



*Woodrow
Wilson
Bridge
Project*

**National Science Foundation
2018 Large Facilities Workshop**

Woodrow Wilson Bridge Project

a mega-project success story

*James T. Ruddell, PE, CCM, F.ASCE, FCMAA
Vice President, WSP USA*



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Outline

- ◆ **Part 1: Project Overview**
- ◆ **Part 2: BR-3 Re-bidding Challenge & Lessons Learned**
- ◆ **Part 3: Proactive Construction Management**



Project Overview

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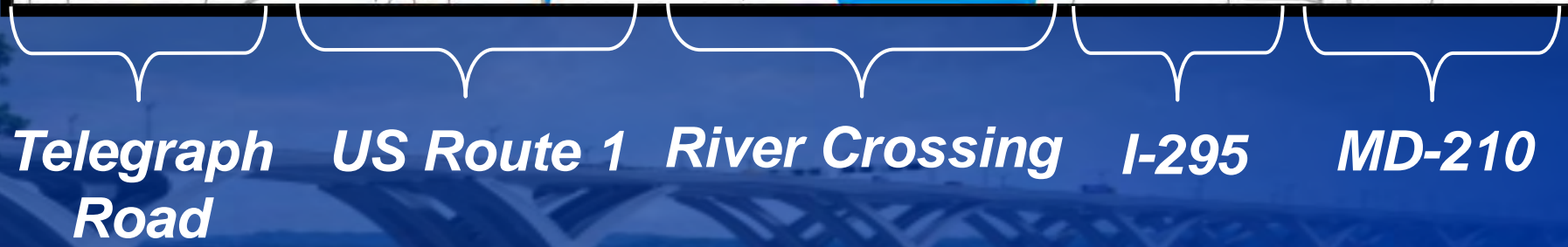
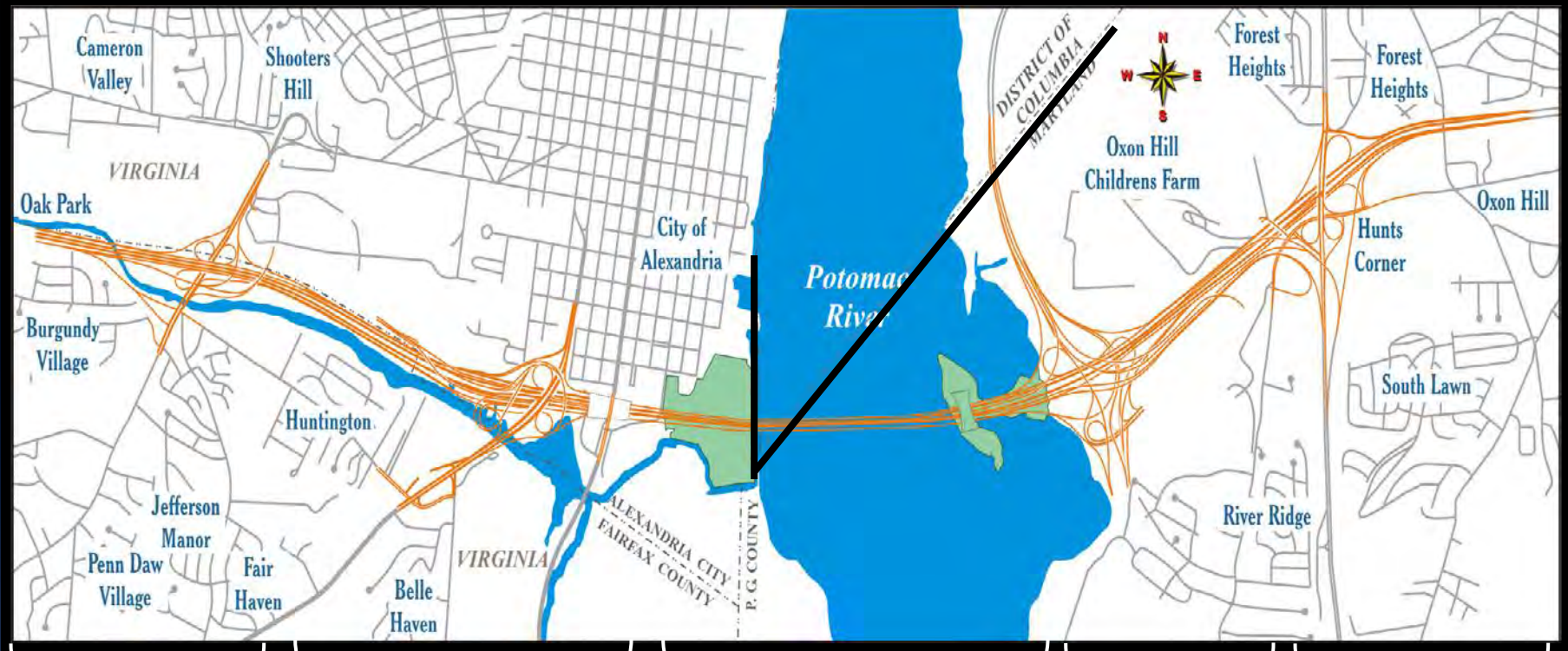
The Woodrow Wilson Bridge Project is located in the Washington DC Metropolitan Area.



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Project Overview

7.5-mile corridor on I-95/Capital Beltway from Telegraph Rd. in VA to MD 210



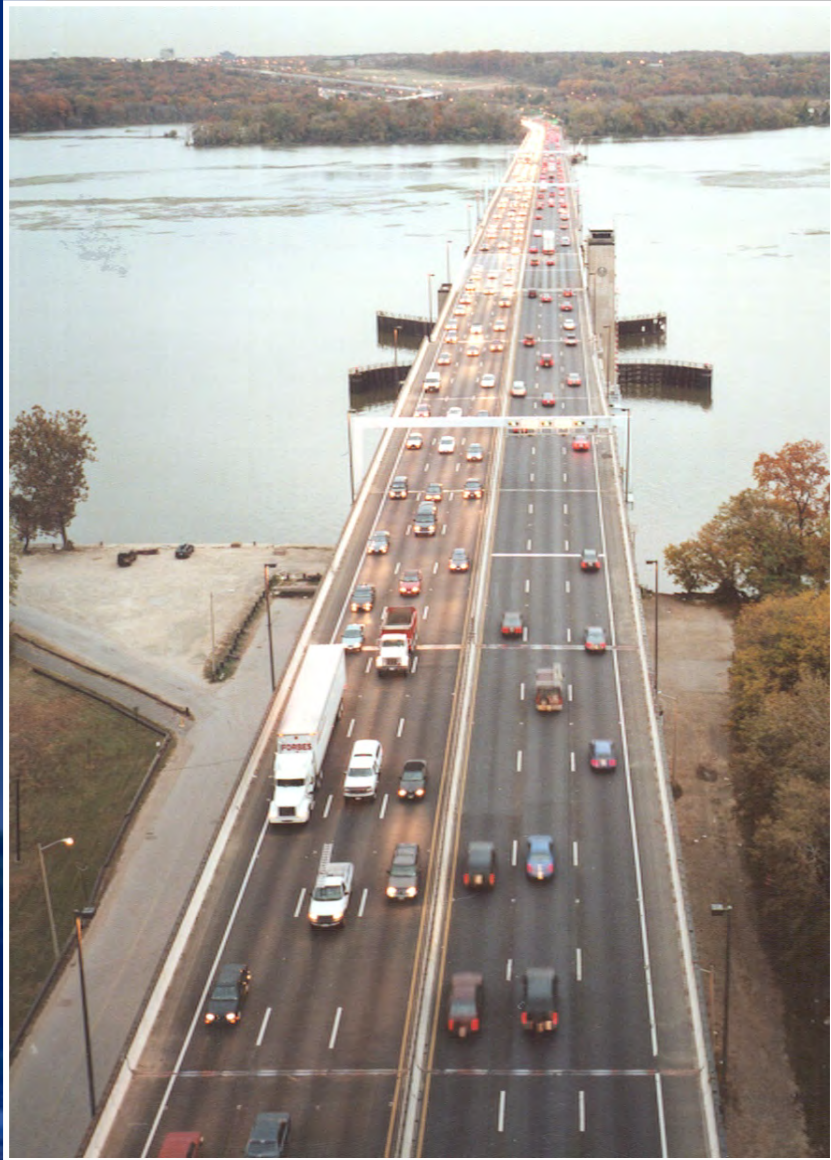
Project Overview





Why This Project Was Important

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Safety . . .

nearly twice the accident rate of similar highways in VA and MD

Traffic Volume. . .

seven hours of congestion daily and frequent several-mile backups

Service Life. . .

Wear and tear on the 40-year old bridge required its replacment in the near term

Commerce. . .

At least 1.3% (\$58 Billion) of trucked GDP crossed the Bridge in 1993.



