

**Webinar Series  
Coming  
Spring/Summer  
2018**

*KEY FACTORS TO ADDRESS WHEN  
CONSIDERING ALTERNATIVE  
PROJECT DELIVERY IN  
TRANSPORTATION*

*A Design-Build Done Right™ Deeper Dive*



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## INTRODUCTION

This publication is a *Design-Build Done Right™ Deeper Dive*. *Deeper Dives* build on concepts outlined in various other DBIA primers. Specifically, this document builds on the following:

- *Design-Build Done Right™ Universally Applicable Best Practices*
- *Transportation Sector Design-Build Best Practices*

These documents, and numerous other design-build resources, are available for download at [www.dbia.org](http://www.dbia.org).

DBIA recognizes that there are real-world differences among design-build market sectors (e.g., transportation, water/wastewater, federal projects and building facilities), and that issues specific to one sector may not apply in another. As such, DBIA expects that users of design-build in the transportation sector will benefit from having more detailed guidance on certain considerations and areas of risk that should be carefully addressed early in the design-build process. The following key areas are the focus of this publication:

- Use of Alternative Technical Concepts (ATCs)
- Right-of-way Acquisition
- Utilities Management
- Maintenance of Traffic (MOT)
- Environmental Analysis and Permitting

Vetted through contributions from Owners, designers, contractors, lawyers and academia, this document is a comprehensive guide for owners and design-build teams on some of the most pressing issues in transportation design-build delivery. As with all DBIA documents, broad industry input from diverse perspectives helps ensure that our guidance is written to ensure success for all – both owners and practitioners.

As the design-build industry continues to evolve, this *Deeper Dive* will also evolve, expanding to add new topics or altered content to fit industry needs and the current state of practice.

DBIA intends to continually update our portfolio of publications, tools and other resources so that design-build stakeholders will have access to leading-edge information that will allow them to accomplish *Design-Build Done Right™*.

# USE OF ALTERNATIVE TECHNICAL CONCEPTS (ATCs) IN TRANSPORTATION DESIGN-BUILD

A DESIGN-BUILD INSTITUTE OF AMERICA PUBLICATION

## INTRODUCTION

Design-build project delivery introduces schedule, cost and technical efficiencies to the development of transportation projects. One way in which projects can significantly benefit from the new dynamics of integrated design and construction is by allowing the submission and incorporation of approved Alternative Technical Concepts (ATCs) into proposers' submissions during the procurement process.

Owners are required to deliver large, complex infrastructure projects at the best value to their constituents. As the construction industry continues to recognize the many advantages of best value awards, compared with contracts historically being awarded to the lowest responsive bidder, it is critical to have mechanisms in the procurement process that allow proposers to differentiate their best value solution to the project. Allowing proposers to demonstrate their approach to add value to the project through the use of ATCs is one very important tool for Owners to be able to document that differentiation. This allows the Owner to evaluate potential innovation, as well as the level of commitment the proposer is bringing to the project, at an early stage in project development, often requiring minimal additional investment by the Owner.

The Alternate Technical Concept (ATC) process, coupled with proprietary one-on-one meetings, provides a venue for proposers and Owners to discuss innovative solutions/ideas in a confidential setting. The ATC concepts may be associated with design criteria changes, alternate design solutions for nearly any project component, construction methods, operations and/or maintenance functions or material selection – to name just a few areas where ATCs may bring value to a proposed project solution.

An ATC found to be acceptable to the Owner can then be incorporated into the proposal and considered in the final selection process. It is important to note that an Owner may place a conditional approval on an ATC, which after award may require further vetting by the Owner and design-build team. However, an ATC – even with conditions to the approval – will most often be viewed as less risky by the proposer, allowing them to offer a better price to the Owner. The ATC process allows for an efficient way to vet innovative solutions during the pre-award phase, when the Owner will realize the maximum benefit. In contrast, vetting solutions post award, when such solutions would generally otherwise have to be brought forward as value engineering proposals by the winning team, means the Owner will generally realize only a portion of the savings. Allowing the evaluation of innovative ideas only post award could introduce delays and potential conflicts in the design; or worse, the ideas will not surface at all due to the complications of trying to incorporate them into an already winning proposal, which can result in the Owner and end-users likely receiving less than the best value.

Design-build has been demonstrated to be the project delivery method of choice for successful transportation projects for over 20 years. While design-build allows for the Owner to contract with a single entity to design and construct the project, the procurement process does not always allow for variances from the original program or design criteria (deviations from specification) provided by the Owner in the RFP documents.

ATCs allow industry to provide innovative solutions to the stakeholders' concerns, while still working within the original programming requirements and design intent (RFP Documents). The use of ATCs allows the competing proposers to invest in identifying alternate solutions of equal or better value prior to submission of the proposal that benefit the Owner and their stakeholders.

An Owner can recognize the added value the ATC brings to the project, including the full value of any savings realized by an approved ATC, at the time of proposal submission. This allows the Owner to more fully benefit from the best value selection process implemented. It is important to note that some ATCs may not bring a direct cost savings, but still add significant value to the project in the form of reduced risk, lowered future maintenance cost (life cycle cost improvement), enhanced delivery schedule or other forms of indirect savings to the project Owner/end users. The Owner may realize one or more of the following additional benefits from the incorporation of accepted ATCs into a winning proposal:

- Improved schedule.
- Cost savings.
- Reduced environmental or community impacts.
- Reduced right-of-way and utilities impacts.
- Reduced or eliminated project risk.
- Improved project quality and performance.
- Better coordination/integration with stakeholders, traveling public, safety and/or third party utilities.
- Reduced operating and maintenance costs (improved life cycle costs).

At the same time, the proposer should anticipate the likelihood of receiving an improved technical rating of their proposal under various criteria in a best value evaluation that comes with a more competitive price, a true win/win situation. This is particularly true when compared to a Value Engineering Change Process (VECP) that occurs post award, where savings from innovative ideas are typically shared among the parties.

## BACKGROUND

In 2014, DBIA published Universal Design-Build Best Practices and associated Implementing Techniques. As implied, these Best Practices and Implementing Techniques are universal across all market sectors: Private, Federal, Water/Wastewater and Transportation. In an effort to provide continued guidance on Best Practices, in 2015, the DBIA Transportation Committee identified several design-build delivery disciplines within the transportation sector that are commonly considered higher risk or disciplines with unique consideration in design-build delivery. The disciplines are:

- **Alternative Technical Concepts**
- Right-of-Way
- Utilities
- Maintenance of Traffic
- Environmental Permitting and compliance

In the fall of 2015, DBIA published transportation-specific Implementing Techniques that support the Universal Best Practices and Implementing Techniques to be considered by Owners and design-build teams in procurement (including planning), contract language and post-award phases of a project for the above disciplines. These additional transportation-specific Implementing Techniques, when used in conjunction with the universal DBIA Best Practices publication, provide industry with a road map for the best opportunity to be successful on design-build projects.

To build on the success of the prior publications and to respond to comments received at the 2015 DBIA Transportation Conference, DBIA has established additional guidance and further considerations to supplement the transportation-specific Best Practices and Implementing Techniques pamphlet published in 2015. These latest additional guidance and further considerations do not add to the Best Practices or Implementing Techniques; rather, they provide more detail on how to successfully implement an individual Best Practice or Implementing Technique.

## ADDITIONAL GUIDANCE/FURTHER CONSIDERATIONS:

As a follow-up to the 2014 and 2015 work in Universal and Transportation specific Best Practices and Implementing Techniques, DBIA has prepared this White Paper presenting additional guidance and further considerations to be considered with the Best Practices and Implementing Techniques published in 2015. This effort is intended to provide our members and the design-build industry with proven successfully delivered approaches to project delivery.

The additional guidance and further considerations materials developed herein generally fall into three categories:

1. Additional guidance or steps to take for best use of a Best Practice or Implementing Technique;
2. Further clarification of a published Best Practice or Implementing Technique;
3. Further considerations or areas of importance that were not considered to be as critical as those identified in the original Transportation specific “Implementing Techniques,” but that if understood or followed will be beneficial to project delivery.

The published Implementing Techniques are used below as the baseline with reference to where the reader may find them in the Transportation Best Practices Publication. The additional guidance and further considerations are presented beneath the Implementing Techniques. Each is presented by the 3 major phases of the design-build process; procurement, contract language and post award (project execution).

## ALTERNATIVE TECHNICAL CONCEPT IMPLEMENTING TECHNIQUES PUBLISHED BY DBIA WITH ADDITIONAL GUIDANCE/FURTHER CONSIDERATIONS

### Procurement

#### 1. Implementing Techniques:

Owners should develop ATC guidelines that define the process in which ATCs are reviewed, evaluated and accepted. This is especially important for Owners with limited staff resources. In addition, on significantly large complex projects, these guidelines can help steer the process productively towards the desired areas of innovation and maximize the opportunities for the Owner to achieve positive results. *(DBIA Trans BP I.1.k)*

- a. Owners should develop their design-build procurement with the goal of minimizing the use of prescriptive requirements and maximizing the use of performance-based requirements, which will allow the design-build team to meet or exceed the Owner’s needs through innovation and creativity. If prescriptive requirements are included, Owners should take the design to the minimum level required to obtain major approvals required for project development, and consider other means that encourage design flexibility, such as allowing: (a) shortlisted proposers to propose ATCs; and (b) the design to deviate from the project configuration defined in the preliminary design, within specified parameters. *(DBIA Trans BP I.2.c)*

- b. Proposers should be encouraged to submit ATCs that do not compromise project quality or intent, and that allow proposers to provide input to the Owner regarding new ideas, innovations or concepts that may not have been reflected in the RFP documents. (*DBIA Trans BP 1.2.j*)

## 2. Additional Guidance/Further Considerations

- a. Owners should consider and encourage a broad array of ATCs, and not limit approval of ATCs to just those that reduce costs.
- b. Owners should provide the proposers their legislative or corporate authority to use both DB and ATC processes in the Criteria Documents (RFP Documents).
- c. Identify clearly what is required to be submitted and the format for review of an ATC. Typical categories to be considered in the review might include:
  - i. Description – Includes schematic drawings or other appropriate descriptive information (i.e., product details such as specifications, tolerances, special provisions, traffic analysis).
  - ii. Usage – Where and how the ATC would be used on the project.
  - iii. Deviations – References to any requirements within the project’s RFP Documents that are inconsistent with the proposed ATC, an explanation of the nature of the proposed deviation and a request for approval of such deviations or a determination that the ATC is consistent with the requirements of the RFP documents.
  - iv. Analysis – An analysis justifying the use of the ATC and why the deviations from the requirements of the RFP Documents should be allowed. (It is particularly important to

demonstrate the overall value the ATC brings to the project with the deviations.)

