



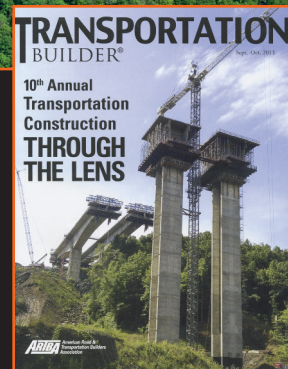
Henley Street Bridge



Gateway Bridge



Foothills Parkway



Grassy Creek Bridge



Original Photo



Overlay of 3-D Laser Scan Data



Original Photo



Overlay of 3-D Laser Scan Data

A Sample of Our Work on AWARD-WINNING PROJECTS

Henley Street Bridge

Henley Street Bridge was constructed in the late 1930s for approximately \$1 million. It is a reinforced-concrete, open-spandrel arch bridge with 6 dual-ribbed arches connected by lateral bracing. The arches range in length from 200 to 320 feet and reach approximately 80 feet over the Tennessee River. The deck is upheld by 140 spandrel bents, 6 main piers, and 2 abutments.

In 2011, TDOT began a major rehabilitation of the bridge, including the removal of the deck, all spandrel bents and 6 piers to their foundations. The arches and pier foundations remained in-place. The new components of the bridge were to be reconstructed with an accuracy of less than one quarter of an inch. To accomplish this, W&A as-built the entire structure with a 3-D laser scanner, gathering over 40 million points of data on the spandrel bents, piers, and arches. This data was used to generate as-built drawings for the contractor to reconstruct the bridge.

Note images of a photo with an overlay of 3-D laser scan data above.

Gateway Bridge

W&A provided construction layout for Nashville's Gateway Bridge, which has garnered national attention. It won the top honor in the "Major Span" category in the National Steel Bridge Alliance Prize Bridge Competition. In November 2005, it ranked No. 9 in *Roads & Bridges'* top 10 Bridges List for 2005.

Hailed as the "new front door" to Nashville, Gateway Bridge opened in 2004, reconnecting east Nashville to the Downtown area. Gateway Bridge is Tennessee's first through-arch structure, as well as the Cumberland River's first "clear" span of 571 feet, with an overall length of 1,660 feet, a total height of 192 feet, and an overall width of 102 feet.

Foothills Parkway

Bridge No. 2 of Foothills Parkway is comprised of reverse curves and vertical grades as much as 7 percent. Ranked in *Roads & Bridges'* 2013 Top 10 Bridge List, Foothills Bridge No. 2 was challenging to build due to the steep terrain, the relative remoteness of its location, its access limited only to the eastern end, and a working room of 37 feet in width – the width of the deck.

The bridge is a precast segmental type composed of 92 segments, each one unique due to location and position. Each segment was cast in a nearby casting yard and moved to its theoretical position so the next piece could be match-cast to the previous. This technique insured that the segments would fit properly when erected in the field.

W&A provided all construction survey services for the precast segments and control for the erection of the structure in the field. Several existing ground features had to be as-built to avoid conflict with the false work and subsequent deck overhang of the bridge.

Grassy Creek Bridge

Number 1 in *Roads & Bridges'* 2013 Top 10 Bridge List, the Grassy Creek Bridge is the tallest in the state of Virginia, reaching 250 feet above Grassy Creek below. The bridge consists of twin 1,700 foot-long cast-in-place segmental structures, each spanning 43 feet in width and comprised of 84 segments with a depth of 12 to 30 feet thick.

Constructed deep in the Appalachian Mountains, Grassy Creek Bridge is challenging both in location and topography. W&A provided a first-order control network to be used for the layout of the bridge. W&A also provided layout services for all columns, abutments, and cast-in-place segments.

