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"Transportation Builder" (TB) is the official publication of the American Road & Transportation Builders Association (ARTBA). We bring together all facets of the transportation construction industry to responsibly advocate for infrastructure investment and policy that meet the nation's need for safe and efficient travel. ARTBA also offers value-added programs and services providing its members with a competitive edge. TB is the primary source of business, legislative, regulatory, safety and economic news that matters most to transportation development professionals.

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EDITOR'S NOTE

MARK HOLAN | Editorial Director

'Smart Design & Construction' 2.0



Mark Holan
Editorial Director
mholan@artba.org

Last year, ARTBA Chairman Steve McGough (HCSS) envisioned a special publication to emphasize our industry's use of innovation and technology to maximize public investment in America's transportation network. The result was the inaugural "Smart Design & Construction," a 24-page special insert in the July/August issue of Transportation Builder.

Nearly two dozen transportation design and construction firms or public agencies, representing ARTBA's diverse membership, contributed stories.

McGough noted the content provided "a glimpse of what to expect in the coming years as we build infrastructure more efficiently" and also helped "advance ARTBA's advocacy mission of educating policymakers and the public about the many benefits of transportation investment."

Another issue of "Smart Design & Construction" is in the works for this year's July/August issue.

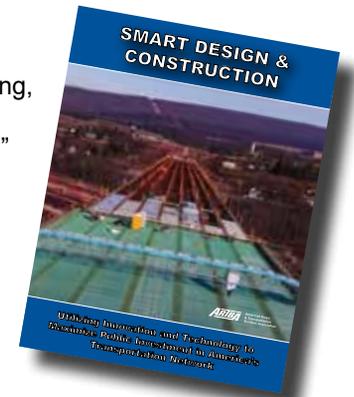
I encourage you to submit story proposals that highlight innovation, technology, and projects being designed and built to further ARTBA's vision of "a dynamic transportation network that enriches American life." Generally, these stories should be 500 to 700 words, and include at least one photo or graphic that help illustrate the content.

If you are interested in advertising, it can be either a traditional display or 300-word "advertorial" content with company logo and key contact information. A digital version of last year's edition can be found under the Special Issues link at transportationbuilder.org.

Editorial content will also be published on ARTBA's Washington Newsline website after the print publication is mailed to ARTBA membership and members of Congress.

- **The deadline for stories and advertising is July 1.**
- For editorial proposals, please contact me at mholan@artba.org.
- For advertising, contact Dave Weidner at 202.683.1026 or adsales@artba.org.

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CHAIRMAN'S CORNER

STEVE MCGOUGH | President & CFO, HCSS

ARTBA Foundation Launches Leadership Impact Awards

“I go to industry meetings and see a lot of gray hair. That’s not altogether bad,” ARTBA Chairman Bill Mulligan joked in the April 1995 issue of Transportation Builder magazine. “But, we need to begin training our future industry leaders and ARTBA leaders *today*. We keep talking about it. We cannot afford to put it off any longer,” he said.

Mulligan, a long-time senior executive with Ingersoll Rand, put those words into action when he established the Young Executive Development Program, known today as the Industry Leader Development Program (ILDP).

The program introduced the industry’s rising stars to the federal legislative and regulatory process, provided a better understanding of how transportation funding works, and empowered them to become grassroots advocates. Put another way, it became the pipeline for the recruitment of future industry and ARTBA leaders.

Fast forward to 2021. More than 750 industry professionals from all eight ARTBA membership divisions have completed the ILDP. Two have been elected chairman, and many more are serving in volunteer leadership roles including on the ARTBA Board. The Industry Leader Development Council (ILDC), the home for ILDP graduates, has a slot on the Executive Committee. Sofia Berger, a senior vice president with WSP USA, is the current ILDC chair.

**Leadership Impact Awards
Nomination Forms:**
artbatdf.org

As part of the ILDP’s 25th anniversary, and at the direction of ARTBA Foundation Chairman Paul Yarossi, we are launching the “Leadership Impact Awards” to recognize the achievements of a select number of ILDP graduates.

Nominations will be evaluated on three key criteria:

- Demonstrated contributions to national (does not need to be limited to ARTBA), international, state, or local transportation design and construction associations or professional societies in at least one of these areas: infrastructure funding or regulatory advocacy, safety, innovation, technology, or communications/marketing.
- Proven track record displaying visionary thinking, driving change, or solving problems that helped improve operational performance or increased growth at a firm/agency.
- Measurable examples serving as a mentor to firm/agency colleagues or industry peers, and/or driving efforts to promote diversity and inclusion.

Winners will be announced this summer and awards presented in September at ARTBA’s National Convention. The recipients will also be profiled in Transportation Builder.

These awards offer a special opportunity to recognize worthy leadership contributions over the past 25 years and to continue the legacy of Bill Mulligan and the ILDP.

UPCOMING **VIRTUAL** EVENTS

**25th Annual Industry Leader
Development Program
May 17-19**

**2021 ARTBA FIP and TCC Fly-In
May 18-20**

**13th Annual Law & Regulatory Conference
June 24**

ARTBA American Road
& Transportation
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Register:
artba.org/events





THE ARENA

DAVE BAUER | President & CEO, ARTBA

Confronting an Evergreen Political Challenge

A massive container ship lodged in the banks of the Suez Canal captured the world's attention for a few days in March. Early estimates suggest the disruption could cost \$6 billion to \$10 billion. Meanwhile, across the United States, congestion, freight bottlenecks and structurally deficient bridges cost the U.S. economy \$179 billion each year, according to the Texas A&M Transportation Institute.

These disruptions have, unfortunately, become normalized, plaguing our supply chains and daily commutes, while the outsized cost goes largely unnoticed or accepted.

Congress has an opportunity to prove the status quo is not inevitable and deliver a transportation bill that can provide the modern transportation network all sides say they want.

President Joe Biden's "American Jobs Plan" is an ambitious proposal that would provide major investments in infrastructure and other areas of need. As much attention as this proposal has received in recent weeks, we are well served to remember the "plan" is largely a set of principles. It will be up to Congress to develop the details. You can be sure the 535 members of the House and Senate will have their own ideas about infrastructure.

The good news is that a long overdue federal infrastructure renewal process is definitely moving forward. ARTBA is seizing on this opportunity to work to ensure any final product contains both much-needed investment increases and a policy structure that delivers for all states. Maintaining a strong federal-state partnership should be at any infrastructure bill's core and will ensure flexibility to prioritize the unique needs of each state and community, along with targeted efforts to generate economic competitiveness.

Over the next several months, the contours of an infrastructure package will be shaped. Here are three key factors that can influence the outcome:

- 1) The need is real. The empirical and economic imperative to renew and revitalize the nation's transportation infrastructure network is without question. The actions expected over the next few months are not only much needed, but also long overdue.
- 2) Bipartisanship takes engagement by both sides. Republicans and Democrats should rightly offer their own ideas and both sides should listen. Different perspectives can achieve progress without one being done at the expense of another.
- 3) Progress must take precedence over politics. The most important thing is not whose plan passes Congress, but that at the end of the process the American people have increased mobility and the competitiveness of the U.S. economy is strengthened.

