RECOMMENDATION PAPER FOR THE DULLES CORRIDOR COMMITTEE WORKSHOP

CONTRACT PACKAGING OPTIONS FOR PHASE 2 OF THE DULLES METRORAIL PROJECT

MARCH 2011

PURPOSE

In May 2009, the Board of Directors (Board) authorized the advancement of Phase 2 of the Dulles Corridor Metrorail Project using a Design-Build approach. The first step in that approach is the completion of Preliminary Engineering (PE). PE was initiated in December 2009 and is scheduled to be completed in April 2011. In order to complete its work, the PE consultant requires direction on whether to prepare one or multiple Design-Build packages. Once that direction is provided, the consultant will prepare the appropriate procurement documents accordingly.

In August 2010, an information paper was provided to the Dulles Corridor Committee summarizing the advantages and disadvantages of the different approaches. This paper presents the President's recommendation on the packaging approach based upon a risk review of the project's execution and the ability to assure competitive bids. The President requests that the Dulles Corridor Committee approve its recommendation.

BACKGROUND

The final product of PE is one or more procurement solicitations advertised to interested entities for the final design and construction of Phase 2. Completion of the PE documents requires a decision on the number of solicitation packages. The August 2010 information paper described three packaging options being analyzed for consideration. (A brief summary of the options is attached as Attachment 1). The first option was a single Design-Build contract for the entire scope of work. The second option was multiple (probably three or four) Design-Build packages. The third option was one very large package and a separate, much smaller package for the rail car maintenance shop and storage yard.

The President recommends the third option be used with additional modifications to include additional smaller packages which, like the rail yard, are easily separated and require little integration with the large contract. Examples of additional smaller packages which require little integration with the scope contained in the large contract are the

parking garages, utility relocation and right-of-way acquisition. If other opportunities are identified for the approach, they will also be pursued as separate packages.

DISCUSSION

An independent advisory panel was asked to advise on the packaging structure. They have recommended the use of several design-build and design-bid-build packages for Phase 2. However, instead of separating these contracts by project element (e.g., guideway, stations, and systems), a geographic split is proposed. Following discussions of this approach with Airports Authority engineering, procurement, and legal staff, the advisory panel acknowledged there were limitations and additional challenges with geographic-based contracts, but reiterated their support for multiple design-build contract packages for the mainline and stations work broken down by geographical location; multiple design-bid-build contracts were recommended for the systems work including traction power, controls systems, welded rail and other systems work. They concurred in the President's recommendation to keep the rail yard, parking garages, utility relocation, and property acquisition separate from the overall design-build contract. (See Independent Advisory Panel's Report of January 6, 2011 in Attachment A.)

As described in the August 2010 information paper, the largest concern between a single Design-Build package and multiple packages is the interface points between the packages. These interface points create risk of more change orders, delays and claims. The recommended approach minimizes this risk by identifying separate procurement packages for scope of work elements that involve minimal interface points. This approach creates opportunities for multiple and smaller contractors without increasing project risk. The recommendation is for one large Design-Build contract to construct the entire integrated rail line and stations providing for the selected firm to bear the responsibility for all interface risks association with designing, planning, scheduling and constructing the rail line and stations.

The August 2010 information paper discussed how the packaging method affects project management, bonding, competition, price, risk and opportunities for participation. It is prudent to review how the recommended approach will affect these categories.

The Project management of the single large contract will be consistent with the approach used for Phase 1 and thus it will minimize the need for additional staff to implement the project. Although the separate smaller contracts will have to be managed separately, their smaller size will make integration into our team easier to accomplish. The consistency with Phase 1 is very important for the time (two years) that the Phase 1 and Phase 2 contracts will be active concurrently.

The bonding approach for this packaging plan will be to require 100 percent bonding for all the smaller contracts and the maximum available, expected to be $500 million to $700 million, for the single large contract. A parent company guarantee will also be required for the large contract. The Airports Authority's procurement manual requires 100 percent for all contracts; therefore, an exception to the procurement manual has to be approved by the Business Administration Committee and the Board.