- v. Impacts – Discussion of potential impacts including environmental impacts (favorable and unfavorable) identified on appropriate environmental documents (especially with regard to the impacts and commitments of the EIS and ROD), community and stakeholder impacts, improved safety and life-cycle project and infrastructure costs (including impacts on cost of future operations, maintenance and repairs).
- vi. History – A detailed description of other projects where the proposed ATC has been used under comparable circumstances, the success of such usage, and the names and contact information of project Owners that can confirm such statements. (Note: an ATC concept may not have been used on a project; Owners should consider ATCs even if there is no history.)
- vii. Risks – A description of reduced or added risks to the Owners, design-builders, and stakeholders associated with implementing the ATC.
- viii. Costs – Estimate of the implementation costs savings to the project.
- d. The Criteria Documents (RFP) should define the levels of approval for ATCs. Common levels include:
  - i. Accepted – this indicates the ATC as presented is acceptable.
  - ii. Accepted with conditions – this indicates the ATC may be accepted if certain conditions identified with the conditional acceptance are met. (This often leads to a lower project risk vs staying with the RFP approach without the incorporation of the ATC concept.)



- iii. Not accepted in the current condition – this indicates the ATC may be accepted if certain conditions are met that are identified with the conditional denial.
  - iv. Denied. ATC concept may not be resubmitted in a revised context. (This may often be because, for certain reasons, the subject project element must be built as defined in the RFP. The Owner can help all parties eliminate the lost time associated with ATC with no chance of approval being prepared by clearly delineating within the RFP any project elements that MUST remain unchanged.)
  - v. Accepted but not an ATC – this indicates the proposal is allowed by contract and therefore is not considered an ATC.
- e. Conditional approvals are commonly used to expedite the timelines of the procurement process. A conditional approval allows for two primary benefits:
- i. The design-build team is not required to continue to progress an ATC design concept during the proposal for further detailed evaluation.
  - ii. The Owner may still receive added value where the proposers can evaluate the risk associated with the conditional ATC versus the solution presented in the RFP Documents/Criteria Package they are trying to modify, and price that risk accordingly, often at a lower overall cost to the Owner.
- f. Typically, ATCs which deviate from the RFP Documents are only approved when the Owner determines that the proposed deviations are equal to or better than the end product defined in the RFP Documents/ Criteria Package and are permitted by the project constraints.
- g. When deviations from the design concepts specified in the request for proposals are prohibitive, the Owner should explain to proposers the reasons for specifying certain design concepts/configurations and why some design features cannot be changed.
- i. The Owner determines what types of deviations will be allowed or disallowed, and clearly describes them in the RFP Documents/Criteria Package. It is important to expressly state where variances will not be allowed, to avoid wasted efforts for both the proposers and Owner's staff in preparation and review of ATCs. If a particular area of the project has been preapproved by key stakeholders, and there is no option to accept any variance on that project element, then ATCs would not be allowed for only those discrete project elements with such constraints, and this should be stated as such in the RFP Documents.
- h. The ATC evaluation and approval process must remain proprietary and confidential to not only encourage, but also to ensure, that proposers pursue the most effective enhancements and cost solutions prior to submission. An ATC evaluation process that is effectively managed will feature true confidentiality on an equal playing field with all proposers, in combination with clearly articulated evaluation criteria; there should be very little risk of the ATC process being the basis for an award protest by an unsuccessful proposer.
- i. While this process requires more interface with the proposers during the pre-award phase, it allows the Owner to use the marketplace to provide alternate solutions and bring significant innovation to a project. In lieu of having one team potentially providing added value after award in a design-build low bid or in a design-bid-build format using value engineering, the ATC process used in a design-build best value award process allows multiple teams to provide added value for a relatively small investment



- by the Owner during the proposal preparation phase of the project.
- ii. An ATC proposal of a significant nature may require concurrence of stakeholders, such as FHWA, Corps of Engineers, municipalities and/or other third parties. The Owner should discuss the process and associated risks related to acceptance of the ATC with the proposer in advance and get their approval to engage the affected parties in the ATC evaluation process. It is critical that, should this become necessary, the Owner must bind those stakeholders to the same level of confidentiality.
- i. To help assure the confidential nature of the ATC process, the Owner's core evaluation team should be kept to as small a group as possible. Each evaluation committee member should be bound to a non-disclosure agreement throughout the RFP process.
  - j. Once an Owner has determined they want to include an ATC process in their solicitation, it is very important that they have the proper resources available to evaluate the ATC effectively and in a timely fashion. Due to the often-compressed nature of the RFP process, it should be a goal to have all ATCs evaluated and disposition determined in no more than two weeks. Owners should also allow the proposers adequate time after ATC acceptance or denial to complete their Proposals based on those determinations. Depending on the project scope, this may require the Owner to assemble subject matter experts in multiple technical disciplines, as well as subjects such as ROW, MOT, environmental permitting and operation and maintenance.
  - k. Owners with limited resources for reviewing ATCs can use one of the following techniques to minimize the overall efforts to evaluate ATCs:
    - i. One-on-one meetings to discuss ATCs in principle before formally making submissions for full evaluation.
    - ii. Submitting a shortened version of the ATC evaluation package "conceptual ATCs" that provides the fundamental components to generally evaluate the ATC (generally a brief narrative scope description and one or two concept plans to present key elements).
    - iii. Use of "industry days" to share overarching project goals and solicit input from the stakeholders regarding challenges and risks, as well as opportunities for improvement.
  - l. If an ATC submission is approved, the proposer may elect to incorporate the approved ATC into their proposal or not. A proposer should be required to clearly indicate within their proposal submission which ATCs have been incorporated in their technical and price submissions.
    - i. Only ATCs that are accepted, or accepted with conditions, should be allowed to be included. The submitted ATCs should be included in the conformed contract at the time of award.

## Contract

### 1. Implementing Techniques:

- a. No ATC-specific procurement implementing techniques (refer to Additional Guidance/Further Considerations below).

### 2. Additional Guidance/Further Considerations:

- a. Ensure ATCs that are stipulated to be included with the proposal review are incorporated into the Contract.

## Post Award

### 1. Implementing Techniques:

- a. No ATC-specific post-award implementing techniques (refer to Additional Guidance/Further Considerations below).

### 2. Additional Guidance/Further Considerations:

- a. All incorporated ATCs should be tracked to ensure they are captured in final design drawings.
- b. Incorporated ATCs may require modification to the schedule of values or payment system used on the project.
- c. The design-builder should be bound to deliver the project, including the stated ATCs, and not be entitled to contract modifications (without mutual agreement of the parties) if the proposer determines, after contract award, that they cannot deliver the project with the accepted ATCs that were used by Owner as the basis of award. In this case, they must deliver the original RFP scope at no increase in cost to the Owner, unless subsequent approvals needed for the ATC to advance have been unreasonably withheld or otherwise affected by a third party outside the control of the successful proposer.

# RIGHT-OF-WAY ACQUISITION IN TRANSPORTATION DESIGN-BUILD

A DESIGN-BUILD INSTITUTE OF AMERICA PUBLICATION

## INTRODUCTION

Design-build project delivery introduces schedule, cost and technical efficiencies to the development of transportation projects. One area that can significantly benefit from the new dynamics of integrated design and construction is right-of-way (ROW) acquisition.

In the evaluation of project risks on transportation projects, two items usually identified are right-of-way cost and the associated time required for acquisition. These risks are inherent in the acquisition of any right-of-way process and are not a function of the project delivery method, although efficiencies and innovations in the process may be realized using design-build.

First and foremost, one should recognize that the process of purchasing property from – in most cases – an unwilling seller is often challenging and complicated. In addition, the procedural and legal measures required by the Federal Highway Administration’s (FHWA) Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and associated with property owner education, acquisition or condemnation<sup>2</sup> and tenant relocation involve a number of sequential activities which often create a prescriptive and prolonged timeline.

Experience has demonstrated that right-of-way acquisition and relocation services (right-of-way services), herein defined as the procedural way property is purchased and the relocation settlement developed and administered, can be successfully performed by either an Owner or a design-build team. In deciding on which party (Owner or design-build team) is best suited for these tasks, numerous considerations as listed in the material below, should be evaluated as right-of-way acquisition is affected by numerous variables within the project finance, planning

and design phases. Each variable may affect the decision of which party is more appropriately suited to perform the right-of-way services.

Considering that all projects are unique, caution should be exercised in treating all design-build projects the same and taking a specific stance on a single party (Owner or design-build team) performing right-of-way services for all projects. With variables from finance to design and permitting affecting this decision, there is not a “one solution fits all projects” approach.

DBIA suggests taking into consideration the information presented in this White Paper, in addition to DBIA Universal Best Practices in the three major phases of the design–build process: procurement, contract language and post award (project execution).

## BACKGROUND

In 2014, DBIA published Universal Design-Build Best Practices and associated Implementing Techniques. As implied, these Best Practices and Implementing Techniques are universal across all market sectors: Private, Federal, Water/Wastewater and Transportation. To provide continued guidance on Best Practices, in 2015, the DBIA Transportation Committee identified several design-build delivery disciplines within the Transportation sector that are commonly considered higher risk or disciplines with unique consideration in design-build delivery. The disciplines are:

- Alternative Technical Concepts
- **Right-of-Way**

- Utilities
- Maintenance of Traffic
- Environmental Permitting and compliance

In the fall of 2015, DBIA published transportation-specific Implementing Techniques that support the Universal Best Practices and Implementing Techniques to be considered by Owners and design-build teams in procurement (including planning), contract language and post-award phases of a project for the above disciplines. These additional transportation-specific Implementing Techniques, when used in conjunction with the universal DBIA Best Practices publication, provide industry with a road map for the best opportunity to be successful on design-build projects.

To build on the success of the prior publications and in response to comments received at the 2015 DBIA Transportation Conference, DBIA has established additional guidance and further considerations to supplement the transportation-specific Best Practices and Implementing Techniques pamphlet published in 2015. These latest additional guidance and further considerations do not add to the Best Practices or Implementing Techniques; rather, they provide more detail on how to successfully implement an individual Best Practice or Implementing Technique.

## ADDITIONAL GUIDANCE/FURTHER CONSIDERATIONS:

As a follow-up to the 2014 and 2015 work in Universal and Transportation-specific Best Practices and Implementing Techniques, DBIA has prepared this White Paper presenting additional guidance and further considerations to be considered with the Best Practices and Implementing Techniques published in 2015. This effort is intended to provide our members and the design-build industry with proven successfully delivered approaches to project delivery.

1. The additional guidance and further considerations materials developed herein generally fall into three categories:
2. Additional guidance or steps to take for best use of a Best Practice or Implementing Technique;
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Further considerations or areas of importance that were not considered to be as critical as those identified in the original Transportation specific “Implementing Techniques,” but that if understood or followed will be beneficial to project delivery.

The published Implementing Techniques are used below as the baseline with reference to where the reader may find them in the Transportation Best Practices Publication. The additional guidance and further considerations are presented beneath the Implementing Techniques. Each is presented by the three major phases of the design-build process: procurement, contract language and post award (project execution).