Apart from policy, a fault line is once again emerging on how to pay for infrastructure legislation. However, the finger-pointing obscures the real issue: no matter which mechanism is used to pay for an infrastructure package, real costs are already borne by all users of our transportation network every day—whether through banged-up wheels in potholes, time wasted in traffic or costly delays in our supply chain. Highlighting this reality would diffuse the knee-jerk reaction to paying for a worthwhile investment.

Now, as both political parties attest to the enormous need to rebuild and modernize our nation's transportation and other infrastructure networks, our challenge is to hold all sides accountable.

The Suez Canal event does not have to become a metaphor for inaction on the nation's infrastructure needs. Instead, it can be a lesson about dislodging the status quo. It's up to Congress to choose to go forward and for us to help them find the way.

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The "Gold Standard": ARTBA Industry Leader Development Program Turns 25

By Mark Holan
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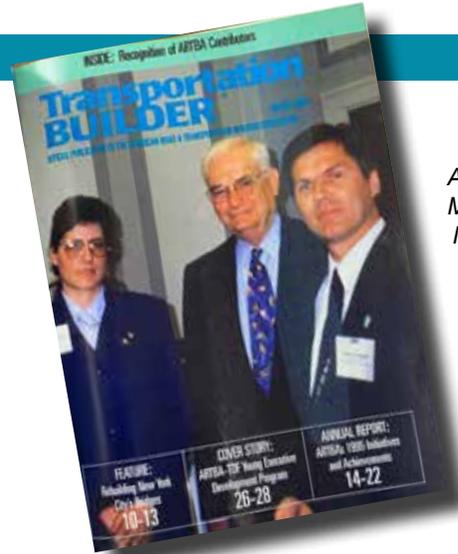
Jennifer Woodard flew from Austin, Texas, to Washington, D.C., in February 1996 to join the ARTBA Foundation's new initiative to educate peer executives about transportation design and construction industry market development, protection, and advocacy.

At the time, as director of environmental and public affairs at Associated General Contractors (AGC) of Texas, Woodard and other competitively selected professionals learned about the federal legislative process, including budgeting. They also were briefed about administrative procedures affecting transportation construction; environmental, health and safety laws; aspects of federal tax and antitrust regulation.

"It provided my first exposure to transportation issues on a nationwide level and solidified my decision to embark on a long-term career in transportation policy," recalls Woodard, now executive vice president of AGC Texas, an ARTBA state chapter. "It was an inspiring, informative, and memorable visit to D.C., led by the accomplished ARTBA staff who introduced me to industry peers, policy experts, congressional leaders, and professional development speakers."

Then known as the Young Executive Development Program (YEDP), it was renamed the Industry Leader Development Program (ILDP) in 2016 to more accurately describe the purpose and goals of the annual immersive educational and advocacy experience in Washington.

Now, after a delay caused by the COVID-19 pandemic, ILDP is celebrating its 25th anniversary May 17-19 in a virtual format. ILDP has a new exclusive sponsor, HNTB, and a new awards program (See Steve McGough's column, page 6) to



ARTBA Chairman Bill Mulligan (center) in the March 1996 issue of *Transportation Builder* magazine, which highlighted the new Young Executive Development Program.

recognize some of the nearly 750 graduates from over 200 industry firms, state contractor chapters, and public agencies that followed Woodard and the inaugural class.

First-of-its-Kind

ARTBA's Foundation established YEDP/ILDP in 1996 as the industry's first-of-its-kind "101 introduction" to federal and state transportation infrastructure advocacy. Today, it provides rising leaders in the transportation development industry with a comprehensive overview of infrastructure funding, legislative, regulatory, economics, and safety policy issues.

ILDP also has aimed to foster grassroots activism among its participants. In the years before COVID, and hopefully again in the future, ILDP fellows have met with their members of Congress while attending ARTBA's Federal Issues Program and Transportation Construction Coalition Fly-In, to discuss pending policy issues.

The program has established an expanding network of professionals with core foundational knowledge and skills about how to influence the impact government has on their businesses. It has paid dividends for ARTBA—including two graduates who became the association's chairman, plus many other former and current volunteer leaders.

What Grads Say

"The explanations on funding streams for infrastructure have been of regular importance in my day-to-day business, especially in understanding the current news

New ILDP Awards Program

Please see ARTBA Chairman Steve McGough's column on page 6 for details about the new ILDP Leadership Impact Awards.



1997 YEDP class at the steps of the Capitol building in Washington, D.C.



2013 YEDP participants met with congressional members to discuss important industry issues.

and how proposed changes in funding would affect future infrastructure projects,” said Sofia M. Berger, senior vice president of U.S. Advisory Services at WSP USA.

Berger had just received a promotion to an earlier position when she attended ILDP in 2017. “If anyone is transiting in their organization and find themselves taking on larger roles, this program will help them get ready for it,” she said.



Sofia Berger

Berger chairs the Industry Leader Development Council (ILDC), where ILDP graduates help shape the program’s future and other ARTBA initiatives including networking events, participation in panel discussions, and regional leadership activities. In the ILDC role, Berger also serves on ARTBA’s Executive Committee.

Ponch Frank, vice president at Ranger Construction, and a 2008 ILDP grad, says the program “ignited in me the desire to influence positive change for our nation’s infrastructure. ILDP continues to be the gold standard for industry professionals looking to advocate for infrastructure.”

Frank also served as ILDC chairman and has remained involved with ARTBA through the Contractors Division and association events.

Shaping Industry Needs

Joe L. Romano IV, director of highway engineering at Pennsylvania-based Larson Design Group, was encouraged to attend the 2015 ILDP after a promotion to project manager.

See *ILDP*, 13

From ‘Young Executives’ to ARTBA Chairmen



Stephen Wright

1998 YEDP graduate, 2012 ARTBA chairman, and 2017 ARTBA Award recipient
President, Wright Brothers Construction Co., Inc.

“It exposed me to how our transportation system was managed and funded at the highest levels. That knowledge has been fundamental in our approach to the industry ever since. Without the fundamental understanding gained from the program, I doubt I would have understood how important it is to invest our time and resources in giving back to the industry that has been such a blessing to our family business.”



Matt Cummings

2004 YEDP graduate and 2017 ARTBA chairman
President & CEO, T.Y. Lin International

“It was a transformative experience for me early in my career. I learned so much about our federal programs and how things really work in D.C. from the veterans at ARTBA. This knowledge has served me well throughout my career and particularly during my time as chairman of our association. It was one of the most valuable training courses I have taken in 30 years.”



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ILDP, from 11

"I expected to get a better understanding of policy for funding and other industry needs," Romano says six years later. "The ILDP program fulfilled those expectations and gave me a greater understanding of what ARTBA does for our industry."

Romano is a member of ARTBA's Planning & Design Division board, where he is joined by Chris Nazar, vice president and senior transportation planner at CDM Smith, another 2015 ILDP graduate.

"The sessions on design-build and P3 have been an asset to my work in the area of risk management," Nazar says. "I recommend the ILDP program for those who want to build industry relationships and better understand the current state of our market and the congressional perspective on our industry."

