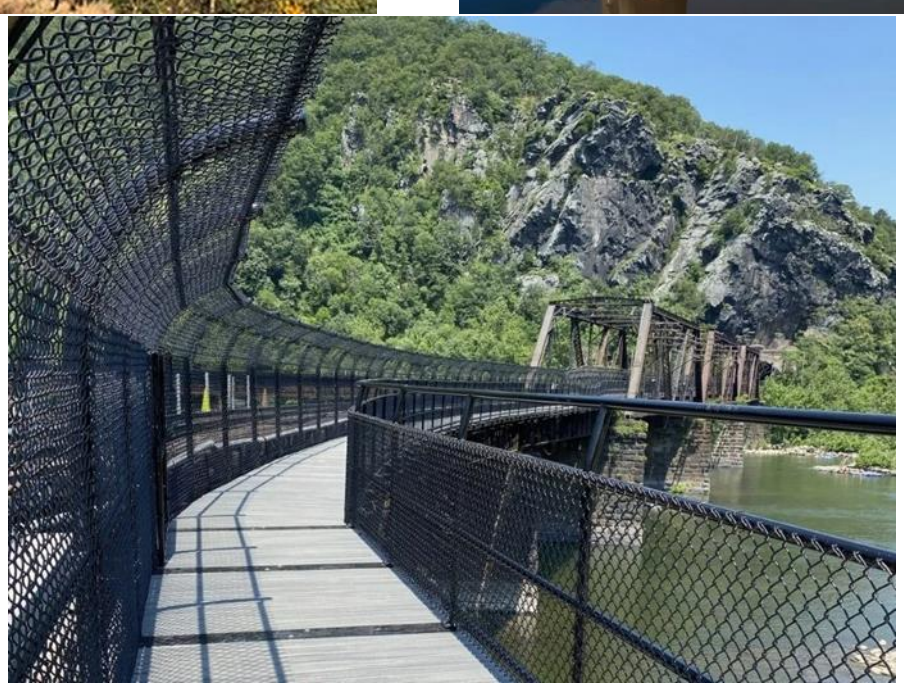
Bridges of West Virginia – (Many of) The Rest of Them



Gassaway

On Tuesday, January 9, 2024, contractors for the West Virginia Division of Highways (WVDOH) demolished the Upper Gassaway Bridge over the Elk River in Gassaway, completing a replacement project in the works for nearly 10 years.

The steel truss bridge was built in 1935, replacing an earlier span across the Elk River dating from 1912. A new deck was added to the bridge in 1963, with further repairs and renovations to the span in 1970, 1992, 1995, and 1996. But by 2016, it was apparent that the bridge was in need of replacement. The bridge, which carries WV 4 across the Elk River, sees about 1,900 cars a day. But the span is narrow, and in later years carried weight restrictions limiting the amount of weight the bridge could support.

"The old bridge didn't allow commerce to flow freely between Gassaway and the interstate," said Tracy Brown, P.E., WVDOH State Bridge Engineer. Brown also said the new bridge will allow heavier vehicles to travel through town and serve the area for the next 75 to 100 years.

In November 2020, Orders Construction was awarded a contract for $4,719,806.85 to build a new bridge across the Elk River and tear down the old truss bridge. Orders Construction built a new, curving bridge immediately downstream of the steel truss bridge to allow the use of the original bridge approaches.

The new bridge opened in late 2023, allowing for the demolition of the 1935 span. Orders placed explosive charges on key points of the old bridge on Tuesday, January 9, 2024.

The charges sliced like a knife through the steel trusses on the bridge, allowing it to fall harmlessly into the churning waters of the Elk.

Colonel Ruby Bradley – Spencer – Spring Creek – US 33

The new four-lane Col. Ruby Bradley Memorial Bridge was officially dedicated Monday in Spencer. The project was made possible with funding from the state's Roads to Prosperity program.

Because of the almost constant traffic across the bridge, the West Virginia Department of Transportation and contractors Rock Forge Bridge Company of Amma came up with an innovative plan to replace the bridge. We faced a lot of challenges because we still had to deal with all that traffic," Wriston said. "The iron men of Rock Forge, they got this done."

The bridge is named for Spencer native Ruby Bradley, one of the most highly decorated women in the history of the United States military. An Army nurse, Bradley was captured in the Philippines in the early days of World War II. She cared for fellow prisoners and came to be known as one of the "Angels in Fatigues." Bradley went on to lead nurses during the Korean War and retired from the army as a colonel in 1963.