# RIGHT-OF-WAY IMPLEMENTING TECHNIQUES PUBLISHED BY DBIA WITH ADDITIONAL GUIDANCE/FURTHER CONSIDERATIONS

## Procurement

### 1. Implementing Techniques:

- a. Owners should evaluate and identify the appropriate party to **acquire right-of-way (“ROW”)** and relocate utilities as part of the project. (*DBIA Trans. BP I.1.j*)
- b. Owners should be closely involved in the right-of-way acquisition (ROW) and take appropriate steps to reduce ROW risk for the project. If the project envelope is sufficiently defined prior to start of the procurement, the Owner should: (a) clearly define the existing ROW boundaries; (b) provide expected dates for ROW acquisitions affecting the construction schedule (if the Owner will be responsible for the acquisitions); and (c) provide other information enabling the proposers to understand how the ROW acquisition process interrelates with the construction schedule. When ROW acquisition is the responsibility of the design-builder, or when the ROW needed for the project may vary based on the final project design, the Owner should clearly specify the scope of the design-builder’s responsibilities and identify the procedures that the design-builder must follow with respect to acquisitions. The Owner should retain responsibility for paying ROW acquisition costs and costs of relocations so as to reduce contingency that will otherwise be included in the contract price. (*DBIA Trans. BP I.2.g*)

### 2. Additional Guidance/Further Considerations:

- a. As part of the project Criteria Documents (RFP Documents), the Owner should provide current mapping, tied to survey control, with accurate parcel and property information. Such information is essential for determining impacts and costs associated with property acquisition, relocations, structure demolition, environmental abatement, septic systems, well abandonment and right-of-way services (appraisals, reports, negotiations, settlements, title searches/opinions, eminent domain, attorney costs, etc.).
- b. As part of the project Criteria Documents (RFP), parcels with environmental contamination should be disclosed.
- c. As part of the project Criteria Documents (RFP), high-risk parcels which have a major impact on cost and/or schedule should be identified.
- d. The Owner should be responsible for the eminent domain process. Costs associated with this process are also commonly borne by the Owner.
- e. In identifying the numerous variables and risks associated with right-of-way, four key questions should be initially addressed in the development of design-build projects:
  - i. Will the right-of-way cost be a direct pass-through to the Owner?
  - ii. Will the Owner or design-builder acquire the right-of-way?

- iii. How will the ROW acquisition party's (Owner or design-builder) goals and objectives be aligned to correspond with those of the other party?
- iv. What provisions should be included in the contract to address cost and schedule risk allocation?
- f. Regardless of the party providing right-of-way services (Owner or design-build team), specificity regarding each step in the right-of-way acquisition process, documentation requirements, required submittals/approvals/hold points, defined durations (if any), each party's responsibility, operating thresholds and approval authority should be provided in the Criteria Documents (RFP).
- g. The following variables should be considered when determining the party responsible for ROW services:
  - i. **State statutes and regulations.**
  - ii. **Financial Plan** – Funding source, availability of funding compared to project sequencing, certainty of the right-of-way costs.
  - iii. **Permitting** – Percent of design needed to secure permit requirements.
  - iv. **Land use** – Dynamics of development, types of parcels (residential, government, recreational, agricultural, parks, commercial, etc.).
  - v. **Relocations** – Number of relocations, differing types of relocations (industrial, manufacturing, residential, etc.) and availability of equivalent facilities.
  - vi. **Project delivery schedule.**
  - vii. **Resources** – Owner's in-house resources and/or experience of consultant industry.
  - viii. **Project design** – Increase in progression of design, known right-of-way boundaries and current Owner surveys, purchasing more right-of-way than needed, reducing design-build team's ability to innovate.
  - ix. **Utilities** – Easements or potential additional takings.
  - x. **Acquisition/relocation Costs** – Appraisals, meetings, closings, mediations, surveys/maps/plats, legal fees, potential delays to project schedule and incentives.
- h. Owner involvement to be defined in the Criteria Documents (RFP) should include:
  - i. Defining right-of-way cost and schedule provisions. Cost provisions should address whether the property/relocation costs are a direct pass-through cost to the Owner or to be included in a lump sum proposal inclusive of cost and schedule risks;
  - ii. Defining who will perform the right-of-way acquisition and relocation services;
  - iii. Assigning a capable right-of-way manager to the project who is empowered to make final decisions;
  - i. Acting as final oversight agency with early and frequent involvement throughout the acquisition process, an Owner typically retains the only rights to acquisition through eminent domain.
  - j. Owners should identify difficult parcels early in the planning process and consider advance acquisitions to facilitate project delivery.
  - k. Considering the sizeable risks associated with property and relocation settlements, litigation cost and potential jury awards, the Owner should assume



financial risk of the property and relocation costs, unless these financial risks can be quantified, or an incentive cost structure established.

- l. When ROW acquisition is the responsibility of the Owner and Notice to Proceed (NTP) is contingent on all ROW being acquired, the Owner should provide time-relief provisions in the event ROW acquisition is delayed, delaying NTP.
- m. When ROW acquisition is the responsibility of the Owner and all ROW will **NOT** be acquired prior to the Notice to Proceed, the Owner should include an ROW acquisition schedule and time relief measures for delays in the contract agreement.
- n. As the Owner assumes responsibility for the right-of-way services, they gain control over cost responsibility; however, they take on project schedule accountability.
- o. When an Owner assumes responsibility for the acquisition and relocation services, provisions should be taken to align these services with the design-build team's project objectives. Considering that the design-build team is charged with generally designing to a predefined lump-sum project budget with (typically) an aggressive schedule, the Owner should integrate their right-of-way services to complement the design-build team's efforts and not hinder production or innovation. Some questions the Owner should address are:
  - i. Is the Owner willing to make direct design changes to reduce right-of-way costs, and if so, at what stage of the process? How are cost and schedule impacts balanced?
  - ii. Is the Owner willing to increase design and/or construction costs to reduce right-of-way costs and ultimately total project costs?
  - iii. What is the Owner's aptitude for being innovative in their right-of-way approach?
  - iv. What motivates or incentivizes the Owner's resources to meet the design-build team's schedule?
  - v. Is the Owner receptive to receiving ATCs concerning ROW?
- p. As the Owner assigns the right-of-way services to the design-build team, the Owner's cost responsibility can increase, and control of cost is reduced; however, schedule accountability is also reduced.
- q. When assigning the acquisition and relocation services to the design-build team, provisions should be taken to align the services with the Owner's project objectives. As most Owners utilize design-build to reduce costs and accelerate project schedules, some questions to address are:
  - i. Will property costs be a direct pass-through to the Owner, and if so, what contract provisions entice or encourage the design-build team to save the Owner money during right-of-way settlements?
  - ii. Is the design-build team encouraged, and willing to make, design changes to reduce right-of-way costs? If so, at what stage of the design process? What amount of right-of-way savings is worth modifying the plans and potentially impacting the project schedule?
  - iii. What prevents the design-build team from focusing only on schedule and pursuing more eminent domain cases? With legal fees, attorney fees, court and trial costs, interest on escrow and typically greater settlement awards during mediation/jury trials, what do eminent domain settlements cost the Owner, and how can the

design-builder reduce or potentially share in these potential savings?

- iv. What checks and balances are in place to control cost?
- r. In instances where the property and relocation settlement costs are passed to the design-builder, it is important to have a high degree of certainty of ROW and relocation scope and costs. Cost risks can be tempered by the Owner in assuming cost responsibility upon reaching a predefined threshold dollar amount (per parcel, square foot or project), or by allowing the design-build team to share in the ROW cost savings to a defined threshold.
- s. Regarding property costs associated with easements and property acquisition, Owners should consider the risk to design-build teams and the project before assigning cost responsibility. Due to the risks associated with ROW as identified above, if price risks are to be placed on the design-builder, consideration should be given to providing an estimated price per square foot where the design-build team is at risk.
- t. To capitalize on the benefits and innovations available with the design-build process, the acquisition team's goals and objectives should be aligned with the project goals and objectives. For example, the right-of-way acquisition team may be directed to accelerate purchasing properties to coincide with an aggressive project schedule, with the understanding that higher settlements and/or more property may be acquired through eminent domain.
- u. Regardless of the party providing ROW services, ensure high-quality appraisals are developed by certified appraisers; consider appraisals by independent bodies; and establish a fully transparent /cooperative acquisition approach.

## Contract

### 1. Implementing Techniques:

- a. Owners should, consistent with their overall procurement strategy and enabling authority, evaluate and use appropriate contractual incentives that facilitate the alignment of the performance of their design-build teams with the Owner's project goals. Incentives that should be considered include solutions that reduce the project's ROW needs. (*DBIA Trans. BP II.2.a*)
- b. The contract should clearly specify the respective responsibilities of the Owner and design-builder in the areas of design, permitting, ROW, environmental mitigation measures, improvements that will be owned by third parties, and utility relocations. (*DBIA Trans. BP II.2.c*)
- c. The contract should clearly define the rules of engagement with stakeholders that will be involved in project design or construction, including for improvements that will be owned or operated by third parties, utility relocations, and ROW acquisitions. The contract should also identify any other contractors that the Owner anticipates will be working on or near the project and define the rules of engagement with those contractors. (*DBIA Trans. BP II.2.g*)

### 2. Additional Guidance/Further Considerations:

- a. Provisions should be included in the contract to clarify each party's role in the right-of-way process and address cost and schedule risk allocation.
- b. The contract should also provide specificity regarding each step in the right-of-way process, documentation requirements, required submittals/approvals/hold points, known scheduled durations for reviews and acquisition process durations, each party's responsibility, operating thresholds and approval

- authority with latitude to negotiate amicable settlements.
- c. If the Owner provides the right-of-way services, the Owner should document the right-of-way acquired prior to contract execution along with the status of all remaining parcels and relocations.
    - i. The Owner should also provide a schedule for delivering the remaining right-of-way, along with contract language addressing appropriate relief if the right-of-way schedule is not obtained.
    - ii. When appropriate, the Owner should allow the design-build team the ability to provide a right-of-way acquisition/relocation priority list to coincide with construction schedule.
  - d. Parcels that have a high risk or long lead time for acquisition and/or relocation and could potentially have a major impact on the project should be clearly identified. Parcels with known environmental contamination, along with anticipated abatement plans/responsibility, should be disclosed.
  - e. Any restrictions within the project right-of-way should be clarified – installation of design-build team facilities, wasting of materials, use of on-site materials, etc. The contract should detail the design-build team's flexibility or restrictions in revising the project footprint, along with their responsibility for associated permitting/National Environmental Policy Act (NEPA) documentation. All known utilities should be provided during the contracting phase, along with procedural methods, compensation and acquisition responsibility, for utility easements.
  - f. The contract should reference the right-of-way process to include documentation requirements, submittals/approvals/hold points and approval authority.

- g. When possible, Owners should consider including provisions that allow the design-builder to identify priorities for acquisition.
  - i. Owners should establish contract provisions to allow for innovation and/or incentives for reduction in right-of-way, number of parcels acquired, number of relocations and number of condemnations.
  - ii. Owners should establish contract provisions that allow property Owner incentives for early settlements and/or relocations.