See *ILDP*, 14



HNTB Now Exclusive Sponsor of ILDP

HNTB Corp. has bolstered its commitment to developing the next generation of industry leaders with an exclusive, five-year sponsorship of the Industry Leader Development Program (ILDP).

ARTBA and the firm are taking the program to the next level with additional speakers and expanded content, and by recruiting and welcoming new participants reflective of today's talented, mission-driven and increasingly diverse transportation construction workforce.

"Driving innovation in our industry requires fresh perspectives. Being intentional about harnessing a diversity of points of view is key to generating new ways of thinking and, ultimately, identify the solutions that our transportation industry and systems need to be successful," said Tom O'Grady, P.E., president of Kansas City, Mo.-based HNTB and an ARTBA vice chair at-large. "The ILDP has been doing this since its inception and we are excited to support the development of future leaders in our industry as we move into the future."

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ILDLP, from 13

Expanding Professional Network

"I recommend people considering the program reach out to one of the ILDC members or ARTBA staff, and ask as many questions as possible," says 2015 graduate Ozzy Bravo, national program manager at Terracon and a former ILDC chairman. "The ILDC is excited to continue helping create quality programs to develop the rising stars of the transportation industry. We want them to go through the program and join our committees."

Romano says that since completing ILDP, "my network associated with ARTBA has grown significantly to the point that I typically talk with a fellow member on a weekly basis regarding project pursuits or challenges associated with our similar management roles."

Nazar at CDM Smith has several colleagues who are ILDP grads.

"The common ground seems to be relationship building, better understanding of the benefits of ARTBA and better understanding of the overall market and industry that we are in," he says.

The last word goes to Woodard, who participated in the first class:

"I would highly encourage anyone looking to begin or continue a career in the transportation industry to participate in the Industry Leader Development Program," she says. "The experience and the knowledge I gained have been extremely beneficial to my career and the continuation of the program is both encouraging and exciting."

Mark Holan is ARTBA's editorial director.



2017 YEDP attendees at the ARTBA headquarters building near Capitol Hill.

ARTBA Foundation Chairman on 'What Right Looks Like'



Paul Yarossi

"Determining what right looks like" is a key tool for being an effective leader, ARTBA Foundation Chairman Paul Yarossi told the 20th annual ILDP in 2015. Each year, a senior industry executive provides career advice to class participants. The HNTB director suggested young leaders determine what right looks by:

- **Being credible.** Keep asking if you are doing things right.
- **Seeking diversity.** Volunteer for roles outside your main skill set. "You have to stand in the shoes of others and touch as many things as your company does."
- **Continue improving.** "Keep up to date. Once you stop learning your career is going to stop."
- **Having confidence.** There's a fine line between confidence and arrogance. "Humble confidence attracts people. Be confident enough to ask questions and get advice."
- **Acting like a leader.** "Be the employee who everyone wants; the supervisor who everyone wants to work for; and the leader who companies can't do without."



The 2011 class took a tour of the Turner-Fairbank Highway Research Center.

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Paul Yarossi
HNTB
New York, N.Y.

CHAIRMAN'S MESSAGE

None of us is likely to ever forget the COVID-19 pandemic of 2020. At the same time, however, we should all strive to remember the lessons of the past year, especially as it relates to managing business operations.

Innovation and agility ruled the day. This is true for transportation design and construction firms, public agencies, and non-profit organizations including the ARTBA Transportation Development Foundation (TDF).

In the middle of a once-in-a-century public health crisis, the TDF and its Board of Trustees demonstrated such agility by continuing to offer value-added programs and services in support of the association's transportation investment advocacy mission. It was an extraordinary environment to implement a multi-disciplinary program of work during the TDF's 35th anniversary. Nevertheless, the Foundation:

- Delivered training in English and Spanish to **2,000 industry professionals** through these courses: silica protection, fall protection, safe backing and spotting, OSHA 10-Hour, Roadway Safety+, and preventing runovers/backovers.
- Provided **\$60,000 in financial aid** to worthy students of highway workers killed or permanently disabled on the job through the Lanford Family Highway Worker Memorial Scholarship program.
- Produced and distributed two educational videos related to **COVID-19**, preventing the spread of infectious diseases, and safely returning to work that were viewed **10,000 times**.
- Conceived of and hosted with industry allies the **first-ever virtual event** aimed at highlighting and reducing the number of construction worker "**struck-by**" incidents for **more than 1,200 construction industry leaders**.
- Surpassed the milestone of more than **500 executives who have earned the Safety Certification for Transportation Project Professionals™** credential.
- Hosted the virtual National Work Zone Safety & Management Conference for **275 industry executives**, agencies officials, and safety professionals.
- Fulfilled **200,000 information** requests through the National Work Zone Safety Information Clearinghouse.
- Earned **two new federal contracts** to develop and provide safety training related to trenches and excavations and complete overhaul of the National Work Zone Safety Information Clearinghouse website.

The Foundation remains well-positioned for the future. On behalf of my partner and Foundation Vice Chair David Zachry, I want to thank ARTBA's membership and our generous donors—highlighted on the opposite page—for their support. You all share in the collective achievements highlighted in this report.

A handwritten signature in black ink that reads "Paul Yarossi". The signature is written in a cursive, flowing style.

FOUNDATION DONORS

Special thanks to the following for their generous 2020 support of ARTBA Transportation Development Foundation programs:

Ajax Paving Industries, Inc.
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APC Educational Trust Fund
The Berger Charitable Foundation, Inc.
Blue River Foundation
Mr. & Mrs. Tony Boals
Mr. Tim Cox, Cox Transportation Safety LLC
The de Moya Group
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Wagman Community Fund of York County
Mr. & Mrs. Rich Wagman
Mr. Steve Wright, Wright Brothers Construction
Mr. & Mrs. Paul Yarossi, HNTB
York County Community Foundation
Mr. David Zachry, Zachry Corporation

THANK YOU

Safety Certification for Transportation Project Professionals™

Launched by industry leaders in late 2016, the Safety Certification for Transportation Project Professionals™ (SCTPP) program's goal is clear:



To significantly boost the hazard awareness and risk management skills of all transportation project professionals who are in positions of influence through day-to-day oversight—from project inception through completion—to cause a decline in safety incidents.