Based upon current interest in the project, including two presentations to the Design Build Institute of America, the President fully expects multiple teams to compete for the large contract. The smaller contracts will undoubtedly attract significant competition. A key project objective will be to generate interest in the large contract. Staff will reach out to the contracting community including an early prequalification process. All staff is in complete agreement that competition is essential to attract a good Design-Build team at a fair and reasonable price.

The difference in the risk exposure between multiple large Design-Build contracts and a single large Design-Build contract is the major reason why the President recommends this approach. The risk of change orders, delays and claims is too great for the multiple large Design-Build contracts. A single large contract reduces this risk. The Airports Authority has experience in the construction of two large train systems. Single large contracts have been used successfully for major transit projects in other cities, including Denver, Houston, and Los Angeles (see Attachment 2). Based on this experience, reducing project risk is important.

In addition, the recommendation to include several smaller packages will increase the opportunities for multiple firms to participate. The large contract will have Local Disadvantaged Business Enterprise (LDBE) or Disadvantaged Business Enterprise (DBE) goals depending upon which is allowed under the funding regulations. If federal dollars are involved, DBE goals will be followed. If no federal dollars are involved, LDBE requirements will be used.

When the information paper was presented to the Committee in August 2010 questions were raised concerning the Woodrow Wilson Bridge Project, which was initially let as a single Design-Bid-Build package and ultimately was rebid as three smaller packages. There is pertinent information available on the Woodrow Wilson Bridge experience and the lessons learned. There is no single reason why only one bid was received when the initial single package was advertised but some obvious warning signs were missed. During the first procurement process, only one contracting firm participated in the process. It was the only firm to submit questions prior to the bid opening. The Maryland DOT ignored this warning sign and proceeded to bid. When bids were received, there was only one at a cost of approximately $850 million. It is imperative to have competition in any procurement if there is an expectation of good pricing. Making sure

there is real interest from a number of proposers, all the way through the procurement process is an absolute necessity. Listening to the concerns of interested Design-Build teams and convincing them of the Airports Authority's intent to conduct a fair competition with an equitable handling of project risk will ensure their continued interest. The Woodrow Wilson Bridge was rebid as three packages after significant outreach was conducted to assess why firms did not participate initially. The outreach, which was undertaken, was very successful and resulted in multiple participants in the rebid and significant project savings. The final bid price was $492 million. The actual total cost was approximately $650 million. Phase 2 will be advanced with a similar philosophy of seeking input from the contractor community.

RECOMMENDATION

After consultation with staff of the Dulles Rail Project and the Office of Business Administration, and discussions on this topic with an independent advisory panel, it is the recommendation of the President to advance the Design-Build stage of Phase 2 using one large Design-Build contract for the rail lines, including stations and systems, and several smaller contracts for the rail car shop and maintenance yard, parking garages, utility relocation and property acquisition.

Staff requests the Dulles Corridor Committee's approval to advance the Design-Build stage for Phase 2 and that the Committee recommends approval of this approach to Board of Directors. Since it is not possible to secure 100 percent bonding for the large Design-Build contract, approval of an exception to the Airports Authority's bonding requirements, is needed. Staff will request that the Business Administration Committee approve an exception to the Airports Authority contracting manual and recommend approval to the Board of Directors.