"Having Ruby Bradley's name on this bridge and downtown is an honor to our community," said Spencer Mayor Terry Williams. "This here today shows how a project works right. Right in the middle of our downtown." Built in 1932, the Colonel Ruby Bradley Bridge carries U.S. 33 across Spring Creek at the intersection with U.S. 119. It is one of the busiest intersections in Roane County.

Replacing the aging bridge had been in discussion for years. In September 2020, Gov. Jim Justice awarded Rock Forge Bridge Company a contract for $5.8 million to rebuild the span. Rock Forge both designed and built the new, four-lane bridge, which was designed to resemble the original structure.

Rock Forge first built a new bridge just upstream of the old span. When the new bridge was finished, traffic was shifted onto the new structure and the old bridge was torn down.

Then, in a two-day blitz beginning on the evening of Sunday, Jan. 22, Rock Forge began sliding the new bridge onto the abutments of the old bridge, a few inches at a time. Workers would slide the bridge a few inches, reopen the bridge to traffic, then move the bridge another few inches.

Dennis James, of Rock Forge, said the company faced a number of challenges in moving the bridge, including how to come up with a way to reduce the friction beneath the massive span to scoot it into place. They hit upon an environmentally friendly lubricant, Dawn dishwashing liquid.

"We used dishwashing liquid, water and a mop," James said. Work was done at night to minimize the impact on traffic.

Trout Run – Pocahontas County

Secretary of Transportation and Commissioner of Highways Jimmy Wriston, P.E., joined local dignitaries on the first official trip over the reopened Trout Run Bridge on Friday, May 12, 2023, when Shay 5, the locomotive, burst through a golden ribbon on the new span.

Completion of the bridge reopens the excursion line from Cass Scenic Railroad to the town of Durbin, which had been closed since the bridge washed out in 1985.

When floodwaters swept the tracks from the old hand-stacked stone railroad bridge in 1985, it shut down a rail line that had been open since the early 1900s and was a regular run on Cass Scenic Railroad since the railroad opened in 1963. In cooperation with the West Virginia Department of Transportation's (WVDOT) Division of Multimodal Transportation Facilities and the Durbin and Greenbrier Valley Railroad, which runs the Cass trains, the West Virginia Division of Highways (WVDOH) piled on to build a new bridge and reopen the Cass to Durbin run for tourism.

Multimodal Transportation Facilities Commissioner Cindy Butler said, "Finally! The multi-year labor of love to restore the track from Durbin to Cass is finally complete. This 15-mile section of track was washed out during the 1985 flood and laid dormant ever since.

"A truer example of a public/private partnership won't be seen in a long time," Butler said. "This 15-mile section of track with this beautiful ballast deck bridge, is a star for West Virginia and should be a showpiece for our WVDOT employees and the DGVR employees for many years to come.

Members of the work crew were part of WVDOH Central Forces, or Cenforce, a group of workers with specialized skills who are sent around the state to tackle projects requiring special expertise. All were presented with certificates of recognition from Gov. Jim Justice. "You name it, we do it," said Greg Pennington, a supervisor on the Cass project. "We step in and knock it out of the park."

Originally intending to build only the bridge abutments in 2019 and 2020, Cenforce came back in 2022 to build the bridge itself. Conditions at the work site were harsh, with crews having to bring all materials by rail five miles up the rail line. Twelve or 14-hour work days were common as dedicated Central Forces work crews toiled in rain and snow.

Pennington felt personally responsible to help reopen the Cass to Durbin run. "I think we owe it to the state and to the nation to open this back up so people can see the beauty of the river and this valley," Pennington said.

A Shay locomotive from Cass made a test run over the new bridge in early February 2023. With warmer weather arriving, Cass is ready to start running excursion trains over the reopened rail line.

"This bridge is an amazing accomplishment," said Wriston. "These guys in these yellow shirts, they have memories they'll be telling their great grandchildren about. This was the project for them."

Corridor H – Clifford Hollow – Hardy County



Clifford Hollow Bridge is a four-lane, 1,522-foot-long (464 m) bridge in Hardy County, West Virginia. It carries Corridor H (U.S. Route 48 and West Virginia Route 55) across Clifford Hollow approximately 5 miles (8.0 km) east of Moorefield.

The bridge was completed in 2003. It rises nearly 300 feet (91 m) above the valley below and is supported by a girder-substring system with end spans of 210 feet (64 m) and four interior spans at 275.5 feet (84.0 m).