Since its launch, 508 professionals representing 102 companies and agencies in 38 states, have earned the SCTPP credential. The 2020 roster of "safety certified" included:



- **Adam Miller**, construction inspector, SAI Consulting Engineers, Friedens, Pa.
- **Brian Malette**, project manager, Austin Bridge & Road, L.P., Irving, Texas
- **David Lagueux**, HSE manager, Allan Myers, Salisbury, Md.
- **David Nelson**, senior superintendent, Austin Bridge & Road, L.P., Irving, Texas
- **Eric Otero**, construction inspector, TXDOT, San Antonio, Texas
- **Garrison Campfield**, construction inspector, TXDOT, Kerrville, Texas
- **Gregory Olson**, construction inspector, TXDOT, Abilene, Texas
- **Jason Confer**, HSE technician, Allan Myers, Elkton, Md.
- **Jason Philip**, field engineer, SAI Consulting Engineers, Fairhope, Pa.
- **Jonathan Boone**, construction inspector IV, TXDOT, Abilene, Texas
- **Joseph Wallace**, work zone safety specialist, H&B Surveying and Mapping, LLC, Richmond, Va.
- **Jules Zinsmeyer**, transportation specialist, TXDOT, Hondo, Texas
- **Kent Smith**, project manager, Austin Bridge & Road L.P., Irving, Texas
- **Kimber Moore-Cooks**, engineer, Burns & McDonnell, Carrollton, Texas
- **Kyle Mellon**, HSE technician, Allan Myers, Media, Pa.
- **Lafe Sargent**, project manager, Austin Bridge & Road, L.P., Irving, Texas
- **Luis Castillo Jr.**, transportation engineer, TXDOT, Laredo, Texas
- **Lutfi Dema**, director of HSE, Skanska, Orlando, Fla.
- **Mark Burwell**, transportation specialist, TXDOT, Fort Worth, Texas
- **Matthew Dedie**, superintendent, Austin Bridge & Road, L.P., Kemp, Texas
- **Mike Manning**, vice president operations, Austin Bridge & Road, L.P., Irving, Texas
- **Paul Capps**, senior project manager, Superior Construction, Mount Pleasant, S.C.
- **Peter Ross**, engineer, TXDOT, Keene, Texas
- **Randal Cooper**, engineer, TXDOT, Lufkin, Texas
- **Ronnie Pruitt**, construction inspector VI, TXDOT, San Antonio, Texas
- **Roy Lewis**, plant operations manager, Austin Bridge & Road, L.P., Irving, Texas
- **Scott McKinney**, project manager, Bell and Associates Construction, L.P., Brentwood, Tenn.
- **Stanley Hensley**, supervisor, TXDOT, Belton, Texas
- **Taylor Burcham**, safety supervisor, Lynx Contractors, Inc., San Marcos, Texas
- **Bryce Ingram**, field safety manager, Austin Bridge & Road, L.P., Calera, Okla.
- **Carlos Arcila Colorado**, assistant construction manager, TXDOT, New Braunfels, Texas

- **Christopher Niedorf**, maintenance section supervisor, TXDOT, Clifton, Texas
- **Kyle Lacey**, construction inspector IV, TXDOT, Big Spring, Texas
- **Norbert Chavez**, construction inspector, TXDOT, Pleasanton, Texas
- **Timothy Meeks**, maintenance section supervisor, TXDOT, Hillsboro, Texas
- **Adam Gardner**, construction manager, KCI Technologies, Sparks, Md.
- **David Prouty**, safety specialist, Fred Smith Construction, Garner, N.C.
- **Peter Distefano**, project manager, Balfour Beatty Infrastructure, Inc., Wilmington, N.C.
- **Jason Schuster**, project manager, Balfour Beatty Infrastructure, Inc., Wilmington, N.C.
- **Scott Stevens**, safety manager, Maryland Department of Transportation, Frederick, Md.
- **Tommy Bruce**, engineer, TXDOT, Mount Pleasant, Texas
- **Gary Butters**, project manager, Vecellio & Grogan, Inc., Jacksonville, N.C.
- **Glen Wetherington**, safety professional, The Middlesex Corporation, Merritt Island, Fla.
- **Kevin Bennett**, area manager, Vecellio & Grogan, Inc., Winter Garden, Fla.
- **Larry Sharp**, construction inspector, HNTB Corporation, Grand Rapids, Mich.
- **Shawn Tinkey**, field representative, HNTB Corporation, Osseo, Mich.
- **Brian Hall**, professional engineer, HNTB Corporation, Round Rock, Texas
- **John Lawrence**, construction manager, HNTB Corporation, Yukon, Okla.



Certification Commission



The Safety Certification Commission provides leadership, governance and ongoing program oversight. It is co-chaired by:



Ross Myers
Chairman & CEO
Allan Myers



David Walls
President & CEO
Austin Industries

Other commissioners included:

- **Corey Gaye**, corporate safety director, Wagman
- **Victor Mendez**, principal, VM Consulting Group LLC
- **Don Stanfield**, construction industry specialist, Liberty Mutual Insurance
- **Alissa Sternagle**, safety training manager, Lane Construction
- **Bryan Stone**, safety director, Superior Construction Company
- **Jerry Waddell**, vice president of safety, Salem Carriers/Salem Leasing
- **Jerral Wyer**, project director, Còlere

- **Terry Paholek**, senior project engineer, HNTB Corporation, Bryan, Texas
- **Randolph Durland**, transportation technician, Idaho Transportation Department, Coeur d'Alene, Idaho
- **Matthew Williams**, staff civil engineer, Burns & McDonnell, Dallas, Texas
- **Jason Burger**, resident construction manager, Development Facilitators Inc., Glen Burnie, Md.
- **Steven Crawley**, safety supervisor, Lane Construction, Chantilly, Va.

Transportation Construction Safety Center

The jobsite safety of the men and women who build and maintain America's transportation infrastructure—as well as that of those who travel through our work zones—is a top priority for ARTBA's membership. The Transportation Construction Safety Center (artbasafetycenter.org) serves as the consolidated home to a comprehensive array of programs and services that includes:

- Policy development and legislative and regulatory engagement at the federal and state levels;
- Management of the safety certification program;
- Operation of the National Work Zone Safety Information Clearinghouse—the world's largest online repository of information on the topic;
- Development and operation of Online Learning Center offering safety training and Professional Development Hours;
- Development and execution of federally supported training programs and materials targeted to transportation construction workers;
- Leadership in national safety coalitions and organizations; and
- National awards programs to recognize and promote safety excellence.

- **Aaron Fontenot**, field engineer, Barriere Construction Co. LLC, Baton Rouge, La.
- **Michael Easley**, project manager, Barriere Construction Co. LLC, Baton Rouge, La.
- **Anthony Joosten**, project safety manager, Kraemer North America, LLC, Castle Rock, Colo.
- **Clayton Zacha**, area engineer, TXDOT, Waco, Texas
- **Bryan Clelland**, superintendent, Barriere Construction Co. LLC, Baton Rouge, La.
- **Phillip Graham**, director of assurance services, HNTB Corporation, Liberty, Mo.
- **Roy Schofield**, resident manager, HNTB Corporation, Davie, Fla.
- **Michael McCauley**, safety director, Maryland Department of Transportation, Hanover, Md.
- **Catherine Hejl**, civil engineer manager, HNTB Corporation, College Station, Texas
- **John Hurst**, field engineer, Barriere Construction Co. LLC, Metairie, La.
- **Brian Ishee**, superintendent, Barriere Construction Co. LLC, Franklinton, La.
- **Christian Valetton**, project manager, Barriere Construction Co. LLC, Metairie, La.
- **Brandon Kuehl**, assistant civil engineer, Burns & McDonnell, Kansas City, Mo.
- **Dillon Lee**, field engineer, Barriere Construction Co. LLC, Baton Rouge, La.
- **Tyler White**, civil engineer manager, HNTB Corporation, West Allis, Wis.
- **Timothy Jones**, safety manager, Lane Construction, Brandywine, Md.
- **Michael Munsell**, safety specialist, Burns & McDonnell, Kansas City, Mo.
- **Jerrad Heppler**, corporate safety coordinator, Banks Construction Company, North Charleston, S.C.
- **Rashawn Austin**, safety engineer, TAP Electrical Contracting, Montclair, N.J.
- **Andrew Hendrickson**, safety manager, BOH Bros., Gretna, La.
- **Stephen Navarre**, superintendent, Barriere Construction Co. LLC, Belle Chasse, La.

