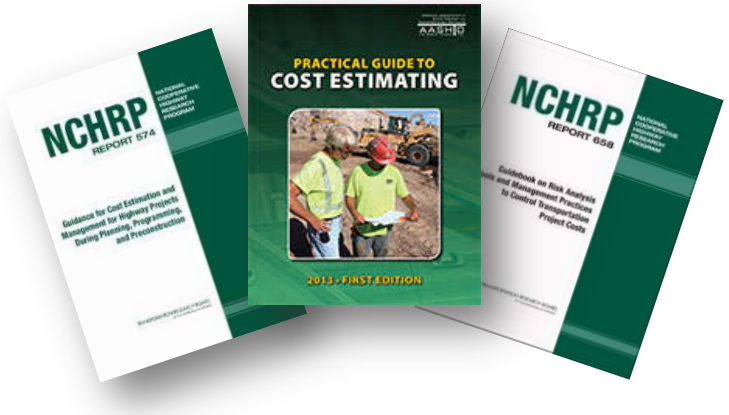
1. Determine Estimate Basis
2. Prepare Base Estimate
3. Determine Risk and Set Contingency
4. Review Estimate Total



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?


SCDOT
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Federal Highway Administration


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Federal Highway Administration

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

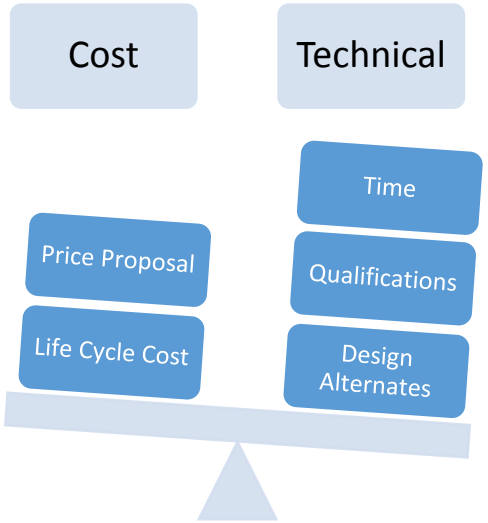
- Project Selection Process
- Low Bid and Adjusted Low Bid with Quality Credits - Concerns
- Weighted Criteria = $\left(\frac{A_{low}}{A_n} * x_A\right) + \left(\frac{b_{low}}{b_n} * x_B\right) + \left(\frac{C}{100} * x_C\right) + \left(\frac{D}{100} * x_D\right) + \left(\frac{E}{100} * x_E\right)$
- Typical Weights
- Fixed Price
- SOQs – Likert
- Technical Proposals - Qualitative versus Quantitative Evaluations
- Performance versus Prescriptive
- Quality-based Incentives/Disincentives
- Cost Proposal

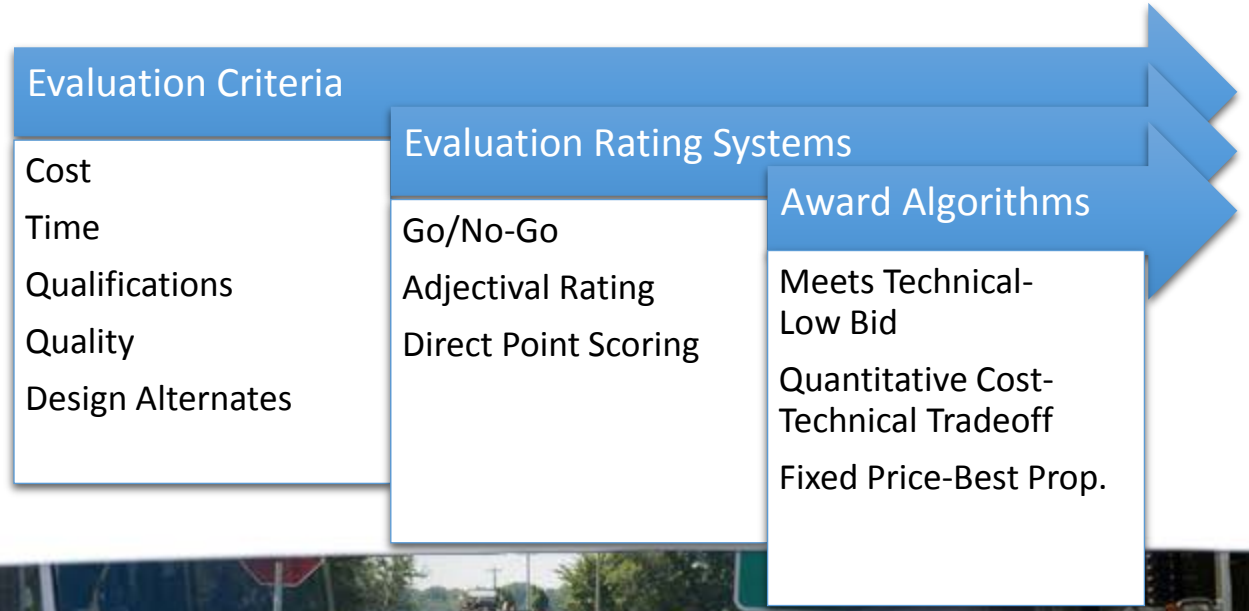
Best Value Evaluation and Cost Proposal Analysis

Practices for Developing Transparent Best-Value Selection Procedures

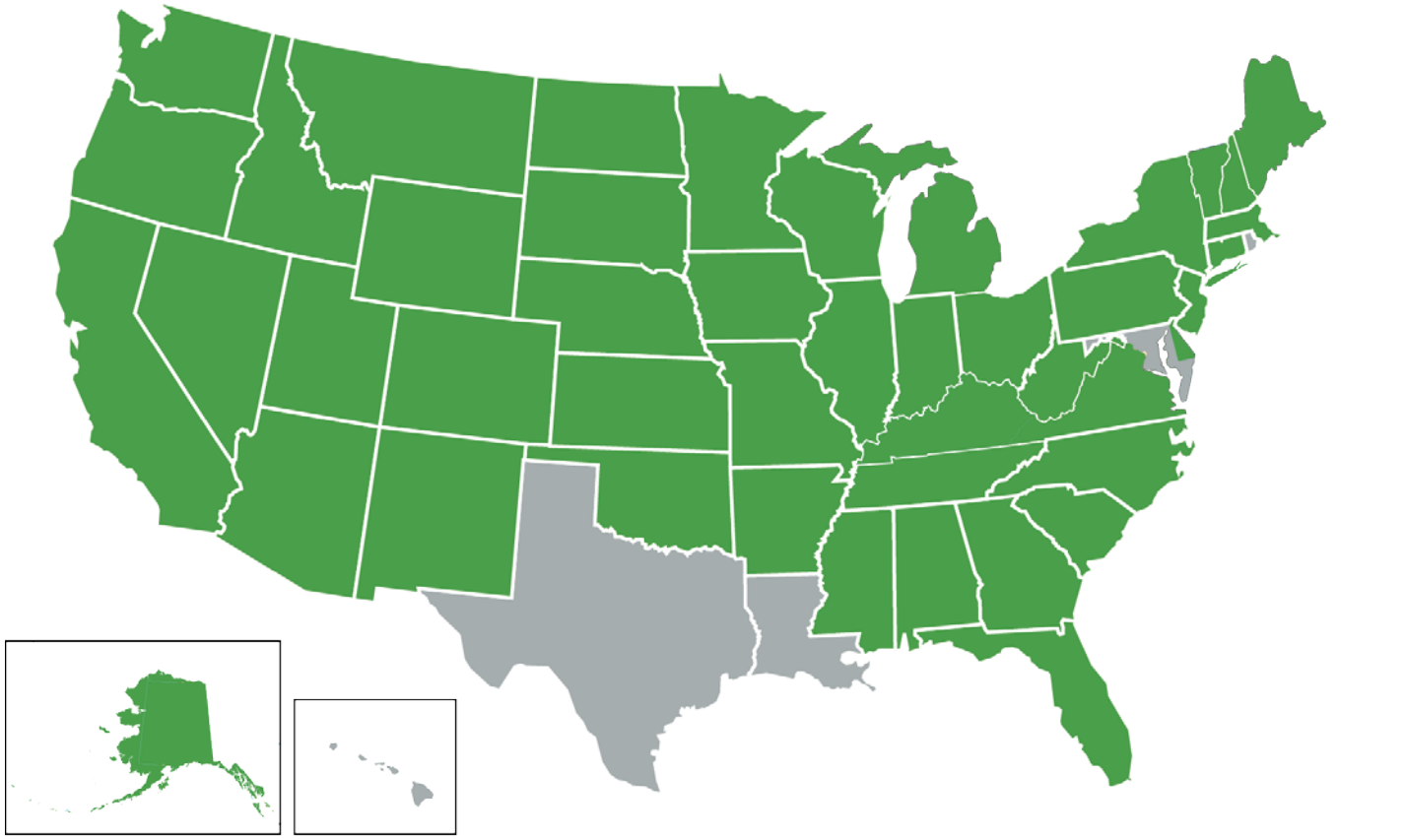
Best-Value Concepts

- Project Goal
  - Best-Value Parameters
- Evaluation Plan
  - Best-Value Evaluation Criteria
  - Best-Value Evaluation Systems
  - Best-Value Award Algorithms