## Post Award

### 1. Implementing Techniques:

- a. The Owner and design-builder should develop processes that enable key stakeholders (e.g., government agencies, utility and property Owners and third-party operators) to interface directly with the design-builder and its design professionals on significant elements of the work. Among the processes that might be considered are the use of special task forces to address issues related to ROW acquisition, utility relocation and environmental permitting that will engage key stakeholders into the process. (*DBIA Trans. BP III.3.c*)
- b. The design-builder should identify early action items that will reduce the potential for future delays, including: (a) identifying challenging ROW issues; (b) ordering long lead items; (c) expediting geotechnical and utility investigations; and (d) developing relationships with utility Owners and other key stakeholders (*DBIA Trans. BP III.4.e*)

### 2. Additional Guidance/Further Considerations:

- a. When utility relocation and/or right-of-way acquisition are included as a responsibility of the

- design-build team, Owner guidance, continuous Owner support and the inclusion of contract incentives may lead to increased efficiencies and cost reductions.
- b. During post award, provisions should be established to promote clear communication, transparency and information-sharing regarding right-of-way status.
    - i. Implement the use of a tracking report or GIS application to keep parties abreast of acquisition/relocation status for each parcel is encouraged. This information should be discussed at each project meeting while right-of-way is being acquired.
  - c. Design-builders should consider special task forces or interdisciplinary teams to address issues and find solutions related to ROW acquisition, utility relocation and environmental permitting that will engage agencies, utilities and property owners into the process.
  - d. A protocol for timely review of right-of-way submittals, approvals, settlements and eminent domain packages should be established.
  - e. Regardless of the party providing right-of-way services, assign and integrate a right-of-way manager, with decision authority, within the Owner project oversight team. This individual should be knowledgeable about how the project design may affect right-of-way costs and how right-of-way/design changes may affect project schedule.
  - f. Parties should value right-of-way costs as a project cost, similar to construction cost, with the ability to innovate or expand design and construction efforts to save right-of-way costs. Parties should be open to making design exceptions to reduce project costs, such as adjusting the limits of access control and including ROW as a potential ATC.
  - g. Start interactions with, and education of, the impacted property owners early in the planning process and pursue risky parcel acquisition and relocations early.
  - h. Take advantage of the Public Meetings to engage the impacted property owners, collect contact information and provide both project and right-of-way education.
  - i. Provide three-dimensional plans or visualizations detailing property impacts.

# UTILITIES MANAGEMENT IN TRANSPORTATION DESIGN-BUILD

A DESIGN-BUILD INSTITUTE OF AMERICA PUBLICATION

## INTRODUCTION

Design-build project delivery introduces schedule, cost and technical efficiencies to the development of transportation projects. One area that can significantly benefit from the new dynamics of integrated design and construction is utility protection, design, improvement and relocation. Many transportation Owners have utility facilities in which they own: intelligent traffic systems (ITS/ATMS), ramp metering, closed circuit televisions (CCTV), tolling facilities; and storm water systems. However, some utility facilities are owned by a third party: some by governmental agencies, some by quasi-governmental agencies, with the majority being owned by private companies. These utility facilities include some of the same facilities listed above, as well as water, sewer, telephone, electrical communications and data, natural gas, cable and the like. In addition, third parties – such as petroleum and railroad companies – may introduce additional utility facilities (e.g., petroleum pipelines, switching facilities) that are within a transportation project’s impact footprint.

Typically, Owners provide a significant amount of information in the Criteria Documents (RFP Documents) for use in preparing proposals. Information may include draft utility agreements, memorandums of understandings, subsurface utility engineering (SUE) information, utility owner record documents (as-builts), and utility owner standard specifications or performance requirements. The degree to which the information is contractual – versus reference information – can vary.

An Owner may elect to provide limited to none of the utility information identified above in the criteria documents (RFP); however, design-builders will price this risk accordingly in their proposals.

DBIA suggests taking into consideration the information presented in this deeper dive, in addition to DBIA Universal Best Practices, in the three major phases of the design-build process: procurement, contract language and project execution (post award).

## BACKGROUND

In 2014, DBIA published Universal Design-Build Best Practices and associated implementing techniques. As implied, these Best Practices and implementing techniques are universal across all market sectors: Private, Federal, Water/Wastewater and Transportation. To provide continued guidance on Best Practices, in 2015, the DBIA Transportation Committee identified several design-build delivery disciplines within the transportation sector that are commonly considered higher risk or disciplines with unique consideration in design-build delivery. The disciplines are:

- Alternative Technical Concepts
- Right-of-Way
- **Utilities**
- Maintenance of Traffic
- Environmental Permitting and compliance

In the fall of 2015, DBIA published Transportation Sector Design-Build Best Practices that include transportation-specific implementing techniques that build from the Universal Best Practices and implementing techniques to be considered by Owners and design-build teams in procurement (including planning), contract language and project execution phases of a project. These

additional transportation-specific implementing techniques, when used in conjunction with the universal Best Practices, provide industry with a road map for the best opportunity to be successful on design-build projects.

To build on the success of the prior publications and to respond to comments received at the 2015 DBIA Transportation Conference, DBIA has established additional guidance and further considerations to supplement the Transportation Sector Best Practices and implementing techniques pamphlet published in 2015. These latest additional guidance and further considerations do not add to the Best Practices or implementing techniques, rather they provide more detail on how to successfully implement an individual Best Practice or implementing technique.

## ADDITIONAL GUIDANCE/FURTHER CONSIDERATIONS:

DBIA has prepared this deeper dive presenting additional guidance and further considerations to be considered with the Transportation Best Practices and implementing techniques. This effort is intended to provide our members and the design-build industry with proven, successfully delivered approaches to project delivery.

The additional guidance and further considerations materials developed herein generally fall into three categories,

1. Additional guidance or steps to take for best use of a Best Practice or implementing technique;
2. Further clarification of a published Best Practice or implementing technique;
3. Further considerations or areas of importance that were not considered to be as critical as those identified in the original transportation-specific “implementing techniques” but if understood or followed will be beneficial to project delivery.

The published implementing techniques are used below as the baseline with reference to where the reader may find them in the Transportation Best Practices Publication. The additional guidance and further considerations are presented beneath the implementing techniques. Each is presented by the three major phases of the design-build process: procurement, contract language and project execution.

## UTILITIES MANAGEMENT IMPLEMENTING TECHNIQUES PUBLISHED BY DBIA WITH ADDITIONAL GUIDANCE/FURTHER CONSIDERATIONS

### PROCUREMENT

#### 1. Implementing Techniques:

- a. Owners should evaluate and identify the appropriate parties to acquire right-of-way (ROW) and **relocate utilities** as part of the project. (*DBIA Trans. BP 1.1.j*)
- b. Owners should be actively involved and take appropriate steps to reduce project risks relating to utility relocation, including: (a) developing risk-mitigation strategies and evaluating how best to assign risks associated with utility relocation; (b) including, where appropriate from a risk-mitigation perspective, an allowance in the contract for utility relocation cost instead of requiring a lump sum; and,



to the extent reasonably possible (c) negotiating and securing, before the RFP is released, agreements with utility owners and stakeholders that establish the parameters for work to be performed by the design-builder. Utility agreements should clearly define divisions of responsibilities and, when work is being performed by the private utility, should include schedule commitments that can be relied upon by the design-builder. (*DBIA Trans. BP I.2.h*)

- c. Owners should perform appropriate front-end tasks (e.g., geotechnical investigations, environmental assessments, **subsurface utility** and other applicable surveys) to enable the Owner to: (a) develop a realistic understanding of the project's scope and budget; and (b) furnish proposers with information that they can reasonably rely upon in establishing their price and other commercial decisions. (*DBIA Trans. BP I.3.a*)

## 2. Additional Guidance/Further Considerations:

- a. The Owner should perform a Subsurface Utility Engineering (SUE) program. The following suggestions are provided for a SUE program and depend on the complexity and risks associated with a specific project:
  - i. As part of the key stakeholder identification process, the Owner should identify utility owners that have facilities within the project limits or may be impacted by the project.
  - ii. As part of appropriate front-end tasks, the Owner should obtain field survey to identify visible above ground utility features and plot resulting information.
  - iii. The Owner should compare utility owners' record information (as-builts) with the survey features information and resolve discrepancies, if the information does not agree.
- iv. The Owner should perform accurate location methods to designate existing subsurface utilities to provide two-dimensional horizontal information for utilities that are known to exist but may not have surface features within the project limits. This should be considered as a minimum level of information in lieu of simply providing utility owner record information for facilities without surface features to reduce the need for the design-builder to price risk.
- v. In order to resolve discrepancies and to present more accurate information in selected areas of potential conflict, the Owner may carry out vacuum excavation or other potholing techniques to expose selected utilities to obtain three-dimensional information.
- b. Owners should provide Criteria Documents (RFP) that address environmental concerns, storm water facilities, **utility impacts** and other project characteristics (in addition to ROW) without advancing the design to a level that stifles innovation and best value.
- c. Owners should participate in open meetings, in advance of the procurement, to meet with stakeholders and provide advance notice of relocation activities and secure utility agreements – whenever possible before the RFP is released. The purpose of these meetings is to:
  - i. Provide the proposed project scope, concept plans and schedule.
  - ii. Receive pertinent as-built or other existing utility records information.
  - iii. Discuss potential conflicts and strategies to avoid them.
  - iv. Reach an agreement with the utility owners on inclusion and administration of any new utilities

design/construction and/or any existing utilities relocation design/construction as a part of the overall transportation project design-build contract.

- v. Obtain construction/relocation schedule from utility owners for any work not included in the transportation design-build contract and include in the Criteria Documents (RFP).
- vi. If allowed, define the utility company desired betterments.
- d. The Owner should determine if any prior rights exist (e.g., whether the utility is in its current position by permit with the owner [DOT, etc.], is in its current position by easement, if the utility owner owns the property or if the utility owner has expansion rights).
- e. Owners should consider including an allowance in the contract for utility relocation costs.
- f. Owners are encouraged to develop risk-mitigation strategies and evaluate how best to assign risks associated with utilities relocation.
- g. If allowed by the Criteria Documents (RFP), the design-build team should meet with utility owners prior to submitting price proposals to ensure the scope of work is understood.
- h. The Owner should support, and proposers should use Alternative Technical Concepts (ATCs) for avoidance of utilities or other construction approaches to benefit the project relative to utility relocations or protect in-place mitigation.
- i. The Owner may wish to treat impacted railroads similar to impacted utility owners by following these additional guidance/further clarifications, as applicable to railroad work.