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Project Overview

Four Project Sponsors





Project Overview: Governance

- **Joint Ownership Agreement**
 - Old bridge owned by FHWA, bascule operated by DC, and bridge maintained by MD and VA
 - New bridge jointly owned, operated and maintained by MD and VA
- **MD and VA each had a PM.**
- **Strong GEC was “trusted advisor” to both MD and VA**
- **Project Financial Plan - “nuclear option”**



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Project Overview: Project Roles

- ◆ **General Engineering Consultant (“GEC”)**
JV of PB/URS/RK&K
Program and Construction Management
- ◆ **Section Design Consultants (“SDC’s”)**
5 Project Designers
- ◆ **Contractors – *Project Builders***
36 Prime Construction Contracts
 - 26 Prime Contractors + 260 Subcontractors



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Project Overview

Significant Milestones

2000 – Begin construction with river dredging

2001 – Begin bridge foundations, VA & MD soil improvement, Hunting Tower demo, and MD interchange work

2003 – Begin bridge superstructure and VA & MD tie-in projects



Dredge disposal site at Weanack, VA

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Corn growing in former
sand and gravel pit

Dredge Disposal Facts

- Site is 170 miles from bridge
- Project paid property owner \$4.90/CY “tipping fee”
- Restored a strip-mined site to productive farmland





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River work for the foundations contact
(looking towards MD)



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60" Diameter Pipe Piles

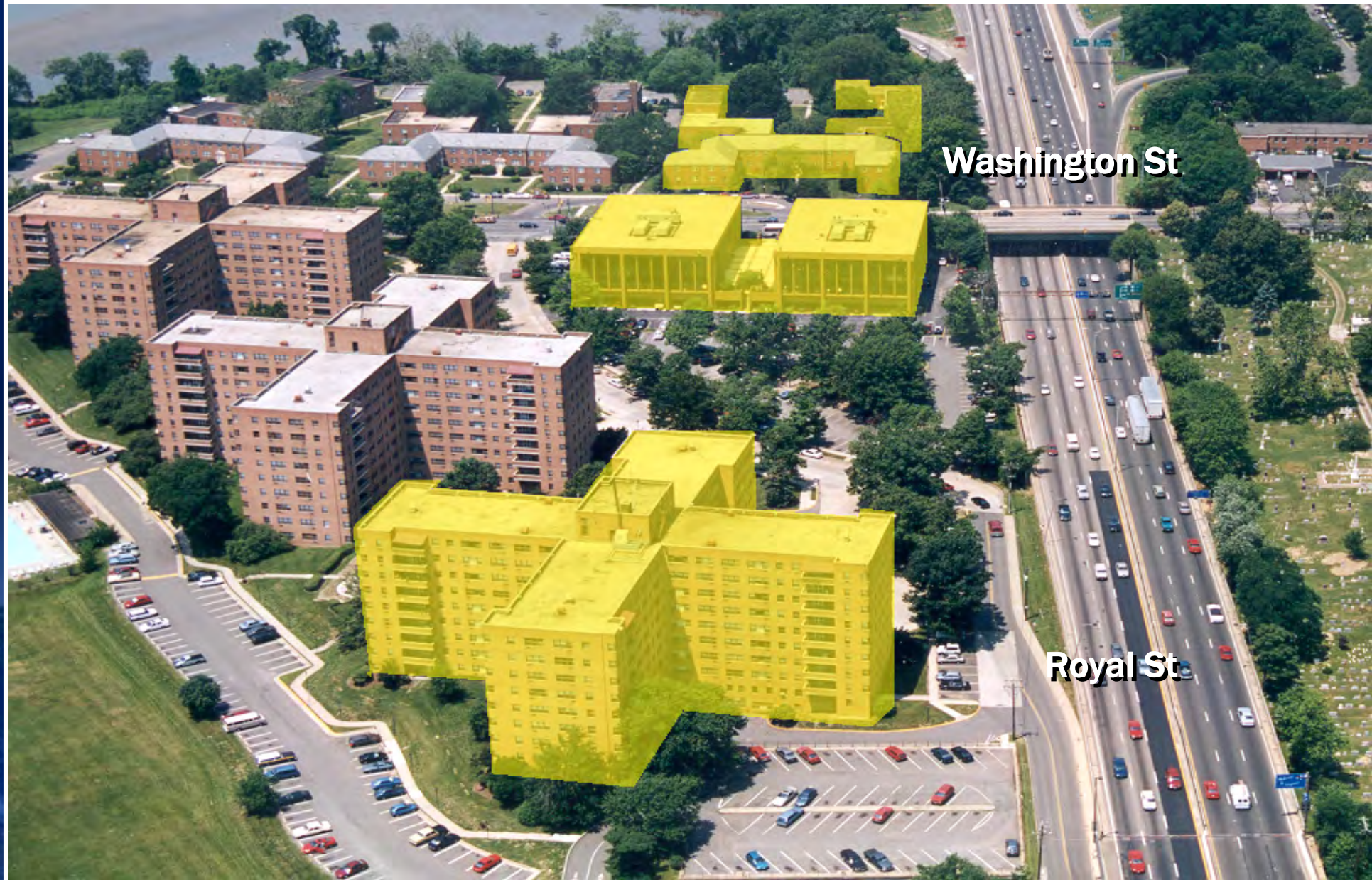




Project Overview - VA Interchanges

Move 273 people in VA; Move 3 in MD

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Project Overview

Hunting Towers Demolition

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15

February 2003



March 2003

***40,000 Tons of
Structural Steel***





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Project Overview

Significant Milestones

Mid 2006 – Complete 1st new bridge, switch traffic, demolish old bridge

2008 – Complete 2nd new bridge and most of US Route 1, I-295 and MD 210 Interchanges

2013 – Complete Telegraph Road Interchange



Project Overview: Construction Sequence Phase 1

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**Traffic on
Old Bridge**

**2000-2006
Both Inner &
Outer Loop
Bridges
Under
Construction**



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Project Overview: Construction Sequence Phase 1





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Project Overview: Construction Sequence Phase 2

**Old Bridge
Demolished**

**2006
Outer Loop Open
to Two-Way Traffic**



***Project Overview –
Construction Sequence Phase 2***





Project Overview: Construction Sequence Phase 3

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**Inner Loop
Bridge Under
Construction**

**2006-2008
Outer Loop Open to
Two-Way Traffic**



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Project Overview: Construction Sequence = Final Configuration

**2008
Inner Loop Open
to SB Traffic**

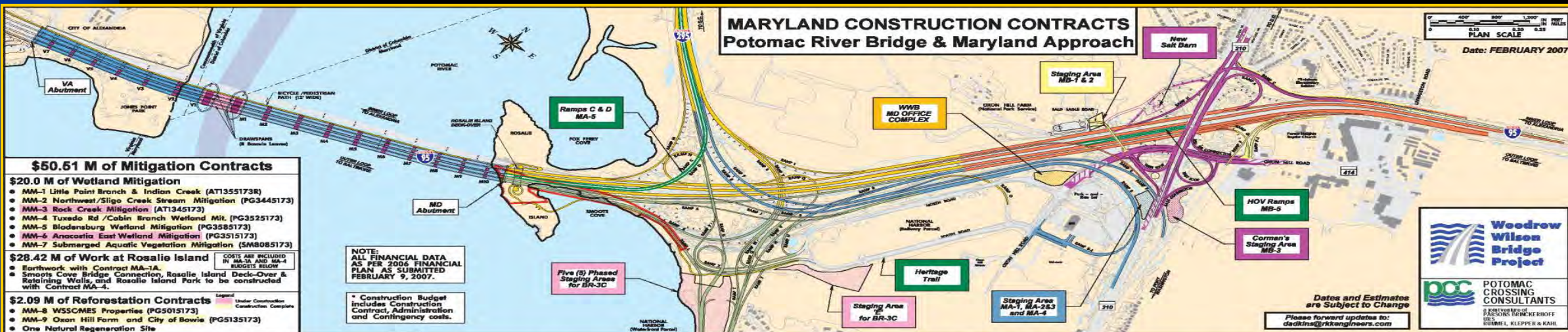
**2008
Outer Loop Open to
NB Traffic**



Project Overview

Maryland Interchanges

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\$50.51 M of Mitigation Contracts

\$20.0 M of Wetland Mitigation

- MM-1 Little Point Branch & Indian Creek (AT1355173R)
- MM-2 Northwest/Sligo Creek Stream Mitigation (PG3445173)
- MM-3 Rock Creek Mitigation (AT1345173)
- MM-4 Tuxedo Rd /Cabin Branch Wetland Mit. (PG3525173)
- MM-5 Blodensburg Wetland Mitigation (PG3585173)
- MM-6 Anacostia East Wetland Mitigation (PG3515173)
- MM-7 Submerged Aquatic Vegetation Mitigation (SMB085173)

\$28.42 M of Work at Rosalie Island

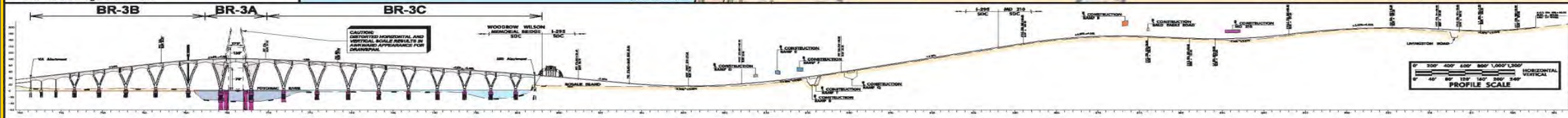
- Earthwork with Contract MA-1A.
- Smooths Cove Bridge Connection, Rosalie Island Deck-Over & Retaining Walls, and Rosalie Island Park to be constructed with Contract MA-4.