Safety Services

First-Ever Virtual National Stand-Down on Construction Struck-By Incidents

More than 1,200 industry professionals April 20 participated in the first-ever virtual event aimed at highlighting and reducing the number of construction worker “struck-by” incidents, which result in 100 fatalities and 17,000 injuries annually. ARTBA’s SVP of Safety & Education Brad Sant conceived the idea and led the organization of what was officially called the “Virtual National Stand-Down to Prevent Struck-by Incidents in Construction.” It was held in cooperation with the Center for Construction Research and Training (CPWR) and the National Institute for Occupational Safety and Health’s (NIOSH) Construction Sector Council membership.

National Work Zone Safety Information Clearinghouse

The Clearinghouse hosted a Sept. 17 virtual conference for 275 industry officials. The presentations focused on smart technologies that automatically warn drivers about upcoming work zones and traffic queues as well as challenges related to large truck and commercial vehicle crashes.



COVID-19

The Foundation’s safety team produced and widely distributed English and Spanish language instructional videos related to “Infectious Diseases in Work Zones” and “Safely Returning to Work.” They were viewed 10,000 times. The team also offered webinars and created a suite of other materials in English and Spanish and online courses aimed to help companies manage COVID-19 exposures in the workplace and create COVID-19 safety plans, including Toolbox Talks (English and Spanish), templates for companies to create their own “Exposure Prevention, Preparedness, and Response Plans,” and a Respiratory Protections Fact Sheet.

Training

Through our federal contracts, the Foundation provided training to 2,000 industry members, adapting to a virtual environment when the pandemic halted all our in-person courses. Classes included topics of Protecting Workers from Silica Exposure, OSHA-10 for Transportation Construction, Preventing Runovers and Backovers, Roadway Safety+, and Fall Prevention.



.....

National Work Zone Safety Information Clearinghouse 2006-2020: By the Numbers

80,000

Posters and public education materials distributed to promote National Work Zone Awareness Week

2,500

Industry professionals engaged via safety listserv

150

Industry events and conferences to exhibit or distribute educational materials

40

Learning modules, technical guides, technical advice documents, fact sheets, and online safety training videos developed

12

Safety conferences, symposiums, and workshops hosted

.....

ARTBA Foundation Training 2006-2020: By the Numbers

51,000

Industry professional receiving safety training

2,000

Safety training classes held by ARTBA instructors

Lanford Family Highway Worker Memorial Scholarship

Eleven students were named recipients of the “Lanford Family Highway Worker Memorial Scholarship” program. It provides post-high school financial assistance to the children of highway workers killed or disabled on the job.

The 2020-21 class included:

- **Caitlyn Rains**, Arkansas State University (Conway)
- **Carolyn Lillis**, Oregon State University (Corvallis)
- **Stan Jones Jr.**, Clemson University (S.C.)
- **Amy McNeil Graves**, Lamar State College (Port Arthur, Texas)
- **Hadley Voudrie**, University of Alabama (Tuscaloosa)
- **Andrea Pair**, Harding University’s College of Pharmacy (Searcy, Ark.)
- **Faith Shoemaker**, South Dakota State University (Brookings)
- **Willie Blevins**, University of Georgia (Athens)
- **Jenna Jares**, University of Mary Hardin-Baylor (Belton, Texas)
- **Mashawn Blubaugh**, Kent State University (Kent, Ohio)
- **Joann Jones**, Case Western Reserve University (Cleveland, Ohio)

Highway Worker Memorial Scholarship is Changing Lives

“After losing my father at the age of 10, I relied on my teachers and classmates to help me get through the days. I specifically remember how understanding and supportive my teachers were, and that is what has motivated me to become a teacher. Last year, I was a recipient of the ARTBA Highway Worker Memorial scholarship, and my family and I could not have been more thankful. It helped me feel more comfortable financially. Finishing college and becoming a teacher like the ones who have supported me has always been my goal, and this scholarship is helping to make it possible.”



Mashawn Blubaugh
childhood education major,
Kent State University



Dr. J Don Brock TransOvation™ Workshop

Held Nov. 16-17 in conjunction with ARTBA’s Central & Western Regional meeting, the 10th Annual Dr. J Don Brock TransOvation™ Workshop with the discussion focused on envisioning the future of work in a post-pandemic world.

National Awards & Recognition

Hall of Fame

Established in 2010, the Transportation Development Hall of Fame honors “individuals or families from the public and private sectors who have made extraordinary contributions to U.S. transportation development and demonstrated exceptional leadership over their lifetime.”

Transportation Design & Construction Industry Leaders (Individuals or Families):



Peter Kiewit (1900-1979), founder of Omaha, Nebraska-based Peter Kiewit Sons', Inc.



Norm Mineta (1931-), former U.S. Secretary of Department of Transportation



Jim Peterson (1936-), vice president of Wisconsin-based James Peterson Sons, Inc.

Transportation Design & Construction Industry Innovators:

- **The Roebling Family:** John (1806-1869), Washington (1837-1926) and Emily Warren (1843-1903), the family behind the design and construction of New York's Brooklyn Bridge

Women Leaders

The “Women Leaders in Transportation Design & Construction Awards” were announced Oct. 20 in three categories:

Ethel Birchland Lifetime Achievement Award named for ARTBA's executive director from the mid-1920s and given to individuals who have demonstrated outstanding leadership, long-term service in the industry's public or private sectors and dedication to the advancement of innovation and other women leaders:

- **Mary Jane O'Meara**, vice president, HNTB
- **Meg Pirkle**, chief engineer, Georgia Department of Transportation

Glass Hammer Award honoring companies in the transportation construction industry that have innovative programs and activities directed at successfully promoting women leaders within their organization:

- **A. Morton Thomas and Associates, Inc.**

Future Industry Leader Spotlight Awards recognizing students enrolled in undergraduate or graduate studies at a U.S. college or university who have achieved an outstanding academic record and demonstrated extraordinary leadership skills within and outside of the academic environment:

- **Peyton Gibson**, University of Colorado
- **Smita Yamgar**, Columbia University

Contractor Safety

The Contractor Safety Awards, which honor outstanding programs that promote worker safety and health, were announced Oct. 20 during ARTBA's 2020 National Convention.

