2023 Engineering Excellence Awards

2022
HDR

2020
HDR

2021
CECS, Inc.

ACEC

American Council of Engineering Companies
of South Carolina

Engineering Excellence Awards

February 8, 2023
6:00 PM
Columbia Museum of Art

Engineering Excellence is an annual competition sponsored by the American Council of Engineering Companies (ACEC) and its member organizations. It recognizes engineering achievements which demonstrate the highest degree of merit and ingenuity.

The ACEC-SC Palmetto Award (top overall project) and the seven other entries judged to be the best overall are eligible to enter the ACEC National Competition. National winners are announced at a gala event in Washington, D.C. later this year.

The ACEC-SC competition is open to all firms engaged in the practice of consulting engineering. Projects must have been designed in the state of South Carolina with construction substantially completed between Nov. 1, 2020 and Oct. 31, 2022. Projects may be constructed anywhere in the world as long as they were designed in South Carolina.

A distinguished panel of judges was selected. Each judge separately reviewed the projects. Criteria for judging included: original or innovative application of new or existing techniques; future value to the engineering profession and perception by the public; social, economic and sustainable design considerations; complexity; and exceeding owner/client needs. We applaud and congratulate all the firms that entered the 2023 Engineering Excellence Awards Competition.

ACEC

American Council of Engineering Companies
of South Carolina

EEA

Palmetto Award

ACEC NATIONAL FINALIST - ACEC-SC ENGINEERING EXCELLENCE AWARD

HDR

"Hugh K. Leatherman Terminal, Phase 1 Site Development"

South Carolina Ports Authority

Transportation

The $1 billion, 135-acre Hugh Leatherman Terminal Phase 1 is the nation's first greenfield container terminal in the last decade and the only new U.S. container terminal capacity planned until 2030. The flagship facility of South Carolina Ports, it features a 1,400-foot berth, a 47-acre, 700,000-twenty-foot equivalent unit container yard, the tallest cranes on the East Coast, 25 hybrid gantry cranes, a refrigerated container yard, new operating systems, and enhanced technologies. Designed for expansion, at full build-out, it will double the Port's capacity with a 286-acre, three-berth, 2.4 million twenty-foot equivalent unit terminals. The project team overcame significant challenges, including 70 feet of unsuitable mud, an unimaginable quantity of materials, seismicity, high wind speeds, and potentially exposing World War II-era bombs on the former Navy base. It enhances the Port's ability to handle cargo and the largest vessels calling on the East Coast, keeping South Carolina globally competitive for decades to come.

ACEC National Finalists

Consor

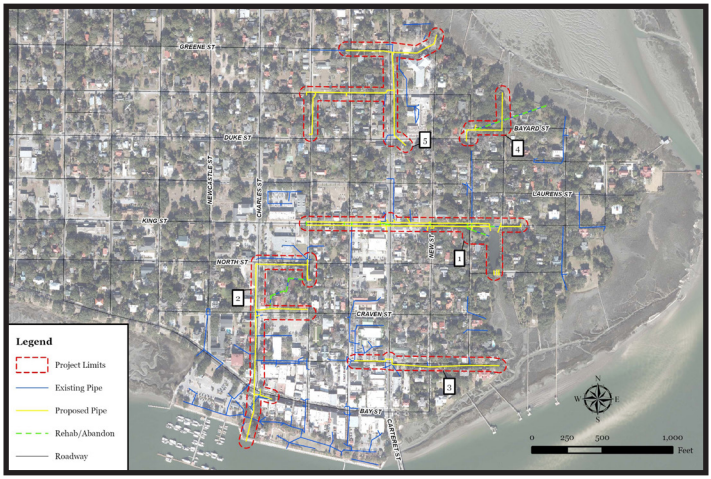
"I-95 Over the Great Pee Dee River Emergency Structural Repairs"

South Carolina Department of Transportation

Structural Systems

SCDOT is charged with maintaining a safe transportation system across the state; however, Mother Nature can make that a challenge. In the aftermath of Hurricane Florence, historic flooding impacted the Great Pee Dee River basin, and I-95, which crosses the river north of Florence. The river was already experiencing long-term lateral stream migration, and the flooding waters accelerated this migration causing 60 feet of the protective embankment to be lost. Consor monitored the bridge during the flooding and identified the embankment loss and potential instability in two piers. Through an emergency contract in a matter of days, Consor designed fully supportive crutch bents that were installed to support the piers that had been completely undermined. Four more additional bents were designed and installed in 2021 to protect the bridge for years to come.