## Contract

### 1. Implementing Techniques:

- a. Owners should, consistent with their overall procurement strategy and enabling authority, evaluate and use appropriate contractual incentives that facilitate the alignment of the performance of their design-build teams with the Owner's project goals. Incentives that should be considered include schedule, quality, maintenance of traffic, reduced environmental impacts, community relations, utility relocation and solutions that reduce the project's ROW needs. *(DBIA Trans. BP II.2.a)*
- b. The contract should clearly specify the Owner's role during project execution, particularly relative to: (a) the process for the design-builder reporting to and communicating/meeting with the Owner; (b) the Owner's role in acting upon design and other required submittals; and (c) the Owner's role, if any, in Quality Assurance/Quality Control. Additionally, the contract should clearly specify the respective responsibilities of the Owner and design-builder in the areas of design, permitting, ROW, environmental mitigation measures, improvements that will be owned by third parties and utility relocations. *(DBIA Trans. BP II.2.c)*
- c. The contract should clearly define the rules of engagement with stakeholders that will be involved in project design or construction, including for improvements that will be owned or operated by third parties, utility relocations, and ROW acquisitions. The contract should also identify any other contractors that the Owner anticipates will be working on or near the project and define the rules of engagement with those contractors. *(DBIA Trans. BP II.2.g)*
- d. The contract language should address risk allocation when unexpected conditions (including subsurface conditions, utilities and hazardous materials) are encountered. *(DBIA Trans. BP II.2.h)*

- e. The contract should clearly identify the design-builder's submittal requirements for utility and other third-party work, emergency response plan, subsurface utility engineering validation, utility plans and conflict matrix, including record drawing requirements if applicable (*DBIA Trans. BP II.2.i*)

## 2. Additional Guidance/Further Considerations:

- a. Clearly define in the Criteria Documents (RFP) the responsibilities of the design-build team. The design-build team should be responsible for coordinating the project construction with all utilities that may be affected.
- b. The Owner should develop a preliminary conflict matrix showing all possible utility conflicts. This involves comparing depicted utilities information with proposed plans (highway, runway, railway, dock, bridge, drainage, MOT, etc.).
- c. Should the Owner decide not to prepare and provide advance existing utility information (utility identification matrix, SUE, utility agreements), the contract language should clearly specify the design-build team responsibility and timeline for submitting a preliminary utility status report that includes a listing of all utilities located within the project limits and a conflict evaluation and cost responsibility determination for each utility. In this case, a "utility relocation allowance budget" is highly recommended.
- d. Owners should consider incentivizing design-build teams to find ways to protect utilities, as opposed to relocating them. Incentives should be clearly defined in the Criteria Documents.
- e. When utility agreements cannot be negotiated and secured as outlined in implementing technique I.2.h, prior to RFP release, the Owner should develop and provide draft utility relocation agreements with utility owners. Utility agreements should contain:
  - i. Definition of responsibility for design and construction work, and costs, of each utility.
  - ii. Schedule commitments.
  - iii. Submittal requirements and review timelines.
  - iv. Respective utility governing specifications.
- f. Owners should include in the Criteria Documents (RFP) utility owner specifications.
- g. The Criteria Documents (RFP) should be clear about rules of engagement of utility companies during the proposal period.
- h. The contract language should clearly indicate the Owner's involvement or notification process, if any, with respect to communication and coordination with third parties.
- i. The Owner should clearly identify design-build submittal requirements and provide utility owners specifications and performance requirements in the Criteria Documents (RFP).
- j. The contract language should clearly specify if there are restrictions placed upon the contractor's ability to perform work on third party property or facilities, or if time restrictions apply.
- k. Owners should consider the added sensitivity associated with railroad facilities. It is recommended that railroad grade crossing permits and all railroad coordination be defined by the Owner during the permit process.
- l. The Owner should be open to early utility relocation and improvement opportunities.

## Project Execution

### 1. Implementing Techniques:

- a. The Owner and design-builder should develop processes that enable key stakeholders (e.g., government agencies, utility and property owners and third-party operators) to interface directly with the design-builder and its design professionals on significant elements of the work. Among the processes that might be considered are the use of special task forces to address issues related to ROW acquisition, utility relocation and environmental permitting that will engage key stakeholders into the process. *(DBIA Trans. BP III.3.c)*
- b. The design-builder should identify early action items that will reduce the potential for future delays, including: (a) identifying challenging ROW issues; (b) ordering long lead items; (c) expediting geotechnical and utility investigations; and (d) developing relationships with utility owners and other key stakeholders. *(DBIA Trans. BP III.4.e)*

### 2. Additional Guidance/Further Considerations:

- a. The design-build team should establish their responsibility regarding coordination of utilities by contacting affected utilities early in project execution.
- b. The design-build team should strongly consider maintaining a competent and knowledgeable utility coordinator on the team through design and construction.
- c. Owners should schedule a meeting early in the project execution phase to introduce the design-builder to the third parties to develop communications, responsibilities and schedules regimens.
  - i. The design-build team should coordinate and conduct utility review meetings with all affected

utility companies to assess and explain the impact of the project construction. The Owner should be invited to all meetings.

- ii. The design-build team should initiate early coordination with all utilities located within the project limits.
- d. Design-builders should consider special task forces to address issues related to utility relocation that will engage utility companies into the process.
  - i. The Owner, design-build team and utility owners should establish a protocol for open communication, decision-making and partnering specific to utility relocations and impacts.
  - ii. The design-build team should ensure that there are neither conflicts with the proposed improvements, nor conflicts among any of the utility's relocation and impact plans.
- e. Owners should make an early determination of incentives to promote the incentive behavior desired. The design-build team must develop and verify a conflict matrix depicting all utilities information with the proposed improvements. The resulting matrix should show records of the physical location of each conflict, the name of the utility involved, the nature of the conflict and action needed. Analysis of the matrix will determine which conflicts can be readily resolved, which ones are questionable and require additional information, and which conflicts cannot be resolved.
- f. The design-build team should make all reasonable efforts to design the project to avoid conflicts with utilities and minimize impacts where conflicts cannot be avoided.
- g. The design-build team should avoid the need for additional temporary construction easement and/

or additional right of way needs and notify the Owner immediately in case additional right-of-way needs are unavoidable due to utilities conflict and relocation.

- h. The design-build team should provide all utility owners with a complete set of design plans as soon as the plans have reached a level of completeness adequate to allow them to fully understand the project impacts.
- i. The design-build team should verify the prior rights of each utility's facilities if claimed by a utility owner.
- j. The design-build team must accurately show the final location of all utilities on the as-built drawings.

# MAINTENANCE OF TRAFFIC (MOT) IN TRANSPORTATION DESIGN-BUILD

A DESIGN-BUILD INSTITUTE OF AMERICA PUBLICATION

## INTRODUCTION

Design-build project delivery introduces schedule, cost, and technical efficiencies to the development of transportation projects. One area that can significantly benefit from the new dynamics of integrated design and construction is Maintenance of Traffic (MOT), a.k.a. Maintenance and Protection of Traffic (MPT). MOT and the proposed construction staging are critical elements which – when coordinated properly – allow for many design-build projects to be executed effectively and efficiently within close proximity to live traffic, while minimizing impact to the traveling public. MOT can often serve as the driving force behind the creative engineering and construction-based solutions that are a hallmark of design-build project delivery. Thus, it is critical that MOT is clearly defined in design-build transportation projects. DBIA suggests taking into consideration the information presented in this White Paper, in addition to DBIA Universal Best Practices, in the three major phases of the design-build process: procurement, contract language, and post award (project execution).

## BACKGROUND

In 2014, DBIA published Universal Design-Build Best Practices and associated Implementing Techniques. As implied, these Best Practices and Implementing Techniques are universal across all market sectors – Private, Federal, Water/Wastewater and Transportation. To provide continued guidance on best practices, in 2015, the DBIA Transportation Committee identified several design-build delivery disciplines within the transportation sector that are commonly considered higher risk, or disciplines with unique considerations in design-build delivery. The disciplines are:

- Alternative Technical Concepts
- Right-of-Way
- Utilities
- **Maintenance of Traffic**
- Environmental Permitting and Compliance

In the fall of 2015, DBIA published transportation-specific Implementing Techniques that support the Universal Best Practices and Implementing Techniques to be considered by Owners and design-build teams in procurement (including planning), contract language and post-award phases of a project for the above disciplines. These additional transportation-specific Implementing Techniques, when used in conjunction with the universal DBIA Best Practices publication, provide industry with a road map for the best opportunity to be successful on design-build projects.

To build on the success of the prior publications, and to respond to comments received at the 2015 DBIA Transportation Conference, DBIA has established additional guidance and further considerations to supplement the transportation-specific Best Practices and Implementing Techniques pamphlet published in 2015. These latest additional guidance and further considerations do not add to the Best Practices or Implementing Techniques; rather, they provide more detail on how to successfully implement an individual Best Practice or Implementing Technique.



## ADDITIONAL GUIDANCE/FURTHER CONSIDERATIONS:

As a follow-up to the 2014 and 2015 work in universal and transportation-specific Best Practices and Implementing Techniques, DBIA has prepared this White Paper presenting additional guidance and further considerations to be considered with the Best Practices and Implementing Techniques published in 2015. This effort is intended to provide our members and the design-build industry with proven, successfully delivered approaches to project delivery.

The additional guidance and further considerations materials developed herein generally fall into three categories:

1. Additional guidance or steps to take for best use of a Best Practice or Implementing Technique;
2. Further clarification of a published Best Practice or Implementing Technique; or
3. Further considerations or areas of importance that were not considered to be as critical as those identified in the original transportation-specific “Implementing Techniques,” but that if understood or followed will be beneficial to project delivery.

The published Implementing Techniques are used below as the baseline, with reference to where the reader may find them in the Transportation Best Practices Publication. The additional guidance and further considerations are presented beneath the Implementing Techniques. Each are presented by the three major phases of the design–build process: procurement, contract language and post award (project execution).

## MAINTENANCE OF TRAFFIC IMPLEMENTING TECHNIQUES PUBLISHED BY DBIA WITH ADDITIONAL GUIDANCE/FURTHER CONSIDERATIONS

### Procurement

#### 1. Implementing Techniques:

- a. No MOT-specific procurement implementing techniques (refer to Additional Guidance/Further Considerations below)

#### 2. Additional Guidance/Further Considerations:

- a. MOT development and application is a responsibility typically assigned to the design-build team, within limits defined by the Owner in the RFP documents.
- b. The criteria documents (RFP documents) should provide clear criteria with an emphasis on flexible criteria whenever possible. Criteria can focus on level of service (LOS) requirements and travel times through the corridor, or can dictate the number of lanes to remain operational at different times of the day and seasons.
  - i. Allowing flexibility in MOT is increasingly important if there are schedule incentives.
  - ii. Restrictions regarding allowed lane closure times or rental costs should be stated clearly in the criteria documents (RFP).

- c. Alternative Technical Concepts should be allowed if proposer can demonstrate performance requirements are met.
- d. Criteria Documents (RFP) should clearly indicate responsibilities of the Owner and design-builder regarding adjacent roads, residents, businesses, sidewalks, bike paths, shared use paths and the like.
- e. The Owner should indicate the minimum required public outreach with regard to major traffic pattern shifts or switches between stages, and clearly define who is responsible for this outreach and associated timing requirements.
- f. MOT is a driving force in determining technical solutions, construction cost and project duration. If the Criteria Documents (RFP) do not make the requirements clear, the design-builder teams should submit questions to the Owner for clarification, and Owners should modify the criteria Documents (RFP) accordingly to provide clarity.
- g. If the work zone is such that the MOT requirements must be prescriptive, provide sufficient detail to the design-build proposers and provide an explanation as to why ATCs may not be allowed.
- h. Criteria Documents (RFP) should identify all impacted agencies, stakeholders and concurrent adjacent projects which may require coordination for lane closures and traffic shifts.
- i. Restrictions or coordination and compliance with current toll/fare stakeholders should be clearly defined.
- j. Compliance and adaptability with current network traffic management schemes should be defined.
- k. Responsibility for providing tow truck services, and breakdown or accident clearing in the work zones occupied by the design-builder should be clearly established.
- l. Responsibility of snow removal and road repair requirements should be clearly defined in the Criteria Documents (RFP). The need for temporary snow storage, if any, should also be defined.
- m. Due to the critical impact MOT has on a design-build transportation project, scoring the MOT scheme separately, and not including it under another general or technical category, should be considered.
- n. Weighting of the evaluation should reflect the importance of MOT to the project. It is not uncommon for MOT to be the differentiator between proposers.
- o. Any interaction with defined evacuation routes should be provided to the proposing teams by the Owner within the Criteria Documents (RFP).

