



Topic: **Reservoir Committee Agenda Item 7-1** **2018 Jan 19**

Subject: **Procurement Strategy & Plan**

Requested Action:

Discussion and possible direction to staff regarding the proposed procurement strategy and plan.

Detailed Description/Background:

The January 18, 2018 Joint Authority/Reservoir Committee Contracting and Procurement Workshop utilized the results from the Reservoir Committee’s December 21, 2017 meeting’s agenda item 1-6 (see Attachment 7-1). Staff will consider participant’s comments to advance the proposed strategy and begin to develop a procurement plan. The proposed plan will enable professional services agreements to be executed at the start of Phase 2, which requires completion of the Phase 1 rebalancing process, executing new participation agreement for Phase 2 (or an amendment and extension of the Phase 1 participation agreement), and how Phase 2 will be funded. Additional direction to staff will facilitate the preparation of a plan for initial input by the Water Facilities Work Group and then for the Reservoir Committee’s consideration.

Prior Reservoir Committee Action:

None.

Fiscal Impact/Funding Source:

None.

Staff Contact:

Jim Watson

Attachments:

Attachment 7-1: Reservoir Committee Meeting of Dec 21, 2017 Agenda Item 1-6: RESULTS (Project Delivery & Contract Strategy)

Topic: **Procurement Strategy**

2017 Jan 05

Subject: **Reservoir Committee Meeting of Dec 21, 2017 Agenda Item 1-6:
RESULTS (Project Delivery & Contract Strategy)**

Purpose: As an aid in selecting the contracting strategy that will provide the best value, utilize the Construction Industry Institute's (CII's) "Owner's Tool for Project Delivery and Contract Strategy (PDCS) Selection" to identify the preferred contracting methods for final design and construction (Phase 3) as the basis to then develop a contracting strategy for Phase 2. These results will be used in conjunction with additional considerations that are not factored into the CII process to develop an overall contract strategy for both Phase 2 and 3.

Process: The PDCS defines 12 of the more-common contracting methods (or delivery options). Each method is weighted based on 20 key factors (or values). When the top 4 to 6 key factors are selected and scored, these 12 contracting methods can then be ranked from highest to lowest. This process was used at the December 21, 2017 Reservoir Committee meeting. After a discussion of each factor, each participant submitted their top 6 key factors. These results were tallied to identify the top 6 factors in ranked order. Relative scores for each of these key factors were provided by staff to develop the ranked list of contracting methods. Different scores were also used to determine the sensitivity of the results.

Findings:

- More progressive or "alternative" delivery options ranked in the top 5.
- The traditional contracting methods ranked in the bottom 7

However, the CII process does not address additional considerations (e.g. permit and real estate acquisition), which could significantly affect the final selection of a contracting strategy that will produce the best value.

Recommendation:

1. The preliminary design packages or contracts (Phase 2) should be structured to enable final design and construction (Phase 3) to proceed using either of the top 2 ranked methods: Turnkey or Design-Build.
2. In Phase 2, provide flexibility to incorporate the effects associated with the additional considerations into the selection of a final contracting strategy.
3. Structure the Phase 2 design packages (or contracts) to not preclude using the other top-ranked contracting methods in Phase 3. NOTE: This approach would also enable the traditional methods to remain viable.

Additional Considerations: The following aspects are critical to the success of the Sites Project and are not explicitly addressed in the CII's PDCS process. Each of them will need to be advanced in Phase 2 and therefore factored into the overall contracting strategy. Typically, the following considerations are completed or are sufficiently advanced by the owner to be factored into the risk allocation, which will affect the terms and conditions of any contract, regardless of method.

1. Regulatory/Permits
2. Real Estate Acquisition
3. Political/Administration
4. Governance and ownership structure
5. Project's financing
6. Construction market's bonding capacity

Overview of CII's Project Delivery Contract Strategy Selection Tool:

Table 1: Summary of Delivery Options evaluated in CII's Project Delivery Contract Strategy, shown in ranked order Ranked using the top 6 Key Factors:

<u>Rank</u>	<u>ID #</u>	<u>PDSC Description</u>
Top 5:		
1	11	<u>Turnkey</u> : Overlapped sequence of design and construction phases; procurement begins during design; owner contracts with Turnkey contractor
2	7	<u>Design-Build (DB) or Engineer-Procure-Construct (EPC)</u> : Overlapped sequence of design and construction phases; procurement begins during design; owner contracts with Design-Build (or EPC) contractor.
3	6	<u>Construction Management at Risk (CM @ Risk)</u> : Overlapped sequence of design and construction phases; procurement begins during design; owner contracts separately with designer and CM @ Risk (constructor).
4	8	<u>Multiple DB or EPC</u> : Overlapped sequence of design and construction phases; procurement begins during design; owner contracts with two Design-Build (or EPC) contractors, one for process and one for facilities.
5	12	<u>Fast Track</u> : Overlapped sequence of design and construction phases; procurement begins during design; owner contracts separately with designer and constructor.
Bottom 7:		
6	2	<u>Traditional with early procurement</u> : Serial sequence of design and construction phases; procurement begins during design; owner contracts separately with designer, constructor, and supplier.
7	3	<u>Traditional with Project Manager (PM)</u> : Serial sequence of design and construction phases; procurement begins with construction; owner contracts separately with designer and constructor; PM (Agent) assists owner in managing project.
8	4	<u>Traditional with Construction Manager (CM)</u> : Serial sequence of design and construction phases; procurement begins with construction; owner contracts separately with designer and constructor; CM (Agent) assists owner in managing project.
9	1	<u>Traditional Design-Bid-Build</u> : Serial sequence of design and construction phases; procurement begins with construction; owner contracts separately with designer and constructor.

