# ANNUAL REVIEW



## **OUR COMMITMENT**

With the fourth edition of the Land Development Handbook now available, Sidney O. Dewberry, editor-in-chief, discusses how this latest edition contributes to the engineering and surveying profession and future generations working in the field.

#### What contribution do you feel the handbook has made to the industry?

When we started our business in 1956, most land development was done by a surveyor. A developer would buy a piece of land, and he'd hire a surveyor to lay out the streets and the lots. The builder would go in and clear where the street's going to go, do a little grading; and he might put a small pipe at a stream crossing. That profession at that time was sort of looked down upon by the consultants who were doing the "real" engineering work. It was almost a sub-species of engineering. I thought, "I'm going to change this. I'm going to do what I can to get professional land development to be looked upon as a real discipline." That was one of the reasons that drove me to write the first edition.

At the time when I was writing that first outline, there were a lot of small textbooks around that covered one aspect — but nothing comprehensive. The first edition was needed.

5.2 Durberry

I recently heard someone say we're returning to the idea of the master builder: someone who looks at the total picture, including not only the planning, design, and construction, but also the maintenance and care; the lifetime use of that property until the very end, when it's maybe remodeled or demolished, and the land is turned over to some other use. A well-educated engineer has to understand the whole process, including marketing, sales, and financing, which often involves the public depending on whether it's a public or private project.

Now with the contribution of the fourth edition, I think the process of converting land from one use to another is an identifiable discipline of civil engineering practiced by all engineering consultants.

#### How do you see the handbook contributing to the success of future generations working in this field?

#### What are you most proud of?

First off, I'm most proud of getting the thing finished. Pulling together the volumes; collaborating with our well-regarded, exceptional authors; dealing with zillions of details; I'm looking forward to being able to relax.

The second thing is the volume we've written on construction. When I was in college, I had absolutely no courses on construction. I didn't know a CAT-8 from a front-end loader. This volume goes deeply into construction techniques and construction processes, which the student and other professionals in our industry now will be able to reference.

Finally, I believe the first volume we've written on the built environment should be a mustread for engineers and those in the land development business, as it lays out the total obstacles a developer faces from beginning to end. This knowledge will help the engineer better serve his or her client.

SIDNEY O. DEWBERRY

Chairman Emeritus and Founder

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#### 2018 In Review: Notable Projects

Take a look at project highlights across the country from 2018

#### 2018 Recognition for our Communities and Projects

# SUPPORTING COMMUNITIES, CLIENTS, AND EACH OTHER

Five of Dewberry's offices lay in the wake of Hurricane Michael's category 5 devastation. Here's a look at their resilience, comradery, and commitment to supporting each other.

In early October of 2018, Hurricane Michael swept through the Florida Panhandle, devastating thousands of square miles with its 160 mile per hour wind speeds and 14-foot storm surge. Five of Dewberry's offices lay in the storm's path, including Port St. Joe, Blountstown, Panama City, Bonifay, and Tallahassee. With nearly 80 employees across these locations, the firm is thankful that all survived the storm, although many experienced severe damage to their personal property, and some offices saw major damage. As employees banded together

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to support one another both personally and professionally, they experienced great comradery.

After spending some time in the Panhandle with employees who experienced the trauma and damage first-hand, Chief Operating Officer Dan Pleasant, PE, reflects that, "Many of our staff worked tirelessly, sometimes 20 hours a day, to support their clients and each other, whether that be by providing shelter for extended family and Dewberry staff, or helping a local utility company get back up and running." Vice President and Business Unit Manager for our North Florida and Panhandle offices Cliff Wilson, PE, says, "Our team is unlike any other. Some of our employees lost everything, yet they were welcomed in by other staff who supported them and their families through one of the most tragic experiences. Many of our team members across Dewberry's offices nationwide donated money, vacation days, and gifts to support those affected by the storm."

THE WAY OUR EMPLOYEES SACRIFICED THEIR OWN TIME AND RESOURCES TO HELP THEIR CO-WORKERS AND COMMUNITIES IS A TESTAMENT TO NOT ONLY THEIR WORK, BUT TO EACH OTHER.