## Contract

### 1. Implementing Techniques:

- a. Owners should, consistent with their overall procurement strategy and enabling authority, evaluate and use appropriate contractual incentives that facilitate the alignment of the performance of their design-build teams with the Owner's project goals. Incentives that should be considered include schedule, quality, maintenance of traffic, reduced environmental impacts, community relations, utility relocation and solutions that reduce the project's ROW needs. (*DBIA Trans. BP II.2.a*)
- b. The contract should clearly identify the scope of the design-builder's responsibilities for maintenance of traffic (e.g., flagging) and traffic management constraints affecting the construction schedule (e.g.,

lane closure restrictions, lane rental, maintenance of access, special events). (*DBIA Trans. BP II.2.k*)

## 2. Additional Guidance/Further Considerations

- a. Clearly indicate any lane rental requirements, lane closure restrictions and associated costs for not adhering to restrictions.
- b. Identify required submittals and associated review times.
- c. To get the full benefit of design-build, contract language that encourages innovation in execution should be used.
- d. Ensure commitments made with respect to work schedules, lane closures, detour time frames and other MOT commitments are included with the conformed contract.

## Post Award

### 1. Implementing Techniques:

- a. The Owner and design-builder should agree upon clear, realistic and expeditious submittal and review/ approval processes that are in harmony with the parties' schedule and other project-specific goals. (*DBIA Trans BP III.4.b*)

### 2. Additional Guidance/Further Considerations

- a. When utilizing the design-build delivery method, maintenance of traffic is a responsibility that is normally placed on the design-build team. Allowing maximum flexibility with schedule incentives can motivate design-build teams to execute projects at maximum efficiency and cost.
- b. The entire team should commit to timely review of submittals.

- c. During post award, monitor commitments made with respect to lane closures, detour time frames and other MOT commitments.
- d. Partnering amongst all stakeholders is critical to resolving any MOT issues/constraints throughout the project.
- e. Changes to proposal level plans and approach should be allowed if demonstrated to be beneficial to the project and/or the public.
- f. Teams should be aware of differences in permit or MOT standards during project execution if the project goes through multiple jurisdictions (different standard specs/supplements to Manual of Uniform Traffic Control Devices, permit renewal timeframes, etc.).

# ENVIRONMENTAL ANALYSIS AND PERMITTING IN TRANSPORTATION DESIGN-BUILD

A DESIGN-BUILD INSTITUTE OF AMERICA PUBLICATION

## INTRODUCTION

Design-build project delivery introduces schedule, cost and technical efficiencies to the development of transportation projects. One area that can significantly benefit from the new dynamics of integrated design and construction is environmental analysis and permitting. Design-build provides opportunities to facilitate and streamline environmental analysis and permitting for delivery of transportation projects. National Environmental Policy Act (NEPA) planning, environmental permitting and post-award environmental management (e.g., NEPA re-evaluations and permit modifications) are often identified as the critical path for delivery of federally funded projects. For projects that do not utilize federal funding, most state transportation Owners are required to follow their own state's environmental planning process, which is often very similar in scope to the NEPA process. On design-build projects, the environmental planning and permitting process becomes more important to the critical path, since the initiation of some project phases – such as final design, ROW acquisition (generally) and construction – cannot begin until the NEPA planning is completed and environmental permits are acquired.

NEPA documents for traditional design-bid-build project delivery have often been very prescriptive in nature (e.g., specifying the number of lanes to have on a highway, interchange types, ROW acquisition, etc.). Therefore, it is critical to understand that the prescriptive approach that is often used in the environmental analysis of design-bid-build projects, should not be applied to design-build projects. This approach has been adopted for several reasons in design-bid-build including, design will be complete before award and therefore can incorporate final environmental commitments and possibly as important, to help the reviewing agencies review process and ultimately award a permit. Therefore, the design-bid-build process is typically linear, with

each activity occurring sequentially, and the NEPA document is written to help guide the construction alternative selected for the project. However, this approach limits innovation and value engineering potential, even in design-bid-build delivery. Design-build essentially has schedule efficiencies throughout the delivery process, as activities can be overlapped, which reduces the overall project schedule.

Due to the fast-track nature of design-build delivery and its inherent differences from traditional project delivery, the environmental analysis and permitting process needs to be modified and enhanced to accommodate the awarded design-builder's proposed design (e.g., allow innovation in the solution) and avoid potential complications. Any changes to project scope, design, and impact area can cause disruptions to this critical path and delay the overall delivery schedule. For instance, post-award project changes often require modification to environmental permits and re-evaluation of NEPA planning documents that can cause delays to the delivery of the project. Construction may be delayed while these documents are reviewed and approved. The environmental analysis and permitting process is typically linear, as environmental resources are identified and impacts are avoided or quantified, permitted and mitigated. All of these steps must be completed in a project area before any project can proceed to the construction stage within that area.

Design-build projects must complete all required NEPA activities and environmental permitting of design-bid-build projects, regardless if activities are overlapped. Environmental analysis activities can be grouped in the following three categories:

1. Identification of environmental resources and coordination with regulatory agencies;
2. NEPA Process (quantification and mitigation of environmental impacts);
3. Acquiring environmental permitting.

The remainder of this White Paper describes these activities, how they are different for design-build delivery, major issues for each activity and opportunities to address the design-build differences in each area.

The NEPA guidelines allow state transportation owners to advertise and award a design-build contract prior to the completion of the NEPA document, provided that the following conditions are met:

1. Only preliminary design is advanced until the completion of the NEPA process;
2. The design-builder must not prepare the NEPA document;
3. The design-build contract must include appropriate provisions for mitigation measures;
4. The design-build contract must include termination provisions for the no-build alternative; and
5. The design-builder may be requested to provide information about mitigation measures.

The NEPA process is wide-reaching and is based on evaluating alternatives and balancing environmental impacts across alternatives and resources. Individual statutes governing the special study areas of air, water, parks, historic properties, rare and endangered species and other resources are narrowly defined. This narrow definition is further complicated by a lack of guidance on how to compare and balance impacts across areas. This, coupled with inconsistent mandates and variations and rigid interpretations in policy and regulations, compounds the time required for the overall NEPA planning process.

## BACKGROUND

In 2014, DBIA published Universal Design-Build Best Practices and associated Implementing Techniques. As implied, these Best Practices and Implementing Techniques are universal across all market sectors: Private, Federal, Water/Wastewater and Transportation. In an effort to provide continued guidance on Best Practices, in 2015, the DBIA Transportation Committee identified several design-build delivery disciplines within the Transportation sector that are commonly considered higher risk or disciplines with unique considerations in design-build delivery. The disciplines are:

- Alternative Technical Concepts
- Right-of-Way
- Utilities
- Maintenance of Traffic
- **Environmental Analysis, Permitting and Compliance**

In the fall of 2015, DBIA published transportation-specific “Implementing Techniques” that support the “Universal Best Practices and Implementing Techniques” to be considered by Owners and design-build teams in procurement (including planning), contract language and post-award phases of a project for the above disciplines. These additional transportation-specific “Implementing Techniques,” when used in conjunction with the Universal DBIA Best Practices publications, provide industry with a road map for the best opportunity to be successful on design-build projects.

To build on the success of the prior publications and to respond to comments received at the 2015 DBIA Transportation Conference, DBIA has established additional guidance and further considerations to supplement the transportation-specific Best Practices and Implementing Techniques pamphlet published in 2015. These latest additional guidance and further considerations do not add to the Best Practices or Implementing Techniques; rather, they provide more detail on how to successfully implement an individual Best Practice or Implementing Technique.

## ADDITIONAL GUIDANCE/FURTHER CONSIDERATIONS:

As a follow-up to the 2014 and 2015 work in universal and transportation-specific Best Practices and Implementing Techniques, DBIA has prepared this White Paper presenting additional guidance and further considerations to be considered with the Best Practices and Implementing Techniques, published in 2015. This effort is intended to provide our members and the design-build industry with proven, successfully delivered approaches to project delivery.

The additional guidance and further considerations materials developed herein generally fall into three categories:

1. Additional guidance or steps to take for best use of a Best Practice or Implementing Technique;
2. Further clarification of a published Best Practice or Implementing Technique;
3. Further considerations or areas of importance that were not considered to be as critical as those identified in the original Transportation-specific “Implementing Techniques,” but that if understood or followed will be beneficial to project delivery.

The published Implementing Techniques are used below as the baseline, with reference to where the reader may find them in the Transportation Best Practices Publication. The additional guidance and further considerations are presented beneath the Implementing Techniques. Each is presented by the three major phases of the design–build process: procurement, contract language and post award (project execution).

## TOPIC AREAS

In environmental analysis and permitting, the following areas have surfaced as hurdles to successful delivery of environmental services in design-build delivery:

- Identification of Environmental Resources (procurement).
- Coordination with Environmental governing agencies (procurement, post award).
- NEPA Quantification (procurement, contract, post award).
- Mitigation of Environmental impacts (procurement).
- Environmental Management (post award).
- Environmental Documentation (procurement, post award).

By understanding these hurdle topics and applying proven Best Practices, Implementing Techniques and additional guidance/further considerations, design-build teams and Owners can help improve the outcome of their projects with respect to environmental screening, sensitivity and compliance. These topic areas will be used as further identifiers for presentation of additional guidance and further considerations under the applicable phase of the project for which they apply. The Implementing Techniques presented in the DBIA Transportation Best Practices publication are used as the format for the overall presentation of materials. Please note, several Topic Areas defined above may apply to one or multiple phases of the project; e.g., procurement and contract or contract and project execution.