- 10 5 Traditional with early procurement and CM: Serial sequence of design and construction phases; procurement begins during design; owner contracts separately with designer, constructor and supplier; CM Agent assists owner in managing project.
- 11 9 Parallel Primes: Overlapped sequence of design and construction phases; procurement begins during design; owner coordinates separate contracts with designer and multiple constructors (or D-B contractor(s)).
- 12 10 Traditional with Staged Development: Multi-stage, serial sequence of design and construction phases; separate contracts for each stage; procurement begins with construction; Project Manager (Agent) assists owner with project management.

Table 2: Summary of 20 key factors, shown in ranked order Ranked using input from those participating at the December 21 Reservoir Committee.

	Factor #	Selection Factor Action Statement	Dec 21 Occurrence	Rank Top 4-6	Score 100 max.	Relative Weighting
Cost Related Factors	1	Control cost growth	11	1	100	29%
	2	Ensure lowest cost	7	6	20	6%
	3	Delay or minimize expenditure rate	3			
	4	Facilitate early cost estimates	9	4	50	15%
	5	Reduce risks or transfer risks to contractor(s)	5			
Schedule Related Factors	6	Control time growth	10	2	80	24%
	7	Ensure shortest schedule	8	5	30	9%
	8	Promote early procurement	1			
Other Factors	9	Ease change incorporation	9	3	60	18%
	10	Capitalize on expected low levels of changes				
	44	Protect confidentiality (Not applicable)				
	12	Capitalize on familiar project conditions				
	13	Maximize Owner's controlling role	1			
	14	Minimize Owner's controlling role				
	15	Maximize Owner's involvement				
	16	Minimize Owner's involvement				
	17	Capitalize on well-defined scope	1			
	18	Efficiently utilize poorly defined scope	1			
	19	Minimize number of contracted parties				
	20	Efficiently coordinate project complexity or innovation	1			

Results: Based on the ranked top 6 factors (1 = highest) and scoring, the ranked order of preferred delivery methods are shown in Figure 1 and Table 3.

Figure 1 - PDCS Rating (Highest to lowest)

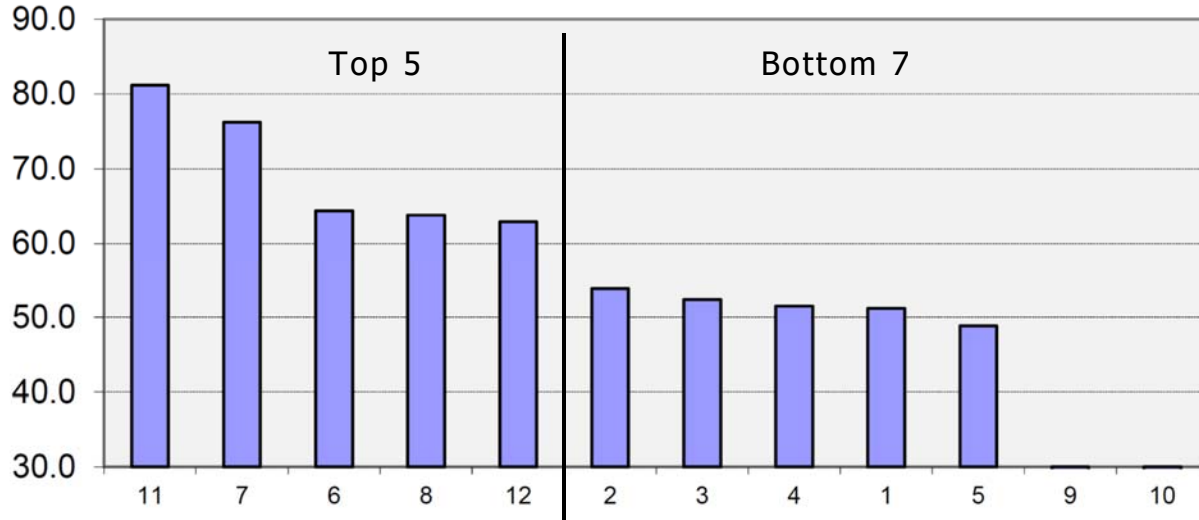


Table 3 - PDCS Methods ranked with typical contract price structure:

