



EXPERTS | 2019

HNTB expert:

**Theodore Zoli, PE**

National Bridge Chief Engineer

Senior Vice President

HNTB Corporation

[tzoli@hntb.com](mailto:tzoli@hntb.com)

“In today’s infrastructure equation, innovation is essential to ensure our country makes the right investments – now and in the future. The nation’s bridges are just one of many infrastructure elements demanding new ways of thinking.”

Ted Zoli is one of the bridge engineering and design industry’s most recognized figures, the subject of profiles in magazines such as Esquire and Popular Mechanics, and the first structural engineer to receive the prestigious MacArthur Foundation Genius Award.

To his leadership position as national bridge chief engineer, Zoli brings international acclaim as the innovator behind numerous bridges – long span, movable, pedestrian and rail. Among his most notable projects are the cable-stayed Leonard P. Zakim Bunker Hill Memorial Bridge in Boston, the curved cable-stayed Bob Kerrey Pedestrian Bridge in Omaha, Nebraska, the Lake Champlain Bridge between New York and Vermont, and the Portsmouth Memorial Bridge between New Hampshire and Maine.

With more than two decades at HNTB, Zoli’s noted accomplishments, and areas of expertise, include:

**Network tied-arch bridges:** Zoli has designed an array of network tied-arch bridges throughout the U.S., including major vehicular bridges such as the 900-foot Blennerhassett Island Bridge over the Ohio River, the 400-foot main span Lake Champlain Bridge between New York and Vermont, and twin 275-foot pedestrian bridges at Happy Hollow Park and Zoo in San Jose, California. He assisted in the design of a series of three network-tied arches for New Jersey Transit/Amtrak.

Zoli is an outspoken proponent of this bridge form describing it as “the safest and most efficient truss type system we have.”

**Unique bridges:** As part of a design-build team, Zoli led the design of the Portsmouth Memorial Bridge replacement over the Piscataqua River between Portsmouth, New Hampshire, and Kittery, Maine. A first-of-its-kind truss bridge, it reflects many construction and design innovations, such as the use of cold-bent steel, the application of zinc coating to extend the life of the bridge, and massive maritime chains acting as a counterbalance for the ropes that raise and lower the bridge. The chains are both a tribute to the location’s history and an innovative design element. The bridge, with a more than 100-year life expectancy, was completed start to finish in 19 months.

**Bridges in disaster relief:** Zoli is using a grant from the MacArthur Foundation to develop a lightweight, ultra-portable pedestrian rope bridge for rural areas, as well as a lightweight hypar semi-permanent shelter that is an adaptation of boat hull technology.

**Terrorism protection:** Zoli has been at the forefront of the bridge community in developing protective measures for extreme events, such as those the U.S. experienced on Sept. 11. His innovations included shielding for the main cables and hangers of suspension bridges incorporating advanced

composite materials. His continuing research in this area also has looked into fire effects on bridge components, which have become a major consideration in bridge design.

**The ABC approach:** Accelerated Bridge Construction includes a range of methods implemented individually or in combination, primarily including the use of pre-fabricated components that are built off-site and can be quickly put into place once on-site. ABC also includes various alternative and innovative methods of contracting and project delivery. When all project costs are considered, including user costs, ABC is usually a very cost-effective approach to bridge replacement.

**Best practices for ABC:**

- Making ABC standard nationally by developing consistent approaches to designing and constructing ABC projects.
- Identifying and overcoming impediments to widespread ABC use from the perspective of owners, contractors and engineers.

**The need for rapid bridge renewal:** Bridge deterioration and the need for bridge replacements are problems throughout the United States. ABC techniques can minimize traffic disruptions during bridge renewal and promote traffic and worker safety as well as improve the quality and durability of bridges.

Zoli is recognized throughout the world as an expert in creating safer, less expensive, more sustainable and better-performing bridges of all kinds. According to the MacArthur Foundation, he is “leading the design of elegant and enduring bridges around the world and making major technological advances to protect transportation infrastructure in the event of natural and man-made disasters.”

**Education**

Master of science degree, civil engineering, California Institute of Technology, 1989

Bachelor of science degree, civil engineering, Princeton University, 1988

**Academic positions**

Visiting lecturer, Department of Civil Engineering, Princeton University

Adjunct professor, Graduate Studies, Department of Civil Engineering and Engineering Mechanics, Columbia University

**Select awards and recognition**

2009 MacArthur Fellow Genius Grant, with research focusing on:

- Synthetic rope bridge ideal for rural areas
- Lightweight hypar (hyperbolic paraboloid) roofs, an alternative to tents in disaster relief  
Alternative temporary bridges to extend the range of modular bridges

**Select media and appearances**

*The Journal News*, Oct. 21, 2019 - “Left Coast Lifter Leaves Tappan Zee, Mission Accomplished”

*ENR*, Dec. 5, 2018 - “Drones Give Inspectors a Closer Look at Bridges”

To schedule an interview with Ted Zoli and for more information, contact:

**MEDIA CONTACT**  
Brian Cox  
Senior Brand Manager  
(816) 527-2056  
brcox@hntb.com