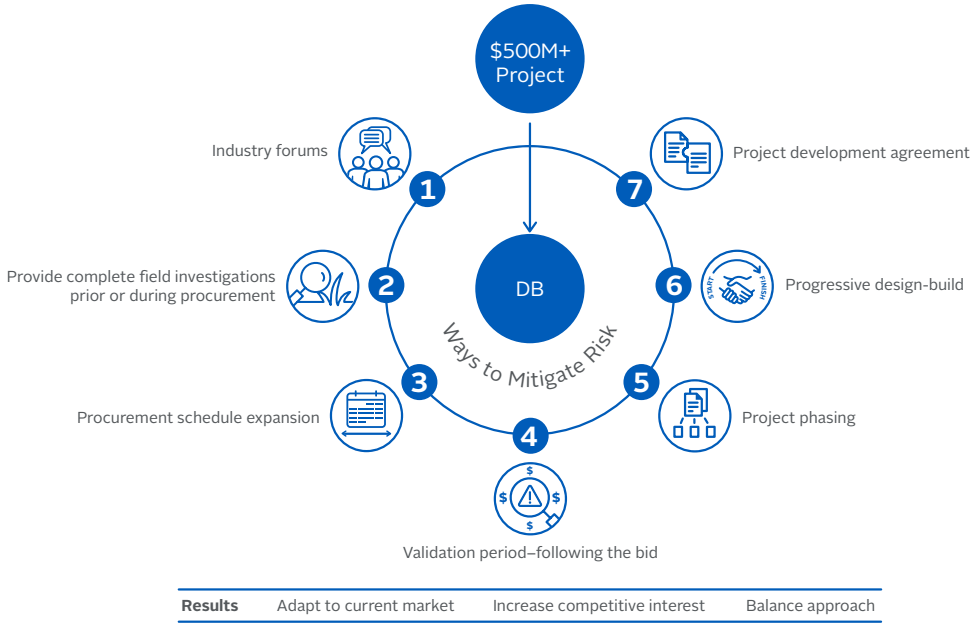
Effective Design-Build Procurement Strategies for Transportation Projects

By James Avitabile, PE, DBIA | RS&H, Inc.

If your capital improvement program involves a design-build (DB) or Public-Private Partnership (P3) project that exceeds $500 million in size, you are acutely aware of the challenges in attracting the right level of contractor, designer, or developer interest. The odds are that you have already held meetings with industry representatives and allowed them to express their concerns. Those meetings may have led to discussions regarding excessive risk transfer, bonding restrictions, and insurance issues. While your agency may be in the process of deciding on a course of action, you are not alone in this dilemma. The transportation industry has seen a major reduction in interest for large DB and P3 projects. But more than one solution may exist to successfully procure your project and other agencies are in the process of developing new improved strategies. RS&H is currently working with several to do just that. To appropriately categorize the options and address the challenges, let's break down the discussion into two categories: DB and P3 projects.

Design-Build Procurement Strategies Used by Transportation Agencies



Design-Build Projects & Risk

In general, the desire for an agency to perform a major corridor improvement as one single DB project has many advantages. There is only one point of contract responsibility, schedule can be significantly reduced, traffic control is more consistent, inconvenience to the local communities, businesses and commuters is minimized, quality control is more uniform and project costs can be better maintained and budgeted. In most cases, the environmental documentation can be streamlined since project segmentation is avoided. This can be a significant benefit to an agency on a major corridor improvement.

But, the truth is that many of these major transportation projects include construction schedules that span three plus years. This significantly increases the risk to the design-build team. In general, the size of a construction contract can dictate the risk to the DB team and if schedule adherence is factored into the procurement as a contract disincentive, this risk increases. If the bid was provided based upon 30% complete design plans and incomplete subsurface soil data, this can cause added risk to the design-build team resulting from unknown subsurface soil conditions. Furthermore, if bridge plans including foundation designs are not complete at the time of the bid, the DB team has no option other than to make assumptions on foundation depths and beam sizes, meaning that the risk is passed on to the owner in higher project costs.

Seven Ways to Address & Mitigate Risk

1. *Design-Build Industry Forums*

There are ways of addressing these risks and by doing so increasing interest in your project from qualified DB teams. First, I recommend that you hold an open and transparent industry forum to obtain input from the potential bidders. To do this effectively, an owner needs to be willing to hear their concerns and work with their consultants' team to identify any significant issues much like those listed above. While one-on-one meetings are not essential, they can be a very effective tool to allow DB teams to speak openly and honestly without tipping their hand to the competition. If your agency allows these meetings during procurement, you will gain solid feedback regarding your project that you may not otherwise get.

2. *Provide Complete Field Investigations Prior or During Procurement*

Risk should always be allocated to the party that can handle it more efficiently. Field surveys, utility locates, geotechnical investigations, and even right-of-way acquisition are much more efficiently handled by the owner. Obtaining this information and making it available during the procurement can significantly reduce risk for a design-build team. Considering how large these efforts are on a mega-project and the risk can escalate easily, which in turn will get reflected in the bids submitted or reduce the number of bidders willing to take on that risk.