\$2.09 M of Reforestation Contracts

- MM-8 WSSCOMES Properties (PG5015173)
- MM-9 Oxon Hill Farm and City of Bowie (PG5135173)
- One Natural Regeneration Site

NOTE: ALL FINANCIAL DATA AS PER 2006 FINANCIAL PLAN AS SUBMITTED FEBRUARY 9, 2007.

* Construction Budget includes Construction Contract, Administration and Contingency costs.



Bridge SDC: P.T.G.		I-295 Interchange SDC: JMT / WRA Joint Venture			MD 210 Interchange SDC: KCI Technologies		
BR-1 Dredging	MA-1A Pre-Consolidation	MA-1 Ramps E, F, E-1	MA-2 and MA-3 Outer Loop N.H. Interchange	MA-4 Inner Loop & Rosalie Island Park	MB-1 and MB-2 Noise Walls, Bald Eagle Rd.	MB-3 MD 210 Interchange, Oxon Hill Road Int.	MB-4 Inner and Outer Loops Ramp B
BR-2 Foundations	PG 3555173 (MDE 01-SF-0165)	PG 3465173 (MDE 01-SF-0042)	PG 3475173 (MDE 02-SF-0057)	PG 5025173 (MDE 04-SF-0304)	PG 3605173 (MDE 02-SF-0059)	PG 5075173 (MDE 06-SF-0058)	PG 5095173 (MDE 06-SF-0011)
BR-3A, -3B, -3C Superstructure Contracts	ADVER. 4-24-01A OPEN BID 6-7-01A NTP 8-15-01A COMPLETE 9-7-06A CONSTR. BUDGET \$12.1M* CONTRACTOR: DRIGGS	ADVER. 6-26-01A OPEN BID 9-20-01A NTP 11-24-01A COMPLETE 3-7-06A CONSTR. BUDGET \$52.2M* CONTRACTOR: WAGMAN	ADVER. 8-6-02A OPEN BID 10-31-02A NTP 12-23-02A COMPLETE 7-17-06A CONSTR. BUDGET \$51.8M* CONTRACTOR: WAGMAN	ADVER. 9-27-04A OPEN BID 2-17-05A NTP 4-18-05A COMPLETE 5-15-09 CONSTR. BUDGET \$112.3M* CONTRACTOR: WAGMAN	ADVER. 11-4-03A OPEN BID 12-18-03A NTP 2-4-04A COMPLETE 6-15-06A CONSTR. BUDGET \$21.5M* CONTRACTOR: WAGMAN	ADVER. 12-7-04A OPEN BID 3-31-05A NTP 5-11-05A COMPLETE 11-30-07 CONSTR. BUDGET \$52.3M* CONTRACTOR: CORMAN	ADVER. 8-2-05A OPEN BID 11-10-05A NTP 12-22-05A COMPLETE 9-3-08 CONSTR. BUDGET \$71.7M* CONTRACTOR: WAGMAN
SEE POTOMAC RIVER BRIDGE CONTRACTS FOR DETAILS	COMPLETED	COMPLETED	COMPLETED	49% COMPLETE	COMPLETED	67% COMPLETE	34% COMPLETE
	Soil pre-consolidation for Outer Loop between MD Abutment & Mainland, including Retaining Wall #1. Work includes installation of 781,300 LF of Wick Drains, Earth Surcharge and High Strength Geotextiles (93,100 SY) at MD Abutment (Earthwork: 306,700 cyds)	Replacement of Ramp E and Ramp F with new and longer bridges to permit future construction of Outer Loop Local and Express Lanes. New Ramp E and Ramp F Bridges. Work also includes Ramp E-F connection to Oxon Hill Road and portions of Ramps F, O and R. Includes 6 bridges (25 spans) and 4 retaining walls (Earthwork: 343,000 cyds)	Outer Loop Local Lanes, National Harbor Interchange, Ramps A, G, J, P and portions of Ramps B, T, Q, R and H. Includes 11 bridges (32 spans) and 6 retaining walls and some landscaping (Earthwork: 221,000 cyds)	Outer Loop Express, Inner Loop Express and Inner Loop Local, I-295 to DC Line, Ramp I and remaining portions of Ramps B, J, M, N, O, Q, T and V and all work for Rosalie Island Park. Including deckover, north-south pedestrian path connections, bridge over Smooths Cove, pedestrian path and all final landscaping. Includes 10 bridges (22 spans) and 16 retaining walls (Earthwork: 446,000 cyds)	Construction of noise barrier / retaining walls for Inner Loop and landscaping / mitigation at Flintstone Elementary School, noise barrier at Forest Heights Baptist Church, Bald Eagle Road, Ramp F bridge over Oxon Hill Road, Ramp F-1 connection to Outer Loop, Ramp G connection to Oxon Hill Road. Includes 3 bridges (4 spans) and 8 retaining walls. (Earthwork: 176,000 cyds)	MD 210 bridge over Salway, Ramps A, C and H, MD 210 roadways, HOV Ramps, Oxon Hill Road grade separation, connecting ramps, and relocation of Salt Barn to new quadrant. Includes 2 bridges (6 spans) and 5 retaining walls. (Earthwork: 273,000 cyds)	Inner Loop Local, Inner Loop Express, Outer Loop, bridges over Livingston Road (3 phases), Ramp B. Includes 2 bridges (11 spans) and 7 retaining walls. (Earthwork: 319,000 cyds)



Project Overview - Maryland Interchanges

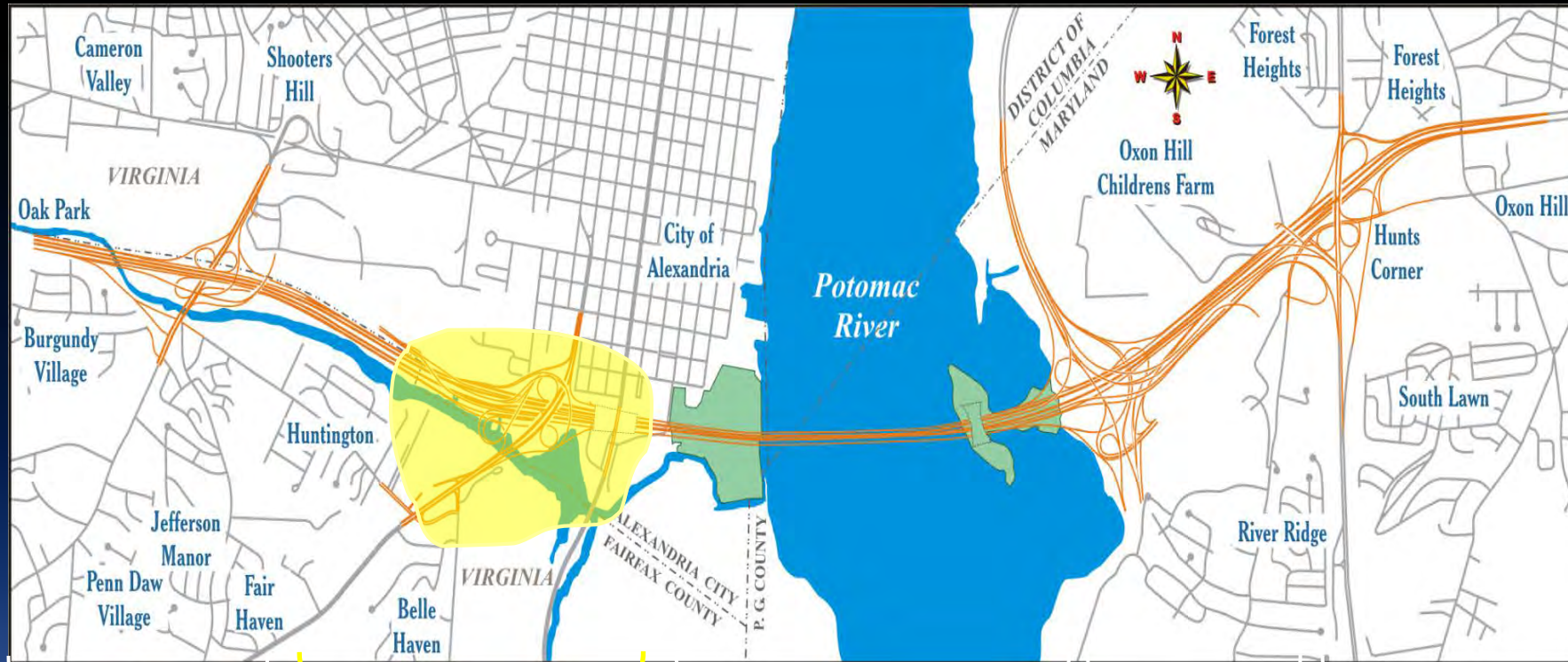
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Project Overview – VA Interchanges