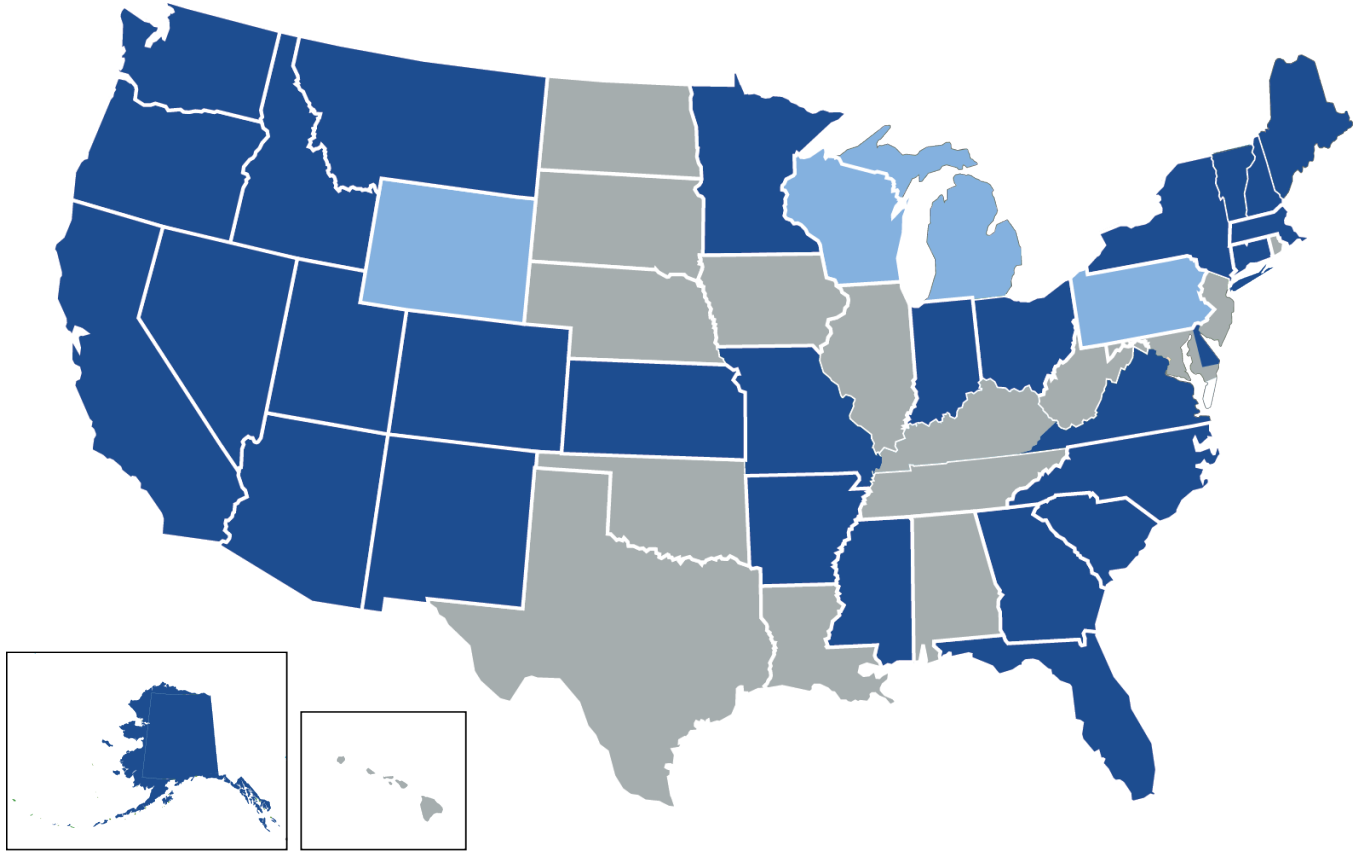
Best-Value Lessons Learned



Agencies Responding to the use of Best-Value Procurement

46 state agencies
(88% response)

Best-Value Lessons Learned



Agencies Implementing Best-Value Procurement

Agencies Considering Best-Value Procurement

30 Agencies Implementing

5 Agencies Considering

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

Variable Scope –
Low Bid Procurement

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.

50/50 Best Value Procurement

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 $_{\text{Lowest Bid}}$ ÷ Price Proposal $_{\text{Respective Proposer's Bid}}$) * 500
- Maximum Price Proposal score — 500 points

Maximum Total Proposal Score is based on 1,000 points

Variable Scope –
Best Value Procurement

Evaluation Criteria for I-85 Widening

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

Price and Scope Proposal (75%)

$$= 400 * \left(\frac{\text{Scope of Respective Proposer}}{\text{Most Aggressive Scope}}\right) + 350 * \left(\frac{\text{Low Bid}}{\text{Bid of Respective Proposer}}\right)$$