Prepared by
Office of Engineering
March 2011

ATTACHMENT 1
CONTRACT PACKAGING OPTIONS FOR PHASE 2

Comparison Factors	Single Package	Multiple Packages	One Large/One Small Package
Project Management	- A single integrated management team - A smaller consultant support team is needed for oversight, coordination and integration of a contract	- Three or four management teams - A larger consultant support team is needed for oversight, coordination and integration of each contract	- A single integrated management team - A smaller consultant support team is needed for oversight, coordination and integration of a contract
Bonding	- Contractors may not be able to obtain 100% bond coverage - Parent company guarantees may be obtained but do not provide an equal level of protection	- Contractors may be able to obtain 100% bond coverage - Parent company guarantees may be obtained but do not provide an equal level of protection	- Contractors may not be able to obtain 100% bond coverage - Parent company guarantees may be obtained but do not provide an equal level of protection - 100% bond coverage for smaller package may be achieved
Competition	- Five or more separate large teams are expected to compete	- Provides more opportunities for medium and small size firms to compete directly for contracts - Larger firms might also compete	- Five or more separate teams are expected to compete for each package - Type and size of firms competing would be the same as with a single package
Price	- Higher initial cost - Reduces the cost of delays - Lower project management staff costs	- Lower initial cost - More susceptible to claims - Higher project management cost	- Higher initial cost - Reduces the cost of delays - Lower project management staff costs
Risk	- Reduced risk of contractor schedule conflicts - Low risk of default - Medium risk of award protest	- Higher risk of contractor schedule conflicts - Medium risk of default - Medium risk of award protest	- Reduced risk of contractor schedule conflicts - Reduced risk of default - Medium risk of award protest
Participation	- 25% LDBE goal is achievable	- 25% LDBE goal is achievable	- 25% LDBE goal achievable

ATTACHMENT 2

CONTRACT PACKAGING APPROACHES USED ON OTHER LARGE TRANSIT PROJECTS

No.	Agency and Project	Approach	Scope and Schedule	Rationale and Observations
1	Dulles Corridor Metrorail Project (Phase 1)	Single Design-Build Contract	• 11.6 miles of double track, 5 stations • Awarded in 2008; Contract Value – $1.6 billion • Scheduled Completion – December 2013 • Actual Completion – Under Construction	• Single Contract approach was used. Negotiated as a Public-Private Partnership (PPP) contract. Generally, PPP projects use a Single Contract approach.
2	Denver RTD - Transportation Expansion Project (T-REX)	Single Design-Build Contract	• 19 miles of double track, 13 stations, widening of Interstate Highways. • Awarded in 2001, Contract Value – $1.7 billion • Scheduled Completion – June 2008 • Actual Completion – November 2006	• Single contract approach was chosen so that a single Design-Builder could coordinate highway realignment and transit requirements to meet the goals of Colorado DOT for highway work and RTD for transit work.
3	WMATA - Blue Line Extension to Largo	Split Design-Build Contracts (Line and Systems, and Stations)	• 3.1 miles of double track, 2 stations and associated parking lots and structures • Awarded in 2002; Contract Value - $310 million • Scheduled Completion – December 2004 • Actual Completion – December 2004	• Split contract approach was used. An early Contract was used to relocate utilities. • Design-Build Contracts were let for 1) Line and Systems, and 2) Stations and Parking. • Contract size was limited in order to meet Payment and Performance Bond requirements.
4	Houston – METRO Solutions	Single Design-Build Operate Maintain Contract	• 20 miles of double track, 32 stations • Awarded in 2009, Contract Value – $1.5 billion • Scheduled Completion – 2012 • Actual Completion – Under Construction	• Single Design-Build contract approach was chosen because it was negotiated using a PPP approach, and therefore the Agency required one single entity to enter into a contract. • Full implementation delayed due to local and FTA funding issues.