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Members of Dewberry's Panama City, Santa Rosa Beach, Blountstown, Port St. Joe, and Tallahassee offices banded together to support one another in the wake of Hurricane Michael.



## **CORRIDOR IMPROVEMENTS ALONG I-64**

Improving one of central Virginia's most heavily used highways, while maintaining safety and traffic flow, and recognizing environmental considerations

By the time the Commonwealth Transportation Board (CTB) had adopted a six-year improvement plan in 2014, traffic in Newport News, Virginia, had intensified and extensive delays were routine on the four-lane portion of I-64, especially during the summer vacation months. The first section of planned improvements—known as Segment I—was completed in December 2017. With two main goals of easing congestion and improving safety, the \$144-million project widened I-64 from four to six lanes. This expansion began a half mile east of Route 238 (Yorktown Road) and continued to one and a half miles west of Route 143 (Jefferson Avenue), a length of approximately five miles.

### A DESIGN-BUILD PARTNERSHIP SUITED FOR THE JOB

To meet the complex and aggressive schedule for the improvements, Dewberry teamed with long-time partner Shirley Contracting Company, LLC to form the Shirley-Dewberry design-build team. In addition to widening the roadway, full-width shoulders were added in the median, existing concrete pavement joints were repaired and all concrete pavement was overlaid with asphalt, tree clearing was completed within the Fort Eustis Boulevard Interchange to improve sight-lines and safety, and ramp auxiliary lanes at the

[THE SHIRLEY-DEWBERRY TEAM] WAS ABLE TO SAFELY AND EFFICIENTLY INCREASE THE INTERSTATE CAPACITY IN A VERY CONGESTED 5.6-MILE STRETCH THAT HANDLES APPROXIMATELY 100,000 VEHICLES PER DAY.

JANET HEDRICK, PE, VDOT

Fort Eustis Boulevard Interchange were lengthened. The existing parallel bridges over Lee Hall Reservoir and Fort Eustis Boulevard were widened to accommodate the six-lane roadway section and full shoulders. Based on the conditions of the I-64 bridges over CSX Railroad and Industrial Park Drive, the Shirley-Dewberry team demolished and replaced the existing bridges.

"The I-64 corridor was not adequately meeting the needs of travelers in its existing condition," said Dewberry Vice President and Project Manager Steve Kuntz, PE, DBIA. "By widening the roadways, adding expanded shoulders, and improving and



The completed roadway provides three lanes in each direction with full-width shoulders and improved median grading to enhance the safety of the corridor.

replacing bridges, we were able to provide critical improvements that have eased congestion and improved commuter safety. Additionally, these improvements accommodate future expansions to the highway."

Additional project elements included shoulder strengthening to accommodate future additional lanes, approximately 12,500

linear feet of noise barriers, stormwater management facilities, drainage improvements, landscaping, geotechnical ground improvements for soft and unsuitable soils, concrete pavement patching and repair, and asphalt pavement overlay.



The team designed bridges and roadway approach grades over Industrial Park Drive and CSX Railroad that addressed soil settlement challenges, ultimately providing two new, two-span bridges in lieu of widening and repairing the existing three-span bridges Virginia Department of Transportation (VDOT) Project Manager Janet Hedrick, PE, said the

Shirley-Dewberry team "was able to safely and efficiently increase the interstate capacity in a very congested 5.6-mile stretch that handles approximately 100,000 vehicles per day. This team was innovative, cooperative and provided high quality workmanship, and I was grateful to have been a part of the effort."

# BUILDING FOR A RESILIENT FUTURE: CLIMATE CHANGE GUIDELINES

As cities around the world seek to become better prepared for the impacts of climate change, including potential disasters resulting from extreme weather, New York City is leading the way in facilitating increased resilience in architectural and engineering designs. The city's Climate Resiliency Design Guidelines, for which Version 3.0 has recently been released, provide regional, forward-looking climate change data to supplement historic climate data in the planning and design of new capital projects and major improvements, including buildings, infrastructure, and landscapes.

