



WATER DESIGN-BUILD COUNCIL
AN ASSOCIATION OF LEADING DESIGN BUILDERS

An Industry Guide on the Recommended Best Practices in the Use of Design-Build and CMAR Delivery Methods for Water Infrastructure Projects

The following “Recommended Best Practices,” summarize the guidance and direction produced in the 3rd Edition of the *WDBC Municipal Water and Wastewater Design-Build Handbook*. The objective is to present key practices for use by industry Owners and design-builders in order to facilitate a successful collaboration of a water design-build project. Users of these “Best Practices” are encouraged to refer to additional guidance within the WDBC Handbook; as well as the additional education materials on the WDBC website elaborating on the defined steps for procurement and management of progressive and fixed-price design-build projects.

Preparing for a Water Design-Build Project

1. Early in the project’s inception, the development of an initial project delivery and management plan, which assesses the characteristics for the project, needs to define the required performance of treatment processes, specifications for plant influent, and the functional requirements of all facilities included within the scope of work. During this assessment, Owners also need to examine the adequacy of its internal resources and level of technical expertise to manage the forthcoming water project. (*WDBC Handbook, page 70*)
2. Owners should identify early on, and attempt to secure any land-related transactions which may include:
 - Land purchase for the project site and remote facilities,
 - Permanent easements for pipelines and utilities,
 - Temporary construction easements necessary to install pipelines and permanent easements for installed utilities.(*WDBC Handbook, page 53*)
3. In evaluating the use design-build delivery, Owners should identify key stakeholders in its organization as team members and initiate an education process. Project team members include legal and procurement decision-makers, managers and staff, and especially those involved in operations and maintenance. (*WDBC Handbook, pages 42 & 74*)
4. Following the education process, Owners should convene team members to discuss the project and its parameters; and then proceed to identify and prioritize the critical factors (drivers) required to make the water project a success. Specifically, these drivers—the Owner’s overall project goals and priorities—become the criteria to select the design-build delivery method best suited to successfully achieve the Owner’s priorities for the project. (*WDBC Handbook for a sample chart and protocols, pages 20–21 & 31*)
5. Using either their own internal resources, or in combination with an outside consultant, Owners and the project team members should evaluate the identified design-build delivery methods as to their ability to achieve the priorities of the identified project drivers, and select the preferred approach, which further defines the procurement process to be used. (*WDBC Handbook, page 31*)
6. Further development of the draft project delivery and management plan should always include team members

responsible for the day-to-day operation and maintenance of any new facility, to provide technical knowledge and gain a thorough understanding of the design as it evolves, to ensure effective operability of the completed project. Key operations staff should also be available on site during construction, during equipment and systems testing, and during final acceptance testing.

(WDBC Handbook, page 87)

7. Statements in the draft project delivery and management plan, should acknowledge that making changes to the site or facility layout later in the project's schedule, which could result in serious design and cost ramifications, particularly with respect to geotechnical and foundation design considerations, should be avoided, if at all possible. *(WDBC Handbook, pages 24 & 49)*
8. Owners should use care in developing project documents to specifically identify those area(s) of a wastewater or water treatment plant for which they desire LEED certification. Typically, only the buildings on the site are the most appropriate structures for which to request LEED certification, and are not applicable to the characteristics involved in water and wastewater construction. *(WDBC Handbook, page 57)*
9. Due to the dynamic nature of the surety industry and growth in the use of design-build and CMAR for water

and wastewater systems, Owners should consider approaching sureties through their selected short list of proposers. This step occurs in the early stages of the project's development in order to gain input into contract requirements for the particular project.

(WDBC Handbook, page 58)

10. In the consideration process of retaining outside consulting support to serve in the capacity as an "Owners Advisor," policy officials and owners should only consider those firms or individuals with specific and previous experience in design-build or CMAR procurement, as well as that of being an "owners advisor". *(WDBC Handbook, page 22)*
11. The role of the "Owners Advisor" should be clearly defined as a collaborative approach among all parties involved in the design-build project, which includes interacting with the design-build or CMAR firm, monitoring the firm's performance, approving invoices, and, objectively facilitating the resolution of issues that occur during the course of the project. *(WDBC Handbook, page 23)*
12. The use of CMAR as a delivery method requires more owner planning prior to selection of the designer and the CMAR firm, which needs to be defined in the Owners overall Project Delivery and Management Plan before selecting a designer. *(WDBC Handbook, page 80)*

Conducting the Procurement Process

1. All members of the project team should be in agreement with the criteria to select a design-build firm, together with expectations of requirements and performance to be achieved, and should be required to participate in the interview process to select the design-build firm. *(WDBC Handbook, page 43)*
2. The criteria to select the design-build firm should be clearly defined within the RFP (or RFQ) documents (and draft contract). RFP documents should also include detailed, accurate, complete, and reliable input specifications for plant influent. *(WDBC Handbook, page 37)*
3. Issuing a draft contract to all proposing companies for review and comment (particularly on risk allocation issues), reduces the potential of controversial issues occurring during the selection and contract award process. This approach also further reduces the

required negotiation time, and helps establish an initial collaborative relationship for the delivery of a successful project. *(WDBC Handbook, page 46)*

4. Contracts between parties should allow the design-build or CMAR firm to recover schedule or cost impacts associated with permitting delays, new permit conditions, or permit denial. *(WDBC Handbook, page 55)*
5. To address the variability of state laws and regulations, and assure that limitations of liability expressed in a contract are fully effective, Owners should consider the following statement: "Limitations of and releases from liability set forth herein shall apply whether the liability is claimed to arise in contract, tort (including but not limited to negligence), strict liability, or otherwise." *(WDBC Handbook, page 60)*