Clifford Hollow Bridge was awarded winning long-span steel bridge in the 2005 National Steel Bridge Alliance (NSBA) Prize Bridge Award Competition.

Capon Bridge – US 50

The Capon Bridge, located in Capon Bridge, Hampshire County, West Virginia carries US-50 over the Cacapon River. The bridge is a Parker through truss bridge with riveted connections and a 180-foot span length. The bridge was built in 1933 according to a state highway department design by E. R. Mills using steel supplied by the Wheeling Structural Steel Company. The bridge includes a cantilevered sidewalk on one side. Earlier bridges at this location included a two-span pin-connected half-hip pony truss bridge, and a Burr Arch covered bridge.

Capon Lake Bridge


The Capon Lake Whipple Truss Bridge (locally /ˈkeɪpən/), formerly known as South Branch Bridge or Romney Bridge, is a historic Whipple truss bridge in Capon Lake, West Virginia. It is located off Carpers Pike (West Virginia Route 259) and crosses the Cacapon River. The bridge formerly carried Capon Springs Road (County Route 16) over the river, connecting Capon Springs and Capon Lake.

The bridge's Whipple truss technology was developed by civil engineer Squire Whipple in 1847. J. W. Murphy further modified Whipple's truss design in 1859 by designing the first truss bridge with pinned eyebar connections. The design of the Capon Lake Whipple Truss Bridge incorporates Murphy's later modifications with double-intersections and horizontal chords and is therefore

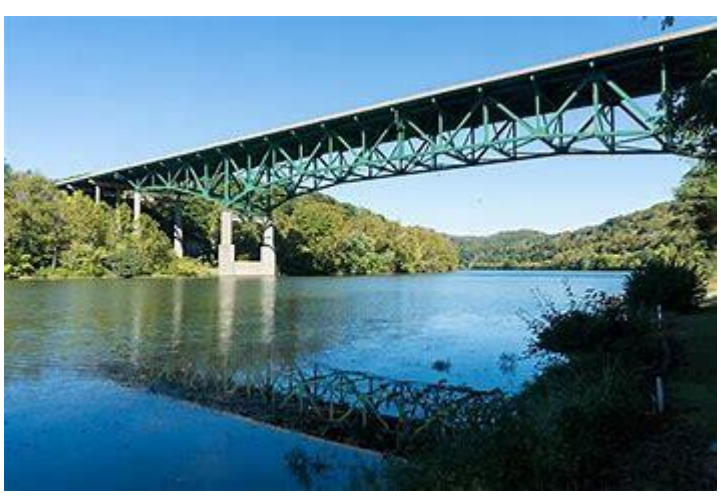
considered a Whipple–Murphy truss bridge. The Capon Lake Whipple Truss Bridge is West Virginia's oldest remaining example of a Whipple truss bridge and its oldest extant metal truss bridge.

Ice's Ferry – Cheat Lake

The Ices Ferry Bridge project involved the replacement of a steel through-truss bridge with a new 960-LF four-span steel girder bridge located near Morgantown, WV. The scope of work also included the construction of two retaining walls and new approaches on each side of the bridge. The new bridge spans the Cheat Lake Reservoir, a popular resort area in West Virginia.