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Telegraph
Road

US Route 1

River Crossing

I-295

MD-210



Project Overview – VA Interchanges

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Project Overview: Dedication Ceremony-First New Span May 18, 2006

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Project Overview: Old Bridge Demolition

August 28, 2006

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Photo credit Trevor Wrayton, VDOT





All Lanes Open

December 13, 2008

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First Bridge Opening – July 2007

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WWB Multi-use Trail Opens

June 6, 2009 all WWB facilities open





Awards Won

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- ◆ Over 70 regional, state and national awards
- ◆ ASCE's Opal and AASHTO's America's Transportation Award Grand Prize in 2008
- ◆ Four ARTBA Globe Awards for Environmental Excellence
- ◆ Gustav Lindenthal Medal



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Part 2: BR-3 Re-bid Challenge & Lessons Learned



Timeline : Bridge Contracts

- *October 2000 BR-1 Dredging \$14.5M*
- *May 2001 BR-2 Foundations \$125.4M*
- ***December 2001 - BR-3 Superstructure***



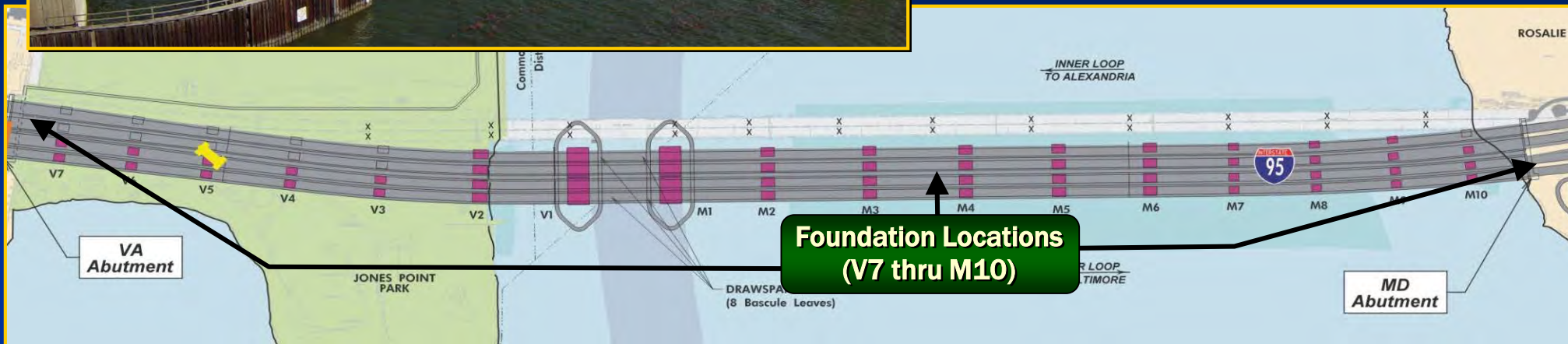
Bridge Contract BR-2 Foundations

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Designer:
PTG (Parsons)

Notice to Proceed
May 7, 2001



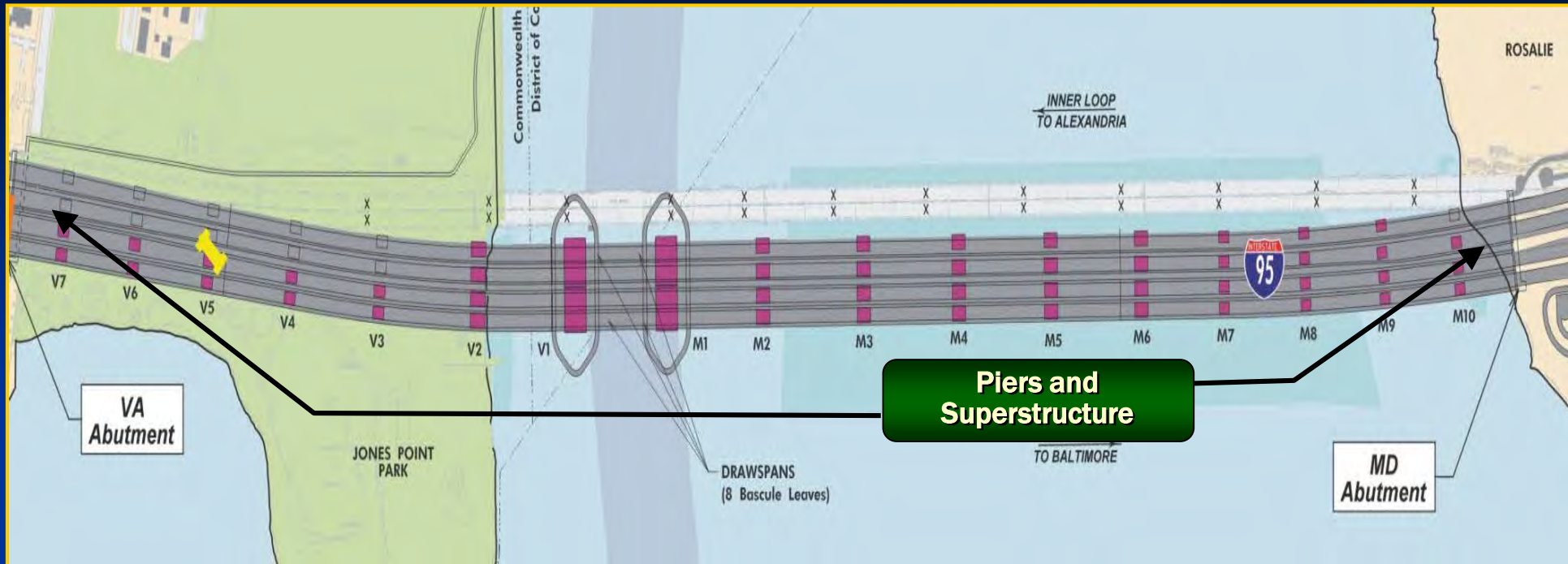


Bridge Contract BR-3

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Designer: PTG (Parsons)
Advertised: August 13, 2001

Pre-Bid Meeting: September 11, 2001
Bids Opened: December 13, 2001





[The Washington Post]

MIETRO

FRIDAY, DECEMBER 14, 2001

B

Maryland & D.C.
Edition

Wilson Bridge Bid Called a 'Budget Buster'

Lone, \$860 Million Offer Exceeds Estimates by 75 Percent; Price Tag Could Delay Construction

By KATHERINE SHAVER
Washington Post Staff Writer

The only contractor to bid on building the two spans of the new Woodrow Wilson Bridge said yesterday that the job would cost almost \$860 million—75 percent more than the highest earlier estimates.

Maryland engineers in charge of the project said yesterday that they have no choice

but to either redesign the bridge or repeat their request for bids, hoping to attract competitors. But either step would throw bridge construction several months behind schedule. With foundation work already underway, the next building phase was set to begin in the spring.

State highway officials said they were stunned by the \$859.9 million bid by Kiewit, Tidewater & Clark to build the "su-

perstructure"—the parts of the two six-lane spans above water. Estimates ranged from \$450 million to \$500 million.

Maryland State Highway Administrator Parker F. Williams said state engineers could not remember a bid ever coming in so high above estimates.

"If this thing had come in under 5 percent over our engineers' estimate, I suspect we could figure out a way to do it," Wil-

liams said. "But, my word, \$859 million versus \$500 million is significant. . . . This bid just absolutely blew us away."

Any more delays in the 12-year saga to replace the 40-year-old span connecting Oxon Hill and Alexandria would prolong one of the region's biggest traffic headaches. About 200,000 vehicles per day—

See BRIDGE, B5, Col. 3



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Bid Opening Day-December 13, 2001

BR-3 Contract

- ◆ One Bid - \$860 million - is \$373 million (75%) above the estimate
- ◆ Funding Responsibility – Maryland must cover Overruns
- ◆ Budget Implications – Non-Starter



Potential Issues that Limited Competition

- ◆ **Uncertainty in the economy
(especially after Sept. 11)**
- ◆ **Contract size / complexity**
- ◆ **Surety bonding issues**



Potential Issues that Limited Competition

- ◆ Many mega-transportation projects bidding concurrently
- ◆ Many contract specifications were not seen as "contractor friendly"
- ◆ Uncertainty about the Project Labor Agreement (PLA)



Immediate Decisions

- ◆ **Preserve the Approved Bridge Concept**
- ◆ **Continue Building the Bridge's Foundations**
- ◆ **Act Quickly, but Get it Right**
- ◆ **Collect the Best Advice Available**



Increase Competition

- ◆ Break Contract into Three Smaller Contracts with staggered Ad Dates
- ◆ Conduct Nationwide Marketing Campaign
- ◆ Make Contracts More Contractor Friendly



Make Contracts more Contractor Friendly

- ◆ Reduced performance/payment bonds to 50%
- ◆ Reduced insurance requirements
- ◆ Lowered retainage to 2.5%