Winners included:

- Under 500,000 personnel hours (Small):
W.W. Clyde, Orem, Utah
- 500,001 – 1 million (Medium):
Great Lakes Construction Company, Hinckley, Ohio
- Over 1 million personnel hours (Large):
Sterling Construction Company, Inc., The Woodlands, Texas

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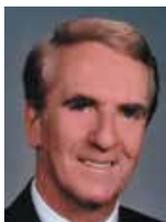
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FOUNDATION STAFF



Matt Jeanneret
Executive Director



Brad Sant
Executive Director
Safety & Education



Melanie Laird
Group Program Specialist
Safety & Education



ABOUT THE FOUNDATION

Established in 1985, the ARTBA Transportation Development Foundation (ARTBA-TDF®) is a 501(c)3 tax-exempt entity designed to support research, education and public awareness. The Foundation supports a variety of initiatives, including educational scholarships, awards programs, professional development courses, safety training, a national exhibition on transportation and a facility dedicated to improving safety in roadway construction zones. Corporate and personal contributions to support the activities of the Foundation may be tax-deductible. The Foundation's Federal Tax Identification Number is 52-6283894.



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Center Helping Boost State Transportation Investment

By Carolyn Kramer
ckramer@artba.org



New Jersey's transportation industry leaders and advocates for years have campaigned to raise awareness and funding to replace and repair roads, bridges, transit, and other aging infrastructure. And for years, ARTBA's Transportation Investment Advocacy Center (ARTBA-TIAC) has been at their side.

The ARTBA-TIAC team produced four widely-distributed reports analyzing how various funding scenarios would impact the Garden State's transportation investment. ARTBA Chief Economist Dr. Alison Black testified before state legislative committees. ARTBA and TIAC members participated in live and virtual events to help frame the public debate.

The result: 2016 passage of a 23 cents-per-gallon state gas tax increase projected to raise \$2 billion annually for construction. Then, smack in the middle of the COVID-19 pandemic, approval last year to raise road tolls for \$24 billion in construction.

"The reports and research produced by Dr. Black and her team, which was widely publicized in our state media and cited during our legislative hearings, provided valuable information to lawmakers and the public during the debate on raising transportation revenues," said Robert Briant, Jr., CEO of the Utility & Transportation Contractors Association of New Jersey.

See *TIAC*, 20



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ARTBA-TIAC is a first-of-its-kind, dynamic educational and Internet-based informational resource designed to help private citizens, legislators, organizations and businesses successfully grow transportation investment at the state and local levels through the legislative and ballot initiative processes. Visit: transportationinvestment.org.

What the Center has helped accomplish since 2013:

Nearly 2,000 measures passed across 50 states

Over \$350 billion in new and renewed revenue



28 ARTBA-authored **economic reports** have been commissioned by state and local groups



11 ARTBA and TIAC staff delivered testimony in of those **states**



34 of those **states** are ARTBA or TIAC members



450 industry professionals have participated in the annual "National Workshop for State & Local Transportation Advocates" from **37** states



2,385
ballot measures
tracked



1,150
legislative measures
tracked

Of the 83 legislative measures approved since TIAC's inception:

- 35 included either a flat cents-per-gallon motor fuel tax increase or a variable-rate formula change that resulted in a motor fuel tax increase.
- 25 states approved a new or increased fee on electric vehicles to ensure these drivers contribute to road maintenance, repair, and construction, since they don't pay state gas taxes.
- 36 raised recurring revenues such as sales taxes, registration fees, or weight fees.
- 26 approved one-time funding such as bonds or appropriations.

He adds: "The empirical analysis and economic impact studies were something we used throughout the campaign and our efforts would not have been successful without Dr. Black's research and reports."

Since ARTBA-TIAC's 2013 inception, 46 state legislatures have passed 83 transportation funding measures generating an estimated nearly \$40 billion in recurring or one-time increased revenue. During the same period, 83 percent of more than 2,000 state and local transportation investment ballot measures won approval to generate another \$318.6 billion.

That's almost \$360 billion that ARTBA-TIAC has helped pump into the construction market.

While many states have made significant efforts in recent years, federal funds, on average, provide 51 percent of state DOT capital outlays for highway and bridge projects.

ARTBA-TIAC "provided valuable information to lawmakers and the public during the debate on raising transportation revenues."

— Robert Briant, Jr., Utility & Transportation
Contractors Association of New Jersey

The Center helps expand awareness of the national transportation investment picture and which states are acting to bridge the shortfalls created by past failures to keep up with capital needs, economic disruption caused by the COVID-19 pandemic, and uncertainty about the next federal surface transportation reauthorization. As of late March, three states approved seven bills for nearly \$18 billion in new one-time and recurring transportation construction revenue. Dozens of bills were moving through state legislative committees and chambers towards governors' desks.

Over the years, ARTBA-TIAC has convened 450 individuals from 37 states to share information and collaborate on campaign strategies at the annual National Workshop for State & Local Transportation Advocates. This year's event is scheduled for July 13-14.

Over 80 members from 31 states also have participated in the Transportation Investment Advocates Council, a voluntary committee formed through the Center. They take part in quarterly conference calls and webinars and serve on committees to inform and guide the program of work.

The Center is eager to expand its expertise and experience and use that knowledge to support more successful measures, such as those in New Jersey and other states. For assistance with an advocacy campaign or to contribute research, please contact me at ckramer@artba.org.

Carolyn Kramer is director of ARTBA's Transportation Investment Advocacy Center.

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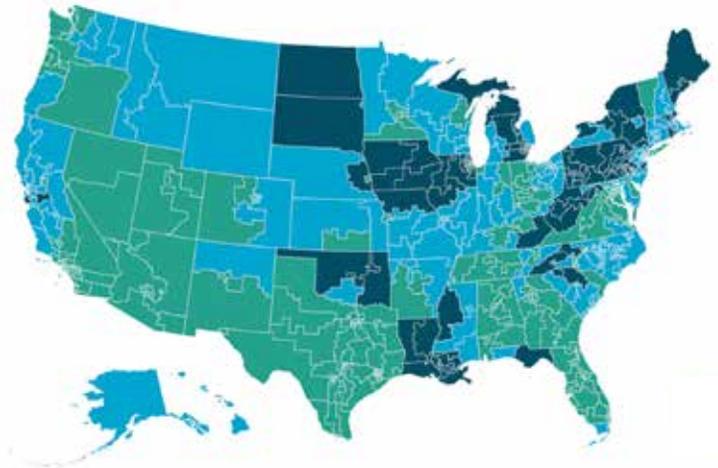
ARTBA Analysis Shows 220,000 U.S. Bridges Need Repair

By Dr. Alison Premo Black
ablack@artba.org

More than 220,000 U.S. bridges need major repair work or should be replaced, according to ARTBA's annual analysis of the U.S. Department of Transportation's 2020 National Bridge Inventory (NBI) database.

That figure represents 36 percent, or more than one-third, of all U.S. bridges.

If placed end-to-end, the length of these bridges would stretch over 6,000 miles—long enough to travel across the country from Atlanta to Los Angeles, and continue up to Deadhorse, Alaska, the furthest point north on the state's highway system.



ARTBA finds that while the number of structurally deficient (SD) bridges declined 2.5 percent last year to 45,000, the number of bridges falling into fair condition grew more than 3,600 to almost 295,000. Other bridges were added to the SD list for the first time.