U.S. Route 183, Texas

3. *Expanded Procurement Schedule*

Best Value DB represents the majority of public sector DB. It fosters creativity and innovation, while uniquely allowing the team to create value for the owner through applying DB techniques. But it also requires a team to prepare a fixed price proposal with only preliminary plans. On a $500 million or larger project, where Alternate Technical Concepts (ATCs) often drive the proposal production schedule and constrain plans production, this can be challenging. Allowing a higher level of design to be completed by extending the proposal procurement schedule by three months, could significantly allow the DB teams to provide a more complete design submittal and more accurate price proposal.

4. *Validation Period – Following the Bid*

If extending the proposal schedule is not an option, another method of reducing risk for both the DB teams and owner is to include a validation period after the project is awarded. This can be beneficial by allowing the design to advance while more information is collected by the team to validate the subsurface information and structural design of the major features. If an unknown challenge is uncovered, the owner has an obligation to share in the cost or reduce the scope to build the project within budget. If the DB team made an error in their bid, that is not the responsibility of the owner. This method creates opportunities for each party to attempt to address these issues before plans are released for construction. This strategy is extremely effective and is being used by several agencies on all their DB projects.

5. *Project Phasing*

Another way to reduce risk to the bidders is to break the project down into several separate contracts. This is referred to as phasing the project. This tactic allows many of the smaller regional contractors with local experience and resources to bid on the contracts as primes. Expanding the competition can lead to more competitive bids. While this option makes sense and can be the easiest to employ, it does not always support the owners project goals or objectives.

6 *Progressive Design-Build*

The use of progressive design-build (PDB) has expanded considerably. In some disciplines, such as water and wastewater, it is becoming the procurement method of choice. Those transportation agencies currently using PDB, are becoming more comfortable with it and are using it more regularly. But for highly complex projects over $500 million in size, the Best Value DB method is generally chosen ahead of PDB because of concerns over selecting a DB team for projects of this size based on qualifications. However, there are ways of including a price component in a PDB procurement to establish the contract Guaranteed Maximum Price (GMP) and as PDB becomes more commonly used, this is likely to change.

7 *Project Development Agreement*

The project development agreement (PDA) method of procurement can be adapted to procure major DB projects and to realize the benefits of PDB while including a price component. The corridor DB team selection would be based on a best value procurement for the first phase of the project while the corridor DB team serves as the Construction Manager General Contractor (CMGC) for the later project phases. The CMGC oversees the phasing of the work, packaging the secondary DB sub-contracts and maintaining schedule and contract coordination. These other contracts could be procured as either separate best value DB contracts, conventional design-bid-build (DBB) contracts, or fixed price low-bid DB contracts.

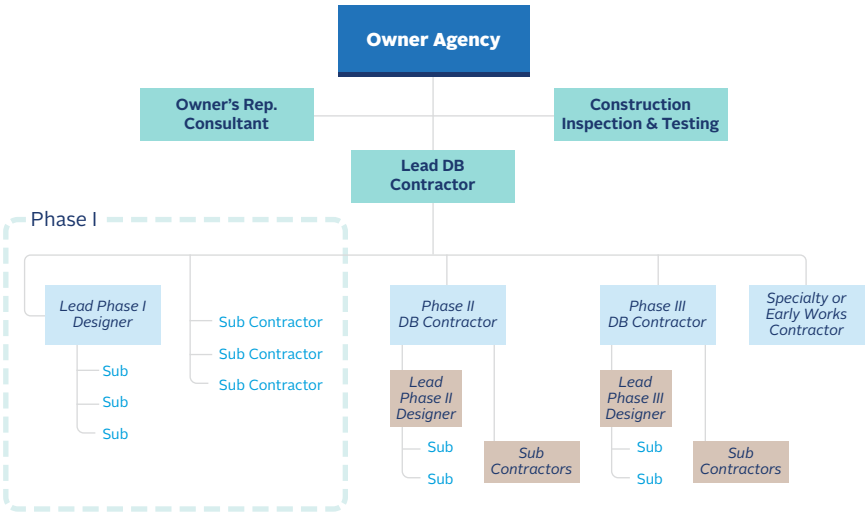
What Strategies are Right for Your Agency?

These are just a few examples of the strategies available to public transportation agencies who are looking to adapt their major DB projects to the current market conditions and increase competitive interest while incorporating a more balanced approach to risk management. When evaluating the use of these tools it is imperative to have a team of consultants who has the experience and technical leadership that can serve as an Owner's Representative and assist your agency in determining the best options available.

RS&H has served as program manager or procurement advisor to public agencies on over $48 billion in alternative project delivery projects. We have used many of these tools effectively and are currently developing others which can apply to DB and P3 procurements.

Our next paper will address the various P3 procurement alternatives available to public agencies seeking to advance large-scale transportation programs. Sign up to receive this white paper as well as all future articles in the Alternative Project Delivery series.

The Project Development Agreement Procurement Method



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Jim has more than 40 years of experience in the transportation market and is a recognized leader in alternative delivery. He has worked with many agencies who are experienced with design-build and P3 project models to help refine and improve upon their program procedures. Jim can be reached at **James.Avitabile@rsandh.com**.