ATTACHMENT 2

CONTRACT PACKAGING APPROACHES USED ON OTHER LARGE TRANSIT PROJECTS

5	NJ Transit - River Line (Southern New Jersey LRT System)	Single Design-Build Operate Maintain Contract	• 34 miles of single and double track, 20 stations • Awarded in 1999; Contract Value - $476 million • Scheduled Completion – 2003 • Actual Completion – March 2004	• Single contract approach was chosen to provide for operation and maintenance of the system by a private operator. • Due to problems in negotiating track usage rights with Conrail, Construction Notice to Proceed was delayed after the Contract was awarded. • Post-award, major changes to scope had to be made to change the method of operation of the transit system to use much more single track (rather than double track as had been intended.)
6	BART – San Francisco Airport Extension	Multiple Contracts (4 Design-Build Contracts, 2 Design Bid Build Contracts)	• 8.7 miles of double track, 4 stations • Awarded in June 1997; Contract Value – $1.05 billion • Scheduled Completion – 2003 • Actual Completion – June 2003	• Project implementation used a standard BART multi-contract approach.
7	Los Angeles MTA – Mid-City Exposition Line (Phase 1)	Single Design-Build Contract	• 8.5 miles of double track, 10 stations • Awarded in 2006; Contract Value – $640 million • Scheduled Completion - late 2010/early2011 • Actual Completion – Under Construction (partial service expected in 2011)	• Single contract approach was chosen to streamline the completion of final Design and Construction of all work by a single Design Builder. • Some cost and schedule increases related to changes to scope
8	NJ Transit – Trans-Hudson Express Tunnel	Multiple Contracts (3 Design-Build TBM Contracts, 20+ Design Bid Build Contracts)	• 9 miles of track including tunnels, 1 station • Contract Value – $8 billion • Scheduled Completion – 2018 • Actual Completion – Project Terminated in October 2010	• Design-Build was used for Tunnel Contracts to allow Contractors flexibility in design approach, and given that tunnel contractors have national and international experience. • Other contracts were prepared as Design Bid Build to provide for more completion by local and small contractors. Contract sizes ranged from $10 million to $500+ million. • At the time of termination, contracts that had been awarded were on budget.

ATTACHMENT 2

CONTRACT PACKAGING APPROACHES USED ON OTHER LARGE TRANSIT PROJECTS

9	New York City Transit - Second Avenue Subway	Multiple Design-Build Contracts (One Contract for each Station and one for Systems) Original Design-Build Contracts were later converted to Design Bid Build.	• 2.3 miles of double track in tunnels, 3 new stations, 1 rehabilitated station • Contract Value – $4 billion • Scheduled Completion – 2014 • Actual Completion – Under Construction	• Originally, consideration was given to adjusting the level of Bonding required (i.e., a reduction from the requirement for 100% Payment and Performance Bonds). However, no change to the requirement was instituted, • Contract size is limited by the requirement for 100% Payment and Performance Bonds. • Due to funding and other constraints, schedule was extended.

Metropolitan Washington Airports Authority

Phase 2 Contract Packaging Recommendations by the Independent Advisory Panel

At the request of the Board of Directors, the Independent Advisory Panel (IAP) has reviewed the Phase 2 Program and developed recommended contracting strategies that promote greater competition, involve more local firms and reduce contractors' overhead costs. The recommendations for contract definition are made with the goal of maintaining the current project completion schedule target of 2016, while utilizing the existing structure of MWAA program and construction management contracts. In addition, the panel's recommendations are valid for any of the alternatives under consideration at the airport and can be initiated immediately. These recommendations are based on projects with a history of success and are considered by many in the construction industry as its best practices in confronting projects of this type. Examples of large mega projects are provided in an Appendix to highlight these recommendations.

CONTRACT TYPE

The IAP has focused on the contracting for mainline track and stations and systems work, assuming that other ancillary facilities will be constructed under separate contracts. The IAP recommends the Design-Build (DB) contract form for all elements of the Phase 2 Mainline stations and line, and the Design-Bid-Build (DBB) contract form for the Rail and Systems work. A DB contract provides the greatest advantage in terms of schedule and is well suited for typical standard construction of the WMATA Metro system. The IAP recommend a DBB procurement for the systems work because it is vital to the safety of the transit operations, and therefore justifies the stringency inherent in DBB contracting procedures.