- ◆ Increased Mobilization Cap from 10% to 15%
- ◆ Allowed payment for stored materials
- ◆ Clarified PLA Requirement



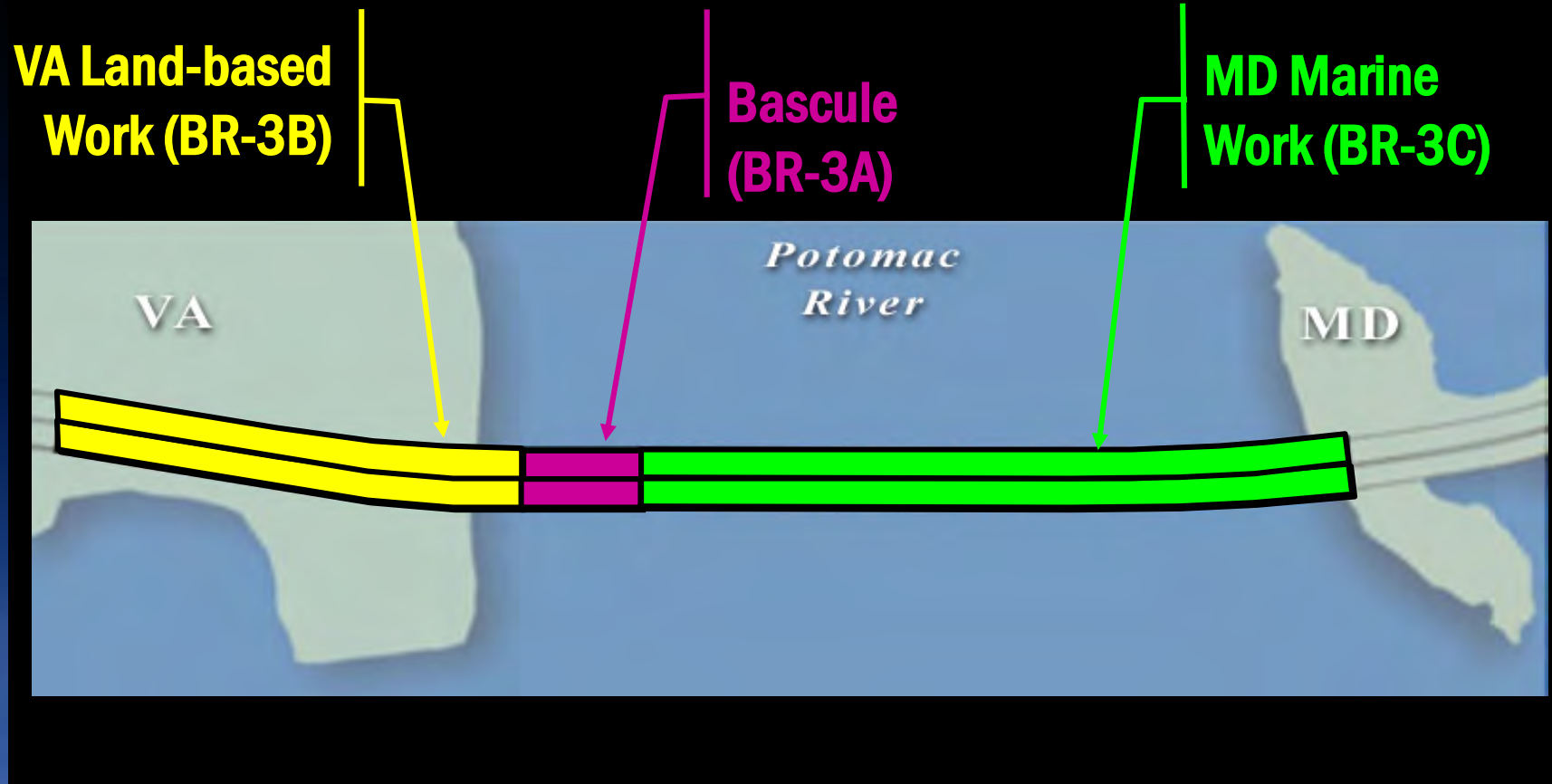
Decrease Cost of Structure

- ◆ Replaced steel box girders with steel plate girders
- ◆ Refined V-piers to simplify some elements
- ◆ Standardized more elements



Re-Advertisement Strategy (Advertise 3 Contracts)

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Bid Results for 3 Bridge Contracts

- **Feb 2003** **BR-3A Bascule \$186 M**
- **April 2003** **BR-3B Virginia Approach \$115 M**
- **June 2003** **BR-3C Maryland Approach \$191 M**



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Bid Results

Combined Re-bid Total = \$492 million

**Within 1% of Original Engineer's
Estimate (\$487 million) !!**



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Washington Post on the Re-bids

Wilson Bridge Engineers Relieved

Low Bid Brightens Outlook For Bridge

By KATHERINE SHAVER
and MATTHEW MOSK
Washington Post Staff Writers

The lowest bid to build the final piece of the new Woodrow Wilson Bridge came in so far below the Maryland engineers' estimate yesterday that state officials said they will consider lowering their predictions for the project's total cost.

The bid to build the eastern portions of the twin six-lane spans—from east of the drawbridges in the Potomac River to the Maryland shore—came in at \$191 million, or 25 percent below estimate. That helped put the entire program budget, dampening cost overruns on one of the highway projects in the

Unexpectedly Low Bid Keeps Wilson Bridge Under Budget

By KATHERINE SHAVER
Washington Post Staff Writer

Maryland highway officials were relieved yesterday when the lowest bid to build one of the costliest parts of the new Woodrow Wilson Bridge came in \$45 million under estimates, a sign that the massive project has not soared over budget.

State engineers had anxiously awaited the proposals to build the bridge's western section—from the draw spans to the Virginia-side abutment in Alexandria's Jones Point Park—as an indication of whether the \$2.56 billion project was headed for huge cost overruns. State officials requested new bids on smaller chunks of the project, hoping to elicit more competition after the lone bid to

build the entire bridge came in \$300 million over budget.

Yesterday's apparent low bid of \$115.5 million—well below the estimates of \$160 million—will keep the project's overall costs for work awarded so far to 7 percent below budget, bridge officials said. "We're pleased," said a beaming Bob Douglas, project director for Maryland's bridge-building contracts.

The first such contract—to build the draw spans—was awarded in January. It was \$18 million over estimates, a price that bridge officials said was close enough to stay under budget.

The Virginia-side contract will cover everything above water, including the

See BRIDGE, B6, Col. 1

Low Bid Improves Outlook for Bridge Job

Low Bid on Major Bridge Piece Bodes Well for Budget

Wilson Bids in Ballpark

\$18 Million Over Estimate Is a Relief to Engineers

By KATHERINE SHAVER
Washington Post Staff Writer

The lowest bid to build the draw spans of the new Woodrow Wilson Bridge came in \$18 million over engineers' estimates yesterday, but relieved Maryland officials declared that was close enough to assure they could continue the project.

Maryland highway officials were stunned last December, when the lone bid to build the entire bridge came in \$360 million—or 75 percent—over budget, threatening massive cost overruns on the largest transportation project in the region.

The state rejected that proposal and called for new bids on the twin six-lane spans, dividing the work into smaller

chunks in the hope of creating more competition and a lower price.

"This was a huge hurdle," said Parker Williams, head of the Maryland State Highway Administration. After the budget-buster bid last year, he said, "we had to ask the question, 'Is this project buildable?'"

Williams said yesterday's price of \$186 million for the draw spans proved it is. "I think we've got a workable bid here," he said. "I think we're in the financial parameters of affordability."

Maryland Transportation Secretary John D. Porcari said the bid showed "the market telling us this is as good as we're going to get with a project that's this com-

See BRIDGE, B6, Col. 1



Stacie Leavitt, center, confers with C headquarters in Pittsfield, Maine. The firm's bid was the second lowest.



