Contracting Successes and Lessons Learned
Woodrow Wilson Bridge Project

July 31, 2007
Ronaldo T. Nicholson, P.E.
Regional Transportation Program Director
Woodrow Wilson Bridge Project Area

The 7.5-mile-long Project corridor is located on the I-95/Capital Beltway from MD 210 Interchange in Maryland to Telegraph Road, Rte 241 Interchange in Virginia.
Existing Woodrow Wilson Bridge

Opened 1961

Anticipated Design Year Traffic
Volume: 75,000

6 Lanes: Very narrow shoulders

Current Traffic Volume: 195,000

Anticipated Year 2020 Traffic
Volume: 295,000
Why This Project Is Important

Safety

... has nearly twice the accident rate of similar highways in Maryland and Virginia as well as the American Legion Bridge...

Traffic Volume

... is burdened with seven hours of congestion daily and frequent several-mile backups...

Wear and tear on the 40-year old bridge requires the facility to be replaced in the near term

At least 1.3% ($58 Billion) of trucked GDP crossed the Bridge in 1993.
Woodrow Wilson Bridge Project
Financial Overview

Total Project Funds = $2.476 Billion

Virginia* $587 Million
Maryland* $329 Million
District of Columbia $16 Million
“Special” Federal Funds $1,544 Million
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Maryland* $329 Million
District of Columbia $16 Million
“Special” Federal Funds $1,544 Million

* - From various state and/or regular federal funding sources
Woodrow Wilson Bridge Project
Financial Overview

Initial Financial Plan Approved in Sept. 2001
  Total Project Budget = $2.442 Billion

2002 Update Approved in March 2003
  Total Project Budget = $2.564 Billion

2003 Update Approved in March 2004
  Total Project Budget = $2.427 Billion

2004 Update Approved in February 2005
  Total Project Budget = $2.449 Billion

2005 Update Approved in April 2006
  Total Project Budget = $2.444 Billion

2006 Update Approved in February 2007
  Total Project Budget = $2.476 Billion

Expenditures through March 2007 = $1,684M
Planning Process

1988 – Study initiated by federal government, Virginia, Maryland, District of Columbia

Early 1990’s – Traditional project selection process fails in face of opposition from local jurisdictions

1992 – Inclusive project ID effort launched. De facto selection panel created, with 9 of 14 members representing local jurisdictions

1992-1996 – Panel Studies, with public input at every step

1996 – 12-lane facility and reconstruction of 4 adjacent interchanges is recommended

1998 – Bridge design competition

2000 – Final Supplemental Environmental Impact Statement completed
Artist Rendering of Finished Bridge
Woodrow Wilson Bridge Project
Project Limits

Total Project Budget = $2.476 Billion
Woodrow Wilson bridge Project

Demolition of the steel girders (August 28, 2006)
Now in its seventh year of construction, nearly 75 percent of all construction completed as of March 2007

Mid 2008: Completion of second new Woodrow Wilson Bridge

Late 2008: Completion of majority of interchange improvements at Route 1 in Virginia, and Maryland 210 and Interstate 295 in Maryland

Telegraph Road Interchange: Following utility relocation work, construction scheduled to begin in 2008 and finish in 2013
Woodrow Wilson Bridge Project
Contract Performance

34 Projects Advertised and Bid to Date
$1.253 Billion in Contracts Awarded to Date
$144 Million under budget

Bids are Averaging 10.3% Below Budget

> Contractor friendly environment that encourages innovation

> Increased Competitive Climate in Bidding

<table>
<thead>
<tr>
<th>(amounts shown in $million)</th>
<th># of contracts</th>
<th>Project Estimate</th>
<th>Award Amount</th>
<th>% Under Budget</th>
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<tbody>
<tr>
<td>US Route 1 Construction Contracts</td>
<td>8</td>
<td>$303.57</td>
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<td>Telegraph Road Construction Contracts</td>
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<td>(14.5%)</td>
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<td>Virginia Mitigation Contracts</td>
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<td>$119.03</td>
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<td>Maryland Mitigation Contracts</td>
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<td>$14.50</td>
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<td>Totals</td>
<td>35</td>
<td>$1,401.15</td>
<td>$1,257.25</td>
<td>10.3%</td>
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Both Spans Opened (July 22, 2007)
One Bid for Wilson Bridge Superstructure

- Maryland State Highway Administration received one bid in Fall 2001
- Bid was 75% over the engineers estimate (~$500M) @ $860M
- Governor rejected the bid
- Independent Review Committee brought in (headed by Tom Warne)
Woodrow Wilson Bridge Project

Charge: Determine list of options to move project to construction and public use

Independent Review Committee Report Released
March 2002

- Value Engineering Review
- Contract Cost Issues
- Contractor Interviews
- High Risk Bonding Env
- Standardization
Results