PDCS #	Rating	PDCS	Designer	Constructor	CM (Agent)	PM (Agent)	Contractor	Supplier
11	81.2	Turnkey					Competitive Lump Sum	
7	76.2	Design-Build or EPC					Competitive Lump Sum	
6	64.4	CM @ Risk	Firm Price	GMP				
8	63.8	Multiple Design-Build or EPC					Competitive Lump Sum	
12	62.9	Fast Track	Cost + Fee	Cost + Fee				
2	53.8	Traditional (DBB) with Early Procurement	Cost + Fee	Competitive Lump Sum				Competitive Lump Sum
3	52.4	Traditional (DBB) with Project Manager	Firm Price	Negotiated Lump Sum		Negotiated Lump Sum		
4	51.5	Traditional (DBB) with Construction Manager	Negotiated Lump Sum	Competitive Lump Sum	Negotiated Lump Sum			
1	51.2	Traditional Design-Bid-Build (DBB)	Firm Price	Competitive Lump Sum				
5	48.8	Traditional (DBB) with Early Procurement and CM	Cost + Fee	Competitive Lump Sum	Cost + Fee			Competitive Lump Sum
9	14.4	Parallel Primes	Cost + Fee	Competitive Lump Sum				Competitive Lump Sum
10	12.4	Traditional (DBB) with Staged Development	Competitive Lump Sum	Competitive Lump Sum		Cost + Fee		Competitive Lump Sum

Sensitivity Analysis:

1. When the difference in scores for each factor was increased (e.g. rank 1 = 100, 2 = 70, 3 = 50, 4 = 30, 5 = 20, & 6 = 10), the ranked order for the top 6 Project Delivery Construction Strategy (PDCS) did not change. However, the difference between PDCS #11 (Turnkey) and #7 (Design-Build or EPC) and PDCS #6 (CM @ Risk), 8 (Multiple Design-Build or EPC), and 12 (Fast Track) narrowed.
2. When different scoring strategies were applied, a PDCS shifted one or two places, but no PDCS moved "up" into the "top 5" or "down" into the "bottom 7" and the noticeable gap between the "top 5" vs. "bottom 7" varied, but did not materially change.
3. Factor #4 (Facilitate early cost estimates) and #9 (Ease change incorporation) had the same number of occurrences (or votes). When the scores are swapped, the PDCS #8 (Multiple Design-Build or EPC) moved up from 4th to 3rd place and #6 (CM @ Risk) moved down from 3rd to 4th place.

Interpretation:

- Implementation using alternative delivery methods (i.e. PDCS #6, 7, 8, 11, and 12) are expected to provide better value than traditional Design-Bid-Build (i.e. PDCS #1, 2, 3, 4, 5).

NOTES:

- a. Permit requirements and timing to acquire real estate, which are not factored into the CII process, would likely reduce the gap between the "top 2" (i.e. PDCS #11 & 7) and the other methods listed as part of the "top 5" methods.
 - b. Development for least cost is best achieved using the traditional Design-Bid-Build methods (i.e. PDCS #1 or #2).
- Based on the participants' values as expressed in the ranked factors, PDCS methods #9 (Parallel Primes) and #10 (Traditional Design-Bid-Build using Staged Development) are not well suited to developing the Sites Project). This is primarily due the risk of cost increase and delays associated with the interface points between each contract (i.e. factors 1, 2, and 6, which were in the top 6 highest ranked factors).

NOTE: Contracts by discipline (e.g. civil/structural, electrical/ mechanical, piping and instrumentation) also create greater interface risks affecting cost and schedule and therefore should only be considered as a last resort.

- While both the single Turnkey (PDCS #11) and Design-Build (PDCS #7) contract or delivery method ranked highest, the CII's process does not address bonding capacity intended to limit the concentration of risks. Given Sites Project's costs, a single contract will require multiple large firms to form joint ventures in order to pool their resources to, in part, meet the bonding requirements. This will reduce the number of bidders and likely require specific contractual language to ensure generally-accepted warranty requirements are preserved. Both of which should be incorporated in the development of the procurement strategy for the Sites Project.
- An alternative to issuing a single contract (i.e. implement PDCS #6, 8, or 12 using multiple construction contracts or packages), their respective rating can be improved by addressing the integration between each package or contract. This can be accomplished by either designating one contract to be responsible for overall integration activities or issue a separate contract to ensure integration between the construction packages.

NOTE: Should multiple construction contracts be awarded, each would be responsible for the start-up and commissioning of their respective scope of work. For project-level start-up and commissioning either a separate contract should be considered or the contract to build the largest pump station be assigned the lead responsible for managing the project-level start-up and commissioning.

- Given the effects that other considerations are expected to have on the assignment of risk, governance, and considerations of cost, schedule, integration, and quality; the procurement strategy needs to have sufficient flexibility to allow the project requirements to continue to evolve in Phase 2 by allowing "off-ramps" to different delivery methods - including the potential for Design-Bid-Build where appropriate - to be considered before the start of Phase 3.