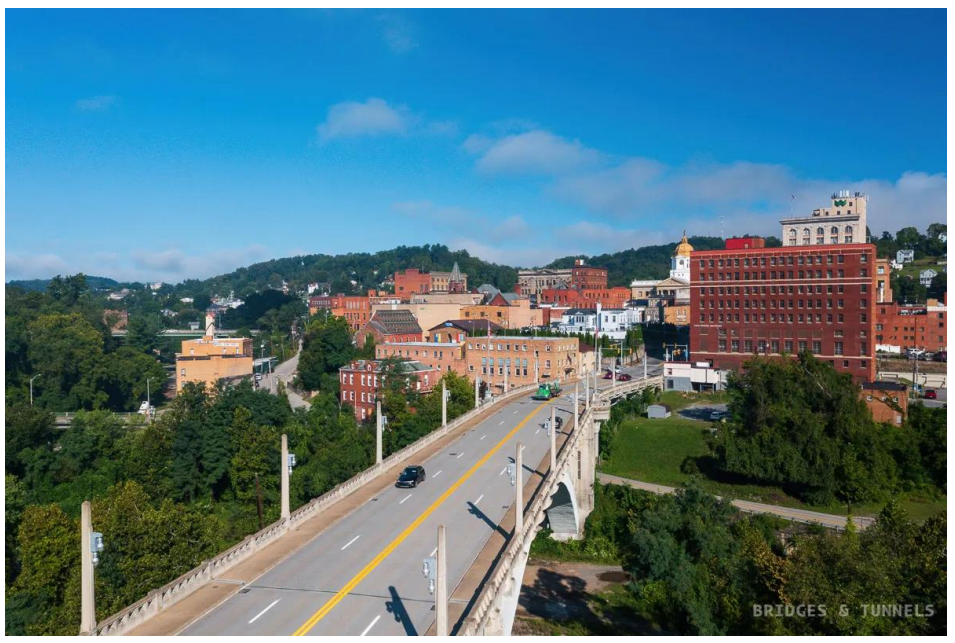
A deep foundation system comprised of 10-foot diameter caissons was necessary to support the new bridge loading requirements. Structural steel members for the new bridge were installed from barge-mounted equipment. The new Ices Ferry Bridge opened to vehicular traffic a full six months ahead of the contractual completion date.

Uffington / Thomas W. Bennett Memorial – I-79 -



Medal of Honor recipient Thomas W. Bennett (April 7, 1947- February 11, 1969) was a conscientious objector who received America's highest honor for his heroism as an army medic in Vietnam. Born in Morgantown, Bennett was active in high school clubs, ecumenical church work, and the Boy Scouts. He was a vocal opponent of the Vietnam War while a student at West Virginia University. Believing it was wrong to evade the draft while others had to serve, he volunteered as a noncombatant medic with the 1st Battalion, 14th Infantry. He was killed by gunfire in a battle at Chu Pa, Vietnam, while trying to drag a wounded soldier to safety. He was nominated by his commanding officer and soldiers for the Medal of Honor.

Million Dollar – Fairmont – Monongahela River



Designed by the Concrete Steel Engineering Company of New York, with Palmer & Hornboste of New York assisting with architectural features, the new open-spandrel reinforced concrete bridge featured a total length of 1,266 feet and spans of 250 feet with a height of 96 feet above the river. 1 2 Its construction required 782 tons of reinforcing steel, 276 carloads of gravel, 468 carloads of sand, and 151 carloads of cement, and over one million feet of fir timber from Washington for the falsework. 7

The bridge included dual trolley tracks and seven-foot sidewalks with stairwells to provide access from the bridge deck to Cleveland Avenue and the Baltimore & Ohio Railroad freight station on the west side of the river, and to Walter Street and the Monongahela Railway on the east side. 1 2 It was adorned with hand-blown light fixtures that were never again reproduced, and hung in pairs from 33 concrete poles. The crossing was also adorned with four 50-foot tapered flagpoles that were topped with gilded copper eagles.

Rubles Run / Morgans Run – WV 43 – Mon-Fayette Expressway

With the October 2000 award of a $16 million contract for the Rubles Run Bridge, only five projects remained to complete West Virginia's four-mile segment of the Mon-Fayette Expressway (WV 43), the four-lane highway linking I-68 near Cheat Lake with southwestern Pennsylvania near Pittsburgh. Adjoining a completed 2.08-mile segment, the bridge built by National Engineering & Contracting Company of Strongsville, Ohio, used federal funds made available by Senator Robert C. Byrd to continue progress on the expressway. The six-span fabricated steel girder used 5,387,547 pounds of structural steel to carry the Mon-Fayette roadway over Rubles Run and included a small amount of paving in Pennsylvania on the northern approaches of the 0.39-mile project.

Rubles Run Bridges. The dual bridges consist of six continuous plate girder spans with an overall length of 1,387 feet. The roadway width is 32 feet on each bridge. WV 43 crosses a valley fed by Rubles Run on the second set of high-level bridges in Monongalia County. This span was constructed at a cost of $19.7 million.