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

VDOT Best Value Evaluation & Cost Proposal Analysis

Design-Build Best Practices Peer Exchange, Columbia, SC

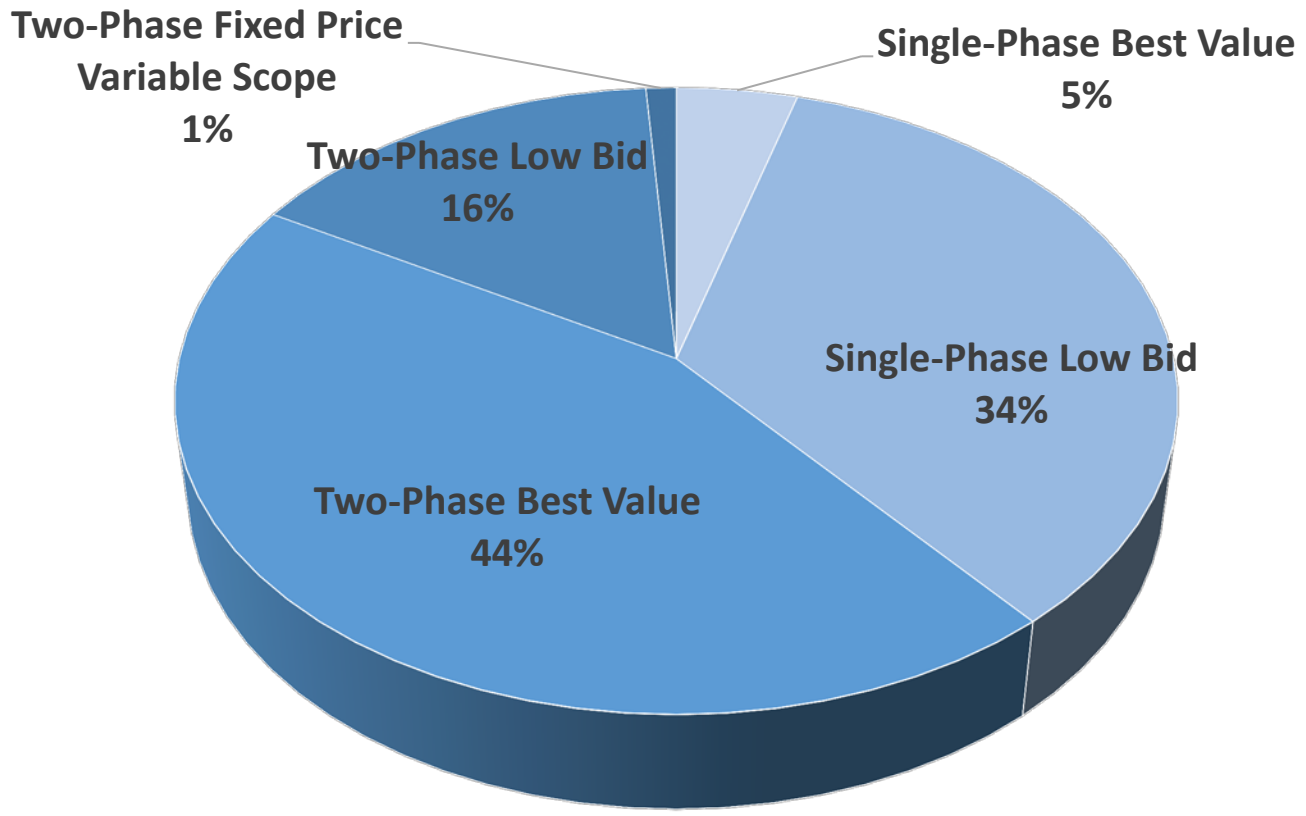
Jeff Roby, PE, DBIA

Virginia Department of Transportation

Assistant State Engineer - Alternative Project Delivery Division

November 27-29, 2018

VDOT D-B Basis of Award – 2002 to Present



Best Value Process & Cost Proposal Analysis

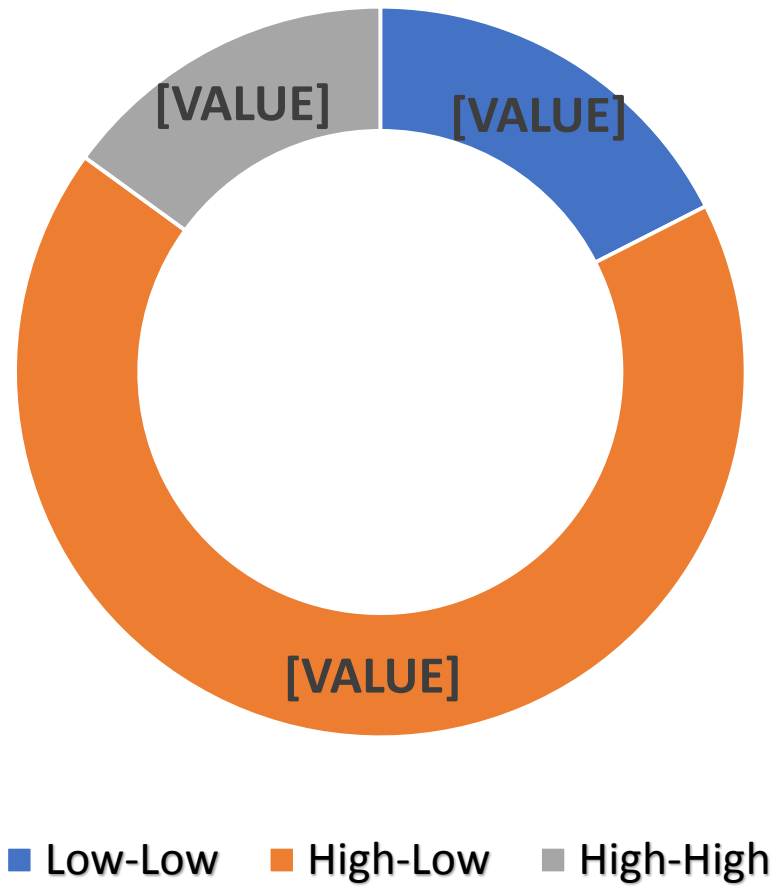
Current VDOT Best Practices

- 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
- 15% Awarded to High Technical Score, High Price
  - What are we paying for?
  - Are we paying a premium?
  - Are we being good stewards of public funds?
- 18% Awarded to Low Technical Score, Low Price
  - Are we getting the desired result?
  - Are we losing quality?
  - Are they “buying” the job?

Questions?


SCDOT
WORK
U.S. Department of Transportation
Federal Highway Administration


SCDOT
WORK

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

MoDOT Design-Build

- 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

MoDOT Design-Build

- 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

MoDOT Design-Build

- 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 cant 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

MoDOT Design-Build

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).

AAS for Massman/HNTB

Lists
- RFC for RFP for Massman/HNTB
- AAS for Massman/HNTB
- Design Exceptions for Massman/HNTB
- Deliverables

Massman/HNTB

Site Contents

ID	Edit	Standards	Category	Description of AAS	Previously Used by (State)	Response (MoDOT USE ONLY)	Date Closed
1		MoDOT Standard Specifications for Highway Construction	Construction Methods	Various modifications to 2014 MoDOT Standard Specifications, Section 701 for Drilled Shafts.	MoDOT	This AAS is accepted.	5/19/2017
2		MoDOT EPG	Materials	Use of Narrow Gap Improved Electroslag Welding (NGI-ESW) See attached revised AAS.	TN / NM	This AAS is accepted.	5/24/2017
3		MoDOT EPG	Materials	Structural Steel Fabrication - Progressive Steel Girder Assembly See Revision 1 attached	MODOT	This AAS is accepted.	5/24/2017
4		MoDOT EPG	Bridge Design	AAS to explicitly allow use of NU78 prestressed girder sections. These girders have been used on the MO approach to the Stan Musial bridge and other MoDOT projects.	MoDOT	This AAS is accepted.	5/24/2017
5		MoDOT Standard Specifications for Highway Construction	Bridge Design	Modified specification to allow use of stainless steel reinforcing.		This AAS is accepted.	5/24/2017
6		MoDOT EPG	Bridge Design	Modify design requirements in EPG to allow use of higher strength concrete (f'c up to 10 ksi) and Grade 75 reinforcing steel.		This AAS is accepted.	5/24/2017

Add new item

AAS for Massman/HNTB - New Item

EDIT

Save | Cancel | Paste | Cut | Copy | Attach File | Spelling

Commit | Clipboard | Actions | Spelling

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

Save | Cancel

RFP Stage

MoDOT Design-Build

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

MoDOT Design-Build

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

Design-Build

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

MoDOT Design-Build

- 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

MoDOT Design-Build

- 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

WSDOT

Summer 2018

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 6th Street in Bellevue. This project will connect a 40-mile system of express toll lanes that improves speeds and trip reliability for all travelers and supports the new I-405 Bus Rapid Transit system included in the Sound Transit 3 package.

Project Goals

1. **Minimize Impacts** - Develop and implement a design-build project 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. This plan should:
   - Meet or exceed all contract requirements to start the project as smoothly as possible
   - Follow a plan to close out the project within the contract requirements
   - Develop and administer a project Quality Management Plan that ensures the work meets or exceeds the contract requirements and is appropriately staffed to do so.

Procurement Schedule

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

Project limits: I-5 in Tukwila to NE 6th Street in Bellevue

Design-Build Contract Amount: $650-710M

Key Personnel

- Project Manager
- Construction Manager
- Design Manager
- Inclusion Manager

For More Information

Chun-Ho Chen, P.E.
Project Engineer
I-405/SR 167 Program
(425) 456-8538
chenchu@wsdot.wa.gov
www.wsdot.wa.gov/Projects/I405/RentontoBellevue/

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

Current Project Scope

Non-motorized trail
First item of work, completion by December 2020
- Realign and reconstruct the existing Lake Washington Trail (MP 7.7 – MP 10.2) west of its current location to reside within the Eastside Rail Corridor from Ripley Lane in Renton to Coal Creek Parkway in Bellevue.
- Build a new Eastside Rail Corridor regional trail bridge over southbound I-405 at Wilburton.

Express toll lanes
- Widen I-405 from north of SR 167 to just south of NE 6th Street (MP 2.5-13.7) to accommodate an additional lane both northbound and southbound. The additional lane will be paired with the existing northbound and southbound HOV lane to create two Express Toll Lanes (ETLs).

Auxiliary lanes
- Construct a southbound I-405 auxiliary lane between NE 44th Street on-ramp and NE 30th Street off-ramp.
- Extend one of the southbound I-405 auxiliary lanes that currently starts at the I-90 on-ramp to end farther south at the 112th Avenue SE off-ramp.

Bridges and structures
- Reconstruct local road overpasses at Cedar Avenue, Renton Avenue and Main Street to accommodate added I-405 lanes.
- Widen I-405 bridge structures over the Cedar River, NE Park Drive, Sunset Boulevard and SE 8th Street.
- Build a new northbound I-405 bridge structure over the Eastside Rail Corridor adjacent to the existing I-405 structure.

Major interchange work
- Replace the 112th Avenue SE Interchange bridge structure over I-405.
- NE 44th Street Interchange: Replace the northbound and southbound I-405 bridge structures over May Creek. Replace the NE 44th Street bridge structure over I-405 and reconstruct the interchange. Construct new direct access ramps in the I-405 median. Realign and reconstruct Lake Washington Boulevard between NE 44th Street and SE 76th Street, and realign the northbound on-ramp to I-405 to connect to Lake Washington Boulevard. Local intersections will be roundabout controlled.

Ramp reconfigurations
- Reconfigure the southbound I-405 to eastbound I-90 ramp from one lane to two lanes. Realign the northbound I-405 to eastbound I-90 ramp.
- Widen the existing northbound I-405 to SR 520 ramp from two lanes to three lanes.

Environmental and other enhancements
- Construct two fish passage crossings under NE 44th Street and under I-405 for UNT 08.LW.0283 (formerly referred to as Gypsy Creek). Construct a fish passage crossing under I-405 for Stream 7.7A. Construct a fish passage crossing under I-405 for Stream 7.8.
- Construct new noise walls and relocate two existing noise walls.
- Construct stormwater management and water quality facilities.
- Other improvements will include pavement markings, permanent signing, illumination, intelligent transportation systems, barriers, and tolling gantries.

Potential added scope
- Construct direct access ramps at 112th Avenue SE interchange.