Lessons Learned

- ◆ Avoid advertising at the same time as other mega-projects
- ◆ Reach out to the contracting community to generate interest
- ◆ Make the terms contractor friendly
- ◆ Set bond limits to enhance competition



Lessons Learned (Continued)

- ◆ Remove as much uncertainty as possible prior to advertising
- ◆ Emphasize the owner's active involvement

Techniques exist to mitigate contract interface risks, but there are no techniques to mitigate for a lack of competition



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Part 3: Proactive Construction Corridor Management



Failed Bid Changed the Project Mindset

“We all succeed together”

- ◆ **Contractors are an indispensable part of the program**
- ◆ **It is in the owner’s best interest to help contractors be productive**
- ◆ **The CM Team can facilitate contractors’ productivity**



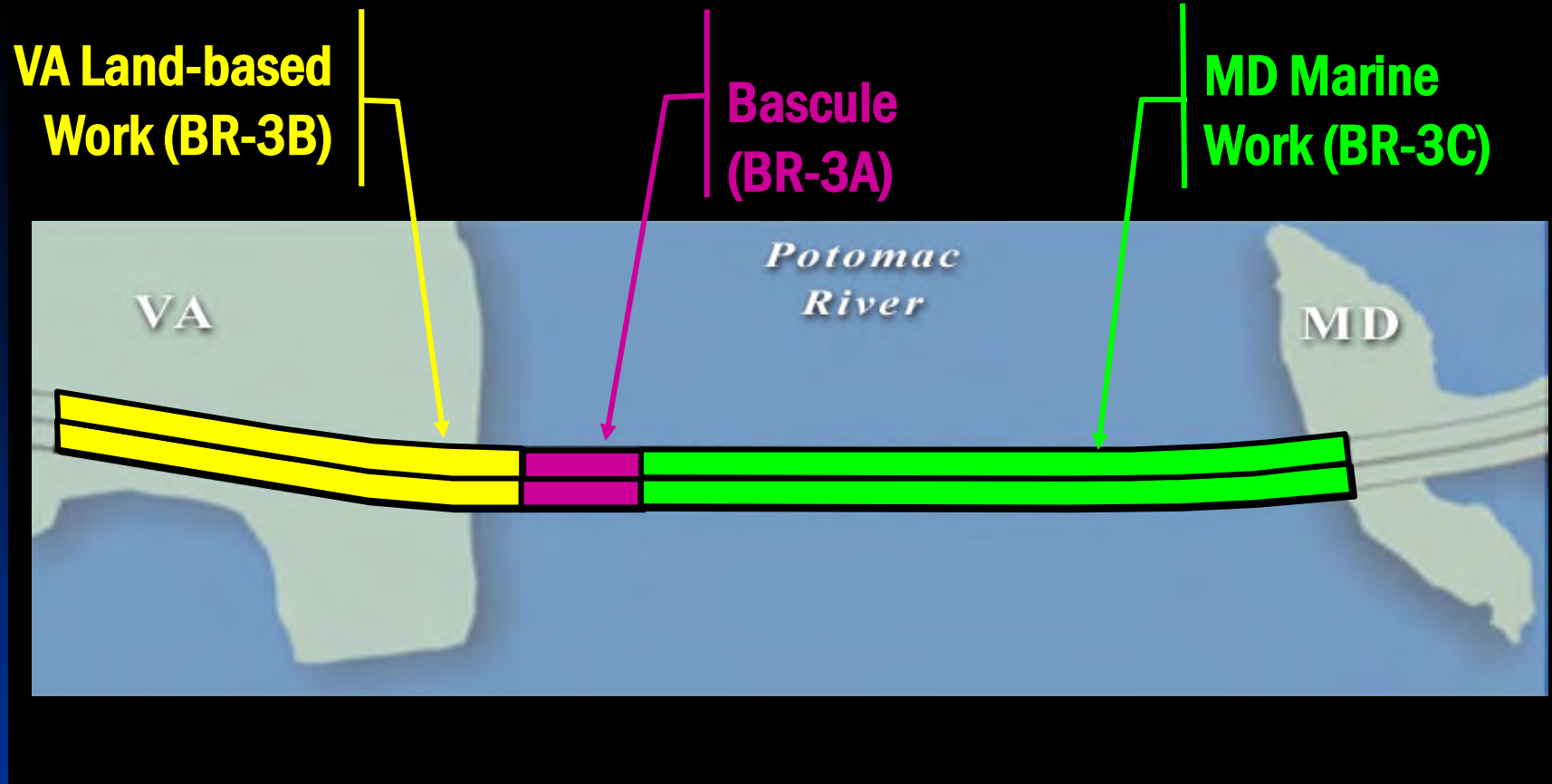
Construction Management Challenges

- ◆ **Keep traffic moving during construction**
- ◆ **6 contractors (vs. 4) must all meet a two week window, four years in the future.**
- ◆ **The critical path shifts among the 6 contractors**
- ◆ **How to manage the interfaces so that all contractors work together as if they were one?**



3 Contracts = 2 More Interfaces

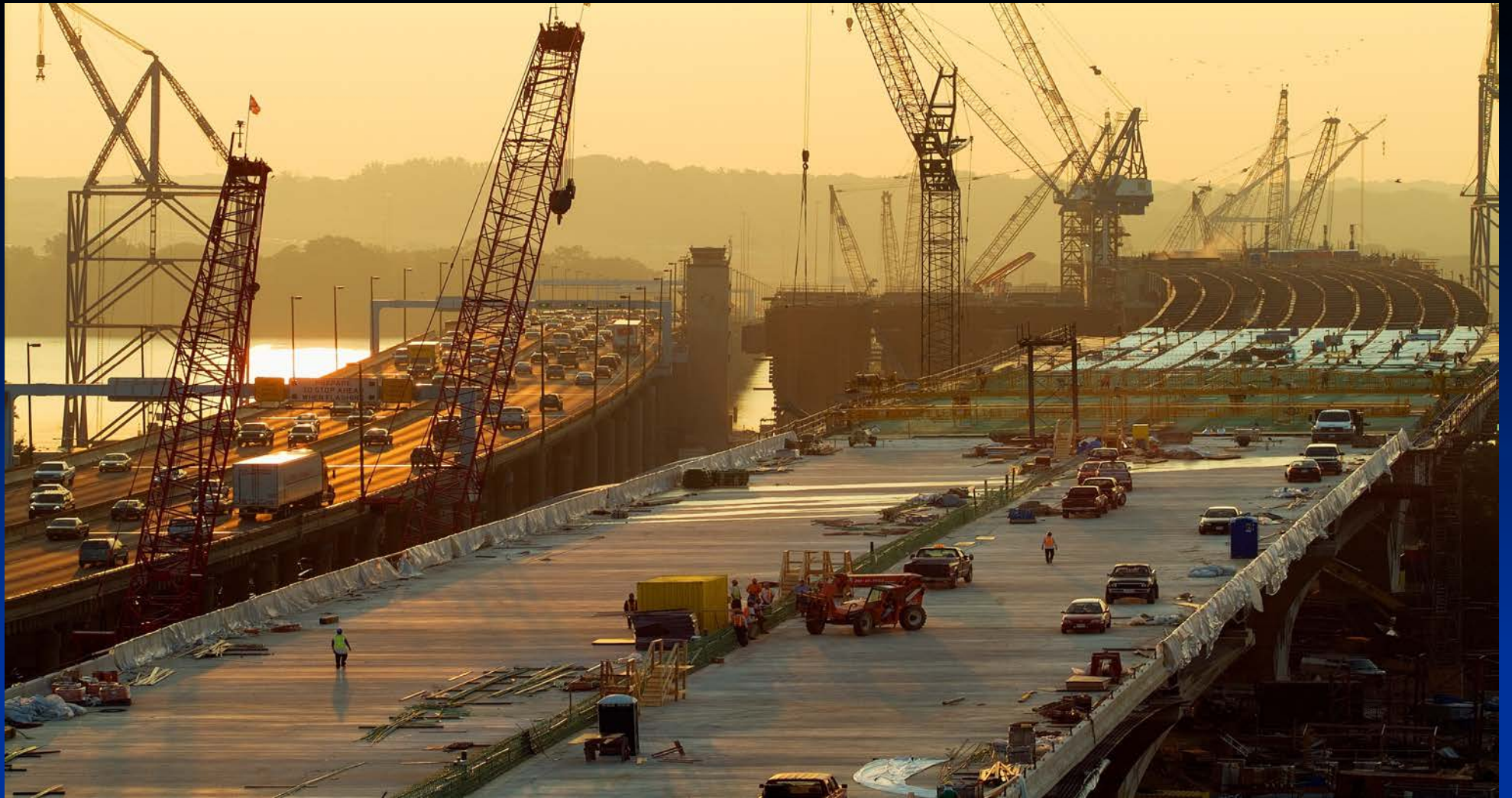
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BR-3B Viewpoint

- **Build Outer Loop bridge as quickly as possible, so that traffic can be switched to it.**
- **Demo of the old bridge controls the critical path**





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BR-3A Viewpoint

- Build a complex machine to run smoothly for 75 years
- The more time the better to test and commission





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BR-3A Viewpoint

- Old bridge not an issue
- Access via Floating bridge - boxed in by other contractors





BR-3C Viewpoint

- Leave traffic on old Bridge as long as possible
- Old bridge is an asset after traffic shift
- Land access after traffic shift - boxed in by other contractors





Strategy: Seek Opportunities to Enhance Production

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*Temporary
haul road
on NPS
land*

Example: MD haul road for BR-3C access through MA-4



Strategy: Program Planning and Scheduling

- ◆ Contracts were let by each state, key special provisions were Project-wide
- ◆ Corridor Coordination meetings kept contractors on the same page
- ◆ Integrated corridor schedule kept all contractors moving toward the same dates



Strategy: Program Planning and Scheduling

- ◆ **Contracts were let by each state, key special provisions were Project-wide**
 - Corridor Coordination Meetings
 - Schedule and Submittals - P3 & Expedition
 - Site Safety
 - Lane Closures
 - Holidays



Strategy: Program Planning and Scheduling

Corridor Coordination meetings kept all contractors on the same page

- Interface management
- Conflict forecasting
- Access release adjustments
- Issue Resolution updates