## BRIDGING THE GAP BETWEEN CLIMATE SCIENCE AND A/E DESIGN

The guidelines were first released in April 2017 by the New York City Mayor's Office of Recovery and Resiliency. With a mission to help protect New York City's vast physical, economic, and social resources, including more than 520 miles of coastline, the office began to address design standards in accordance with scientific data and the transformative effects of climate change. SINCE SUPERSTORM SANDY STRUCK THE TRISTATE AREA IN 2012, DEWBERRY HAS COMPLETED MORE THAN 450 RESILIENCE PROJECTS IN NEW YORK, NEW JERSEY, AND CONNECTICUT.

After the initial guidelines were released, the New York City Department of Design and Construction and the Mayor's Office of Recovery and Resiliency engaged Dewberry to test the effectiveness of the guidelines, assessing climate datasets used by the architectural and engineering community and developing the applicability of appropriate future climate data that should be used for planning and design. Climate stressors include heat, precipitation, and sea level rise/ coastal storm surge. Dewberry also developed a benefit-cost analysis methodology to assist the design community in decision-making, and tested the guidelines on a variety of project sites. Climate **Resiliency Design Guidelines** Version 2.0 was released in 2018.

## RESILIENT DESIGN: AN INTEGRAL PART OF PROJECT PLANNING

Over the past year, Dewberry has continued to develop a citywide climate risk assessment framework that can be adapted in the city's capital project development process. The team also reviewed global strategies to incorporate climate loads in the risk assessment framework. Following the completion of this effort, the Mayor's Office of Recovery and Resiliency has released Version 3.0 of the guidelines. This latest version, available online, includes an Exposure Screening Tool and a Risk Assessment Methodology The guidelines are intended to be used throughout the design process, and become an integral part of the city's overall planning efforts.

Recognizing that historic climate data does not address the projected frequency and severity of future storms, sea level rise, heat, and precipitation, New York City has released Climate Resiliency Design Guidelines to assist in planning capital projects.



# **RONALD MCDONALD HOUSE** HOUSTON EXPANDS

Facility Provides "Home Away from Home" for Families





Dewberry's architectural and interior design expansion and renovation enables the Ronald McDonald House Houston to serve 40 percent more families annually.

#### The Ronald McDonald House Houston, which serves families with patients receiving care in Texas Medical Center hospitals, recently completed a 16,000-square-foot expansion and 50,000-square-foot renovation project that increases capacity and improves facilities for resident families. The three-phase, \$24.5-million modernization was designed by Dewberry. The firm also designed the original threestory building, known as Holcombe House, which opened in 1997.

## A COMMUNITY-FRIENDLY ENVIRONMENT

The two-story addition provides 20 new bedrooms, enabling the Ronald McDonald House Houston to serve 40 percent more families annually. Connected to the existing facility via a new skybridge,

Family-friendly spaces at the modernized facility include playrooms and a dedicated classroom.

the addition includes a media room on each floor, wheelchairaccessible bathrooms, and a parking garage.

Upgrades to the original building focused on creating a more open, community-friendly environment for guests, with an updated lobby and family intake area, entertainment and respite areas, playrooms, a classroom, and a business center. Improvements were made throughout the kitchen, dining, and living areas of the facility and existing bedrooms and bathrooms were renovated. The HVAC systems were also modernized for increased energy efficiency and comfort, and new generators added for back-up power. While the open floor plan now fosters more interaction and gatherings among resident families, the design also created additional private areas for quiet gatherings and meetings with staff members.

## AN ATMOSPHERE OF CARING AND COMFORT

Set on 2.5 acres in the Texas Medical Center, the complex also includes outdoor areas, a dedication wall, walking paths, a playground, and a meditation seating area. The existing building remained open throughout construction of the addition. The Ronald McDonald House Houston serves families from around the world and is open every day of the year.

"This expansion has enabled us to create an atmosphere of caring and comfort for families of sick children," says Major Rick Noriega, chief executive officer of the Ronald McDonald House Houston. "We wanted to provide spaces in which families could congregate and support each other through sharing their experiences."