Quantities and Cost

ITEMS (APPROX. % OF CONSTRUCTION COST)	UNITS	APPROX. QUANTITY
EARTHWORK (5-10%)		
Excavation	CY	500,000
Common borrow	CY	800,000
PAVEMENT (5-10%)		
PCCP	CY	5,000
HMA	Tons	350,000
HMA overlay	Tons	50,000
Sidewalks	SF	85,000
DRAINAGE (5-10%)		
Conveyance	Miles	10
Stormwater treatment	Acres	125
SPECIALTY ITEMS (10-15%)		
Retaining walls (cut section)	SF	180,000
Retaining walls (fill section)	SF	775,000
Noise walls	SF/LF	660,000/10,250
Culverts for fish passage	EA	5
Trenchless technology stormwater conveyance	LF	~5,500
TRAFFIC ITEMS (10-15%)		
Sign structures	EA	60
Toll point structures	EA	25
STRUCTURES (10-15%)		
New bridges	EA	13
Bridge widening	SF	25,000

WSDOT

WSDOT

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.

Project area map

For more information:

Contact Bobby Forch

Phone: 206-805-5418

Email: forchb@consultant.wsdot.wa.gov

Project Contract website:

www.wsdot.wa.gov/biz/contaa/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.

Networking Event

Minority, Small, Veteran and Women's Business Enterprise (MSVWBE)

Disadvantaged Business Enterprise (DBE)

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”)**

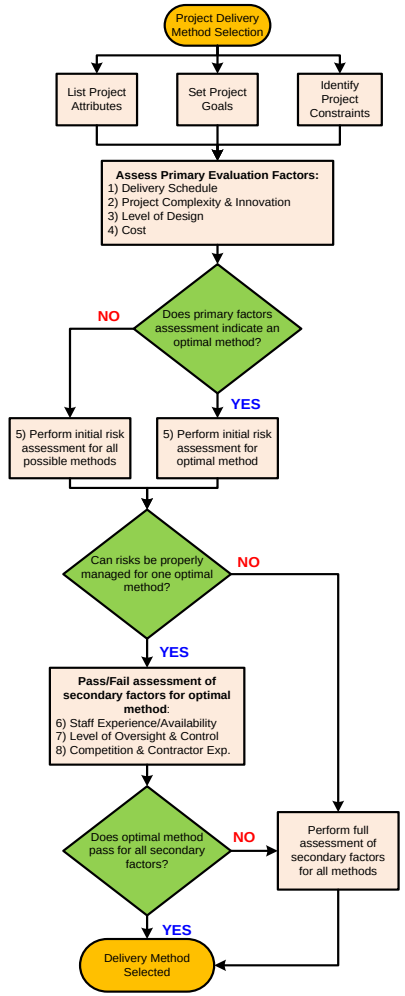
- **Internal Staff Functions**
  - **Program Development**
  - **Project Selection**
  - **Project Management Assistance/Training**
  - **Lead scoring/1 on 1 meetings**
  - **Project Controls “Gatekeeper”**
  - **Structures-specific oversight (Tony)**
  - **Verification Management (Ashley)**
- **GEC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

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**

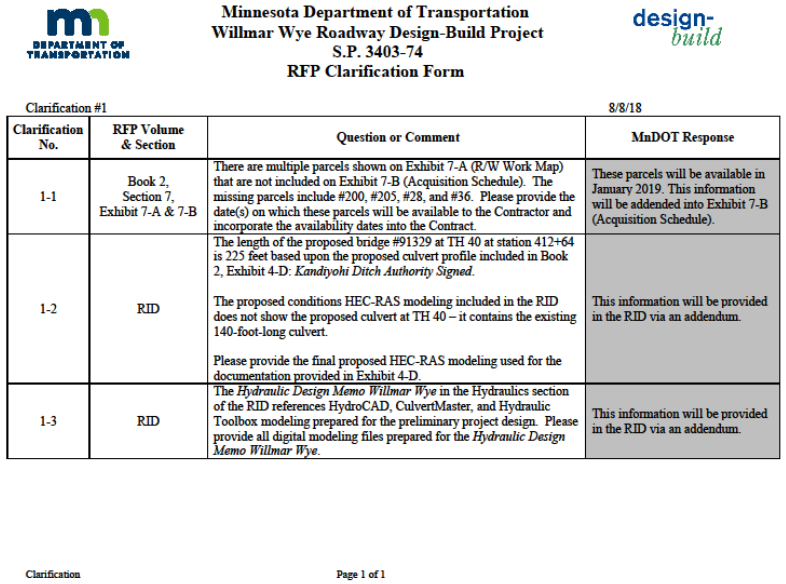
- **Post Request for Letters of Interest**
  - **8-12 months prior to letting, ideally**



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**



Minnesota Department of Transportation
Willmar Wye Roadway Design-Build Project
S.P. 3403-74
RFP Clarification Form

design-build

Clarification #1 8/8/18

Clarification No.	RFP Volume & Section	Question or Comment	MnDOT Response
1-1	Book 2, Section 7, Exhibit 7-A & 7-B	There are multiple parcels shown on Exhibit 7-A (R/W Work Map) that are not included on Exhibit 7-B (Acquisition Schedule). The missing parcels include #200, #205, #28, and #36. Please provide the date(s) on which these parcels will be available to the Contractor and incorporate the availability dates into the Contract.	These parcels will be available in January 2019. This information will be addended into Exhibit 7-B (Acquisition Schedule).
1-2	RID	The length of the proposed bridge #91329 at TH 40 at station 412+64 is 225 feet based upon the proposed culvert profile included in Book 2, Exhibit 4-D: *Kandiyohi Ditch Authority Signed*. The proposed conditions HEC-RAS modeling included in the RID does not show the proposed culvert at TH 40 – it contains the existing 140-foot-long culvert. Please provide the final proposed HEC-RAS modeling used for the documentation provided in Exhibit 4-D.	This information will be provided in the RID via an addendum.
1-3	RID	The *Hydraulic Design Memo Willmar Wye* in the Hydraulics section of the RID references HydroCAD, CulvertMaster, and Hydraulic Toolbox modeling prepared for the preliminary project design. Please provide all digital modeling files prepared for the *Hydraulic Design Memo Willmar Wye*.	This information will be provided in the RID via an addendum.

Clarification Page 1 of 1

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?


SCDOT
WORK
U.S. Department of Transportation
Federal Highway Administration


SCDOT
WORK
U.S. Department of Transportation
Federal Highway Administration

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.

Alternative Technical Concepts

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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U.S. Department of Transportation
Federal Highway Administration

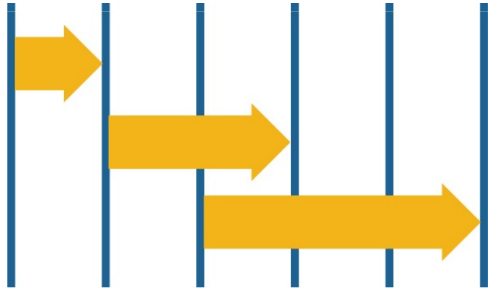
ATC Benefits

Promote Efficiencies

Reduce Project Costs

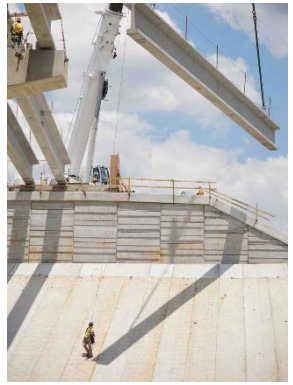
Innovations

Reduce Risks



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

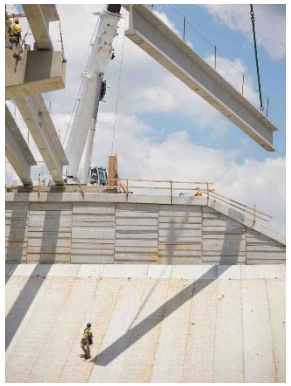
Transform 285/400 (DBF)

2017

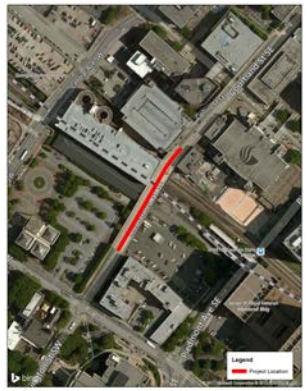
Major Mobility Investment Program

2018

ATC History in Georgia (Design-Build)



GEORGIA Express Lanes I-85 Extension



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 employee 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?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Federal Highway Administration

