



Photo: PCI

## Is our industry ready to attract new talent? It's time to make over career paths in construction

William N. Nickas, *Editor-in-Chief*

By the end of this year, I will have taught 60 National Highway Institute classes on prestressed concrete bridge superstructures, and I have found that the sidebar discussions with consultants and state highway officials are just as interesting as the curriculum. One question that I have heard repeatedly over the last 13 years, in every one of the 38 states where I have taught, is "How can we attract and retain staff?"

This question is a call to action. To hire and retain the best staff, the bridge community needs to emulate other industries that are creating career paths to help workers move from low-skill to highly skilled opportunities. To do this, we must better define midlevel skilled workforce positions and open doors to the training, education, and credible certifications that can lead to lucrative, lifelong careers for engineers, designers, technicians, construction managers, construction tradespeople, and inspectors. And, yes, we'll need to be prepared to offer better pay for trained staff who enjoy our industry.

Section 529 of the U.S. Internal Revenue Code provides tax advantages to individuals investing in savings plans designated to be used to attend colleges and universities. Senator Steve Daines of Montana is sponsoring a bill to expand the options for using such 529 plans, allowing skilled workers to use funds to pay for enrollment in registered, high-quality programs that provide advanced training such as apprenticeships.<sup>1</sup> Senator Daines and others say that this proposed change to the tax code could be the boost needed to help match workers with jobs in the skilled trades.

Given the influences of technology on our economy, the careers associated with our construction delivery systems are going to need a fresh look to remain desirable to the next generation. In some economic sectors, technological shifts are leading to fewer job opportunities. According to the U.S. Bureau of Labor Statistics, the U.S. Post Office will be losing

13% of its positions in the next decade, with much of that job loss being due to automation. Alternatively, in the same period, we can expect job opportunities across all construction classifications to grow at a rate of between 6% and 13% (see **Table 1**).<sup>2</sup>

Technology changes are creating new job types all around us. Unfortunately, the newest middle-skilled jobs do not always provide stable employment or help millennial-generation workers climb a career ladder. To attract and retain skilled employees, we need to ensure that new jobs are as stable as possible and allow for career advancement. Let's design up-to-date career paths with current à la carte lists. Let's also support the dedicated members of our bridge community by establishing a model curriculum, including a list of tools (publications, training, and even certifications) to help individuals climb the career ladder. By investing in training, we can allow young men and women to succeed in the trades and build a stronger country and community.

### Technological shifts are leading to fewer job opportunities.

In my editorial in the last issue of *ASPIRE*<sup>®</sup>, I discussed changing infrastructure needs and artificial intelligence (AI) trends, and their anticipated impact on bridges. Bridges are an expensive feature of the human habitat, and new asset management measures are underway, with a push toward using Big Data and AI to lower operational costs and extend the service lives of bridges.

The future will certainly bring new career classifications to the bridge community. In this issue, Dr. Joey Hartmann from the Federal Highway Administration offers insights about how truck loads and vehicular operations are being viewed in truck platoon scenario modeling as policy makers move

#### Editor-in-Chief

William N. Nickas • [wnickas@pci.org](mailto:wnickas@pci.org)

#### Managing Technical Editor

Dr. Reid W. Castrodale

#### Technical Editor

Dr. Krista M. Brown

#### Program Manager

Nancy Turner • [nturner@pci.org](mailto:nturner@pci.org)

#### Associate Editor

Emily B. Lorenz • [elorenz@pci.org](mailto:elorenz@pci.org)

#### Copy Editor

Elizabeth Nishiura

#### Layout Design

Walt Furie

#### Editorial Advisory Board

William N. Nickas, *Precast/Prestressed Concrete Institute*

Dr. Reid W. Castrodale, *Castrodale Engineering Consultants PC*

Gregg Freeby, *American Segmental Bridge Institute*

Pete Fosnough, *Epoxy Interest Group of the Concrete Reinforcing Steel Institute*

Alpa Swinger, *Portland Cement Association*

Miroslav Vejvoda, *Post-Tensioning Institute*

#### Cover

Underside of the Salesforce Transit Center Bus Ramp Bridge showing box girders, link beams, and stay anchorages. Photo: Arup.