- Virginia Approach Contract ($115M) seven bidders
  NTP: April 2003
- Maryland Approach Contract ($191M) four bidders
  NTP: June 2003
Woodrow Wilson Bridge Project
Construction Complexities

- Construction Contract phasing/interface
- Soil Consolidation requirements
- Advance Utility relocations
- Maintenance of Traffic (MOT)/Congestion Management
- Construction site Access
- Multiple construction techniques (state of the art)
Woodrow Wilson Bridge Project
Project Delivery

Design-Bid-Build

- Fixed Date Contracts
  Interim Milestones
  Access Release
- Incentive/Dis-incentive
  Lump Sum & Graduated
  No Excuse Bonus
- A+B Bids

Washington Street Urban
Deck-Completion June 2007
Woodrow Wilson Bridge Project

Why Constructability

• Anticipates Problems and Lowers Risk
• Provides for Realistic Project Estimates
• Reduces CE&I Cost
• Identifies adjacent contractor Interface/access Conflicts
Woodrow Wilson Bridge Project
Common Findings

- Accurate and consistent Pay items
- Sequencing conflicts (i.e., Drainage, utility, foundations)
- Power Supply issues
- Inadequate design information
- Environmental Permit Issues (i.e., Time-of-Year Restrictions, demolition, Modifications)
- MOT/Lane closure requirements
- Equipment/material staging & construction access
- Excavation, hauling, E & S controls
Completion of Structural Steel Erection at the Maryland abutment
Aerial view of the Virginia Approach Spans Jones Point Park, Alexandria, VA.
New MD 210 Interchange

Contracts: 3
Contracts value: $125M
Start: Feb. 2004
Percent Complete: 65%

Demolition of the old MD 210 bridge spanning over the Capital Beltway
(new MD 210 bridge opened in late 2006)
I-295 Interchange

Contracts: 4
Contracts value: $179M
Start: Aug. 2001
Est. Completion: May 2009
Percent Complete: 80%

View of the I-295 Interchange work (looking West to Virginia)
Aerial looking south at the I-295 interchange (looking North at National Harbor Development)
US Rte 1 Interchange

Contracts: 6
Contracts value: $275M
Start: Aug. 2000
Est. Completion: June 2009
Percent Complete: 78%

Aerial view of US Rte 1 Interchange looking East (summer 2005)
US Route 1 Interchange Contract

Contractor: Tidewater Skanska, Contract value:$146.5M
Percent Complete: 62%
Est. Completion: June 2009
Woodrow Wilson Bridge Project
VA-5 Advance Bridge

Project Information
• NTP 6/15/2003
• Contract Award $38.4 M
• Project Budget $46.7 M
• Project Cost $46.5 M
• Project Compl. 9/30/2005

Project Challenges
• Hurricane Isabel
• Steel Escalation
• Foundation complexity
Woodrow Wilson Bridge Project
VA-5 Advance Bridge

Contract Development

• A+B bidding to address scheduling priority with Interim Milestones and access release dates.

• Enforce CPM/Contractor Cooperation Specification.

• Encourage Partnering in the Field, Project Management, and Executive Level.

• Supported Contractor’s request for Permit Modifications
Woodrow Wilson Bridge Project
VA-5 Advance Bridge

Design Considerations

• Bridge construction was constrained by MOT and environmental considerations.
• Needed to expedite construction to meet scheduling requirements for overall project.
• Construction access restricted by adjacent contracts and Cameron Run & Hunting Creek
Woodrow Wilson Bridge Project
VA-5 Advance Bridge

- 53,000 LF of 18” and 24” Concrete Piles

- 1,530 LF of 60” Steel Pipe Piles
Woodrow Wilson Bridge Project
VA-5 Advance Bridge

Design Solutions
- Multi-plumb concrete piles
- Typical 60’ span pile bents
Woodrow Wilson Bridge Project
VA-5 Advance Bridge

4,000,000 lbs of High Level of Structural Steel
Woodrow Wilson Bridge Project
VA-5 Advance Bridge
Telegraph Road Interchange

Contracts: 3
Contracts value: $225M
Est. Start: March 2004
Est. Completion: Nov. 2013
Percent Complete: 11%

Trench less utility relocation on the Telegraph Road interchange
Telegraph Road (Advanced) Utilities Contract

Contractor: Shirley Contracting, Contract value: $21.7M
Percent Complete: 97%
Est. Completion: August 2007
Aerial view of Telegraph Road Interchange (May 2007)

Est. Contract value: $180-$200M
Advertise: August 2007
Est. Completion: Summer 2013
Questions

Website: www.wilsonbridge.com