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

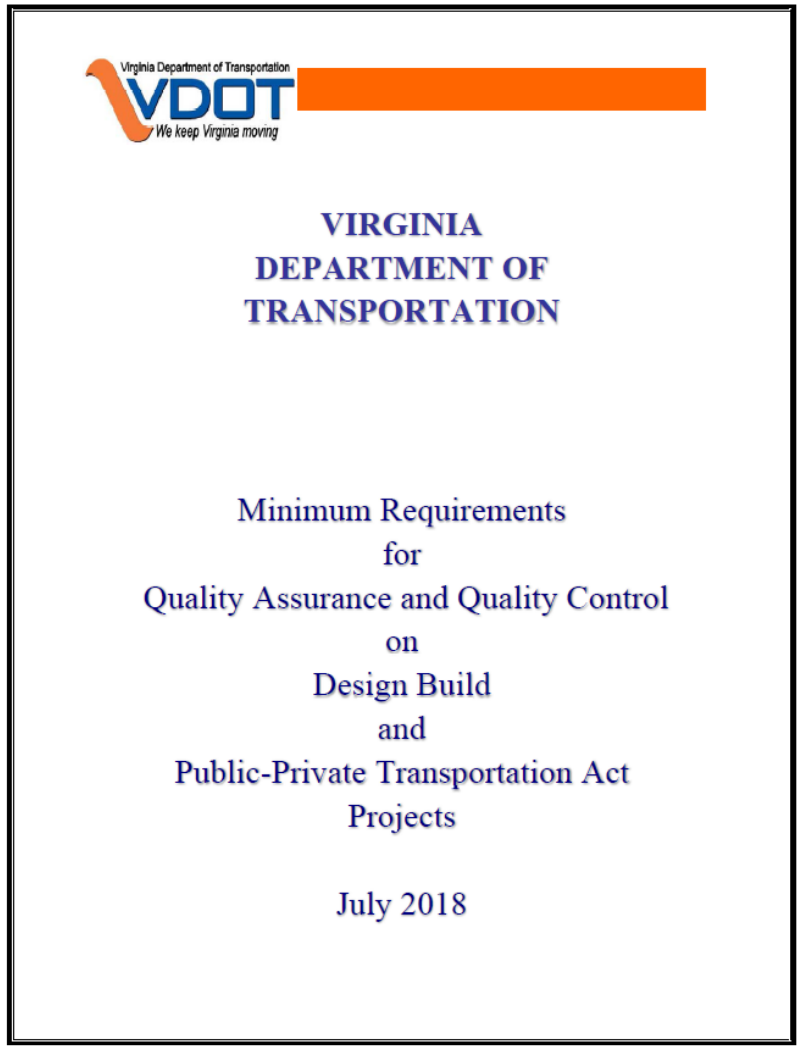
Virginia Department of Transportation

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.


Virginia Department of Transportation
VDOT
We keep Virginia moving

VIRGINIA
DEPARTMENT OF
TRANSPORTATION

Minimum Requirements
for
Quality Assurance and Quality Control
on
Design Build
and
Public-Private Transportation Act
Projects

July 2018

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

ICQC	Owner Controlled QC
Contractors Role: • Production Quality control on Design and Construction, and intangibles • Quality Control on Design and Construction, and Intangibles • Materials Testing and Inspection • Quality Resource management Owners Role: • Contract Performance Auditing • Owner Verification Testing* • Acceptance Decision	Contractors Role: • Production Quality on Design and Construction. • Quality Assurance on Design Owners Role: • Contract Performance Auditing • Acceptance Decision • Quality Control on Construction and Intangibles. • Materials Testing and inspection • Quality resource management

*Per FHWA Publication No.: FHWA-HRT-12-039

CDOT Construction Engineering and Inspection

ICQC	Owner Controlled QC
Advantages: • Quality Program that is integrated into the critical path • Assists Owner in transition to performance based expectations. • Performance Auditing reinforces the role of the Contract • Contractor must resource load the Quality program, appropriately to handle their Critical Path. • Opportunities for efficiency in resources. • Focus of Quality program is improvement • Performance Auditing. • Risk Based Owner Verification can be used to manage resources more efficiently.	Advantages: • Allows Project Management teams to utilize familiar skills. (no major pivot) • Owner Acceptance Decision is simplified • Owner more familiar with the Quality expectations • Managing quality on intangibles more easily understood and managed.

CDOT Construction Engineering and Inspection

ICQC	Owner Controlled QC
Challenges: • Requires project teams to Pivot their skills to meet the new project model. • Consultants struggle with understanding the quality expectations • Accountability for hi-profile issues is difficult to communicate to the public • Quality for the intangibles can be overlooked (i.e., environmental in construction)	Challenges: • Can encourage a casual approach to Contract Requirements • Quality of deliverables can be seen as secondary • Focus of Quality program is accountability • Staffing a quality program that can respond to the demands of a Construction Schedule can prove difficult. • Reinforces the attitude that the scope of the project is Quantities and Unit cost

CDOT Construction Engineering and Inspection

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.

Partnering 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.

CDOT Construction Engineering and Inspection

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Arizona Department of Transportation
South Carolina APDM Peer Exchange

- **Quality Management and Construction Oversight**

Jesse Gutierrez
Deputy State Engineer

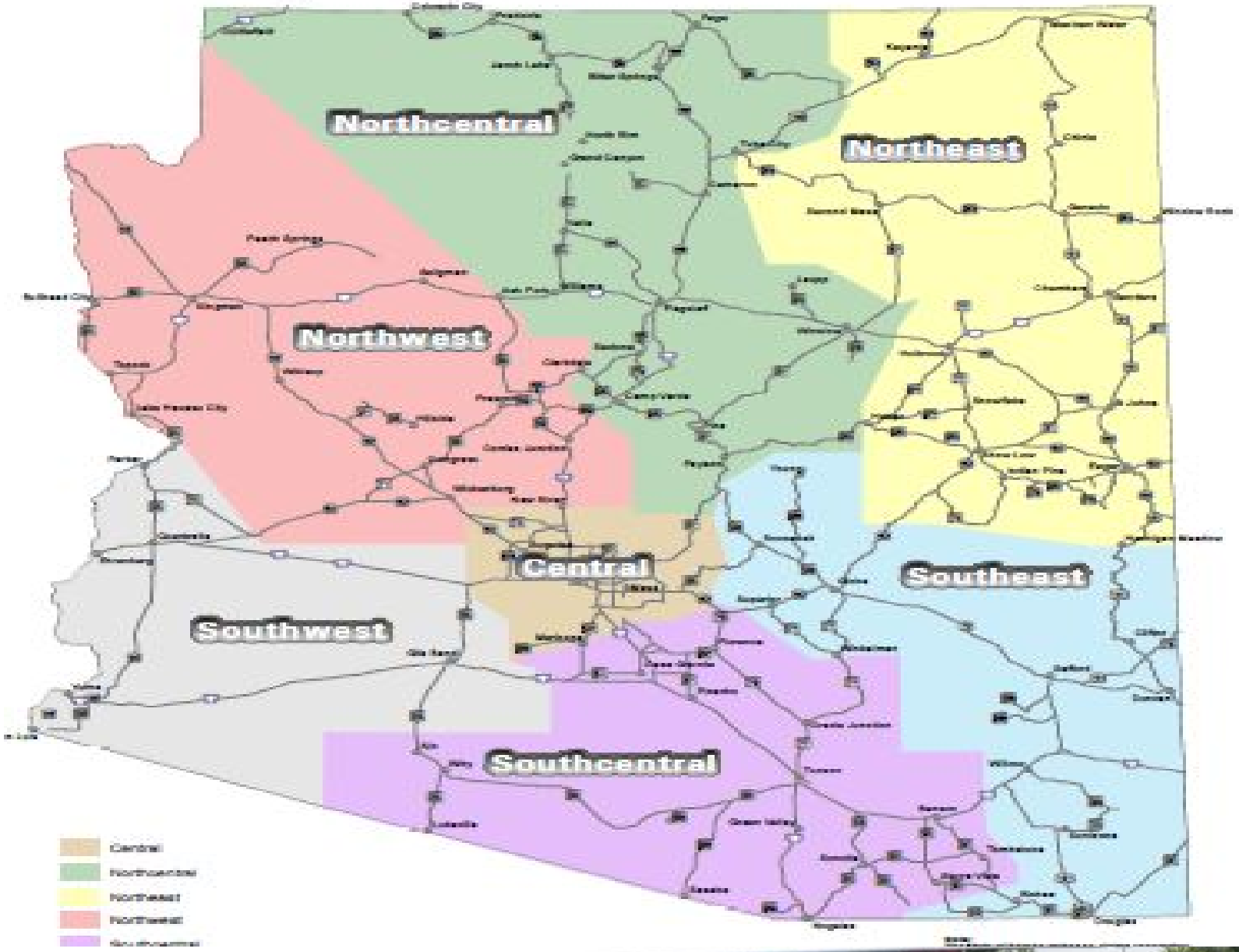
Performance Metric Titles	Custom Field	JOP	YTD		Jan	Feb	Mar	Apr	May	June
Breakthrough Metrics										
Task Order Execution	**Speed**	7/1/2017	Target	50	50	50	50	50	50	50
		69	Actual		52	34	65	33	51	**72**
Contract Execution	**Speed**	7/1/2017	Target	90	150	135	120	110	100	90
		234	Actual		194	143	91	0	55	**0**
Operational / Sustainment Metrics										
On-Time Construction Delivery	**Speed**	7/1/2017	Target	75%	63%	67%	70%	72%	74%	75%
		45%	Actual		78%	63%	75%	57%	67%	**73%**
On-Time Development Delivery	**Speed**	7/1/2017	Target	100%	90%	95%	100%	100%	100%	100%
		58%	Actual		8%	21%	50%	50%	11%	**36%**
Pavement Treatments (Miles)	**Speed**	7/1/2017	Target	3000	0	200	400	400	300	200
		2680	Actual		157	213	219	628	390	**465**
On-Budget Construction Delivery	**Cost**	7/1/2017	Target	90%	90%	90%	90%	90%	90%	90%
		72	Actual		78%	75%	100%	100%	67%	**60%**
Bridge Condition	**Quality**	7/1/2017	Target	37%	37%	37%	37%	37%	37%	37%
		35.50%	Actual		37%	37%	37%	37%	37%	**37%**