#### Ad Sales

Jim Oestmann

Phone: (847) 924-5497

Fax: (847) 389-6781 • [joestmann@arlpub.com](mailto:joestmann@arlpub.com)

#### Reprints

lisa Scacco • [lscacco@pci.org](mailto:lscacco@pci.org)

#### Publisher

Precast/Prestressed Concrete Institute

Bob Risser, President

**Postmaster:** Send address changes to *ASPIRE*, 200 W. Adams St., Suite 2100, Chicago, IL 60606. Standard postage paid at Chicago, IL, and additional mailing offices.

*ASPIRE* (Vol. 13, No. 3), ISSN 1935-2093 is published quarterly by the Precast/Prestressed Concrete Institute.

Copyright 2019, Precast/Prestressed Concrete Institute.

If you have a suggestion for a project or topic to be considered for *ASPIRE*, please send an email to [info@aspirebridge.org](mailto:info@aspirebridge.org)



American Segmental Bridge Institute



Epoxy Interest Group



Expanded Shale Clay and Slate Institute



Portland Cement Association



Precast/Prestressed Concrete Institute



Post-Tensioning Institute



Wire Reinforcement Institute

**Table 1.** Outlook for selected occupational sectors of the U.S. economy<sup>2</sup>

Occupation	Median Income, 2018, in thousands	Number of workers, 2018, in thousands	Predicted outlook growth, 2016–2026, in thousands
Civil engineers	\$86.6	303.5	+32.2 (+11%)
Civil engineering technicians except drafters	\$52.5	74.5	+6.6 (+9%)
Drafters	\$55.5	207.7	+14.6 (+7%)
Construction managers	\$93.4	403.8	+44.8 (+11%)
Masonry workers and concrete finishers	\$44.8	292.5	+34.2 (+12%)
Carpenters	\$46.6	1,025.6	+83.8 (+8%)
Construction equipment operators	\$47.0	426.6	+52.7 (+12%)
Construction laborer and helpers	\$34.8	1,449.4	+180.5 (+12%)
Construction iron workers (structural and reinforcing)	\$52.8	0.9	+11.4 (+13%)
Postal Service workers	\$58.7	502.4	-65 (-13%)
Quality insurance inspectors	\$38.2	520.7	-55.4 (-11%)
Robot and mechanical engineers	\$87.4	288.8	+25.3 (+9%)
Welders	\$41.4	404.8	+22.5 (+6%)
Industrial safety engineers	\$89.1	25.9	+2.2 (+9%)
Heavy and tractor-trailer truck drivers	\$43.7	1,871	+108.4 (+6%)
Overall median U.S. income	\$37.7		

forward to shape the bridges of our future. Let's share that type of future-oriented discussion with the next generation to help them understand their opportunities to make a positive impact.

## The future will certainly bring new career classifications

### References

1. Thorsell, M. April 6, 2019. "Daines Proposes Bill to Allow College Savings Plan Money to Go to Apprenticeship Programs." KPAX News website. <https://kpax.com/news/montana-news/2019/04/06/daines-proposes-bill-to-allow-college-savings-plan-money-to-go-to-apprenticeship-programs>.
2. U.S. Department of Labor. 2017. Bureau of Labor Statistics Occupational Outlook Handbook. <https://www.bls.gov/ooh/home.htm>. 

# MAX **TWINTIER**

■ **DOUBLE THE SPEED**  
 The Dual Wire Feeding Mechanism increases productivity.

■ **COST SAVINGS**  
 The Wire Pull Back Mechanism dispenses the precise amount of wire needed to form a tie, reducing wire usage.

■ **SHORTER TIE HEIGHT**  
 The TwinTier's Wire Bending Mechanism (Pat. Pending) produces a shorter tie height. Less concrete is needed to fully cover a wire tie.

NEW TW1061T USA

US Made Steel  
Buy America Certified  
Tie Wire

*SAVE TIME | SAVE MONEY  
INCREASE PRODUCTIVITY*

Product Video

WWW.MAXUSACORP.COM | 800.223.4293