



Wilson Bridge Span Demolition Clears Way for Final Construction

Scott M. Kozel

On August 29, 2006, 33 minutes after midnight, the Virginia approach to the original Woodrow Wilson Bridge was demolished by a series of explosive charges. All traffic on the segment of the Beltway was stopped for 30 minutes, for the detonation. Five-second time lapse photo by VDOT, from the top floor of a Hunting Towers Apartment building.

In a year of major milestones for the Woodrow Wilson Bridge (WWB) Project, another major milestone occurred at 12:33 AM on August 29, 2006, with the after-midnight demolition of the Virginia overland approach of the original Woodrow Wilson Bridge, which was demolished in less than 10 seconds by a series of explosive demolition charges.

The Woodrow Wilson Bridge Project has been under construction since October 2000, to provide a new 12-lane Potomac River bridge and to overall upgrade 7.5 miles of the I-95/I-495 Capital Beltway in Maryland and Virginia, to a width of 10 to 12 lanes, including the reconstruction of four urban interchanges, with a total of all costs of \$2.42 billion. Over \$1.2 billion in construction contracts have been started to date, sufficient to complete by early 2009, I-95/I-495 10- to 12-lane reconstruction between west of US-1 and east of MD-210, including the new Potomac River bridge (it will open with 10 lanes and the expanded approaches will tie into the 8-lane I-95/I-495 on either side). The final project segment at Telegraph Road is planned for completion in 2011.

The first new 6-lane Woodrow Wilson Memorial Bridge (it has the same name as the original bridge) opened in two stages, the 3-lane Outer Loop (Maryland-bound) side on the weekend of June 9-11, 2006, and the 3-lane Inner Loop (Virginia-bound) side on the weekend of July 14-16, 2006. Each

weekend entailed major roadway reconstruction where several thousand tons of hotmix asphalt pavement was placed, to complete the land roadway approach tie-in construction to the new bridge. The original 6-lane Woodrow Wilson Bridge, which opened to traffic in 1961, was permanently closed to traffic on July 15, 2006.

Construction of the second new 6-lane Woodrow Wilson Bridge is over 50% complete, but its overland Virginia approach will occupy a portion of the same location as that of the original bridge's Virginia approach, so that portion of the original bridge needed to be demolished as soon as possible.

Demolition of the bridge's reinforced concrete roadway deck was accomplished by mechanical tools, leaving the rubble underneath the bridge's piers and steel girder superstructure. This portion of the WWB Project passes by the edge of Old Town Alexandria, which is an historic residential urban area, so considerations of noise, dust and construction impacts are critical aspects of the project management. Project team officials and governmental officials conducted two public meetings for the purpose of soliciting citizen input to the demolition process for the Virginia approach of the original Woodrow Wilson Bridge.

Project team engineers determined that explosive demolition of this segment of the bridge, would accelerate the demolition and removal of the spans, and would be less expensive monetarily, as compared to mechanical demolition via jackhammers and other demolition tools. DemTech, Inc., of Dubois, Wyoming, was chosen as the subcontractor for this explosive demolition operation, and they are highly experienced with decades of experience in this type of demolition work.

All traffic on the Woodrow Wilson Bridge segment of the Capital Beltway was excluded for over 30 minutes, so that the detonations would not endanger vehicular traffic. The Wilson Bridge carries very high traffic volumes of over 190,000 AADT (annual average daily traffic), so the operation was scheduled for midnight on a Monday, at one of the lower-traffic periods, to reduce Beltway traffic disruption as much as possible.

The WWB Project team conducted a regional contest, "Wilson Bridge Toughest Bridge Commute Contest," to choose a citizen who would press an antique plunger to fire the explosive charges, upon signal from the contractor personnel. Daniel G. Ruefly, a resident of Accokeek, Md., who was seriously injured in an automobile accident on the Wilson Bridge several years ago, was the winner of the contest. While the pushing of the plunger was ceremonial and did not have a physical connection to the charges, it did trigger a message to the detonation team to commence blasting. The contest and ceremony generated enormous public interest. The contest and demolition event received enormous news coverage, both domestically and abroad. Within the U.S., an audience of more than 100 million read/heard/saw it in media coverage, or roughly one in three Americans. A public viewing stand was

built on the nearby Washington Street Urban Deck (which passes over the Beltway), and hundreds of citizens came to watch the detonation — there was much cheering when it occurred! Readers may watch a movie file of the detonation, hear a "Bridge of Misery" song composed for the contest and enjoy other novel aspects of the contest at www.wilsonbridge.com/bridgeDemolition.htm.

This demolition operation was part of the Virginia Approach Spans contract (Contract BR-3B) of the WWB Project, whose prime contractor is Virginia Approach Constructors, a joint venture of Granite Construction Company of Watsonville, California, and Corman Construction, Inc., of Annapolis Junction, Maryland. (This contract, and all of the contracts for the new Potomac River bridge, are administered by the Maryland State Highway Administration.)

After removal of the concrete rubble and steel girders and stringers, construction could begin on the second new bridge's Virginia abutment and remaining unbuilt foundations, with construction of the V-piers and superstructure to follow. The project plan is to complete the 6-lane second new bridge and to open it to traffic in mid-2008, with 5 directional lanes initially operating on each new bridge, thereby eliminating one of the worst highway bottlenecks on the Eastern seaboard. ■

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