

2019 LOUISIANA

Engineering Excellence Awards



Presented to you by

ACEC

AMERICAN COUNCIL OF ENGINEERING COMPANIES
of Louisiana

ADVANCING THE BUSINESS OF ENGINEERING

FROM THE CHAIRMAN



Welcome to the first publication of the ACEC of Louisiana Engineering Excellence Awards (EEA). Launched in 2019, the ACECL inaugural EEA program was a tremendous success.

Thirteen engineering projects selected by a distinguished panel of judges and performed by Louisiana-based engineering firms and their clients were recognized November 21, 2019 during an awards gala held at the Renaissance Hotel in Baton Rouge. Over 220 honorees and guests celebrated the achievement, teamwork, and client partnership of these worthy projects. Each project is a tangible example of the essential role engineering plays in the everyday lives of Louisiana citizens.

Projects were scored on the following criteria:

- Uniqueness and/or innovative application of new or existing techniques
- Future value to the engineering profession and enhanced public awareness/enthusiasm of the role of engineering
- Social, economic, and sustainable development considerations
- Complexity
- Successful fulfillment of client/owner needs

ACECL thanks the firms and partner owners who invested valuable time, expertise and resources to ensure the successful execution of these thirteen award winning projects. We hope you enjoy reading about each project and that you will be inspired to submit one of your own projects in 2020. More information about the 2020 EEA Program will be sent to the ACECL membership and posted on the ACECL website, www.acecl.org, in the coming weeks.

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ACEC of Louisiana
 9643 Brookline Avenue, Suite 112
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Innovation • Teamwork • Commitment • Professionalism



Forte and Tabalada would like to thank ACEC/L and the judges for honoring our dedicated staff with the Grand Conceptor Award for Surveying and Mapping Technology used on the Sunshine Bridge Repair. We were honored to be a part of the project and to have worked with such an amazing group of professionals assembled by LA DOTD. It's every engineering firm's dream to be recognized for **INNOVATION, TEAMWORK, COMMITMENT, AND PROFESSIONALISM.**

A NIGHT TO REMEMBER



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In October 2019, T2 Utility Engineers became the new company name for Cardno's Utility Engineering & Surveying group - continuing decades of industry leadership and expertise.



GRAND AWARD WINNERS



Category: Building/Technology Systems
Firm: T. Baker Smith, LLC
Owner: N. Lafourche Levee District
Project: Pump Station Monitoring System



To properly manage the Levee District's pump station infrastructure to avoid over-pumping forced drainage areas, the Levee District saw the need for a monitoring system that would make available critical data necessary to manage the District properly. T. Baker Smith worked with the Levee District to design, build, and install a modernized pump station infrastructure including a physical self-contained, self-powered, weatherproof, and internet-connected monitoring system. A unique combination of technology was used to build the physical station, as well as the supporting cloud infrastructure, providing a user-friendly way of accessing critical data. The combination and implementation of this new pump station monitoring technology provides multiple benefits including minimizing land subsidence and reducing levee maintenance.



Category: Structural Systems
Firm: TRC Companies
Owner: La. Department of Transportation and Development
Project: I-49 North, Segment K



Foundational to DOTD's vision for this project was the development of final plans for the first segmental bridge design in Louisiana encompassing three ramp structures supporting traffic to and from I-49 and I-220. A second alternate was added to incorporate trapezoidal steel box girder construction. To deliver on the use of innovative segmental concrete design, the TRC team assessed the state-of-practice for precast segmental bridge construction, consulted with the ASBI and PTI, and subsequently developed a base set of special provisions that are now available to be applied to all future segmental designs in Louisiana.



Category: Surveying and Mapping Technology

Firm: Forte and Tablada, Inc.

