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Out of the Attic

A replacement bridge over the Potomac

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Image: The new Woodrow Wilson Bridge. Photo, Office of Historic Alexandria.

Over the past several weeks, this column has written about the man-made changes that have impacted Great Hunting Creek over nearly two centuries, particularly those that began with the construction of the Capital Beltway and the original Woodrow Wilson Bridge in the early 1960s, and the replacement bridge completed across the Potomac River in 2008. Interestingly, the same year that the first Wilson Bridge opened in 1961, far away in Guatemala the architect of its replacement structure, Miguel Rosales, was born.

Within 30 years of its opening, the need to completely rebuild the Wilson Bridge from Virginia to Maryland was well recognized. By 1990, traffic on the bridge had tripled beyond its design capacity of 75,000 vehicles and the low drawbridge required more than 260 temporary road closings per year.

Planning for the new bridge took almost a decade, with a design competition selecting an elegant rendering by Rosales that mimicked not only the traditional arched bridges built decades earlier across the Potomac, but also reflected a series of whimsical seagulls soaring high above the river when viewed from a distance. Construction began in 2000, increasing the roadbed from six to twelve lanes, and raising the river clearance to 70 feet above high tide, with a 200-foot distance between the bridge piers.

Construction of the world's largest drawbridge was a feat of modern engineering, which employed tools and techniques developed over centuries from across the globe. The shallow river bottom and 600-foot depth of bedrock precluded the use of traditional bridge building methods such as caissons to construct a foundation. Instead, the Alexandria/Oxon Hill bridge site required dredging the heavily silted river by use of a clamshell dredge, first developed centuries earlier by Scotsman James Naysmyth but enhanced by the 21st century to remove 350,000 square yards of mud within a four-month period. Once the riverbed was lowered by eight feet, a foundation of steel piles was driven below where each of the 68 future bridge supports would stand, 200 feet below the surface of the water, into 30 feet of clay.

Once the foundation was completed, a process called "segmental construction" occurred, with over 1,000 concrete bridge pier components cast at a temporary bridge yard on the Maryland shore, then barged and connected at their final location. Once the V-shaped support piers were in place, they were





Office of Historic Alexandria City of Alexandria, Virginia

secured by wire cables strung through each support and connected by steel girders fabricated in Pennsylvania.

The drawbridge itself was fabricated in Palatka, Fla., assembled and painted onsite there, then disassembled and barged up the East Coast by tugboat. Once the drawbridge segments arrived at the bridge site, they were hoisted into place during the early morning hours under the watchful eye of master bridge builder, "Hokey" Del Costello. The Wilson would be the last project of his career, as he retired soon after.

In the end, the magnificent new bridge would include 130 million pounds of steel and 150 million pounds of concrete, as well as mile upon mile of wire cable. Amazingly, after eight years of construction, the \$2.5 billion construction project came in \$86 million under budget.

"Out of the Attic" is published each week in the Alexandria Times newspaper. The column began in September 2007 as "Marking Time" and explored Alexandria's history through collection items, historical images and architectural representations. Within the first year, it evolved into "Out of the Attic" and featured historical photographs of Alexandria.

These articles appear with the permission of the Alexandria Times and were authored by Amy Bertsch, former Public Information Officer, and Lance Mallamo, Director, on behalf of the Office of Historic Alexandria.