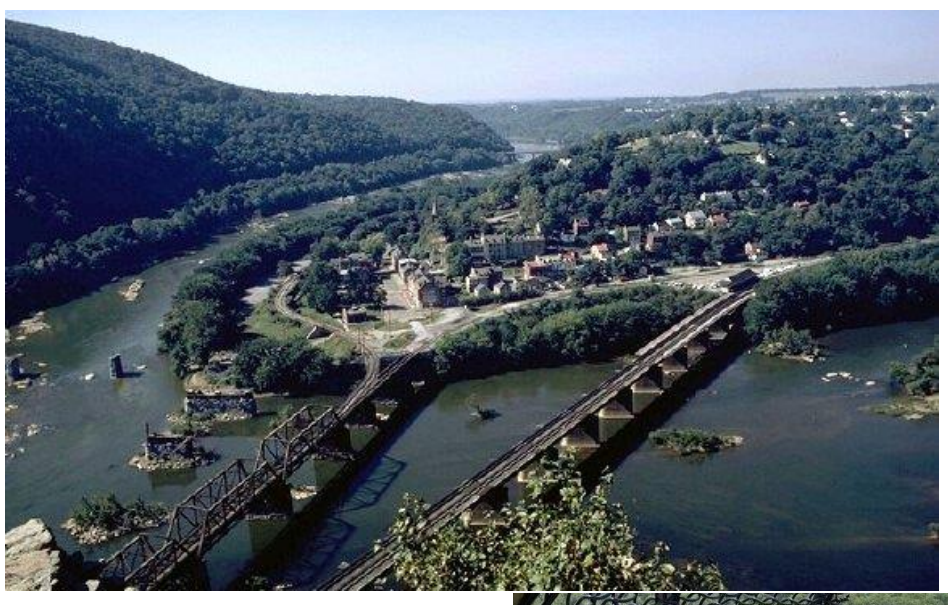
Morgan Run Bridges. The dual bridges consist of six continuous plate girder spans with an overall length of 1,400 feet. The roadway width is 32 feet on each bridge. The first of two sets of high-level bridges on WV 43 passes high above Morgan Run to the east of Cheat Lake. This set of spans cost $22.5 million to construct.

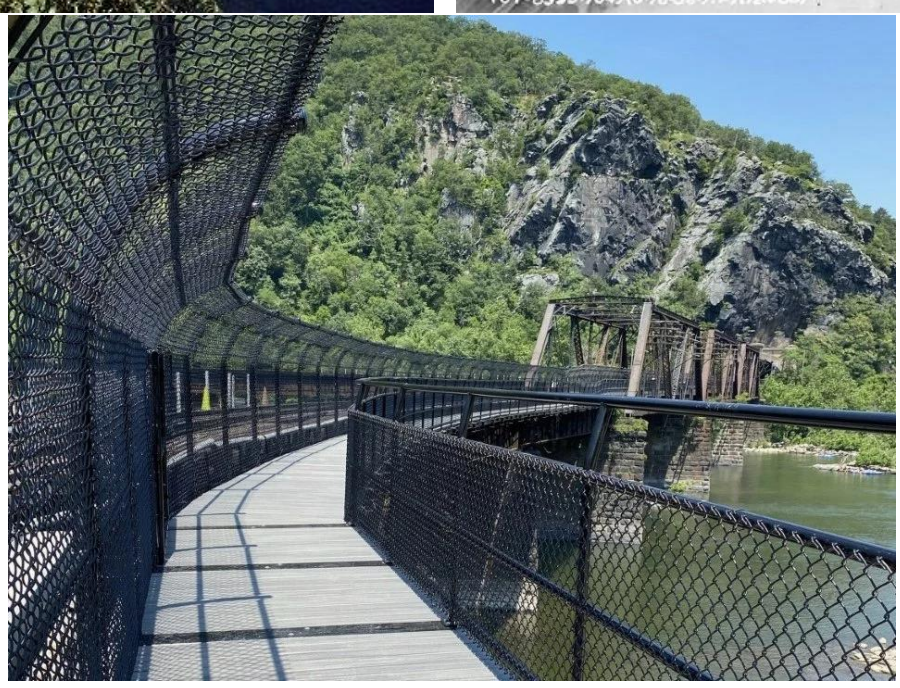
Oldtown – North Branch Potomac River

Come experience a chance to cross a unique popular attraction that almost went under the wrecking ball several years ago: one of the few private toll bridges left in the country. The Bridge can be found just north of the scenic C&O Canal path frequented by bikers and hikers.

By description, Oldtown Toll Bridge is a simple crossing, simply constructed, and simply managed. A dozen concrete pedestals secured in the Potomac River support an all-wooden bridge that connects Maryland to West Virginia.