Strategy: Program Planning and Scheduling

157 Access Releases

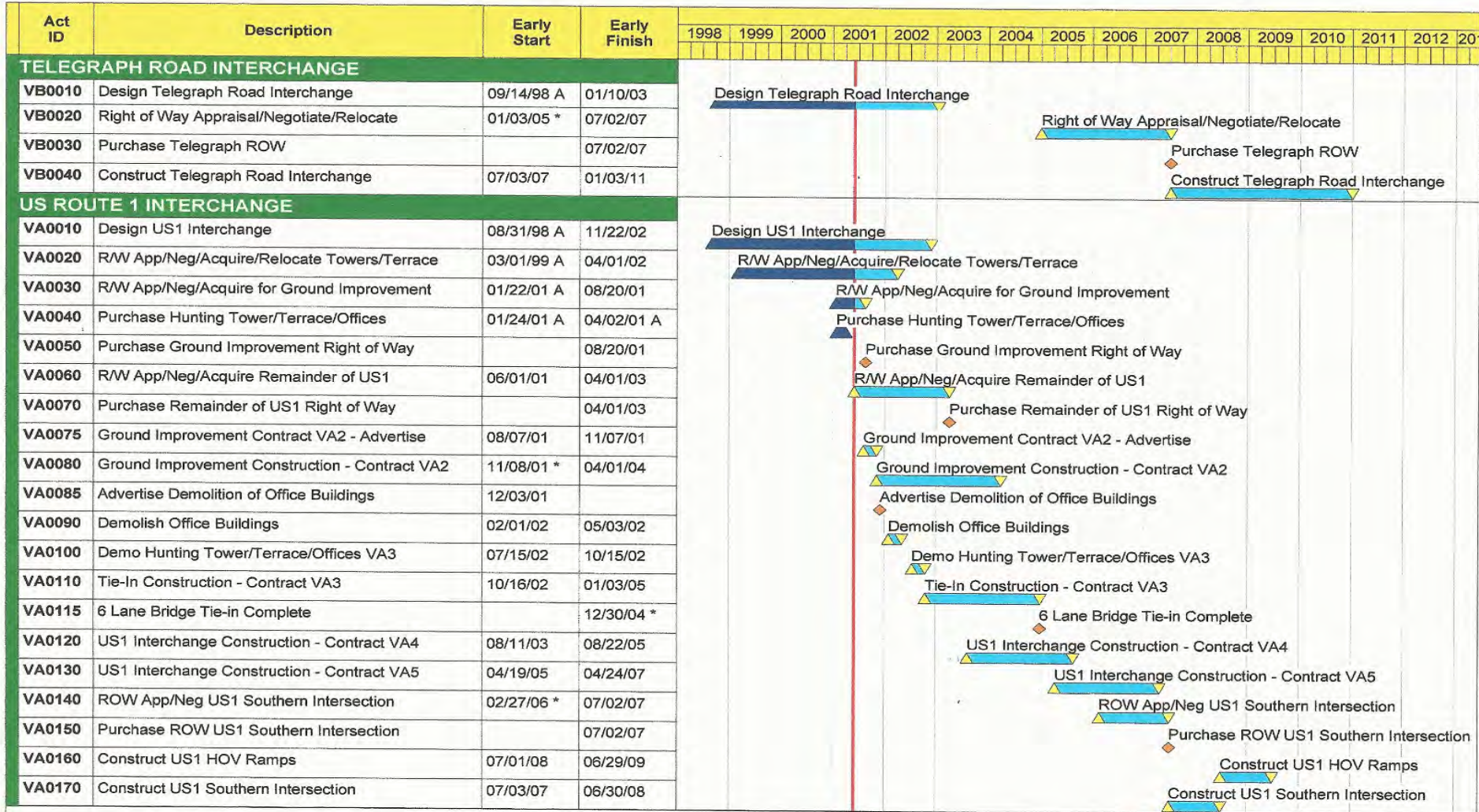
Sortable by :

- ◆ Contract Number
- ◆ Milestone Number
- ◆ Original Contract Date for the Milestone
- ◆ Current Contract Date for the Milestone
- ◆ Current Schedule Data Date
- ◆ Schedule Activity ID



Integrated Program Schedule Management

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Data date 05/31/01
Run date 08/20/01
Start date 04/10/98
Finish date 05/17/11
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MAS3-17A
Page 1A of 3A

**WOODROW WILSON BRIDGE PROJECT
AUGUST 2001 INITIAL FINANCIAL PLAN
SUMMARY SCHEDULE**

- ▲ Early start point
- ▼ Early finish point
- ▬ Early bar
- ▬ Progress bar
- ▲ Progress point
- | Start milestone point
- | Finish milestone point