Dewberry has provided volunteer efforts and professional services to the Ronald McDonald House Houston since 1995. 🧶

## 2018 IN REVIEW NOTABLE PROJECTS



#### CITY OF EVANS, COLORADO, CONSOLIDATED WASTEWATER TREATMENT PLANT Evans, CO

We performed planning, design, and construction phase services for the city's new wastewater treatment plant that treats combined flows from two separate collection basins. It's a custom-designed enhanced biological nutrient treatment plant with a capacity of three million gallons per day that improves water quality for downstream users.

#### BERKELEY WATER SYSTEM UPGRADES

Berkeley County, WV

When consumer goods giant P&G came to Berkeley with huge water requirements, the district needed major water system improvements quickly. Having worked with Berkeley County for more than 40 years, we designed an elevated water tank, three booster pump stations, upgrades to another station, and two flow-control valve vaults to meet growth demands. To fund the improvements, we developed capacity improvement fees.







A flood mitigation plan for this commercial campus will reduce the risk of flooding and increase resilience for thousands of employees and more than 500 businesses. We helped prepare the application for a \$1.5-million grant from FEMA's Hazard Mitigation Grant program. We're currently performing the permitting and design for the project.



### CURRITUCK COUNTY COASTAL RESILIENCE RAINFALL FLOOD STUDY Currituck County, NC

We performed a logistic regression-based statis within FEMA's established flood zones. The outc vulnerable to flooding. Results of our study will h planning purposes.



cal analysis to identify rainfall-based flood susceptibility of areas not me included identification of critical infrastructure located in areas lp identify priority locations for flood mitigation and adaptation

### "TRENTON MAKES...THE WORLD TAKES" LED SIGN UPGRADE

Trenton, NJ

We conducted an assessment of the as-built drawings and field review of the sign letters, and designed concepts to upgrade the lighting elements, and replacement power supply and lighting components. The LED sign won the Best Electrical Construction Project of the Year award from the General Building Contractors Association.

Photo courtesy of Delaware River Joint Toll Bridge Commissio

**RENTON** MAK

# MAJOR GENERAL EMMETT

To address existing site drainage issues and deteriorating parking lots, we provided engineering services to design for replacement of the deteriorating parking lot pavements, pedestrian sidewalks, storm drainage and management systems, LED parking lot and pedestrian lighting, and landscape improvements for approximately 40 acres of the 73-acre site. These upgrades were the final phase of architectural and engineering energy improvements that included a 2.012 megawatt rooftop PV array.



### MAJOR GENERAL EMMETT J. BEAN FEDERAL CENTER SITE UPGRADES

### BUCKLEY AIR FORCE BASE EAST TOLL GATE CREEK STREAM DESIGN Aurora, CO

An intergovernmental agreement between the City of Aurora and Buckley Airforce Base initiated requirements for us to perform hydraulic modeling, no-rise analysis, environmental clearances, unexploded ordnance clearances, Bird Air Strike Hazard (BASH) avoidance, and stream reclamation and bank stabilization for the alignment of East Toll Gate Creek through Buckley Air Force Base.



#### GLOBAL TRANSPARK STRATEGIC PLAN Kinston, NC

The Global TransPark, a 2,500-acre, state-owned industrial park, will provide increased economic opportunity for eastern North Carolina. We conducted market analysis and strategic repositioning, assessed infrastructure needs for improved viability, and developed a marketdriven action plan to guide future growth and job-creation opportunities for the industrial park and surrounding area.



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#### PUERTO RICO TOPOBATHY LIDAR AND SHORELINE MAPPING Puerto Rico

We acquired and processed over 1,400 square miles of topobathy lidar and high-resolution aerial imagery for Puerto Rico and the U.S. Virgin Islands to produce a digital elevation model of the coastline. We'll also map navigational features and coastal hazards in order to update NOAA's nautical charts and digital navigation data following Hurricanes Irma and Maria.



### JERSEY SHORE UNIVERSITY MEDICAL CENTER HOPE TOWER Neptune, NJ

The HOPE Tower project adds 300,000 square feet of medical and research space and a nine-story parking garage to the Jersey Shore University Medical Center. We provided surveying; site/civil, geotechnical, and traffic engineering; landscape architecture; and environmental services for these improvements and off-site highway and sewer connections to existing infrastructure.