Additional Award: ACEC-SC Engineering Excellence Award



Davis & Floyd

"The Point/Downtown Drainage Study"

City of Beaufort

Studies, Research & Consulting

Davis & Floyd completed this drainage study to support the City of Beaufort's goal of achieving long-term coastal community resiliency within The Point/Downtown study area. Flooding during intense rainfall events severely impacts much of this historic area. Tidal influence from the surrounding Beaufort River and sea-level rise have compounded these flood conditions, thereby making flooding an unfortunate way of life for the community. Before developing solutions to address flooding, the project implemented real-time remote monitoring equipment and advanced hydrologic and hydraulic models to understand observed flood conditions and the changing environment. Davis & Floyd used these tools to ultimately develop cost-effective and sustainable flood mitigation solutions to form the basis of a comprehensive capital improvement plan. This plan provided not only a prioritized infrastructural road map, but also the single-most important outcome: financing the plan to turn conceptual solutions into reality.

Additional Award: ACEC-SC Finalist

EEA

HDR

"Lowcountry Rapid Transit Project Programming and Development"

Berkeley-Charleston-Dorchester Council of Governments

Studies, Research, & Consulting

This 21.3-mile transit system will be South Carolina's first bus rapid transit system. This project will enhance connectivity to jobs, essential services, recreation, and healthcare across diverse communities. The project aims to reduce one of the state's highest regional crash rates and is projected to serve over 2.2 million annual trips in horizon year 2040. Moving the project to the engineering phase required close collaboration and sound understanding of the corridor's history, stakeholders, area agencies and community needs. As a result of the work completed during the project programming and development phases, the Lowcountry Rapid Transit project received approval to enter the New Starts Engineering phase of the Federal Transit Administration Capital Investment Grants program in July 2022. This much-anticipated step moves the project one step closer to full funding and completion and an anticipated grand opening in late 2028.

Additional Award: ACEC-SC Engineering Excellence Award

Hussey Gay Bell

"2.4 Million Gallons Per Day Waste Water Treatment Plant and Pump Station"

Town of Chapin

Water and Storm Water

In 2015, Hussey Gay Bell was engaged by the Town of Chapin to plan, design and oversee construction of a new 2.4 million gallon per day waste water treatment plant. To develop a wastewater treatment solution that would double the plant's capacity and reduce effluent loading by 35%, several components were evaluated, and an Ovivo's Carrousel System was selected.

The result is a plant that not only increased capacity and brought the treatment facility in line with new guidelines, but also a plant that will accommodate future growth, advance economic development, and provide a higher quality of life for the town's constituents well into the future.

Additional Award: ACEC-SC Engineering Excellence Award

Kimley-Horn

"I-77 at Gold Hill Diverging Diamond Interchange"

York County

Transportation

As part of York County's Pennies for Progress 3 program, Kimley-Horn worked with York County, the South Carolina Department of Transportation, and the Federal Highway Administration to plan and design improvements to I-77 at Gold Hill Road, SC 460, Interchange at Exit 88. The improvements are principally planned to address severe peak hour commuting congestion between Gold Hill Road to the west and points on north I-77.

The project converted the existing diamond interchange configuration – the first of its kind in South Carolina – to a diverging diamond. Kimley-Horn provided extensive traffic analysis, an interchange modification report, categorical exclusions, public involvement, concept, preliminary, and final design, and structural services, including existing interstate bridge widening.

Additional Award: ACEC-SC Engineering Excellence Award

Kimley-Horn

"South Carolina Pedestrian and Bicycle Safety Action Plan"

South Carolina Department of Transportation

Studies, Research, & Consulting

Safety is SCDOT's number one priority in both motorized and non-motorized transportation. Too many pedestrians and bicyclists are being killed or seriously injured in our state, and SCDOT is committed to doing everything possible to improve safety for these most vulnerable roadway users. In 2022, SCDOT, in coordination with Kimley-Horn, published the state's Pedestrian and Bicycle Safety Action Plan. To develop this plan, Kimley-Horn conducted stakeholder outreach to determine the state of the practice for pedestrian and bicyclist safety, analyzed existing pedestrian and bicycle crash data to identify and prioritize high-crash locations, developed a methodology to identify roadways at high risk for pedestrian and bicycle crashes, and identified improvements, programs, and strategies to reduce the frequency of pedestrian and bicyclist fatalities and serious injury crashes throughout South Carolina.

