



ACPA » Project Profile

Innovative Designs used in Veterans Parkway Project

The City of Sioux Falls, SD, and the South Dakota Department of Transportation turned to Riley Brothers Construction, Inc., HDR Engineering, and Hancock Concrete Product for innovative designs in Veteran's Parkway Construction.

Sioux Falls, South Dakota's largest city, is currently experiencing tremendous population and economic growth. Each year the city gains more than 5,000 people and more than 640 acres are developed. Veterans Parkway (formerly known as SD Highway 100) is a six-lane divided highway under construction to move large volumes of traffic through the east and south side of Sioux Falls.

Construction of Veterans Parkway's first segment began in 2012. From then on, a total of approximately 7.5 miles have been built in multiple segments, with ultimate completion of the entire 17-mile loop planned for 2027.

SDDOT's Largest Highway Contract

The Rice Street to Interstate 90 portion of Veterans Parkway was completed in December 2020. South Dakota Department of Transportation (SDDOT) awarded the \$55.6-million contract to Riley Brothers Construction Inc. of Morris, MN, and at the time it was SDDOT's largest single highway contract ever awarded.

This segment of Veterans Parkway stretches from Rice Street on the South to Interstate 90 on the north. Included in this 1.25-mile-long project is the realignment of two connecting streets, construction of a new center point interchange; four bridges, as well as an 81-acre-foot stormwater detention pond to help control future development runoff.

For Veterans Parkway, Riley Brothers Construction worked with ACPA member company Hancock Concrete Products of Sioux Falls, SD, using more than 17,000 feet of Class II, III, IV and V RCP, 680 feet of 60-inch Class IV and Class V RCP jacking pipe, 382 feet of box culvert with a 90-degree bend, and more than 150 precast inlets and junction boxes.

Challenges and Innovative Solutions

With a project this size, the challenges are plenty. The solutions require innovative designs to accommodate site conditions, such as jacking twin 60-inch RCP under the interstate to save time and not disrupt traffic. Another location had a historic wood truss railroad bridge that needed to be protected from erosion, so the box culvert was constructed with a 90-degree bend to collect multiple outlet pipes from the detention pond and release them in one location. That same run of five pipes had to be specially designed and embedded in flowable fill because of the 64 feet of fill over the 36- and 42-inch Class V pipe.

To combat surface drainage from a large area north of Interstate 90, the design directed water to flow through twin 60-inch reinforced concrete pipes (RCP). The twin pipes were jacked under the interstate to allow traffic to continue without disruption, as this section of I-90 carries more than 25,000 vehicles per day.

Hancock Concrete Products supplied the pipe, box culvert, and precast inlets for the project. HDR Engineering was the engineer of record. Collaboration among SDDOT, HDR, and Hancock Concrete led to innovative designs and cost savings on multiple aspects of the project.

All three working together found solutions for the best way to construct a 90-degree bend for the box culvert, the most cost-effective ways to connect pipes to the walls and bulkhead on the box culvert, and the best solution for construction of the pipe "gallery" that had a large amount of overfill on top of the pipe.

The innovative, collaborative approach to this large-scale project contributed to its recognition as ACPA's Project Achievement Award in 2021. By choosing concrete pipe, SDDOT has provided taxpayers with a drainage solution offering long-term strength, longevity, and durability that's also produced locally and supports the region's economy

Project Profile

Location

Sioux Falls, SD

Installation Completed

December 2020

Project Owner

SDDOT

Contractor

Riley Brothers Construction, Inc.

ACPA Producer

Hancock Concrete Products

Engineer/Designer

HRD Engineering

» Box Culvert, Highway, DOT, Installation, Bridges, Innovation