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:	
	100% of Target
	Within 75% - 99% of Target
	Within 0% - 74% of Target

Fiscal Year active projects

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


Northcentral
Northeast
Northwest
Central
Southeast
Southwest
Southcentral
Central
Northcentral
Northeast
Northwest
Southcentral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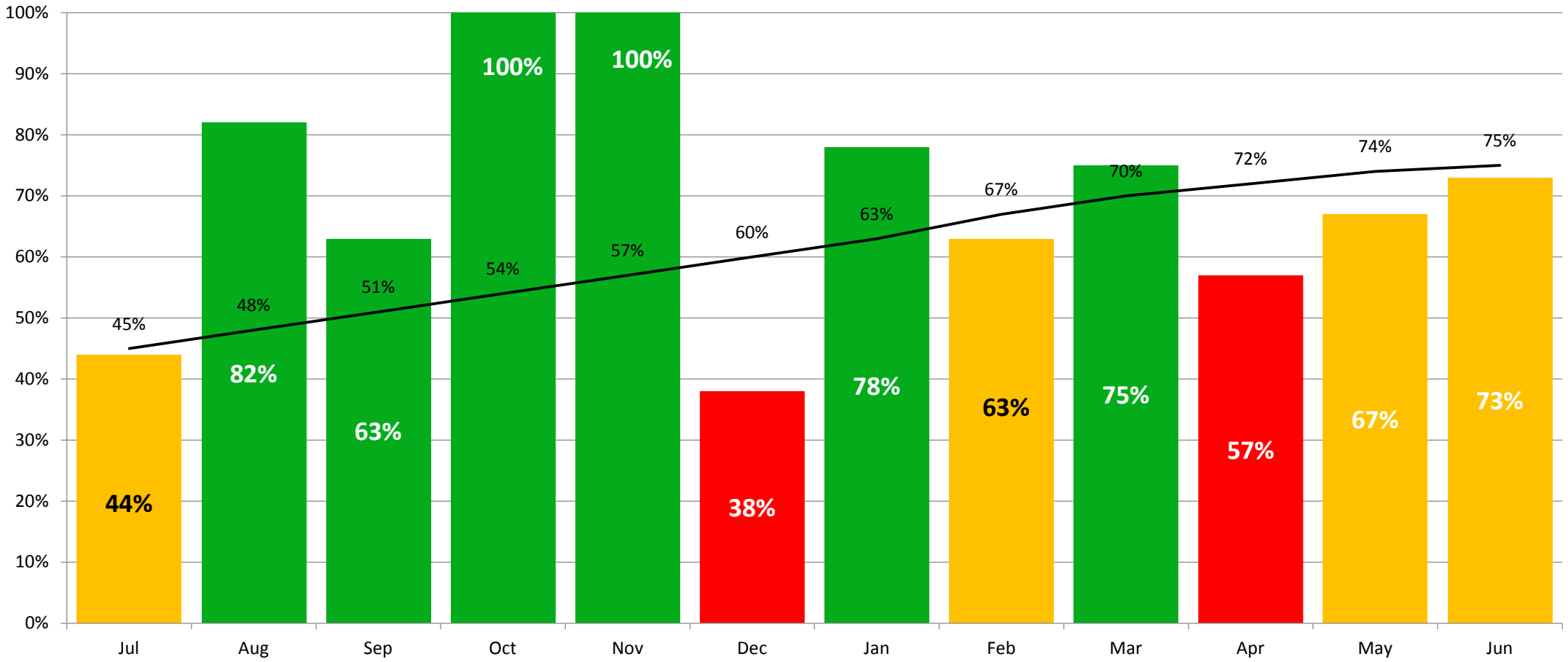
Federal Highway Administration

South Mountain Design Build

On-time Construction Delivery

11 of 15 Delivered on Time

JOP 45% to Target of **75%**



On-time Construction Delivery

11 of 15 Delivered on Time

JOP 45% to Target of **75%**

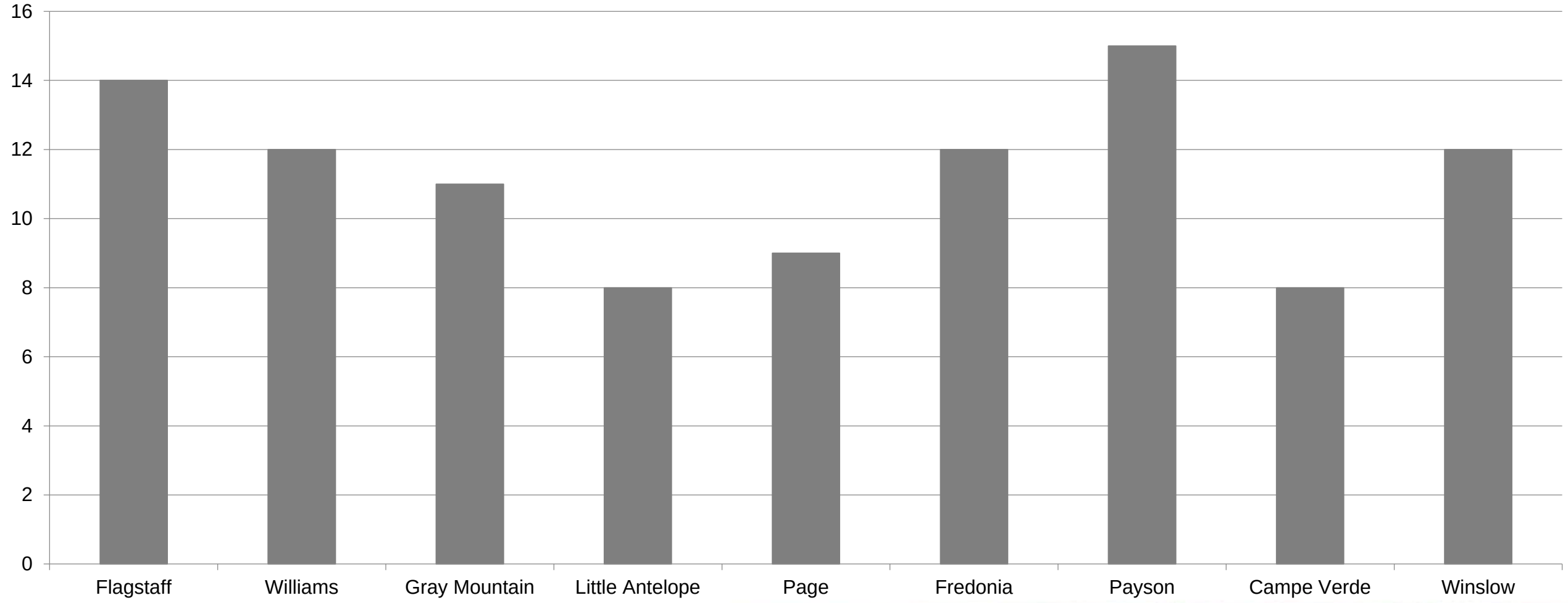
Arizona Department of Transportation
Field Reports Section
Completed Contracts Fiscal Year 2019
November, 2018

Project Number	Location District	State Estimate	Contractor	Bid Amount	Final Cost	Monetary	Percent
GLN-0-(230)T SS88901C	GLENDALE AVE'S-NORTH Central District						
Working Days: 171 = 120 + 37 + 14 Days Used: 171							
			K.A.Z. CONSTRUCTION, INC.	Low Bid =	$117,133.00 or 24.51% over State Estimate		
		477,867.00		$595,000.00	$626,725.25	$31,725.25	5.3 %
GGH-0-(203)T SS99001C	REAY LANE/SAFFORD-BRY SouthEast District						
Working Days: 130 Days Used: 103							
			CKC CONSTRUCTION & MATERIALS LLC	Low Bid =	($119,768.95) or 27.41% under State Estimate		
		436,975.15		$317,206.20	$291,099.72	($26,106.48)	-8.2 %

