

## Woodrow Wilson Memorial Bridge

### Washington, DC



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The Woodrow Wilson Memorial Bridge crosses the Potomac River near Washington, DC is a testimony to the durability of STALITE lightweight aggregate. Currently, a major project is underway which will include a replacement for the existing bridge; however, this is not the first time the Woodrow Wilson Memorial Bridge has faced replacement. Originally built in 1962 at a cost of \$12.2 million, the bridge suffered the ravages of weather, salt deterioration and heavy use. By 1977, the original normal weight concrete decking was beginning to crumble and needed to be replaced and widened without adding weight to the substructure. STALITE lightweight aggregate was used to fulfill rigid specifications of strength, weight and durability. Greiner Engineering Sciences, Inc. designed the new redecking system. The system consists of 1,026 post-tensioned panels and parapet walls of precast STALITE lightweight aggregate concrete produced by Shockey Brothers, of Winchester, Virginia. The system allowed the bridge to be widened from 89'-0" to 93'-21/2" while maintaining traffic of 110,000 vehicles per day. Cianbro Corporation of Pittsfield, Maine was the low bidder for the contract at \$23.726 million. This was approximately 72% of the 1982 estimate for the project. The first panels were set into place in December 1982. Cianbro could work only at night and had to maintain traffic 24 hours a day. Panel placement was completed in August 1983, well ahead of the full bonus date in January 1984. Each panel was 46'-7 1/4" wide, 10 to 12 feet long, and 8" thick with a 5" haunch at the exterior girder. The panels were post-tensioned transversely at Shockey's plant prior to transportation to the job-sited. To eliminate transverse joints, the deck system was post-tensioned longitudinally in segments from 140' to 285' long and separated by steel expansion plates. STALITE rotary-kiln expanded slate lightweight aggregate was chosen by Shockey Brothers because of their past success with the product. Concrete containing STALITE is less susceptible to freeze-thaw and salt deterioration than normal weight concrete. It has very low absorption (6%), can produce high strengths (12,000+ psi) and has a 300-cycle freeze-thaw durability factor of 95.4% when tested in a 2% salt solution. In short, STALITE was an integral factor in not only meeting, but exceeding the stringent concrete specifications established for the Woodrow Wilson Memorial Bridge. In 2002, the lightweight concrete continued to perform with the bridge carrying an average of 190,000

cars and trucks per day: more than twice its design capacity. STALITE: Strong, lightweight, durable, high quality lightweight aggregate for high quality construction.

*Built with*