#### SANCTUARY AT WESTPORT Port Orange, Volusia County, FL

The apartment complex consists of 10 apartment buildings, an 8,800-square-foot clubhouse, gym, pool, dog park, and additional community facilities. The design included a detention pond used for backup irrigation and a wetland rehydration swale. Our services included surveying, planning, environmental, final engineering, permitting, construction administration, and platting.









# PHILZ COFFEE BUILDING RENOVATION



#### LONG ISLAND RAIL ROAD SECOND TRACK STATION DESIGN-BUILD WYANDANCH AND PINELAWN STATIONS Suffolk County, NY

Completed in just 18 months, this design-build project improves service and reliability for the Long Island Rail Road. We designed two, 1,020-foot-long platforms, a new pedestrian bridge with ADA-compliant elevators, and an innovative snow melting system at Wyandanch Station, and two 192-foot platforms, passenger shelters, and parking and site improvements at Pinelawn station.





## WEKIVA PARKWAY

Orange County, FL

We designed a 2.3-mile section of Wekiva Parkway (State Road 429), including three overpasses, a partial cloverleaf interchange at Kelly Park Road, and modifications to several local arterials. Major components of the design included enhanced aesthetics and environmental protection. The new high-speed, limited access parkway will complete the beltway around Orlando.

2018

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We worked with the UVA Foundation to identify potential layouts and users, and catalogue existing infrastructure on the 253-acre UVA Research Park site. Ultimately, we obtained certification for this land as an 'infrastructure ready' Tier 4 site with the Virginia Economic Development Partnership, making it the first 'ready site' in the region.

#### INDIAN RIVER LAGOON SEAGRASS MAPPING

St. Johns County, FL

We collected aerial photography in 2017, performed fieldwork aimed at documenting seagrass habitats, completed timeseries change analysis and photo interpretation, and created an ArcGIS seagrass map. About every two years new mapping is completed to assess changes in seagrass coverage over time within the study area.



#### PUERTO RICO DISASTER HOUSING RECOVERY PLAN Puerto Rico

Working for The RAND Corporation, we performed detailed data analytics, geospatial analysis, and cost estimation following Hurricane Maria in Puerto Rico to inform rebuilding decisions and help improve resilience to future natural disasters. We developed island-wide estimates of building types, damages, and replacement costs of residential buildings and retrofit and reconstruction options.



# INOVA SCHAR CANCER INSTITUTE

# WAKEMED CARY MEP EXPANSION





# **2018 RECOGNITION FOR OUR COMMUNITIES AND PROJECTS**

COMMUNITY FACILITIES	<b>Glen Ellyn Police Headquarters</b> Glen Ellyn, Illinois	★ Excellence in Masonry Best of Government Architectural Award, Masonry Advisory Council	
	<b>Stanislaus County Public Safety Center Expansion Projects</b> Modesto, California	★ Citation Award 2018, American Institute of Architects (AIA) Academy of Architecture for Justice	
	<b>"Trenton Makes The World Takes" LED Sign Upgrade</b> Trenton, New Jersey	<ul> <li>Best Electrical Construction Project of the Year Award, General Building Contractors Association</li> </ul>	
EDUCATION	Coe College Athletics and Recreation Complex	★ Architectural Portfolio, American School & University	
	Cedar Rapids, Iowa	★ Architectural Showcase, Athletic Business	
		★ Facility Focus Project, College Planning & Management	
	Hunter College Energy Performance Upgrades New York, New York	<ul> <li>Silver Award, American Council of Engineering Companies (ACEC) New York</li> </ul>	
	Oklahoma State University Tandy Medical Academic Building Tulsa, Oklahoma	★ Best Interior Design, Route 66 Main Street Organization	

**Student Union Building** Springfield, Illinois

Austin, Texas



## HEALTH & WELLNESS

PICTURED ABOVE Mayo Clinic Dan Abraham

Healthy Living Center Phase 2

Hackensack | **HOPE** Tower

Mayo Clinic D Healthy Livin Rochester, Mi

Texas Childre MIBG Therap

# University of Illinois Springfield

★ Excellence in Design Award, AIA Prairie Illinois Chapter

University of Texas Austin Berry M. Whitaker Sports Complex Renovation and Addition