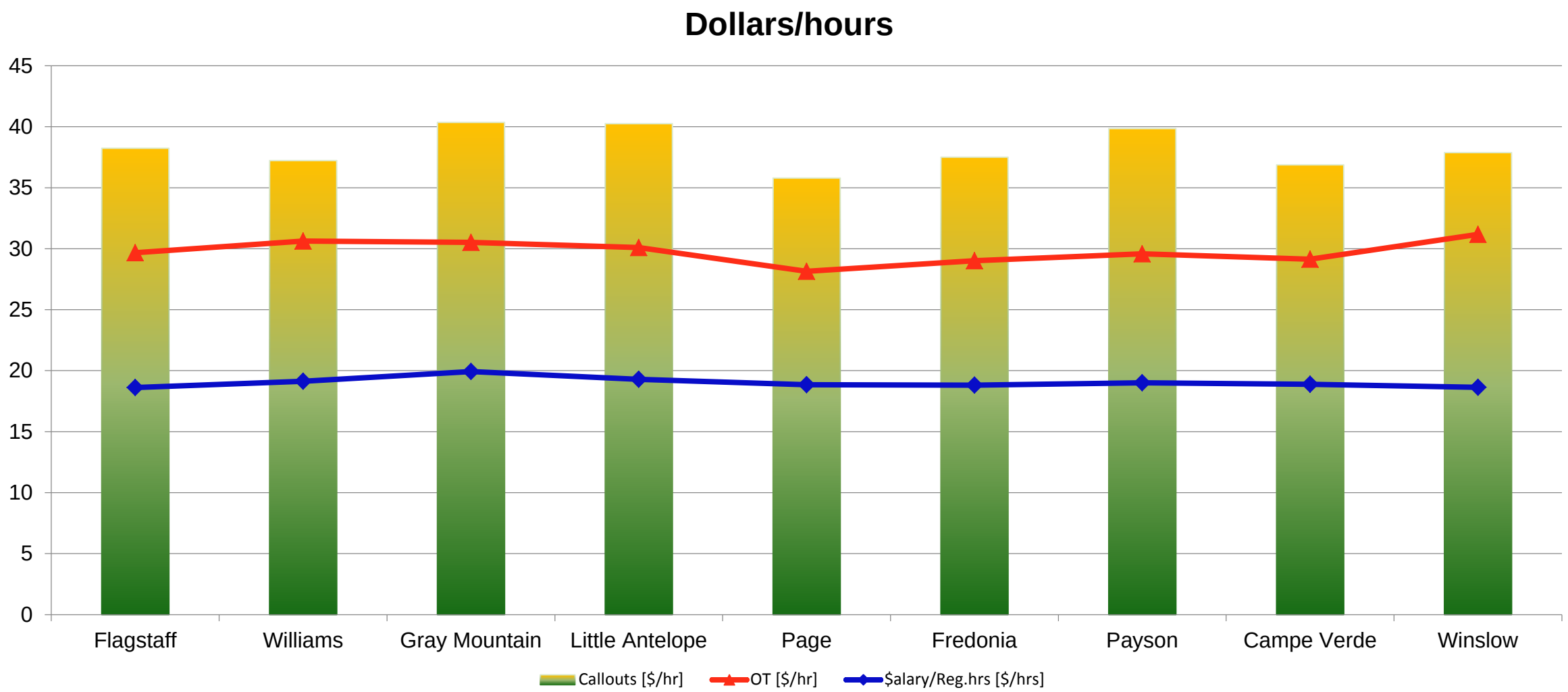
Construction Inspectors
Consultant Firms
Construction Management

- 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.