6. In order to avoid excessive contingency amounts included in the respondent's cost proposals, or non-predicted and uncontrollable circumstances, Owners should realize that such items are typically covered by a specific clause that provides for reimbursement of the design-build or CMAR firm, and a schedule adjustment for those schedule and cost impacts that could not be avoided by the exercise of reasonable care. (*WDBC Handbook, page 56*)
7. The project delivery and management schedule, and RFP documents as well, should include a statement that equitable adjustments can be made due to impacts from extreme or unusual weather conditions, unexpected unforeseen site conditions, subsurface conditions, owner changes, permit or license changes, change in law, and other uncontrollable circumstances. (*WDBC Handbook, page 49*)
8. Owners conducting a pre-submittal meeting provide the opportunity for potential respondents to seek clarification on the project, the identified budget, the RFP/RFQ, and selection process—and further enables Owners to gauge the level of interest in the project from potential respondents. (*WDBC Handbook, page 35*)
9. In order to attract the best design-build teams to a procurement that requires design development and submittal of a fixed-price proposal, owners should consider a stipend to each of the short-listed teams (that do not win the project) to defray the cost of the pursuit. A shortlist of no more than 3 proposers is recommended in a design competition because of the very high cost of proposal development. (*WDBC Handbook, page 28*)
10. Prior to the proposal submission by shortlisted respondents, Owners may also consider holding individual “confidential” sessions to answer questions and clarify technical aspects of the project, and then provide a summary response document to all proposing firms. (*WDBC Handbook, page 37*)
11. If material uncertainties about site conditions and soil or subsurface conditions exist, then Owners should consider having the design-build firm conduct a detailed site and subsurface survey **after contract award and before the final price is determined**, as a project work scope item. This information is then used to appropriately assign subsurface risk to the party most able to manage that risk, during final contract negotiations. Subsurface risk is often shared between the Owner and the design builder. (*WDBC Handbook, page 55*)
12. When using a “guaranteed maximum price” (GMP) procurement, Owners should consider providing for a sharing of cost savings (under-runs) with the design-builder or CMAR firm in order to establish a positive incentive within the contract to meet project objectives at least cost. (*WDBC Handbook, page 40*)
13. If liquidated damages for late delivery are included in the contract, Owners should also consider an early completion bonus as a positive incentive for timely delivery, which is a more highly effective tool for assuring quality completion than of a negative incentive of liquidated damages. For CMAR contracts, owners need to approach the use of incentives carefully so they do not benefit one member of the team at the expense of another. (*WDBC Handbook, page 52*)
14. Engaging in an “open-book” approach with the selected design-build firm enables transparent access to project costs to occur, as well as the ability to factor quality considerations into the selection process of subcontractors and vendors. *This approach also provides an “off-ramp” for Owners, in the event that the total costs proposed are unacceptable. A second procurement can be conducted for completion of the project.* (*WDBC Handbook, page 41*)
15. Owners should have a clear understanding and agreement that the design-builder's designated manager(s) are committed for the duration of the project, while recognizing that unplanned circumstances may arise, that could require key staff changes. (*WDBC Handbook, page 43*)
16. In order to mitigate the owner's design risk associated with constructability, it is important that the contract with CMAR firm occur early in the design development process—certainly no later than at 30% design completion. (*WDBC Handbook, page 43*)

Managing the Design-Build Contract

1. Owners and their team members should commit to working collaboratively with the design-build or CMAR team to ensure that the contract proceeds efficiently and that any necessary transitions go smoothly. *(WDBC Handbook, page 43)*
2. Owners should address early on which design-build or CMAR team members will take the management lead during each critical phase of the project: from conceptual design, detailed design, construction, startup, to operations. *(WDBC Handbook, page 43)*
3. The final project delivery and management schedule for the design-build project should include a process for integrating the endorsement of stakeholders who may be affected by the project or even those who oppose the project. *(WDBC Handbook, page 74)*
4. The commitment to establishing a collaborative relationship on a design-build or CMAR project is reinforced with an initial kick-off workshop and/or *formal project chartering* session that aligns owner expectations with project implementation plans. These sessions focus on communications and information exchanges, reporting, monitoring, and oversight issues—and even how the matters of incomplete data are resolved. Such sessions also provide an essential and early consultation on risk sharing and the form of contract in advance of the issuance of an RFP—as well as instilling the development of trust among all team members. *(WDBC Handbook, pages 63 & 67)*
5. Taking advantage of lessons learned in the municipal contracting environment, owners and design-builders both benefit when the project implementation process is supported by a plan and agreement to promote the timely, cost effective, and amicable resolution of and disputes that might arise. *(WDBC Handbook, page 73)*
6. Owners should solicit comments from the selected design-build firm for the final draft project delivery and management plan, which is then integrated into the final contract. The contract then provides the basis for implementing the project development and management plan; but the owner should describe the structures and processes necessary to implement the contract. *(WDBC Handbook, page 70)*
7. In order to maintain synergy among the respective teams, Owners should ensure that day-to-day decisions are maintained at the Project Manager level. In the event that disputes cannot be resolved, the process should allow for an issue to advance to the respective upper management of each contract party to assist in resolution. This alone is often enough to produce settlement of project disputes quickly, and the most desirable solution. *(WDBC Handbook, page 77)*
8. During the execution of the project, Owners are reminded that early decision-making on owner-directed changes are accommodated much more economically than changes that are delayed in the owner's decision-making process for a number of months. *(WDBC Handbook, page 76)*



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