RECOMMENDED MULTIPLE CONTRACTS

The IAP recommends 3 design-build contracts for the mainline and station work, and multiple design-bid-build contracts for systems work. The structure of these contracts takes into consideration contract size, common and standard elements, and construction staging. These contracts are defined as follows:

Design-Build Line and Stations Contracts:

1. Eastern Contract: including line and stations starting from Wiehle Avenue Station to the start of the airport segment

2. Airport Contract: encompassing all line and station works contained on the airport property (whether aerial or underground)

3. Western Contract: including line and stations from the western extent of the airport property to the western terminus (excluding the yard)

Systems and Welded Rail Design-Bid-Build Contracts for the entire 11.5 miles:

1. Traction Power, Command, Control and Communications Systems Contract
2. Other Systems Work Contract, including kiosks, escalators, elevators, fare gates and fare collection equipment, signage, station furniture, etc.
3. Welded Rail - Furnish and Installation Contract

ADVANTAGES OF MULTIPLE CONTRACT PACKAGES

Most important among all the advantages, multiple contracts provide the following cost and schedule advantages to MWAA:

- More opportunities for contractors to submit innovative means and methods to reduce costs and risks when work is based on common construction elements.
- Scheduling advantage with concurrent design and construction of multiple contracts provides staging flexibility and efficiencies.
- Early procurement of the Eastern and Western DB Contracts and systems design work takes advantage of the current economic environment for MWAA.
- Competitive pricing driven by initiatives to attract more bidders with Metro construction experience. One large contract, because of its size, complexity and bonding requirements, will limit the number of teams who will bid; many will not bid if they feel the incumbent has the inside track with MWAA.
- Sufficient time with added float to construct the project and meet 2016 schedule, assuming all institutional agreements and approvals are in place.
- A separate contract for the airport segment provides time in the schedule to advance the preliminary engineering of new alternatives airport station concepts should these be adopted without interfering with the other D/B contracts on East and West segments.

INCREASED POTENTIAL FOR COMPETITION AND LOWER BID PRICES

Based on advantages in schedule and potential cost savings, the advisory panel recommends multiple contracts for the civil work, including line and stations to attract more qualified contractors with constrained overheads as well as specialist contractors for systems and other ancillary work. Informal discussions with contractors already indicate that many are interested in the Dulles work if divided into smaller contracts.

Mega-projects adopting multiple contracts appear to gain economies by removing high-priced overhead and management cost associated with the large single contract with numerous subcontractors. The evidence appears compelling and many clients, including local agencies, have accepted this conclusion. Within recent years - with the impact of the economic downturn, projects are attracting 3 to 6+ teams responding to a call for qualifications or bids on typical major local and national infrastructure projects. The competition has resulted in prices as much

as 15-30% below the engineers' estimates. The projects are typically divided into multiple contracts ranging from $150 to 500 million. These attract smaller, hungry teams and allow the distribution of work among the local construction firms. Examples are listed in an APPENDIX attached to these recommendations.

The size of the project is of such a scale that few firms or joint ventures are able to meet the bonding requirements without limiting their participation in other programs and without adding significant overhead. Bidding history demonstrates that multiple contracts of a smaller value attract more firms and reduces the bids prices considerably in the competitive environment. At the present time, economic pressures and the downturn in construction will provide a large stable of contractors with experience in metro construction and who are anxious to bid. New Jersey's recent cancellation of the "Access to the Regional Core" program in the NY-NJ region will release a number of contractors who will be looking to keep their crews busy and will be eager to bid the work, along with the local contractors.

SCHEDULING FLEXIBILITY WITH MULTIPLE CONTRACTS

By dividing the main track and stations into three contracts, the development of the preliminary engineering for any new alternatives at the airport can be advanced, while all remaining contracts are advanced immediately. When the airport station alternative is approved, the scheduling for the works at the airport segment can then focus on accelerated design and construction work depending on the alternative selected with a minor schedule lag. This assumption is predicated on the early and appropriate engagement of all partners and agencies to avoid unnecessary delays. This action may substantially reduce any risk of unforeseen schedule delays on bid contract work.