This year's eighth annual bridge report was especially timely, coming days before President Joe Biden released his \$2 trillion infrastructure plan in Pittsburgh, a city with more than 400 bridges over rivers and ravines. The administration and Congress face a Sept. 30 expiration of the current surface transportation reauthorization and are currently debating the package.

The current 40-year timeline to repair bridges in poor condition is an unacceptable outcome for the American motoring public. The bridge conditions report highlights key national infrastructure challenges and underscores the need for congressional action this year on a robust multi-year transportation investment bill.

Of the 45,000 SD bridges, nearly 11,200 are in "serious" or worse condition. This includes 1,668 that are in "critical" condition, 440 that are in "imminent" failure, and 970 that are in "failed" condition and are out of service. The states with the most serious or worse bridge conditions are:

- Iowa (1,762 bridges)
- Oklahoma (922)
- Illinois (764)
- Pennsylvania (728)
- Missouri (700)
- Louisiana (638)

See *Bridges*, 24

Highest Percentage of Bridges in Poor Condition

- | | |
|------------------------|-------------------------|
| 1. West Virginia: 21% | 6. Maine: 12.7% |
| 2. Iowa: 19.1% | 7. Louisiana: 12.7% |
| 3. Rhode Island: 19% | 8. Puerto Rico: 12.1% |
| 4. South Dakota: 17.7% | 9. Michigan: 10.8% |
| 5. Pennsylvania: 14.6% | 10. North Dakota: 10.3% |

Interactive national, state, and local data available at artbabridgereport.org.

New "Structurally Deficient" or "Poor" Condition Bridges

- U.S. Highway 101 over the Los Angeles River, California
- Newburgh-Beacon Bridge over the Hudson River in Orange County, New York
- Corpus Christi Harbor Bridge in Corpus Christi, Texas
- Sidney Sherman Bridge on Interstate 610 over the Houston Ship Channel in Houston
- US. 377 over Lake Texoma on the border between Texas and Oklahoma
- J. Stanley Tunney Bridge over the Toms River in Ocean County, New Jersey
- US 90 Eastbound over the San Jacinto River near Houston
- McClugage Bridge (Westbound) and the Cedar Street Bridge over the Illinois River in Peoria, Illinois
- Both spans of the I-494 Minnesota River Crossing in Hennepin County, Minnesota
- Sacramento River Bridge in Glenn County, California
- Jefferson Barracks Bridge in St. Louis
- Central Avenue Bridge over the Kansas River in Kansas City, Kansas
- Duwamish River Bridge (Westbound) in Seattle

Bridges, from 23

American drivers cross these SD structures more than 171 million times daily. The estimated cost to repair them is \$41.8 billion, based on average cost data published by the U.S. DOT.

Of the 220,000 bridges needing repair, state and local government say that 79,500 bridges should be replaced. Nearly one-third of Interstate highway bridges (17,643 spans) have identified repair needs.

Since its March 23 release, ARTBA's report has drawn media attention from a host of national media and trade publications, including *USA Today*, the *Fort Worth Star-Telegram*, *Roads & Bridges* magazine and a dozen local television stations. The coverage is more widespread this year, and queries from journalists are ongoing, mainly due to the administration's intention to repair the top 10 most structurally deficient bridges in the nation.

Which ones would be selected will depend on the criteria they look at. It's a burning question that we would all like to answer.

Dr. Alison Premo Black is ARTBA's chief economist.



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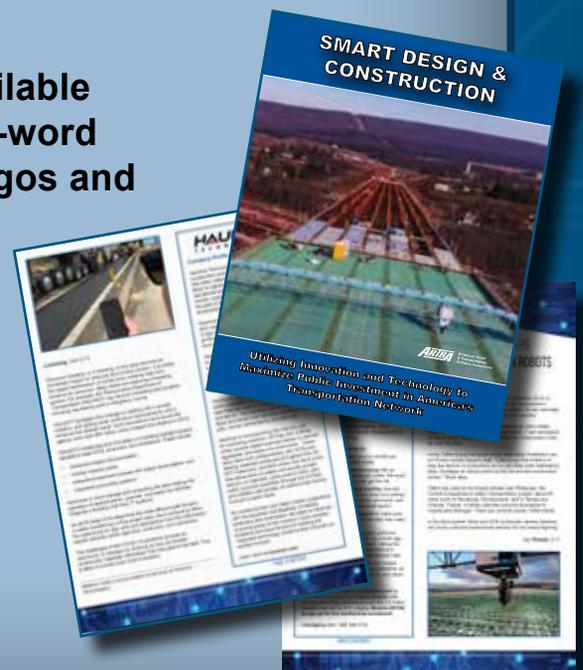
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Biden Administration's Climate, Equity, & COVID Response Plans

By Nick Goldstein
ngoldstein@artba.org

Presidents Joe Biden and Donald Trump are different in many ways. These differences have become very apparent as the current president moves to implement his regulatory priorities, which include undoing many of the former president's signature accomplishments.

Specific actions taken so far by President Biden include:

- Freezing agency activity until he installs his own appointees. This is typical for any change of administration and stops agencies from moving forward on proposed rules that have not been finalized. It includes the U.S. Department of Transportation's implementation of the Trump-updated National Environmental Policy Act (NEPA) modernization, which ARTBA supported.
- Revoking the Keystone XL pipeline's federal permit. ARTBA and industry allies supported the project, citing its potential for creating significant economic benefits, including much-needed jobs in the transportation construction sector.
- Repealing multiple executive orders focusing on deregulation. This includes Trump's "One Federal Decision" order shortening NEPA reviews to two years, and the "2-for-1" mandate that two rules be repealed for each that is enacted. Agency "regulatory review" task forces—charged with identifying obsolete or duplicative rules—were also disbanded.
- Rescinding a number of Trump-era reforms to the way federal agencies produce, review and store guidance documents. This includes no longer requiring public comment on proposed guidance or mandating that guidance documents be publicly accessible on agency websites.

President Biden has also promised to review dozens of policies enacted by the Trump administration, many supported by ARTBA. This includes the Navigable Waters Protection Rule, Endangered Species Act reforms, and recent decisions to retain current Clean Air Act standards. Any changes made to these rules will have to go through the public comment process.

President Biden also is incorporating his own priorities into future rulemakings by asking agencies to "identify ways the regulatory process can promote public health and safety, economic growth, social welfare, racial justice, environmental stewardship, human dignity, equity, and the interests of future generations." For transportation projects, this could mean an increased focus on studying how proposed projects impact minority and other underserved communities. He has instructed all federal agencies to develop plans addressing how their policies can help combat climate change.

The president has also focused on combating COVID-19 by directing the Occupational Safety and Health Administration (OSHA) to evaluate whether an emergency temporary standard (ETS) is necessary to combat virus spread in the workplace. An ETS would consist of a single, uniform standard, and apply to all workers in all industries. ARTBA has expressed opposition to this approach, explaining that workers are better protected from the virus by individual industry best practices rather than a rigid "one-size-fits-all" regulation. A decision on this issue was pending as this magazine went to press.

ARTBA will evaluate all Biden administration proposals on the merits and continue to push for a regulatory environment that promotes efficient, safe, and cost-effective delivery of transportation improvement projects.