## ENVIRONMENTAL BEST PRACTICES PUBLISHED BY DBIA

### Procurement

#### 1. Implementing Techniques:

- a. Owners should perform an adequate search to identify necessary environmental permits for the project in order to avoid potential permit issues with



the RFP conceptual design. If necessary, prior to issuance of the RFP, a risk management strategy tied to the permitting process should be considered. (*DBIA Trans. BP 1.2.k*)

- b. Owners should perform appropriate front-end tasks (e.g., geotechnical investigations, **environmental assessments**, subsurface utility and other applicable surveys) to enable the Owner to: (a) develop a realistic understanding of the project's scope and budget; and (b) furnish proposers with information that they can reasonably rely upon in establishing their price and other commercial decisions. (*DBIA Trans. BP 1.3.a*)

## 2. General Additional Guidance/Further Considerations:

- a. One of the benefits of design-build is to improve upon the Owner's initial solution presented in the Criteria Documents (RFP Documents). This is done through, among other things, inviting several proposers to provide solutions and then encouraging them to think outside the box to deliver a better project through innovation – often through the Alternative Technical Concepts process (ATC). A large obstacle to innovation is restrictive environmental processes or design requirements introduced by Owners through the permitting process. Allowing for a design that has room for flexibility and innovation is preferred in the NEPA process.
- b. Owners should provide procurement documents that address environmental concerns, without advancing the design to a level that stifles innovation and best value. This means that the focus of the NEPA document should be to clear a footprint for the construction of the project and not to design a solution to the project's need and purpose. This approach often leads to cost savings for the project.
- c. Risk identification in regard to the environmental planning and permitting process relies heavily on
  - d. proper identification of environmental resources and potential environmental impacts.
  - e. Depending on project risks and potential for innovation, the environmental permits should be obtained by the party who can best manage the risks. Environmental permitting is a critical schedule task on most transportation projects. Design-build allows flexibility in the permitting process, as Owners have options on how and when to acquire required permits to reduce schedule risks.
  - f. Owners have identified that early initiation of environmental permitting tasks that are known to have a long lead time in the conceptual phase will reduce their impact on the critical path of the project.
  - g. It is preferable for transportation Owners to assign the permitting responsibility to the party best able to manage the permitting risks. Therefore, there are three strategies that Owners employ to obtain environmental permits: (1) Acquire the permit in advance of advertising the RFP; (2) Acquire the permit after procurement; and (3) Require the design-builder to prepare and acquire permits. All three of these options are viable to Owners, and one or multiple options can be used on the same project, based on differing complexities associated with the permitting. Owners should identify and select a permit-acquisition strategy that best fits a specific project or permit requirement.
    - a) Owners should consider acquiring the most critical permits, or those with the highest risk, prior to the advertisement (RFP issuance) of design-build projects. Remember that permits obtained in advance of issuance of the RFP for a design-build project are typically procured with plans that are less than 30 percent complete.
    - b) Owners can take the approach of acquiring non-construction related permits in advance to reduce risk to design-build

- teams and to expedite the design-build team's ability to move to construction.
- b) Responsibility can be transferred to the design-builder for any amendments and changes that must be approved by the sponsoring or regulatory agency based on final design.
- c) Owners can also retain modification responsibility for non-construction related permits.
- ii. Owners can acquire environmental permits after procurement of the design-builder and coordinate the impacts and permit requirements based on the design-builder's proposed design.
  - a) Obtaining permits after procurement may reduce or eliminate the schedule benefit of obtaining the permit in advance.
  - b) On the other hand, the Owner can benefit from the additional flexibility the design-builder has to provide inputs while finalizing the project design.
- iii. Although often the Owner can best manage permitting risks, there are numerous situations where the design-builder can properly accept this risk and should be assigned the responsibility. On design-build projects, Owners are increasingly choosing to transfer the responsibility for preparing and obtaining environmental permits to design-build teams, especially those permits that are dependent on the final design solution proposed by the design-builder. With respect to high-risk permits, the design-builder is usually in a better position to accept the responsibility of acquiring any amendments and changes that must be approved by the sponsoring or regulatory agency.

- iv. Provide any acquired permits with the Criteria Documents (RFP).

### **3. Topic-Specific Area Additional Guidance/Further Considerations**

- a. Identification of Environmental Resources
  - i. Identifying environmental resources and potential impacts to these environmental resources is the basic step to environmental studies and permit acquisition. This step, among other things, identifies the permits required for the project. Proper identification, or lack thereof, influences the design-build team's ability to manage the project environmental risks and efficiently design and construct the project. Implications could be realized in lack of innovation, design risk and schedule risk.
  - ii. Environmental permits vary in complexity and the amount of time needed to acquire them. Identifying required permits early in the project development allows Owners to determine how best to manage the acquisition of various environmental permits.
  - iii. The Criteria Documents (RFP documents) should clearly state restrictions or requirements for protection, design and/or monitoring for the elements identified in the environmental documents, including: potential impacts to streams and wetlands, endangered species habitat, historic buildings or properties, archaeology resources, air quality, environmental justice (social) and increased noise volumes.
  - iv. During identification of environmental resources, focus more on identification of project risks than on actual design solutions.

- v. Some permitting agencies may not issue final permits until design is near completion, significantly beyond the preferable design completion to issue an RFP. Owners must balance the design advancement to provide enough information to obtain permits, while not advancing the design too far and limiting innovation. Progressing design beyond 30 percent can stifle innovation and/or lead to project delays while the design-builder or the Owner prepares permit modifications for innovative design not covered or allowed by a permit acquired early, but highly beneficial to the project.
- b. Coordination with Environmental governing agencies
- i. Permitting agencies should be made aware that the RFP design is a baseline condition and conceptual in nature. Provisions should be made that anticipate some future level of refinement that does not take the agency entirely by surprise or prohibit permit resubmittals.
  - ii. Prior to selection of a design-build team, Owners should work with regulatory agencies and identify all potential impacts to the environment (e.g., environmental resource impacts).
  - iii. Coordination with regulatory agencies early in the scoping of a project can lead to allowing more innovation and value-driven project solutions, because Owners can provide regulatory agencies with a range of potential acceptable solutions that satisfy project and regulatory needs.
  - iv. Early coordination reduces the likelihood of litigation, due to the fact that stakeholders that are involved in the project decisions are more likely to engage in problem-solving later.
- v. Be mindful that regulatory agencies have limited staff to review and coordinate efforts on projects. The environmental process can be more time-consuming for these through the development of the procurement documents and execution. Design-build also generally requires more collaboration, because the solutions are preferably not finalized until after award of the contract. This requires a window or box of acceptable solutions to be identified at the procurement phase that will satisfy the needs of each agency. During initial coordination between the Owner and the agency, the Owner should coach the agency that there will be a third collaborating team member upon award of the contract.
  - vi. Avoid making critical decisions of the project's environmental platform before engaging agencies.
  - vii. Distributing a known-impacts listing to the stakeholders early in the process promotes transparency and provides early knowledge of potential concerns.
- c. NEPA Quantification
- i. Understand that agencies may see a need to permit "worst case" or "multiple design option" scenarios, because they do not have staff to fully vet options and alternatives as the project progresses.
  - ii. An advantage of design-build project delivery is that it provides design-build teams the opportunity to propose alternate design solutions to more efficiently deliver the project, reduce project delivery time, improve project ultimate performance and reduce life-cycle costs or provide cost savings. The opportunities for innovation may be limited if the environmental studies completed as part of the NEPA planning

- process are limited to clearing or defining a preferred alternative. Transportation Owners should work to clear an environmental corridor, as opposed to endorsing a specific design solution. This allows proposing design-build teams to work within that corridor without violating or reopening the NEPA document. Generally, it is advisable to clear as wide a footprint as feasible. However, this practice may not be suitable for all design-build projects. There will be situations where design needs to be developed in more detail to be able to identify and evaluate the significance of impacts to sensitive areas or other project risks.
- iii. Permitting agencies are accustomed to permits and mitigation being written to mitigate for exact impacts to the environment (e.g., a specific design solution).
    - a) To be known and understood to allow permitting to occur will not be available under design-build if the design is not developed to the level of detail required for permitting.
    - b) Agencies will consider permitting for the worst-case scenario a solution, but in these cases, they often want the level of mitigation to remain the same even if the environmental impacts are decreased. In order to avoid this strict requirement, provide assurances design-build teams will be required to mitigate as defined.
  - iv. Programmatic agreements with federal and state environmental agencies can streamline the development of the NEPA document by providing pre-approved mitigation measures for various environmental impacts. When programmatic agreements exist for avoiding, minimizing and mitigating impacts, projects can be reviewed much more quickly.
    - a) Equally important, these agreements provide an essential foundation for shared understanding and effective working relationships between Owners and regulatory agencies.
    - b) Programmatic agreements may also include recommendations to include incentives in the contract for reducing impacts to the environment.
- d. Mitigation of Environmental impacts
    - i. Regulatory agencies that are unfamiliar with design-build may have concerns that design-build teams may increase impacts to the environment in an effort for cost savings.
    - ii. As part of the NEPA process, Owners are required to consider the appropriate impact mitigation strategies, such as avoidance, minimization, rectifying, reducing impact over time, and compensation to impacts to the environment caused by transportation projects. The council of environmental quality (CEQ) requires mitigation measures to be evaluated sequentially with avoidance being considered the first option and compensating for the impact as the final option.
    - iii. Owners must work to ensure that mitigation measures do not conflict with one another and do not limit opportunities for the design-builder to provide innovation. The documentation of mitigation measures is referred to in the NEPA process as a commitment. Environmental commitments can be generated under different laws, regulations or procedures which may overlap. The overlap of laws, regulations and procedures can cause challenges when developing commitments, as they can become unclear, inconsistent or contradictory.

- e. Environmental Documentation
  - i. Clearly define design and mitigation documentation needs to close permits.

## Contract

### 1. Implementing Techniques:

- a. Owners should, consistent with their overall procurement strategy and enabling authority, evaluate and use appropriate contractual incentives that facilitate the alignment of the performance of their design-build teams with the Owner's project goals. Incentives that should be considered include schedule, quality, maintenance of traffic, **reduced environmental impacts**, community relations, utility relocation and solutions that reduce the project's ROW needs. (*DBIA Trans. BP II.2.a*)
- b. The contract should clearly specify the Owner's role during project execution, particularly relative to: (a) the process for the design-builder reporting to and communicating/meeting with the Owner; (b) the Owner's role in acting upon design and other required submittals; and (c) the Owner's role in QA/QC. Additionally, the contract should clearly specify the respective responsibilities of the Owner and design-builder in the areas of design, **permitting**, ROW, **environmental mitigation measures**, improvements that will be owned by third parties, and utility relocations. (*DBIA Trans. BP II.2.c*)
- c. The contract should clearly define the rules of **engagement with stakeholders** that will be involved in project design or construction, including for improvements that will be owned or operated by third parties, utility relocations, and ROW acquisitions. The contract should also identify any other contractors that the Owner anticipates will be working on or near the project and define the rules of

engagement with those contractors. (*DBIA Trans. BP II.2.g*)

- d. The contract language should address risk allocation when unexpected conditions (including subsurface conditions, utilities and **hazardous materials**) are encountered. (*DBIA Trans BP II.2.h*)
- e. The contract should clearly establish which party has responsibility for risks associated with: (a) governmental approvals, including permits required for project development; (b) any changes to the existing NEPA documents, including any NEPA re-evaluation; and (c) changes in law and changes in standards. (*DBIA Trans. BP II.2.i*)

### 2. General Additional Guidance/Further Considerations:

- a. Often the responsibility of who obtains a permit changes from project to project. It is critical to clearly define the permits or portions of permits the design-builder will be responsible for. Generally, the Owner will understand the agency's requirements regarding details of the permit. Many permits require design input; the contract should identify any specifics regarding the level of design required to secure a permit. This allows design-build teams better schedule resources required for design input.
- b. Many Owners and FHWA division offices are quick to assume that any proposed change to the NEPA document requires a re-evaluation of the NEPA document. While this can be avoided by adding flexibility to the NEPA document, no amount of flexibility will eliminate the need to re-evaluate the NEPA document on certain projects. When feasible, define in the contract the threshold of modification that would trigger a re-evaluation.
- c. The contract should clearly define the rules of engagement with stakeholders that will be involved in **project design or construction**, including for improvements that will be owned or operated



by third parties, utility relocations and ROW acquisitions. The contract should also identify any other contractors that the Owner anticipates will be working on or near the project and define the rules of engagement with those contractors.