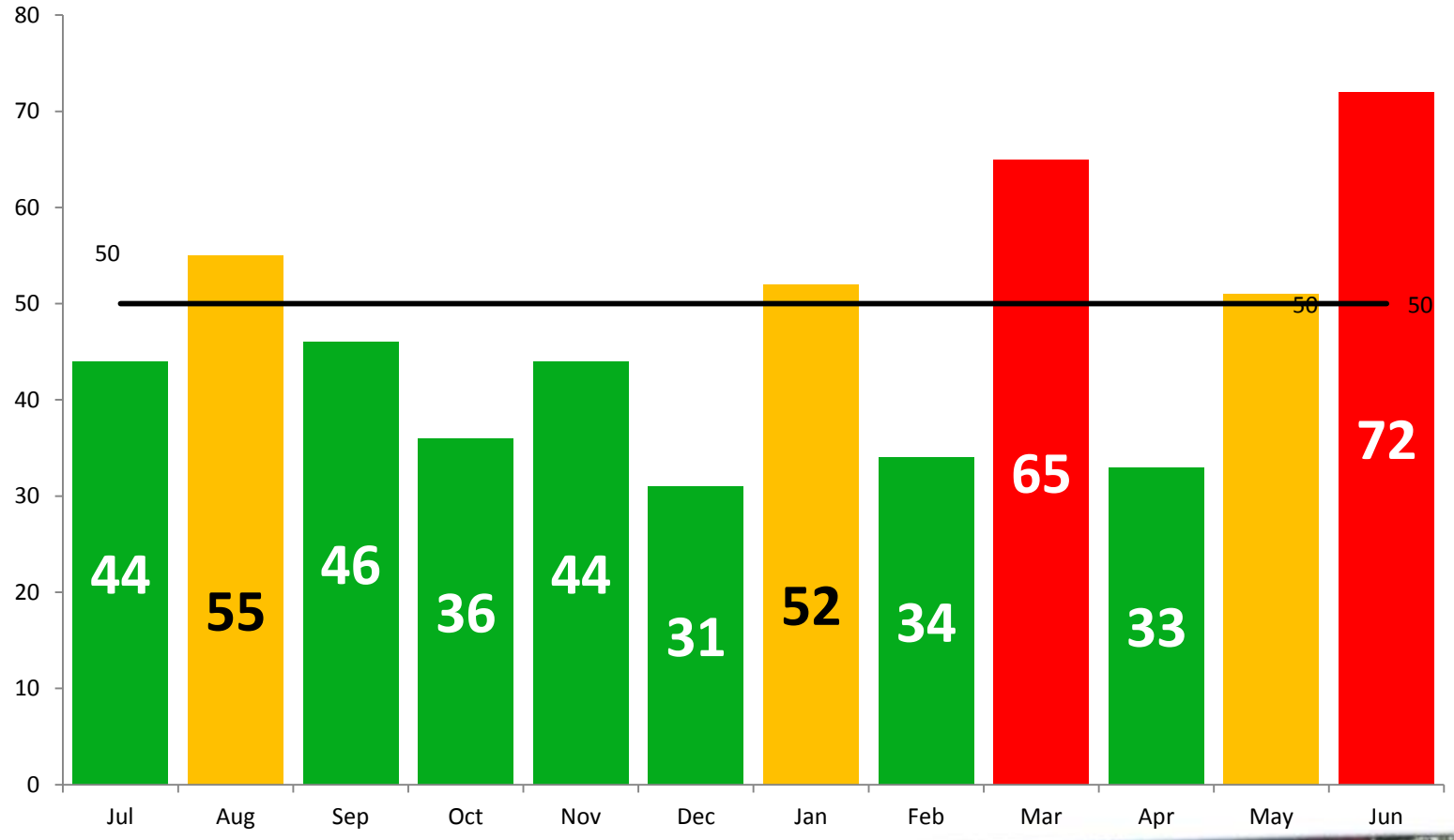
North Central



North Central



Consultant Call Outs for Inspectors Entry level thru Mid Level



Based on experience and training

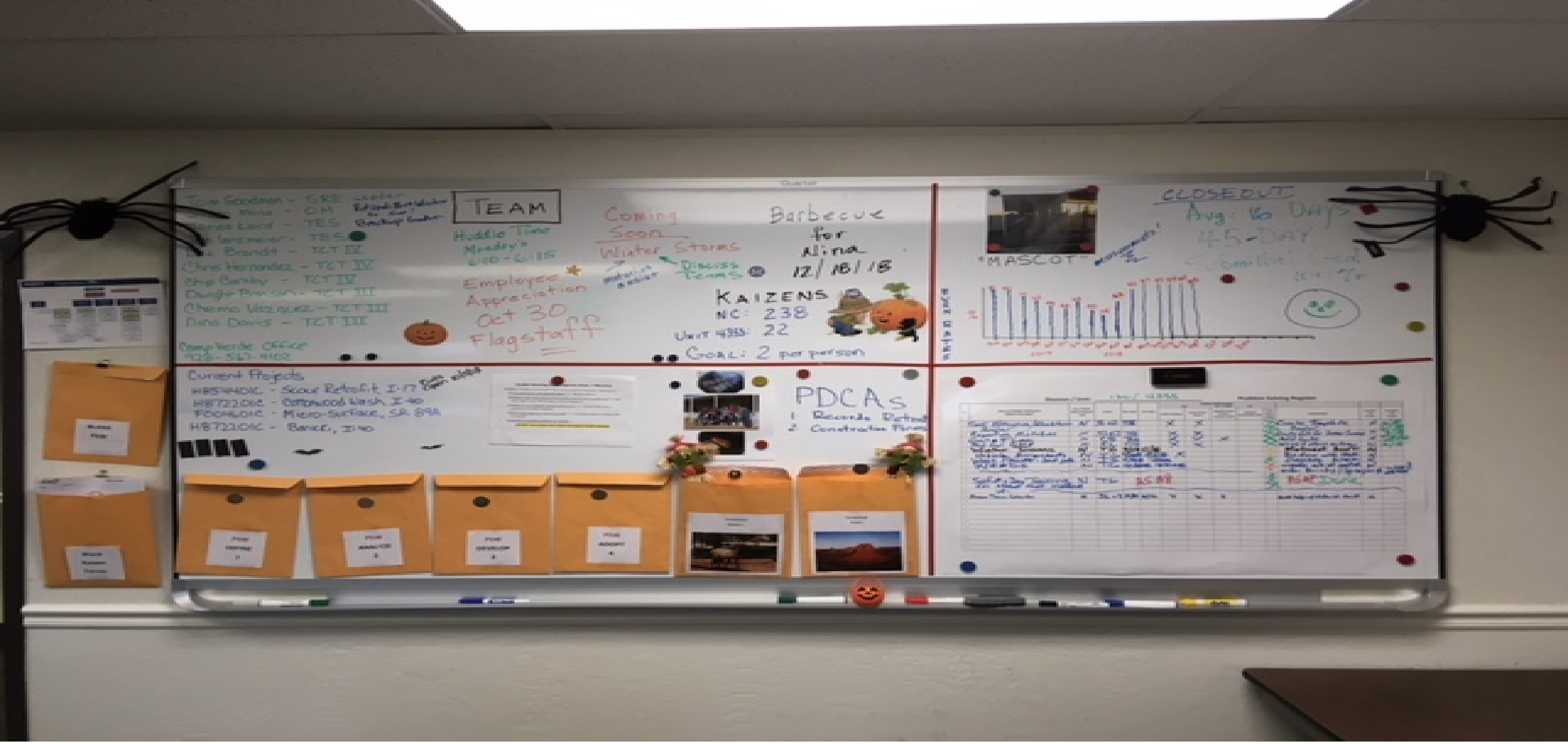
- Supplement FTE Staff
- Depends on work Load
- Require ATTI Field
- ACI concrete Field level

On-Budget Construction Delivery

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

Tracs No	County	Project Name	Bid Date	Bid Amount	Diff btwn 1st and 2nd Bid	Delta btwn 1st and 2nd Bid	# of Bidders
H824301C	Maricopa	I-17, Happy Valley & Pinnacle Peak TI's	8/31/2018	$ 50,069,219	$ 6,910,781	13.8%	2
H894101C	Pinal	I-10, Pinal Airpark TI	8/10/2018	$ 1,678,827	$ 552	0.0%	2
F013201C	Pima	I-19, Ajo Way TI Phase 2	5/4/2018	$ 31,991,712	$ 867,672	2.7%	3
H892201C	Maricopa	I-8, Paloma	04/13/18	$ 8,581,891	$ 1,168,109	13.6%	4
H849001C	Apache	US 160, Chinle Wash Bridge	03/02/18	$ 6,065,103	$ 245,140	4.0%	4
		FNF TOTAL		**$ 98,386,751**	**$ 9,192,255**	**9.3%**	
H865701C	Mohave	US 93, White Hills - 11th St	08/24/18	$ 9,990,000	$ 1,284,180	12.9%	3
H893401C	Coconino	I-17, Coconino C/L - Flagstaff	02/23/18	$ 24,450,000	$ 1,634,765	6.7%	5
H871701C	Cochise	SR 92, Sierra Vista	02/09/18	$ 6,969,696	$ 335,639	4.8%	3
		FISHER TOTAL		**$ 41,409,696**	**$ 3,254,585**	**7.9%**	
SS85901C	La Paz	LHC, Lake Havasu Ave	05/11/18	$ 1,111,054	$ 66,425	6.0%	4
H869401C	Coconino	I-40, Cataract Lake - Parks	01/26/18	$ 35,347,806	$ 552,194	1.6%	3
		FANN CONTRACTING TOTAL		**$ 36,458,860**	**$ 618,619**	**1.7%**	
H858701C	Maricopa	I-10, Fairway TI	09/21/18	$ 20,807,745	$ 1,122,255	5.4%	6
		SUNLAND		**$ 20,807,745**	**$ 1,122,255**	**5.4%**	
H891801C	Yavapai	SR 89, Paulden Turn Lanes	09/21/18	$ 1,259,400	$ 97,730	7.8%	3
H851801C	Yavapai	SR 89, SR 89A - Deep Well Ranch Rd	03/23/18	$ 10,361,415	$ 116,392	1.1%	4
		ASPHALT PAVING & SUPPLY		**$ 11,620,815**	**$ 214,122**	**1.8%**	

	Project Name	TRACS NUMBER	Route and Mile Post	ADOT District	Board District	Contract Time Days	Time Used Days	% Complete	Contract $	$ Spent	% Spent	(paving, bridge forming, sign installation, other)	(paving, bridge forming, sign installation, other)	(year/month)
Roadway	CITY OF PEORIA: 75TH AVE & CACTUS RD	SH53501C	LPA-PEORIA	CENTRAL	1	365	374	102%	$6,134,772.80	$5,823,289.12	95%	N/A	PLANT REPLACEMENT.	October-2018
Bridge	CITY OF BUCKEYE	SH63401P	LPA-BUCKEYE	CENTRAL	1	365	240	66%	$124,718.27	$0.00	0%	N/A	NEXT SIGN DELIVERY TBD.	April-2020
PMG	CITY OF AVONDALE: MCDOWELL RD - DYSART TO AVONDALE	T003401C	LPA-AVONDALE	CENTRAL	2	200	163	82%	$627,168.60	$504,462.54	80%	FIBER TESTING, PUNCH LIST ITEMS & FORCE ACCOUNT ON FIBER REPAIR.	SST, SAT & SUBSTANTIAL COMPLETION.	September-2018
C&S	APACHE TRAIL TO SUPERSTITION BLVD: DELAWARE DR - APACHE TRAIL	T006001C	SR88	CENTRAL	3	205	52	25%	$1,270,000.00	$0.00	0%	N/A	SIDEWALK CONSTRUCTION, ASPHALT PAVING & SIGNING AND STRIPING.	May-2019


TEAM
Coming Soon
Winter Storms
Barbecue for Alina 12/18/15
Employee Appreciation Oct 30 Flagstaff
KAIZENS
NC: 238
Unit 4355: 22
Goal: 2 per person
"MASCOT"
CLOSEOUT
Avg. 16 Days
Current Projects
PDCAs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U.S. Department of Transportation
Federal Highway Administration

Scorer Name John Doe

	SELECTION FACTORS	DBB	CMAR	DB
Project Level	Project Complexity	8	9	7
	Budget	8	9	7
	Schedule	7	9	7
	Risk	6	5	2
	Scope	2	5	3
Agency Level	Staffing availabilty Int/Ext	5	6	8
	Experience Int/ Ext	6	6	5
	Agency Goals/Ojectives	7	8	9
	Agency Control of Project	7	8	9
	Third Party Coordination	9	6	7
Policy/Regulatory Level	Balanced Procurement	2	3	4
	Environmental Regulations	2	5	5
	Tribal Impacts	2	6	6
	Stakeholder/Community	6	8	3
Special Considerations	Total Project Delivery Cost	5	7	6
	Staffing Pressures	8	8	9
	Modification Opportunities	6	6	8
	Project Life Cycle Costs	3	3	1

Project Level
- Reduce/compress/accelerate project delivery period
- Complete the project on schedule
- Complex project requirements
- Flexibility needs during construction phase
- staffing requirements during design and construction
- Minimize project cost
- Maximize project budget

Agency Level
- Select the best team
- Enhance the environment through less traffic congestion and pollution

Policy/Regulatory Level
- Minimize project delivery time
- Facilitate Value Engineering
- Minimize impact on the environment
- Stakeholder impacts

Special Considerations
- Reduce life cycle costs
- Obligate funds
- Accelerate start of project revenue
- Get early construction contractor involvement
- Encourage innovation
- Compete different design solutions through the proposal process

SCORE	DEFINITION
10	The evidence that the delivery method positively aligns with the project objective or issue is of the highest possible order of affirmation.
8	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.
6	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.
4	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.
2	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.
9,7,5,3,1	Intermediate values between two adjacent judgments.

Questions?


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WORK
U.S. Department of Transportation
Federal Highway Administration

Thank You!


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Questions?


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