Owner: La. Department of Transportation and Development

Project: Sunshine Bridge Emergency Repair



On October 12, 2018, the Sunshine Bridge’s lowest horizontal chord and the lower lateral braces were severely damaged by a crane mounted on a barge tow closing a major corridor for commerce. DOTD quickly engaged Forte & Tablada to assess the damage so this critical bridge could be repaired. Due to the immense size of the bridge, performing basic measurements with traditional techniques proved to be incredibly difficult and required the use of sophisticated surveying instruments. Forte and Tablada developed several custom applications utilizing laser scanning and custom devices such as the “Ram” – a device used to cantilever/extend a laser scanner beyond the bridge fascia. Numerous innovations spawned from the work which led to non-traditional uses of laser scanning including structural monitoring of large bridge trusses and near real time reporting of laser scan data.



Category: Water Resources

Firm: GeoEngineers, Inc. and Coastal Engineering Consultants, Inc.

Owner: Louisiana Coastal Restoration and Protection Authority

Project: Caillou Lake Headlands Restoration



This ambitious project involved a complex interplay of coastal, geotechnical and habitat-design elements. To date, Whiskey Island is the largest volumetric restoration project ever completed in Louisiana, placing approximately 10.1 million cubic yards of dredged sand across the island—enough to fill the New Orleans Super Dome twice. Coastal Engineering Consultants and GeoEngineers worked diligently with CPRA and local stakeholders to create sustainable restoration solutions. The team’s innovative work in the design and construction phases ultimately helped restore an island that was on the verge of succumbing to the Gulf into a fortified barrier island with over 600 acres of new beach, dune and marsh habitats delivering hope for the future of coastal Louisiana.

GRAND AWARD WINNERS

Category: Transportation

Firm: C.H. Fenstermaker and Associates, LLC

Owner: La. Department of Transportation and Development

Project: U.S. 90/I-49 South Interchange



This Design Build project is part of an initiative of LA DOTD to convert existing U.S. Highway 90 into the future Interstate 49 South corridor. The La DOTD challenged the engineers to maintain over 30,000 vehicles per day with no lane closures and limited existing rights of way in which to construct the project. Along with the complex arrangement of multiple roadway mainlines, entry and exit ramps, and frontage roads, the project required a creative design process that included MSE walls as well as a grade separate overpass structure. Fenstermaker overcame the project's many challenges by creating a unique sequencing of construction efforts, a unique structural design of the bridge structures, and developed a detail bridge girder erection scheme.

Category: Special Projects

Firm: Digital Engineering & Imaging, Inc.

Owner: City of Covington

Project: Bogue Falaya Shoreline Protection and Paddlers Launch



Located along the Bogue Falaya River, the northeastern shoreline of Bogue Falaya Park was experiencing continuous land loss and a shoreline that kept the public from safely accessing the water's edge. Digital Engineering developed a Master Plan with the City of Covington to serve as a framework for overall park improvements using its interdisciplinary staff of coastal and water resource professionals, transportation engineers, and urban planner to design a bulkhead that could withstand a wide range of scour and inundation scenarios which was integrated with the ADA accessible kayak launch and waterfront walkway that met the universal design requirements for water point of entry.

GRAND AWARD WINNERS

Category: Small Projects

Firm: Meyer Engineers, Ltd.

Owner: La. Facility Planning & Control

Project: Northeast Louisiana Veterans Cemetery



The Northeast Louisiana Veterans Cemetery was constructed to offer a variety of burial options for our United States Military Veterans. Site development included grading, drainage, a detention pond, burial sites, road, parking lots, decorative metal fence, entrance gates with gate operators for security measures, landscaping and an irrigation system. The project team provided site analysis, conceptual alternatives, architectural floor space and building code analysis. The Master Plan developed has provided capacity to serve the Veteran population for approximately 250 years. The design and master plan had to be completed in an extremely tight schedule of only 5 months.