- d. Owners and regulatory agencies have found that the consultants on design-build teams that conduct the coordination with the regulatory agencies have incentives to maintain strong relationships with these agencies on future design-build and design-bid-build projects. These relationships help establish trust between regulatory agencies and the design-build team. This also promotes sharing of concerns on various environmental issues about the project, which contributes to more efficient environmental planning and coordination between the public and private sector.
- e. Design-build projects can benefit from use of performance-based mitigation measures for various types of environmental impacts. There is a great focus from the USDOT and transportation Owners on pushing for more performance-based mitigation strategies. This approach involves setting performance goals for various types of environmental permit requirements. The design-build teams are then required to adhere to those performance requirements, depending on the type of permit. The design-builder would also become responsible for determining actual impacts, and often the mitigation associated with those impacts, through the permit process. The goal of performance-based permitting is to identify mitigation results that regulatory agencies are trying to achieve, instead of permitted specific mitigation strategies. This approach has allowed design-build teams to propose changes to a project's design without triggering time-consuming re-evaluations of the NEPA or state environmental planning documents. For instance, one area in which Owners are gaining the ability to use a type of performance mitigation is for stream and wetlands impacts. This is done by identifying streams and

wetlands within the corridor in the NEPA document and stating that they may be impacted by the project.

- f. While it is common for Owners to use prescriptive language in developing NEPA documents, some Owners and federal agencies commonly use broad language to describe impacts on their NEPA documents and corresponding "special studies." This broad language creates flexibility in the final design and construction of the project without requiring the NEPA document to be updated every time a design change is made.
- g. The contract should define any environmental related incentives. One way that Owners have worked to alleviate the regulatory agency concerns regarding the private sector involvement in post-award environmental management is to provide incentives to design-build teams to reduce environmental impacts and to promote compliance with environmental permits. Incentive amounts should consider what level of design was used to develop initial impact estimates. When impact estimates are based on the worst-case scenario, incentives should be reduced or based on a lower impact threshold than identified in the worst case scenario. Although not a common practice, incentives are gaining in use.

### **3. Topic Specific Area Additional Guidance/Further Considerations:**

- a. NEPA Quantification
  - i. Design-build allows a unique approach to project delivery and the NEPA process by allowing a project to be advertised and awarded prior to completion of the NEPA process. Although this practice is not commonly utilized on design-build projects, it is allowed by federal regulations. This unique approach introduces new project risks that a no-build NEPA alternative may be selected. Procuring a design-builder prior to completion of NEPA can



provide an opportunity to expedite the overall delivery of the project; however, the contract should have a termination clause if the no-build alternative is selected.

## Post Award

### 1. Implementing Techniques:

- a. Design-builders should be familiar with the entire NEPA process and its requirements as this can be a critical factor if the design-builder proposes changes to approved concepts which deviate from the approved NEPA documents. *(DBIA Trans. BP III.1.e)*
- b. The Owner and design-builder should develop processes that enable key stakeholders (e.g., government agencies, utility and property owners, and third-party operators) to interface directly with the design-builder and its design professionals on significant elements of the work. Among the processes that might be considered are the use of special task forces to address issues related to ROW acquisition, utility relocation and **environmental permitting** that will engage key stakeholders into the process. *(DBIA Trans. BP III.3.c)*
- c. All parties involved with environmental compliance should attend project coordination meetings during the design and construction phases. *(DBIA Trans BP III.3.g)*
- d. Design-builders should gain an understanding of the Owner's goals and should be aware that compliance with environmental mitigation requirements and other legal requirements (e.g., affirmative action, Disadvantaged Business Enterprise) are often of critical importance to the Owner even though they may not affect the ultimate work product. *(DBIA Trans BP III.3.h)*

### 2. General Additional Guidance/Further Considerations:

- a. When a project has received environmental clearance and received a NEPA (National Environmental Policy Act) Record of Decision, changes proposed by the design-builder may constitute the need for a NEPA re-evaluation. Assignment of project risks associated with these proposed changes should be addressed by the Owner in the RFP and contract documents.
- b. Design-builders should consider special task forces to address issues related to environmental permitting that will engage agencies, utilities and property owners into the process.
- c. All parties involved with environmental compliance should attend the project coordination meetings during the design and construction phases.
- d. Protocol for timely communications among the Owner, design-builder and permitting agencies will help establish methods for reducing delays and improving quality of performance.
- e. Owners should identify all environmental commitments made within the proposal and permits and work to enforce environmental compliance.
- f. When incentives are offered to design-build teams to minimize impacts to the environment or meet certain mitigation and compliance metrics, consistently evaluate and distribute incentives.

### 3. Topic Specific Area Additional Guidance/Further Considerations:

- a. Coordination with Environmental governing agencies
  - i. Particularly, due to integration of design and construction activities in design-build, coordination and collaboration among transportation owners, regulatory agencies and design-build teams can enhance environmental

analysis and permitting. The Owner should, immediately upon award, empower the design-builder to assume the role defined by the contract.

- ii. Owners work to maintain strong relationships with regulatory agencies as they work together on numerous projects and will need to coordinate on future projects. These agencies need assurances the design-build teams have the required level of incentive that they become motivated to maintain this strong relationship.

b. NEPA Quantification

- i. The only real outstanding environmental risk post award in design-bid-build of the NEPA process involves contractor compliance with permit requirements. Depending on final permit timing the same risk applies in design-build. These risks are magnified when the NEPA document prescriptively quantifies actual impacts anticipated based on the preliminary design.
- ii. Design-builders familiar with the NEPA process can help prevent designs from triggering a NEPA re-evaluation.
- iii. Using flexible language when describing impacts to the environment in the NEPA document can reduce the risk of needing to re-evaluate the NEPA document. Another measure to reduce Owner risk for re-evaluations is to require the design-builder to perform the re-evaluation. This can expedite the development of the re-evaluation and promote better management of the project design and compliance with the NEPA document. Many Owners and local FHWA division offices currently view this practice as against the federal regulation that states the design-builder must not have any impact (e.g., involvement effect,

persuasion) with respect to the NEPA process. However, the courts have repeatedly ruled that a re-evaluation is not a NEPA document, but instead is an affirmation that the preferred alternative is still valid or a recommendation for a supplemental or updated NEPA document. Some Owners allow the design-builder to perform the re-evaluation, while others allow them to perform all special study updates and provide all backup information. It is important to note the design-builder may be the best party to perform the modification. This reduces Owner burden and places schedule responsibility on the design-builder.

c. Environmental Management

- i. Owners should include requirements for design-build teams to develop and enforce environmental management or compliance plans as part of the design-build contract. The environmental management plan establishes procedures of how to manage impacts to the environment from project incidences and accidents. Most design-build projects require the design-builder to have an environmental compliance manager on site at all times during construction. The environmental compliance manager serves several important functions on design-build projects, such as permit development, contingency planning, design review, regulatory agency coordination, environmental inspection and emergency coordination.
- ii. It is increasingly common for the design-builder to provide training regarding environmental aspects of the project. Training is provided to designers and to on-site construction staff. Training generally encompasses all aspects of the environmental documents, air, water, wetlands, noise, etc.

- d. Environmental Documentation
  - i. Design-builders should maintain detailed documentation of compliance with permits during design and construction.
  - ii. The Owner should confirm through audits that the design-builder is maintaining appropriate records of environmental permit requirement compliance.

## APPENDIX

### Owner Examples/Testimonials

#### Procurement

- Several state DOTs, such as those in Colorado, Washington state, Virginia, Michigan and North Carolina, have learned that adding flexibility to NEPA documents can prevent the need for NEPA re-evaluations and accomplish the goals of the project without limiting opportunities for innovative solutions proposed by design-build teams.
  - Utah Department of Transportation (UDOT) allows flexibility in the environmental planning process in areas where there is minimal risk of impacts to environmental resources. This increases the importance of properly identifying these resources early in a project's development.
  - Florida Department of Transportation (FDOT) regularly develops an advance notification (AN) package that is distributed to all project stakeholders, including regulatory agencies, early in the project development process.
  - Washington State Department of Transportation (WSDOT) has identified that working with regulatory agencies during the scoping and concept phase of the project is invaluable for building trust, properly identifying resources and evaluating potential environmental commitments.
- Colorado Department of Transportation (CDOT) has programmatic agreements with various regulatory agencies, such as U.S. Fish and Wildlife Services and Colorado Department of Natural Resources, to aid the NEPA process.
  - Michigan Department of Transportation (MDOT) utilizes programmatic agreements with the Michigan Department of Environmental Quality and U.S. Army Corps of Engineers (USACE), which facilitates expediting section 404 permits.
  - North Carolina Department of Transportation (NCDOT) has programmatic agreements with USACE and the North Carolina Department of Natural and Cultural Resources for Section 404 permits.
  - NCDOT has utilized a variety of permit options on various projects. In the past, some permits were obtained by the DOT with modification requirements transferred to the design-build team, while other permits were considered the responsibility of the design-build team
  - Utah and Washington DOTs acquire all environmental-related permits in advance of advertising to allow the design-build team to expedite construction, as they are not waiting for these permits to begin construction.
  - Maryland Department of Transportation (MDOT) requires the design-build team to acquire any permit modifications that are required based on their proposed design and requires them to take on the schedule and cost risks associated with the modification.

#### Contract language

- Colorado Department of Transportation (CDOT) strives to define maximum anticipated impacts for a project in their "base design," which is the basis for the environmental planning document. This allows the design-build team to work within the predefined maximum impacts without having to re-evaluate the environmental planning document.

- Virginia Department of Transportation (VDOT) clears as large a design footprint as possible during the environmental planning process to provide maximum flexibility for design-build innovation.
- Washington State Department of Transportation (WSDOT) works with regulatory agencies to allow maximum flexibility in the environmental planning document. WSDOT describes possible construction methods and potential impacts and clears a wide project footprint in their environmental planning document. This allows the design-build team to propose innovative solutions that may not have been considered during the environmental planning without requiring the document to be re-evaluated.

## **Post award (Project execution)**

- Many state DOTs and FHWA division offices are quick to assume that any proposed change to the NEPA document requires a re-evaluation of the NEPA document.

## “DESIGN-BUILD DONE RIGHT” AND CERTIFICATION

Certification provides the only measurable standard by which to judge an individual’s understanding of “design-build done right.”

DBIA certification in design-build project delivery educates owners as well as designers and builders on team-centered approaches to design and construction. Owners want successfully executed design-build projects and are looking for a demonstration of both relevant continuing education and experience – both of which can be gained through DBIA certification.

### DBIA offers two types of Certification.



Attaining the DBIA™ requires from two to six years of hands-on experience of pre and post-award design-build. Credential holders who display “DBIA” after their names come from traditional design and construction backgrounds; they are private or public sector architects, engineers and construction professionals. Some attorneys and academic practitioners who specialize in design and construction generally and design-build specifically may also fulfill the DBIA™ requirements.



Unlike the DBIA™ credential, obtaining the Assoc. DBIA™ does not require hands-on field experience. Instead, this credential is focused on three key types of individuals who possess a different type of experience: (1) pre-award professionals focusing on critical aspects of the design-build process such as business development and acquisition/procurement; (2) seasoned professionals who are new to design-build project delivery, but not new to the design and construction industry; and (3) emerging professionals such as recent college graduates with relevant educational background in the AEC industry.

For more information, visit [www.dbia.org/certification](http://www.dbia.org/certification)





# DESIGN-BUILD DONE RIGHT™

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