Harper’s Ferry





The B & O Railroad Potomac River Crossing is a 15-acre (6.1 ha) historic site where a set of railroad bridges, originally built by the Baltimore and Ohio Railroad, span the Potomac River between Sandy Hook, Maryland and Harpers Ferry, West Virginia. The site was added to the National Register of Historic Places on February 14, 1978, for its significance in commerce, engineering, industry, invention, and transportation.[2]

History

The original Harper's Ferry operated from 1733 until it was replaced by a timber covered road bridge in about 1824 at the confluence of the Potomac and Shenandoah Rivers.

Built in 1836–1837, the B&O's first crossing over the Potomac was an 830-foot (250 m) covered wood truss.[2] It was the only rail crossing of the Potomac River until after the American Civil War. The single-track bridge, composed of six river spans plus a span over the Chesapeake and Ohio Canal, was designed by Benjamin Henry Latrobe, II. In 1837 the Winchester and Potomac Railroad reached Harpers Ferry from the south, and Latrobe joined it to the B&O line using a "Y" span.

John Brown used the B&O bridge at the beginning of his failed attempt to start a slave insurrection in Virginia and further south. The bridge was destroyed during the Civil War and replaced temporarily with a pontoon bridge.

The two crossings today, which are on different alignments, are from the late 19th century and early 20th century. A steel Pratt truss and plate girder bridge was built in 1894 to carry the B&O Valley Line (now the CSX Shenandoah Subdivision) toward Winchester, Virginia, along the Shenandoah River. This was complemented in 1930–1931 with a deck plate girder bridge that carried the B&O Main Line (now the CSX Cumberland Subdivision) to Martinsburg, West Virginia.

A rail tunnel, known as the Harpers Ferry Tunnel, was built at the same time as the 1894 bridge to carry the Valley Line through the Maryland Heights, eliminating a sharp curve. In the 1930s the western portal was widened during the construction of the second bridge to allow the broadest possible curve across the river.

The rail-with-trail bridge crosses the Potomac River near its confluence with the Shenandoah River, at Harpers Ferry, West Virginia. A cantilevered section of the bridge allows pedestrian access between Harpers Ferry and the Chesapeake & Ohio Canal National Historic Park (C&O Canal Towpath) and connects the Appalachian Trail from West Virginia to Maryland. On December 21, 2019, a CSX freight train derailed on the bridge, sending several cars into the river. There were no injuries and the bridge was later reopened.

I-79 – Fairmont / Bentons Ferry

The bridges span the Tygart River near the White Hall exit. The southbound bridge was built in 1960 and the northbound bridge was built in 1966.

The section of interstate in Marion County from the South Fairmont to the Pleasant Valley exits, where the South Fairmont West Virginia Arch Bridges sit, is being widened to three lanes in each direction at a cost of $72.5 million by Pennsylvania-based Swank Construction.

Star City – Monongahela River

The former Star City Bridge was built in 1950. In 2002, that bridge was demolished and replaced by the current five-lane bridge that was completed in 2004. It has since been dedicated the Edith Barill Bridge after a long-time Star City mayor but is still generally known as the Star City Bridge.

The new Star City Bridge is equipped with over 700 sensors that measure the weight, speed, and number of vehicles that cross it. This data will be studied at West Virginia University and used to study the effect of everyday traffic on the bridge, but especially large, commercial trucks. The sensors will also measure how the bridge expands and contracts in the different temperatures of each season. The data will be used for the West Virginia Division of Highways to find and correct weak points in the bridge.

Robert C Beech / West Buckeye – Dunkard Creek

Completed in 2004 by Turman Construction Company of Barboursville for more than $3 million, the Robert C. Beach (formerly West Buckeye) Bridge carrying Monongalia County 39 over Dunkard Creek east of WV 7 in the Morgantown area is a high-tech structure believed by WVU wood technology research personnel to be the world's longest three-hinge timber arch bridge.

Designed in cooperation with the university, with funding provided by the Federal Highway Administration under a special program to encourage new technology, the 149-foot single-span bridge, which includes high performance steel, has two 11-foot lanes with four-foot shoulders and a five-foot upstream sidewalk.

But what made it unusual enough to include a small, handicap-accessible parking lot nearby for observers during its construction were its fiber-reinforced polymer deck, developed by a Kansas City manufacturer, and its fiber-reinforced glue-laminated timber arch, developed by an Oregon manufacturer. The arch, which provides a 16-foot vertical clearance above the deck, has 15 cables on each side and three steel hinges—two at the points where the floor beams are attached and one at the apex because of the arch's length.