ADDITIONAL INTERFACES TO MANAGE

Dividing the mainline track and stations into three contracts introduces minor interface challenges compared to a single larger contract. Since the systems work traverses the entire 11.5 mile extension and is common to all stations, interfaces are minimized. A major challenge that MWAA must meet is to have the track bed, mezzanine, and equipment rooms available to the system contractors by the dates specified in their contracts. These are standard practices and should be easily managed with MWAA's experienced engineering staff and its existing CM consultants. An incentive payment provision and/or a strong liquidated damage provision can be utilized to assure compliance by all contractors.

RISK

Certainty of bids can be better controlled with the multiple contracts recommended. The more risk a contractor assumes, the more numerous and costlier his contingencies will be in his bid price. Smaller contracts of standard metro guideway and station works should have little need for contingencies. Third party risk can be isolated and managed more effectively with smaller contracts. Some of the risk can be ameliorated when risks are identified and allocated between the contractor and the owner, according to the ability to manage the risk appropriately and efficiently. When that happens the contingencies can be reduced in the bid price and the contingency pools managed with greater transparency by the appropriate owner of the risk. By sharing the risk, MWAA will have better control of costs and quality (especially in the systems and work on the airport property).

In contrast, a single contract for the entire 11.5 miles will put significant risk onto the prime contractor which will be reflected in higher bid prices.

CHANGES TO ADMINISTRATION WITH MULTIPLE CONTRACTS

MWAA currently has contracts and administrative structures in place for the effective management of multiple contracts for Phase 2. The division of the mainline construction into three contracts lends itself to using the existing construction management structure with PMC and Carter Burgess to manage the construction work on and off the airport property. Installation of the systems work for the full line should be managed by one owner representative such as PMC.

In conclusion, we recommend a meeting among the representatives of the Dulles Corridor Committee and key personnel from procurement, engineering, contracts and the Independent Advisory Panel be held to discuss the recommendations and related issues.

Submitted by the Independent Advisory Panel to MWAA Board of Directors' on January 6, 2011
Panel Members: Brenda M. Bohlke, Myers Bohlke Enterprise
Walter A. Mergelsberg, WAM Consulting
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Contract Packaging Recommendations by the Independent Advisory Panel

APPENDIX
Recent Examples of Multiple Contract Packaging for Mega Projects

These following examples of packaging for large Mega Projects highlight the industry practice of dividing a large project into a number of contracts. In doing so, the owners can avoid delays while staging the contract procurement and invite competition with small to medium size contracts that attract more contractors. Early procurement of smaller contracts also takes advantage of the economic downturn and the availability of interested and qualified contractors.

Most of the highlighted projects were delivered using conventional Design Bid Build (DBB) contracts with the exception of two contracts: the DC Water CSO Program and the Maryland ICC that are Design Build (DB) contracts.

TRANSIT CONSTRUCTION

The Washington, DC Metro System

Throughout its 40-year construction history, the Washington, DC Metro has been constructed in segments, typically consisting of a track segments,stations and systems/ancillary works. The approach has resulted in numerous qualified bidders (typically 3-5 bidders for Metro work) for each procurement and created a pool of contractors familiar with the Metro standards (that serve as the basis for the Dulles Transit Extension) Many of these construction companies remain active and have expressed interested in bidding on Phase 2 of the Dulles Metro Extension, in informal discussions with the IAP.

New York Second Avenue Subway in New York City

This two-track subway line along Second Avenue from 125th to Lower Manhattan will be built in 4 contracts.

- Station reconstruction: 6 bidders; range: $176.45 Million to $254.2 Million
- Contract No. 1: Second Avenue subway tunnels: $337 Million award

No. 7 Subway Line in New York City

- The $1 Billion tunnel contract attracted only one bidder resulting in a bid price 10% higher than the engineers estimate ($1.145 B bid by three way joint venture).
- Remaining Phase 1, that will run from 96 St to 63rd St, will eventually be bid out in approximately 11 packages.
- Recent bids for ancillary works are seeing 5 or more bidders per package and prices running about 15% below engineer's estimates.
- Bids are coming in at or below engineers estimate.