Additional Award: ACEC-SC Engineering Excellence Award

Michael Baker International

"US 21 (Sea Island Parkway) Bridge Replacement Over Harbor River"

South Carolina Department of Transportation

Special Projects

US Route 21 over the Harbor River provides a lifeline between South Carolina's Beaufort County and its offshore islands that are popular destinations for tourists. The original bridge had deteriorated to the point where it was no longer considered reliable or safe, so SCDOT engaged Michael Baker International for the Construction Engineering and Inspection services for this design build project.

The replacement structure was a 3,350-foot, fixed-span, high-level bridge that features 12-foot-wide lanes with 10-foot shoulders in each direction. The project also included the demolition and removal of the existing swing span bridge, all appurtenances, and portions of the approach roadways.

Additional Award: ACEC-SC Engineering Excellence Award

ACEC-SC Engineering Excellence Awards

EEA

GWA

"HGTC Grand Strand Campus Infrastructure"

Horry Georgetown Technical College (HGTC)

Building/Technology Systems

Additional Award: Small Firm Award

Horry Georgetown Technical College (HGTC) has three locations in northeastern South Carolina. The Grand Strand Campus in Myrtle Beach is the technical college's largest campus. In 2019, design work began to modernize the campus and three existing buildings. Exterior improvements were intended to make the campus a more inclusive and inviting site for the benefit of students and the local community. GWA provided electrical engineering for site infrastructure improvements including improvements to pedestrian and vehicular flow, landscaping such as irrigation and pond controls, and campus lighting. GWA also developed lighting standards to be used across the college's system of campuses. The HGTC campus remained fully operational during all work, and GWA overcame the challenge of phasing demolition and new construction work to limit disruption of campus operations. This project was affected by the COVID-19 pandemic requiring design team members to provide excellent communication and coordination to complete the project as intended.

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Harper

“McCormick Water Treatment Plant”

McCormick Commission of Public Works

Water Resources

The new 3.7 million gallon per day water treatment plant was an impressive feat for Harper’s team and involved a phased construction plan to allow for maintenance of plant operations, extensive coordination so the conversion of the tank didn’t disrupt the flow of clean drinking water, and significant value engineering that gave the owner options without sacrificing value.

The water treatment plant was constructed in the 1920s, and the Commission of Public Works brought in Harper to construct the new Greenfield water treatment plant on a site adjacent to the original plant. The successfully constructed plant allows the commission to expand the plant at the new location and best serve its community.

EEA

Johnson, Mirmiran, and Thompson (JMT)

"SC 4 Emergency Design Build Bridge Replacement"

South Carolina Department of Transportation

Transportation

The Wagener Road Bridge over the South Edisto River in Aiken County had been closed, and an Emergency Design-Build Procurement was undertaken to replace the bridge. The Crowder/JMT team was selected to replace the bridge and have it open to traffic on an accelerated schedule of just 300 days. JMT served as the lead design engineer, and ESP provided geotechnical engineering and utility coordination services. The 610-foot replacement bridge was completed ahead of schedule due to a systematic approach of early design planning to reduce right-of-way impacts and costs, provide early foundation submittal packages for approval, building provisions to conquer possible hard pile driving conditions into the construction plan, and partnering to solve site challenges immediately. The team's performance resulted in a constructible practical design that met SCDOT's project criteria, on-time completion, and satisfying the stakeholders, SCDOT, Aiken County, and the traveling public.

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Michael Baker International

"US 1-S Edisto River Bridge Replacement"

South Carolina Department of Transportation

Structural Systems

When SCDOT inspected the US-1 bridge across the South Edisto River in Aiken County, it was determined the bridge was structurally deficient and would not be able to handle projected traffic increases. To address this critical situation, SCDOT engaged Michael Baker International to design a replacement bridge and serve as Project Manager. Preventing adverse environmental impacts was a major goal of the initiative.