- ★ Outstanding Historically Underutilized Business (HUB) Participation Award, University of Texas
- ★ Architectural Showcase, Athletic Business

Meridian Health • Neptune, New Jersey	*	<b>2018 Distinguished Engineering</b> <b>Award,</b> New Jersey Alliance for Action's Board of Directors
<b>Dan Abraham ng Center Phase 2</b> innesota	*	<b>Excellence in Design Award,</b> AIA Prairie Illinois Chapter
r <b>en's Hospital</b> <b>py</b> Houston, Texas	*	<b>Facility Focus Project,</b> <i>Medical Construction and Design</i>

JUSTICE	David L. Moss Criminal Justice		
0001102	Center Expansion Tulsa, Oklahoma		

REAL ESTATE &

COMMERCIAL

DEVELOPMENT

San Diego County Central Courthouse Detention/Holding San Diego, California

Stanislaus County Public Safety **Facilities Expansion** Stanislaus County, California

Academy of Architecture for Justice

★ **Citation**, Justice Facilities Review, AIA

★ Facility of the Month: Advancing

the Mental Health Discussion,

Correctional News

★ **Citation**, Justice Facilities Review, AIA Academy of Architecture for Justice

Pekin Insurance Office Renovation **★** Certificate of Merit, AIA Prairie Pekin, Illinois



## RISK, RESPONSE, AND RECOVERY

PICTURED ABOVE Rebuild by Design Hudson River Feasibility Study and EIS

Governor's Office of Storm Recovery Program: Amsterdam Standby Generators Amsterdam County, New York

★ Silver Award, ACEC New York

Rebuild by De Feasibility St Hoboken, Nev

TRANSPORTATION

<b>Rebuild by Design Hudson River Feasibility Study and EIS</b> Hoboken, New Jersey	*	Gold Award, ACEC New York Gold Honor Award, ACEC New Jersey
<b>Red Hook Integrated Flood</b> <b>Protection System</b> New York, New York	*	Platinum Award, ACEC New York
<b>Cozy Lake Road Bridge</b> Morris County, New Jersey	*	<b>New Jersey Concrete Award,</b> New Jersey Concrete and Aggregate Association and the New Jersey Chapter of the American Concrete Institute
<b>Hunter Station Bridge</b> Tionesta Township, Pennsylvania	*	<b>Best Use of Technology and</b> <b>Innovation — Medium Category,</b> America's Transportation Awards Competition — NE Region
I-64 Capacity Improvements — Segment 1 Newport News, Virginia	*	of Merit, Design-Build Institute of America (DBIA)
	*	DBIA Mid-Atlantic Merit Award, ACEC Virginia
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# FOURTH EDITION OF THE LAND DEVELOPMENT HANDBOOK RELEASED

The fourth edition of the Land Development Handbook, a widely used reference for design professionals, students, and real estate industry practitioners, is now available from publisher McGraw-Hill. It was originally published in 1995 by Sidney O. Dewberry, PE, LS. The new edition and accompanying books, for which Mr. Dewberry served as the editor-in-chief, are available through McGraw-Hill, Amazon, and other retailers.

The new edition expands the resource from one book to three, focusing on design, business, and construction.

#### The series includes:

- Land Development Handbook
   4th Edition
- Development of the Built Environment
- Construction Practices
   for Land Development

Each text focuses on a different perspective of the land development process and includes new case studies for both public and private project types. The books were influenced by experts across the country and include contributions by faculty of real estate and civil engineering programs. The editors and primary contributors of the fourth edition of the *Land Development Handbook* are Cody A. Pennetti, PE, and Christopher J. Guyan. The new *Construction Practices for Land Development* was prepared by Claire M. White, PE, assistant professor of practice at Virginia Tech. Dr. C. Kat Grimsley, director of the MS Real Estate Development program at George Mason University, was the editor and primary contributor of *Development of the Built Environment.* 

LAND DEVELOPMENT HANDBOOK SERIES

A Practical Guide to Planning, Engineering, and Surveying