Eastside Access, Rail Access to New York

The Eastside Access Program, valued at $7.3 Billion, includes an array of projects. The mainline construction projects included up to 35 contracts with the number of bids ranging from 3 to 18 bids. Data, where available clearly show the advantage higher numbers of bids equates to a greater range in bids prices.

- Queens Tunnels & Structures: 4 bidders: Awarded for $722 M in September 2009 for 10,500 feet of tunnel, reception pits for three tunnels, and three shafts.
- Manhattan tunnel: 3 bids with an winning bid of $376 M
- 2 Caverns - mined under Grand Central: 3 bids; Range: $419.2 M to $475.4 M
- Excavation and Mining: 6 bidders; range $116.2 M to $197.6 M
- Ventilation Bldg: 14 bidders; range : $46.9 M to $86.4 M
- Construction Facilities Core: 8 bidders; Range $56.8 M to $120.2 M

Hudson River Access to the Regional Core Project (Recently Cancelled)

Tunnel project estimated originally at a cost of $8 Billion total, comprising a total length of 3.7 miles of twin bored tunnels with 24.6 ft diameters. Work was divided into contracts of approximately $500 Million. Work was recently cancelled by the Governor of New Jersey.

Prior to cancellation of the project, NJT received three pre-qualified bids for each of the 3 tunnel contracts as follows:

- Manhattan Tunnel: 4 bidders; range $583 M to $598 M - Length of contract = 5000 ft
- Palisades Tunnel: 3 bidders; range $258 M to $310 M - Length of contract = 5,200 ft
- Hudson River Tunnel: Range $258 Million to $309.8 M - Length of contract = 5,200 feet

Spadina Metro Sheppard St. U/G Station and Southern Tunnels

This transit construction project will be divided into three contracts for 6 mile subway line in the Spadina suburb outside of Toronto, Canada

First contract bid: 5 bidders: Bid Price range: $279 M to $417.7 M; 1.6 Miles of 17.7-ft ID tunnel and underground station.

OTHER, LOCAL MEGA PROJECTS

Woodrow Wilson Bridge

Locally, the Woodrow Wilson Bridge was initially bid as a large single contract, resulting in submittal of one high bid, well above the engineers estimate. Rebidding was conducted on the basis of multiple contracts with acceptable bids and distributed work. The initial advertisement, combining all components of the project, was advertised and received one bid in excess of $750 Million from a joint venture of Klewit/Clark. The State of Maryland then convened a study and

elected to divide the project into 3 contracts, namely the Virginia approaches, the Maryland approaches and the bridge itself. The following are results.

Section	Engineering Estimate	No. of Bids	Low Bid
Bridge Section	140M-170M	5	$186M
Va. Approach	130M-160M	7	$115.5M
Md. Approach	285M-32-M	4	$191M
		Total of Bids:	$492.5M

The reason for the $250 million disparity between the single large contract and segmented, smaller contracts was attributed to efforts made to attract different tiers of contractors with smaller contracts, and the isolation of the risk in smaller contracts resulted in lower contingency pricing in the bids.

Maryland Inter-County Connector (ICC)

This $1.5 billion highway contract was sponsored by MDOT, the Maryland State Highway Administration, and other agencies. It was divided into 5 segments in an attempt to assure competition, scheduling and built-in efficiencies. The 3 major segments known as "A", "B", and "C" contained the bulk of the highway work, including approximately 75 bridges. Following are the results

Segment A – Approx. $487 M

Segment B – Approx. $550 M

Segment C – Approx. $500 M

The goal to split the work into biddable sections of approximately $500 million was effective.

DC Water Combined Sewer Outflow Project

DC Water is under a consent decree to complete the construction of the Phase 1 of the Combined Sewer Overflow system through Southeast Washington, DC by 2013. This $3.1 Billion mega project is a three phase program with Phase I divided into 4 DB tunnel contracts, each estimated at approximately $300 Million. Bids for the first segment were recently opened. Five teams submitted qualifications to the owner who shortlisted three teams to submit bids.

Blue Plains Tunnels: 3 bidders shortlisted, award expected soon.