To achieve that goal, Michael Baker International employed a number of innovations, including the use of Florida I-Beams for the new bridge. This was the first time such beams were used in a design-bid-build initiative in South Carolina. Florida I-Beams facilitated bridge design with fewer beams and spans while allowing a low-maintenance superstructure. The new bridge, which opened in 2022, is a 290-foot, 2-lane bridge that includes a 6-foot paved shoulder for future use by bikers.

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Michael Baker International

“New Heritage Drainage Basin Interceptor”

York County Government

Water and Storm Water

Because of haphazard development that lacked a well-coordinated, overall plan, sewer infrastructure at the former Heritage USA site in Fort Mill, South Carolina, was inadequate and eventually, a pair of manholes blew and raw sewage streamed across the development, prompting action.

As the lead designer on the New Heritage Drainage Basin Interceptor project, Michael Baker International’s redesign included almost 7,000 feet of 24-inch gravity sewer pipe, 1,900 feet of 18-inch gravity sewer pipe and 36 manholes spread over 26 wastewater service areas and more than a dozen pump stations.

The new basin infrastructure is reliable, safe and offers the required capacity.

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Michael Baker International

"I-26 Widening & Jedburg Road Interchange"

South Carolina Department of Transportation

Transportation

When SCDOT initiated a study of the I-26 corridor from Columbia to Charleston and how the road would meet the region's needs in the future, it discovered that the Jedburg Road Interchange in the town of Summerville, South Carolina, needed to be widened.

It was also discovered the interchange needed to be updated to meet an anticipated surge in traffic. SCDOT engaged Michael Baker International to design interchange improvements.

In addition to a wider interchange, the design featured a loop ramp to enable full lane reversals and the addition of 4-foot-wide bike lanes. The upgraded interchange boasts improved safety and traffic flow and will accommodate future growth.

EEA

Michael Baker International

"Shackleburg Road Emergency Bridge Replacement"

Anderson County

Small Projects

In 2020, rains washed out the Shackleburg Road Bridge in Anderson County, South Carolina. This presented an urgent situation, as the bridge was a link for local residents and businesses. Anderson County engaged Michael Baker International to design a new bridge.

Deploying a hybrid accelerated bridge construction approach, Michael Baker designed a 60-foot span featuring a cored bridge deck and end-bent steel piles, a low maintenance, low-cost solution to prevent future washouts and allow for a 100-year service life.

The Michael Baker International team also employed a context-sensitive approach to right-of-way acquisitions, modifying the design based on input from property owners.

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Stewart

“Molly Creek Access Area on Lake Wateree”

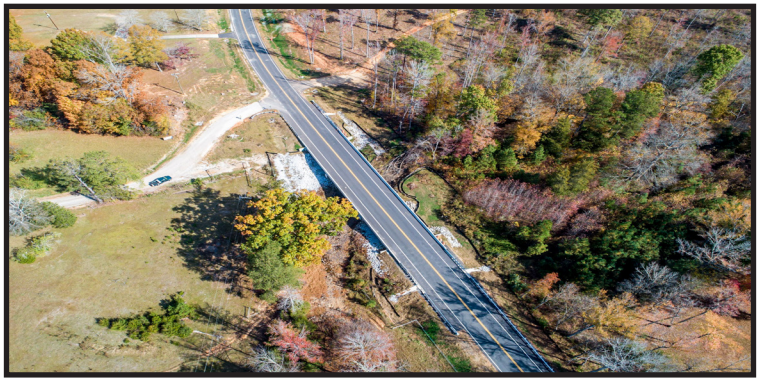
Duke Energy

Special Projects

On behalf of Duke Energy, Stewart designed and implemented a quality public recreational and access area for the surrounding communities of Fairfield, Kershaw and Lancaster counties at Molly Creek Access Area on Lake Wateree.

Amenities designed include a fishing pier, restrooms, one mile of trails, picnic areas and shelters, boat and trailer parking, boat ramps and a courtesy dock, as well as a 0.8-acre sand beach and swim area.

As part of the design, the firm integrated efficient stormwater infiltration systems and shoreline stabilization to combat coastline erosion to ensure long-term sustainable use of the site, which is now the largest recreation area on Lake Wateree.