Integrated Program Schedule Management

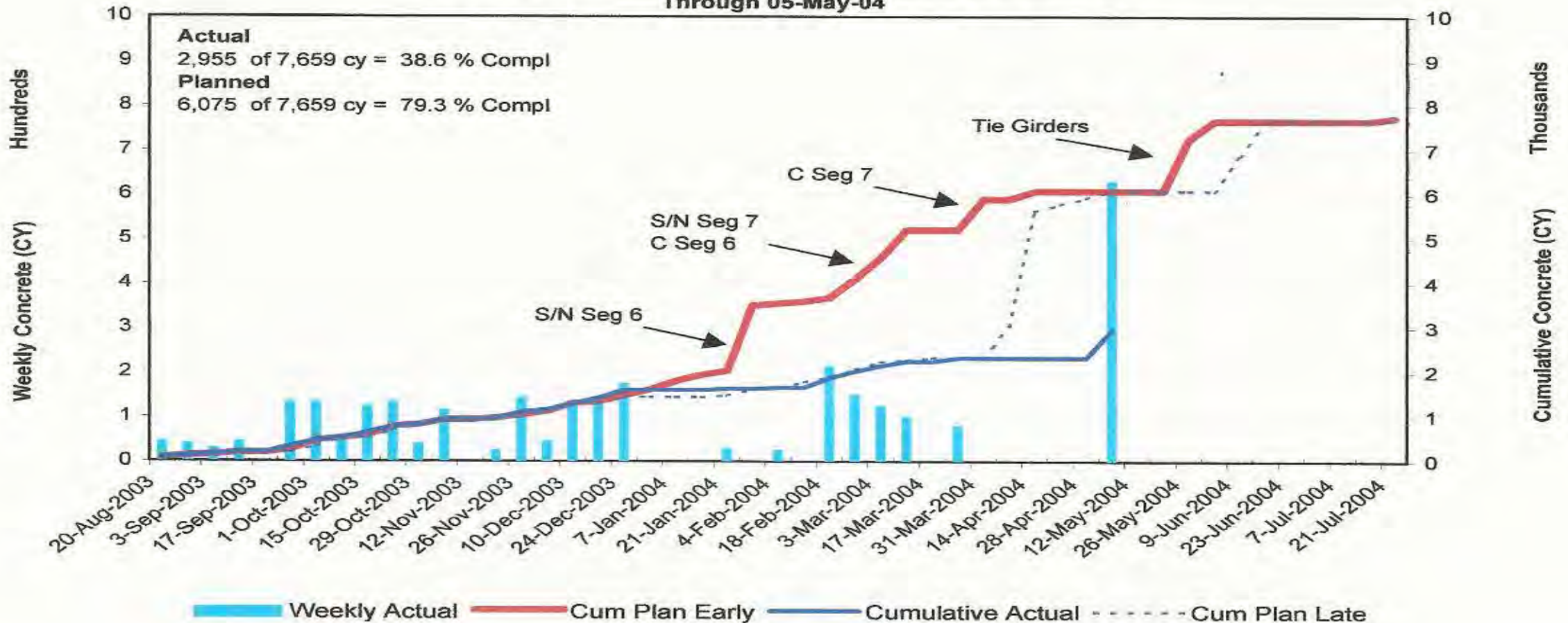
MA-2/3	Stage 1 Bridge #15 Area	AR#1	15-Mar-03	15-Mar-03	7-Mar-03		NH25 (30-Jun-05)	BR004055
MA-2/3	Complete 78" Drainage	MS#1	28-Jun-03	28-Jun-03	25-Jun-03	SHA-347-1046	NH25 (30-Jun-05)	BR004020
VA-5	AR Area 2 (252+00 to 275+00) RT	AR#2	1-Aug-03	1-Aug-03	1-Aug-03		V5Q1 (1-Jun-05)	MA006077
VA-5	AR Area 3 (301+75 to 307+00) RT	AR#3	1-Aug-03	1-Aug-03	1-Aug-03		V5Q1 (1-Jun-05)	BR004026
BR-3C	MD OL Abutment from MA-1A	AR	15-Oct-03	15-Oct-03	17-Oct-03	SHA-515-1020	3C18 (18-Jul-05)	BR004515
VA-5	Ramp I & Ramp E	MS#1	1-Dec-03	1-Dec-03	1-Dec-03	VA5-025	V5Q1 (1-Jun-05)	BR004555
VA-5	AR Area 1 (244+00 to 252+50) RT	AR#1	1-Dec-03	1-Dec-03	N/A	No date in CPM update	V5Q1 (1-Jun-05)	BR004599
VA-6/7	AR #5 - Ramp I VA-5 B631 Pier 4	AR#5	31-Dec-03	31-Dec-03	31-Dec-03	Letter 'in file' dated 2/22/2005	R010 (18-Jun-05)	
VA-6/7	AR #7 - Bent 1, Ramp E VA-5 Tie-in	AR#7	31-Dec-03	31-Dec-03	31-Dec-03	Letter 'in file' dated 2/22/2005	R010 (18-Jun-05)	VA0112002
MA-2/3	Access Stage #2 Ramp A (R Open)	AR#2	1-Jan-04	1-Jan-04	21-Jan-04	email from E. Keiter	NH25 (30-Jun-05)	VA0113046
BR-3B	OL Abutment	AR#1	17-Feb-04	17-Feb-04	16-Mar-04	SHA-517-1053	0605 (28-Jun-05)	VA0113056
BR-3C	MD OL OK Backfill MD Abutment	AR	18-Feb-04	18-Feb-04	18-Feb-04		3C18 (18-Jul-05)	VA0114018
VA-5	AR Area 4 (275+00 to 288+75) RT	AR#4	1-Apr-04	1-Apr-04	1-Apr-04	VA5-043	V5Q1 (1-Jun-05)	VA0114038
VA-4	Complete Virginia OL Abutment	MS#1	17-May-04	17-May-04	16-Mar-04	(VA-4) 0153	0704 (4-Jul-05)	VA0114042
VA-6/7	AR #01E - Area 5E from VA-2 (280+50 to 290+00)	AR#1	31-May-04	31-May-04	20-May-04	VA-6/7 - 0033; 0063	R010 (18-Jun-05)	VA0114008
VA-6/7	AR #3 - Transmsn Twrs E Relocated	AR#3	31-May-04	31-May-04	31-May-04	VA-6/7 - 0050	R010 (18-Jun-05)	VA0114010
VA-6/7	Interim Milestone 1 - Installation of Elec Duct Bank	MS#1		15-Sep-04	8-Oct-04	VA-6/7 - 0094	R010 (18-Jun-05)	VA0114001
VB-4	MS # 1 Installation of Duct Bank	MS#1	15-Sep-04	15-Sep-04	23-Sep-04	VB4-0023	UD12 (18-Jun-05)	VA0114016
VA-6/7	AR #4 - Transmsn Twrs W Relocated	AR#4	30-Sep-04	30-Sep-04	15-Sep-04	VA-6/7 - 0050	R010 (18-Jun-05)	VA0114048
VA-6/7	AR #01D (c) - Area 5W from VA-2 (267+50 to 269+50)	AR#1	30-Mar-05	30-Sep-04	30-Sep-04	VA-6/7 - 0063	R010 (18-Jun-05)	
VA-6/7	AR #01D (e) - Area 5W from VA-2 (272+00 to 277+50)	AR#1	30-Mar-05	30-Sep-04	30-Sep-04	VA-6/7 - 0063	R010 (18-Jun-05)	
VA-6/7	AR #01F - Area 5C from VA-2 (277+50 to 280+50)	AR#1	30-Sep-04	31-Oct-04	31-Dec-04	VA-6/7 - 0091; 0063	R010 (18-Jun-05)	BR004005
BR-3B	Access to OL Bridge Level	AR	1-Nov-04	1-Nov-04	1-Nov-04	SHA-517-1111	0605 (28-Jun-05)	VA0114012
VA-4	Provide Access to OL Bridge Level	MS	1-Nov-04	1-Nov-04	1-Nov-04	(VA-4) 0258	0704 (4-Jul-05)	VA0114002
BR-3B	VA Approach Utilities	AR#3	31-Dec-04	31-Dec-04	31-Dec-04	SHA-517-1116	0605 (28-Jun-05)	
VA-4	Complete Utilities	MS#2	31-Dec-04	31-Dec-04	22-Jul-04	(VA-4) 0203	0704 (4-Jul-05)	VA0114044
MA-2/3	Original OL (Ramp B to Bridge) (MA-1A area)	AR#3	1-Jan-05	1-Jan-05	(4 stages)	SHA-515-1078; SHA-347-1102; SHA-347-1142	NH25 (30-Jun-05)	BR004010
MA-2/3	Retaining Wall 23 Access	AR#3A	1-Jan-05	1-Jan-05	1-Sep-04	SHA-347-1102; SHA-347-1142; SHA-346-1147	NH25 (30-Jun-05)	MA006077
MA-2/3	Retaining Wall 1 Access (EAST)	AR#3B	1-Jan-05	1-Jan-05	1-Jan-05	Email from WR&A (1/4/2005); SHA-347-1142	NH25 (30-Jun-05)	VA0113048
MA-2/3	Retaining Wall 1 Access (WEST)	AR#3C	1-Jan-05	1-Jan-05	1-Feb-05	Email from WR&A (1/14/2005); SHA-347-1142	NH25 (30-Jun-05)	VA0112004
BR-3B	OL Pier V1 (able to set girders)	AR#2	17-Feb-05	17-Feb-05	5-Jan-05	SHA-517-1112	0605 (28-Jun-05)	BR003325
BR-3A	Outer Loop Pier V1 (able to receive girders)	MS#1	17-Feb-05	24-Feb-05	5-Jan-05	SHA-345-1330	3A26 (28-Jul-05)	VA0114032
VA-6/7	AR #01D (d) - Area 5W from VA-2 (269+50 to 272+00)	AR#1	30-Mar-05	1-Mar-05	30-Mar-05	VA-6/7 - 00130	R010 (18-Jun-05)	
VB-4	MS # 2A Material Area 5W (261 to 267+50)	MS#2A	1-Mar-05	15-Mar-05	8-Mar-05	(VB-4) 36; Work Order #4	UD12 (18-Jun-05)	BR004525
VA-6/7	AR #01D (a) - Area 5W from VA-2 (250+00 to 251+00)	AR#1	30-Mar-05	30-Mar-05	30-Mar-05	VA-6/7 - 00130	R010 (18-Jun-05)	
VA-6/7	AR #01D (b) - Area 5W from VA-2 (251+00 to 267+50)	AR#1	30-Mar-05	30-Mar-05	5-Apr-05	VA-6/7 - 00134	R010 (18-Jun-05)	MA006005
VA-5	Ramp I (West end of B626)	Rev MS	1-Apr-05	1-Apr-05	21-Mar-05	Word Order #5 & W.O. #7; VA5-091	V5Q1 (1-Jun-05)	BR003350
VA-4	Compl S Wash Street (southern deck)	MS#3	15-Apr-05	15-Apr-05	10-Mar-05	(VA-4) 0295; 0296	0704 (4-Jul-05)	BR003330
BR-3A	Outer Loop Pier M1 (able to receive girders)	MS#2	11-Mar-05	6-May-05	2-Jun-05	*AB/K&PC agree to adj 3/18/05 date to 5/6/05; SHA-	3A26 (28-Jul-05)	BR004050
BR-3C	Outer Loop Pier M1 (able to set girders)	AR	11-Mar-05	6-May-05	2-Jun-05	SHA-515-1179	3C18 (18-Jul-05)	VA0114030
VA-5	Ramp I (B626, B628, and B631)	Rev MS	15-May-05	15-May-05	4-May-05	Word Order #5 & W.O. #7; VA5-101	V5Q1 (1-Jun-05)	VA0112006



Integrated Program Schedule Management

BR-3A Substructure Concrete Placed

Virginia Outer Loop - Segments and Tie Girders Through 05-May-04





Strategy: Proactive Public Relations

- ◆ Celebrate Successes - Manage publicity events
 - Bridge Bucks
 - Eagle Naming Contest
 - Worst commute contest
- ◆ Provide media access to Project site



Strategy: Partnering

Emphasize positive relationships

- ◆ **Monthly Partnering meetings on all contracts**
- ◆ **Executive Partnering meetings as needed**
- ◆ **Web based rating and comments tool**



Strategy: Keep Contractors Moving with Timely Responses

Woodrow
Wilson
Bridge
Project



- ◆ Early issue identification the norm
- ◆ Quick decisions for ordinary issues
- ◆ “Show stopper” issues needed careful, yet timely, consideration



What was the final cost of three contracts?

- ◆ Total of base bids + changes = \$525M
(7% > than the combined low bids)
- ◆ Most of the cost increase was due to steel escalation
- ◆ Only \$4 million (< 1%) was due to contractor interface issues



Financial Plan History

Woodrow
Wilson
Bridge
Project

- ◆ Initial Financial Plan (Approved Sept. 2001)
 - Total Project Budget = **\$2.443 Billion**

- ◆ 2014 Final Cost as Close Out
 - Total Project Cost = **\$2.357 Billion**

\$86 million under budget
after 14 years



WWB as Art



WWB as Art

WWB as Art







Woodrow
Wilson
Bridge
Project

The Completed Woodrow Wilson Bridge

On Schedule

On Budget



<http://wwblessonslearned.com/>



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QUESTIONS ?



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Speaker Information

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