Category: Industrial & Manufacturing Processes and Facilities

Firm: C.H. Fenstermaker & Associates, LLC

Owner: SASOL USA

Project: SASOL USA Mega Project



In 2012, SASOL made the largest single manufacturing investment in Louisiana's history at their Lake Charles/Westlake Facility. In order to optimize the construction schedule and increase the feasibility of the project, various components were fabricated around the world and shipped to the site for erection and commissioning. SASOL selected Fenstermaker as the lead engineering firm to complete the construction of the Heavy Haul Road needed to accommodate delivery of these oversized/overweight permit loads. This included improvement of LA 379, installation of nearly 3 miles of subsurface drainage, relocation of numerous public and private utilities, an upgrade to several intersections which involved geometric changes, rotating mast arm signal poles as well as the implementation of an adaptive traffic management system.



Firm: H. Davis Cole & Associates

Owner: Town of St. Joseph

Project: St. Joseph New Water Treatment Plant & Distribution System



After declaration of a public health emergency, the town of St. Joseph selected H. Davis Cole and Associates to completely replace the water treatment and distribution system that dated to the 1920's, the most recent improvements undertaken in the late 1960's and early 1970's. The project required 13 miles of new pipeline, 600 new meters, new fire hydrants, isolation valves, as well as construction of an innovative Activated Iron Solids pre-treatment system. With successful completion of this extensive project the Public Health Emergency was lifted in March of 2018.



Firm: T. Baker Smith, LLC

Owner: Terrebonne Parish Consolidated Government

Project: Bayou Gardens Boulevard Extension



The Bayou Gardens Extension project is a continuation of two previous state DOT projects which initially developed Bayou Gardens Blvd. in Houma, Louisiana as an east/west route that interconnected existing north/south routes in the state network. The project's location traversed two major underground pipeline corridors, requiring extensive coordination for the protection and/or relocation of these facilities and required unique engineering and construction techniques to ensure not only constructability, but long-term sustainability of the roadway due to extreme amounts of predicted long-term settlement.



Firm: Stanley Consultants

Owner: Sewerage and Water Board of New Orleans

Project: Water Hammer Hazard Mitigation-Elevated Storage Tanks



Despite extensive repairs made following Hurricane Katrina, New Orleans' water distribution system remained vulnerable to power outages that cause the water distribution delivery pumps to shut down. The resulting drop in water pressure can cause a "water hammer" inside the large pipes, causing widespread damage. Based on surge analysis, Stanley proposed to the City installing two 2-million-gallon elevated storage tanks to keep the system pressurized. When power is interrupted, the elevated tanks automatically push water into the system to maintain pressure, allowing time to kick start the backup pumps. The towers have functioned as designed and no water hammer events have occurred since they became operational.



Firm: Modjeski & Masters

Owner: Louisiana Department of Transportation and Development

Project: Sunshine Bridge Repairs



On October 12, 2018, with insufficient clearance, a barge mounted crane damaged the downstream bottom chord of the bridge's truss causing significant damage and inducing several out of plane distortion. DOTD quickly engaged Modjeski & Masters to utilize an innovative jacking and load bypass system to replace the damaged member. Once the damaged member was severed and removed, the jacks were reengaged to restore the truss to its original geometry for the replacement chord member. Through close team collaboration, the repairs were completed and the bridge reopened a mere 50 days after the incident.

HONOR AWARD WINNERS

Firm: T. Baker Smith, LLC

Owner: Terrebonne Parish Consolidated Government

Project: Falgout Freshwater Enhancement



The Falgout Canal Freshwater Enhancement project area consists of approximately 7,400 acres of swamp; fresh, intermediate, and brackish marsh and open water. Since the construction of Falgout Canal Road approximately 60 years ago, the southern marshes and estuary have been deprived of the benefits of positive freshwater flow. Using collected data, T. Baker Smith and FTN Associates developed a 2D, finite element, hydrodynamic model to simulate water and salinity transport in the Falgout Canal estuary and designed a dredging project that allowed freshwater to flow through a water control structure.

A night to remember...



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9643 Brookline Avenue, Suite 112

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panel of judges!*

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EEA SAVE THE DATES!

Call for 2020 Entries: May 15, 2020

EEA Awards Gala: November 5, 2020



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