EEA

STV

"S-51 Bridge Replacement Over Gills Creek"

South Carolina Department of Transportation

Special Projects

To support the replacement of the S-51 Camp Creek Road bridge which was originally built in 1925 and reconstructed in 1957, STV was contracted by the South Carolina Department of Transportation to oversee the design of a wider, longer bridge that meets current design and safety standards.

The team collaborated with SCDOT to develop close and detour project approaches, maintain access to local farmland, and minimize impacts to federally-protected marine species within the project area.

STV also informed the community and adjacent property owners and provided a full suite of environmental services for the program.

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TranSystems

“Florence County Complex Parking Garage”

Florence County

Structural Systems

TranSystems provided design services for the new two-bay, four-level, 380-space parking garage, located adjacent to the Florence County Complex that provides much needed parking as well as improved site circulation. Site development for the project also included redevelopment of the existing plaza, roadway improvements to Dargan Street, and improvements to the existing parking lots.

The project also included new landscaping for the front entry plaza of the building to soften the current hardscaping and provides much needed green space. Additionally, the team added a new fountain that fronts North Irby Street, and the project exceeded the County and public’s expectations.

The successful relationship between the owner, engineer and contractor resulted in a project that was completed on schedule and on-budget.

ACEC-SC State Finalists

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Infrastructure Consulting & Engineering

"I-26 Widening and S-16 (Jedburg Road) Interchange"

South Carolina Department of Transportation

Special Projects

The goal of the I-26 Widening and S-16 (Jedburg Road) Interchange Project was to promote economic development, alleviate congestion, and to improve the safety of local citizens and visitors. It included the staged reconstruction and improvement of the Jedburg Road overpass and interchange and the widening of three miles of I-26 between mile markers 193 and 197. Challenges during construction included impacts from Hurricane Dorian, navigating the effects of COVID-19 including material delays and price escalation on materials, and absorbing a six-month construction delay. Completion of this project has greatly improved the operation and level of service of the interchange and eliminated backups on I-26 during afternoon peak hours. It has also positively impacted the outlook for economic development in this region by promoting growth and the establishment of new businesses, which has improved the value of land and access to services for the local population.

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Mead & Hunt

“Park West Community Multimodal Upgrades”

Town of Mount Pleasant

Transportation

Mead & Hunt placed safety and connectivity first while increasing capacity along the Park West corridor in the Town of Mount Pleasant, South Carolina. The project widened the roadway from two to four lanes and upgraded the existing roundabout at Queensgate Way. The addition of designated bike lanes and a widened shared-use path created a network of routes enjoyable by users of all ages and abilities.

Due to the Lowcountry’s soil’s impervious nature, the Mead & Hunt team also planted native grasses to filter stormwater and improve soil conditions. The Park West Community Multimodal Upgrades project brings connectivity to the highly populated Park West community, joining neighborhoods, schools, parks, and shops with multimodal paths while widening a congested thoroughfare and improving an existing roundabout.

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Mead & Hunt

“SC 274/Pole Branch Road Safety Upgrades”

York County

Transportation

The SC 274/Pole Branch Road corridor serves as a vital gateway for both York County and South Carolina, but its former roadway and bridges were unsafe and congested, exacerbated by the hilly terrain. Mead & Hunt prepared plans to provide a multimodal roadway that addressed these capacity and safety deficiencies.

The project traverses over Lake Wylie and is regulated by Duke Energy for hydroelectric power, so Mead & Hunt helped York County with extensive coordination with permitting agencies, gaining permission to proceed with the project. In addition, the local community expressed concerns about construction affecting water quality, leading to Mead & Hunt performing innovative hydrographic surveys to verify no work would adversely impact the lake.

The team is proud to have helped bring this project to life, providing a corridor that will serve the needs of the community for years to come.

Judges

A special thank you is extended to the competition judges who volunteered valuable time to carefully review each project.

Juan M. Caicedo, Ph.D.
Chair
Civil and Environmental Engineering Department
College of Engineering and Computing
University of South Carolina

William J. Davis, Ph.D., P.E.
Department Head & D. Graham Copeland Professor of Civil Engineering
Civil & Environmental Engineering, Construction Engineering
The Citadel

Robert "Bob" King, PE
SCDHEC Retired

Robert Mullen, Ph.D., P.E.
Professor
Civil & Environmental Engineering Department
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