Nick Goldstein is ARTBA's vice president of regulatory and legal issues.

Safety Training for the Roadway Construction Industry

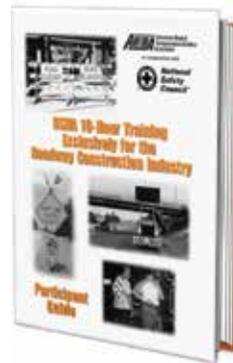
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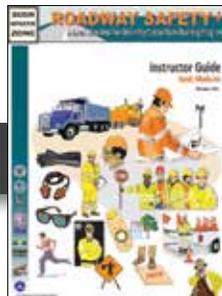


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STEADY 2021 RECOVERY FORECASTED FOR INDUSTRIAL ECONOMIC ACTIVITY

When the COVID-19 pandemic derailed the red-hot U.S. economy roughly one year ago, many economists hoped for what they referred to as a V-shaped recovery, meaning that the uptick would be as swift and sharp as the collapse that had preceded it. Early signs suggested that a V-recovery would indeed take shape.

However, over the past few months, the economic recovery has been tested once again. On a positive note, though, essential industries such as agriculture and construction have not been impacted nearly as much as many others. In fact, the ag and construction markets remain quite resilient — and several key indicators point to healthy growth both this year and next.

“This data is definitely pointing to a summer boom,” said Chloe Parkins, senior economist with Oxford Economics in a recent market outlook webinar put on by AEM.

Building a Bridge to the Second Half of 2021

To understand where the economy could be headed, it’s important to understand where it has been.

From Q4-2019 to Q2-2020, U.S. GDP dropped 10%. Then GDP grew 7.5% in Q3, recouping much of the output it had just lost. Despite that strong immediate recovery, GDP for 2020 was still 3.4% smaller than where it ended 2019. Progress has been made, but more is necessary.

According to the Philly Fed Manufacturing Index, manufacturing growth strengthened in January after two months of slower gains. January actually posted the index’s highest reading since right before the pandemic. Most importantly, “Much of the losses due to the pandemic have now been recouped,” Parkins said.

Looking to industrial activity, a slow but steady recovery has also been under way. Industrial activity actually ended 2020 on a strong note, with all key market groups (business equipment, consumer goods, construction supplies and materials) all remaining steady or rising.

Continued vaccine breakthroughs could cement a near-term recovery. With an added boost from additional fiscal stimulus, a rapid upturn of an additional 30% beyond baseline forecast could be realized.

In other words, the lead-up to spring is going to prove pivotal.

The construction industry also saw positive gains last year, with real gross output increasing by 1.8%. The forward-looking picture is even better — even for those construction industry segments that didn’t perform well in 2020.

The utilities segment is also rebounding. After dipping 0.3% in 2020, modest growth of 1.2% is expected this year, with a stronger rebound of 3.1% forecasted for 2022.



“Construction segment growth has also started to accelerate,” Mark Killion, CFA, director of U.S. Industry Services for Oxford Economics pointed out. “Growth in real gross output is forecasted to be 3.5% this year and another 2.7% in 2022.”

Stability Amidst Uncertainty

Construction has been one of the more stable industries helping to support the recovering U.S. economy, and growth continues to be led by single-family housing.

Residential construction continues to lead total construction activity. It was up 5.9% in 2020, with another 5.9% jump expected this year. Roughly 2.3% growth is expected in 2022.

Non-residential construction is also headed in the right direction. Rebounding from a 1.9% dip last year, a 1.4% increase is anticipated this year, followed by an even stronger 2.4% bump in 2022.

Civil engineering is expected to grow 2.8% this year, building on its 2% growth in 2020. Then, as emphasis on infrastructure is expected to intensify, even more robust growth of 4.4% is forecast for 2022.

Growth Dispersed Across the U.S.

Killion noted the healthy construction activity has not been isolated to a given region. Several key metropolitan statistical areas (MSAs) across the country are expected to enjoy solid growth in both construction GDP and employment over the next two years: Boston, Detroit, New York, San Francisco, Seattle, Columbus, Buffalo, San Jose and Phoenix.

At the other end of the spectrum are a handful of MSAs that are expected to see relatively weak growth, including Birmingham, Chicago and Cleveland. MSAs including Charlotte, Dallas and Austin are expected to see strong construction growth but employment growth weaker.

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Fast Fix for California's Iconic Highway

By John Schneidawind
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When a 150-foot chunk of California Highway 1 near Big Sur fell into the Pacific Ocean on Jan. 28, it was anybody's guess when the scenic stretch would re-open to traffic. By the time you read this story, some lucky drivers are probably enjoying the iconic coastal view, months ahead of the originally projected summer completion.

All it took was some shrewd decision-making and hard work, plus tons of fill and a few extra culverts.

Wildfires high above the coastline in fall 2020 "scoured out the watershed above," said California Department of Transportation (Caltrans) engineer Victor Devens. When torrential rains came in late January, it was only a matter of time before the watershed came washing down onto the highway, clogging the culverts where water would normally flow. The water and debris sloshed over the highway, weakened the fill supporting it, and the highway buckled.

The conditions that created the gaping hole in Highway 1 were unique. As Caltrans first surveyed the damage, it was unclear whether restoring the road would be like "trying to keep the (existing) road onto jello pudding," Devens said.

Highway 1 stretches 656 miles between Leggett in Mendocino County in the north, and Interstate 5 near Dana Point in Orange County in the south. It was built in segments, starting in the 1930s. At Rat Creek, in Monterey County, Caltrans faced a key decision in repairing the damaged highway: build a bridge across the chasm or put back the dirt that had supported the roadway in the first place.

The agency chose the latter approach. This "enhanced fill option" involved replacing the main drainage system at Rat Creek with a 10-foot diameter main culvert, a secondary culvert, and smaller overflow culverts closer to the highway grade. This increased the capacity of the drainage system, added redundancies designed to withstand future debris flows, and enhanced the resiliency and sustainability of the highway against rising seas and coastal erosion.



Caltrans photo of project site

"The fill solution is one-quarter to one-third the cost of trying to do a bridge," Devens explained. "This wasn't a foundation failure; this was a culvert being scoured out."

Before Caltrans could introduce new fill to the repair site, however, it had to remove the debris of trees and other vegetation that tumbled down onto the highway, making the fill area unstable. By late March, an estimated 70,000 cubic yards of trees, rocks, and sediment were removed from the canyon below Highway 1 and taken off site.

Then, 25,000 cubic yards of new fill were trucked in to build support for the new roadway. Caltrans spokesman Kevin Drabinski compared the effort to building a home, an earthen foundation needed to be created at the bottom of the canyon to accept the fill. Working seven days per week during daylight hours, crews constructed steep paths on the north and south side of the canyon to haul the fill material.

Engineer Devens suggested the \$11.5 million effort won't need to be repeated.

"Geologically, the area is pretty stable," Devens said. With the addition of more culverts to capture water, "I'm very confident we won't have this happen again at this location."

John Schneidawind is ARTBA's vice president of public affairs.

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