

# MEMORANDUM

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February 5, 2010

**TO:** Board of Mayor and Aldermen

**FROM:** Eric Stuckey, City Administrator *ESS*  
David Parker, City Engineer/CIP Executive

**SUBJECT:** **Jackson Lake Dredging/Rehabilitation Project  
Construction Management-at-Risk**

## Purpose

The purpose of this memo is to provide the Franklin Board of Mayor and Aldermen (BOMA) with some background information concerning using a construction management-at-risk method for the delivery of a project in order to possibly pursue this delivery method for the Jackson Lake Dredging/Rehabilitation Project.

## Background

Typically government entities employ the design-bid-construct method of delivering projects. This method has the project's design being done by an engineer or architect and the project then competitively bid for construction with the contractor submitting the lowest and most responsible bid being awarded the construction contract. While this is a very open and suitable method for projects there are other methods that can relieve the owner (City) some of the hassle for the management of the project and can greatly reduce the owners risk from cost overruns and general risks involved during the life of the project. The method that staff has considered and wishes to bring to BOMA for consideration for the Jackson Lake project is the Design/Build Construction Management-at-Risk method of delivery.

Attached is an explanation of the Design/Build Construction Management-at-Risk delivery method prepared by CDM who is our design consultant for the Jackson Lake project. While this provides an excellent explanation of the process, we need to point out that with the Jackson Lake project we are already beyond the design phase of the project. Design has been completed and we are preparing to go to bid and construction, but since this is such a specialty type project with tight parameters, staff feels that the construction management-at-risk as explained in the attachment might be preferred to our normal process and wanted to bring this forward for discussion.

The City has previously used a construction management process for a project, but it was not "At-Risk" and it did not work very well. On that project we had a construction management firm and then the City bid out all the various trade portions of the project which created a management problem since the trade contractors' contracts were with the City directly. With the construction management-at-risk method of delivery the City will have one contract with the construction management firm, but will have input into the contractors selected by the competitive bid process conducted by the construction manager.



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### **Financial Impact**

As explained in the attachment, the guaranteed maximum price (GMP) for the project would be negotiated with the construction management firm and that is the maximum the City would have to pay. Any cost overruns would be the construction management firm's responsibility to fund. The contract with the construction management firm can be set up such that any cost savings are shared between the City and the construction management firm.

### **Recommendation**

Input from BOMA is being sought as to whether or not the City is interested in pursuing the delivery of the Jackson Lake project by utilizing construction management-at-risk.

# EPCM Method of Design/Build

The engineering-procurement-construction-management (EPCM) or Design/Construction Management-at-Risk (Design CM-at-Risk) form of design/build delivery can offer owners several advantages, yielding all the advantages of fixed-price design/build (single point of responsibility; expedited schedule; teamwork between design, construction, and operations personnel), while giving the owner increased flexibility and involvement in the project as it evolves.

In an EPCM contract, the owner holds one contract with CDM (the EPCM firm) who, in turn, holds all subcontracts and major equipment purchase orders. CDM is responsible for the design and competitive procurement of construction subcontracts, as well as materials and equipment purchase orders. With the owner's approval, CDM may self-perform certain aspects of the construction. The owner only pays for the actual cost of construction up to the guaranteed maximum price (GMP).

Design and construction documents are fully developed in an EPCM delivery method. However, as major design issues are resolved and when major equipment system costs can be determined, CDM will provide the owner with a GMP, and with approval, will initiate the placement of equipment orders and subcontracts. This leads to greater project efficiency. For example, CDM can incorporate major equipment system shop drawings into the base design drawings, significantly expediting the submittal process.

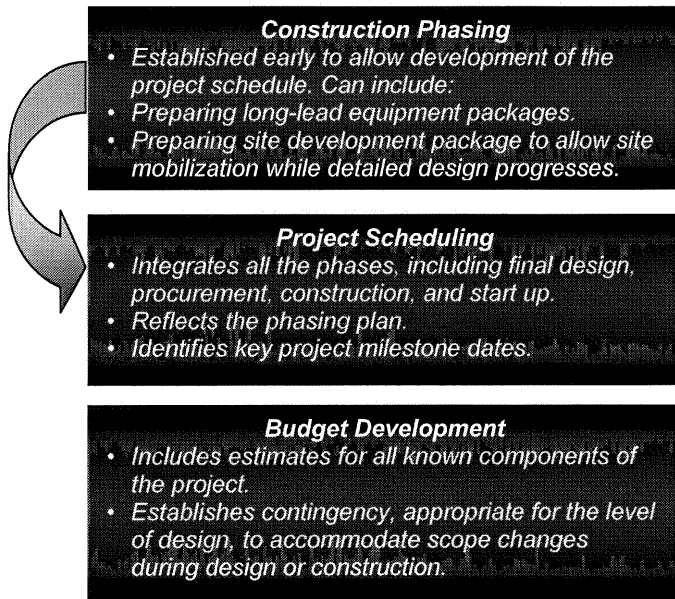
At the project start, CDM works with the owner to develop the construction phasing approach, the project schedule, and the project budget (see graphic on next page). Work packages are developed at this stage. This involvement is commonly referred to as pre-construction services and includes the following activities:

- Performing constructibility and value engineering reviews on the design, the ease of installation, schedule impacts, and the level of quality the design specifies.
- Evaluating alternatives and alternate methods and approaches to the work.
- Developing a rolling cost estimate and detailed critical path method (CPM) schedules as the design progresses.
- Preparing a formal cost estimate based on 30 percent design documents.

When the design has advanced to between 60 and 65 percent completed, CDM prepares the final GMP for the work on an open-book basis, subject to outside review. Contingencies are included in the final GMP to account for unforeseen field conditions encountered during construction and additional features required and not shown on the drawings.

## **Benefits of the EPCM Method of Design/Build**

- Expedited schedule
- Best value project for the money, in terms of both capital and lifecycle costs
- Opportunity to maximize use of local firms
- "Open book" approach to costs; owner realizes cost savings below GMP
- Competitive procurement of approximately 70% of construction costs
- Owner involved in design and the selection of equipment
- GMP developed at 65% (early establishment of a firm cost)
- Owner only pays actual cost of equipment and construction
- Continuous value engineering throughout project to identify cost savings
- Design to budget (not budget to design)



During construction, CDM procures subcontractors, materials, and/or equipment using a variety of procurement methods. The owner is involved in approval of CDM's recommended lowest responsible and qualified subcontractors and material/equipment vendors. The EPCM approach allows the owner to incorporate the "best value" equipment that will result in the lowest lifecycle cost, rather than only considering the "low bid" equipment. The EPCM method also assures the owner that a substantial portion of the construction cost has been competitively procured.

Using the EPCM method of design/build delivery offers advantages including:

- The EPCM approach provides early involvement by construction professionals, which gives the team the potential to design and build a practical, high-quality project commensurate with the project needs. Cost estimating starts as the design concepts are developed, allowing the team to make informed decisions on cost-effectiveness.
- The EPCM approach breaks down construction into distinct work packages to maximize competition and provide the best value costs for construction. This also maximizes the opportunity to use local firms, particularly minority- or woman-owned business enterprises.
- The EPCM approach provides reduced overhead costs to owners since all the subcontractor pre-qualifications and bid solicitations are performed by CDM.
- The EPCM approach provides an appropriate risk transfer from the owner to CDM. This can result in reduced risk mitigation insurance costs.
- The EPCM form of "open book" design/build delivery allows approximately 70 percent of the construction cost to be competitively procured and allows the owner to see all costs associated with the project. The focus of the team can be given to working together to complete the project, not worrying about whether they received a fair price for the project.