



The MacArthur Foundation

EXPERTS | 2011

HNTB expert:  
**Theodore P. Zoli, PE**  
National Bridge Technical Director  
HNTB Corporation

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. Turn to the experts at HNTB for insights into the state of America's bridges, the latest design innovations and trends and how technology is changing bridge development, construction, inspection and technology.

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 HNTB's national bridge technical director, 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 Bunkerhill Bridge in Boston, the curved cable-stayed Bob Kerrey Pedestrian Bridge in Omaha, Neb. and the Lake Champlain Bridge between New York and Vermont.

With more than two decades at HNTB, Zoli's noted accomplishments and areas of expertise have included:

**Network Tied Arch Bridges:** Zoli has designed an array of network tied arch bridges throughout the country, including major vehicular bridges such as the 900 ft Blennerhassett Island Bridge over the Ohio River, the 400 ft main span Lake Champlain Bridge between New York and Vermont, and twin 275 ft pedestrian bridges at Happy Hollow Park and Zoo in San Jose, CA. He is currently designing a series of three network-tied arches for the 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:** Among the most unusual of Zoli's designs is the 396-foot-long Squibb Park Bridge in Brooklyn Heights, N.Y. The bridge is designed with a focus on sustainability, using naturally rot-resistant wood (black locust) together with stainless steel cables to create a bridge that is perfectly at home in Brooklyn Bridge Park, a green space recaptured from Brooklyn's industrial past. Zoli's innovative design for a wildlife crossing recently won an international design competition, which the jury described as "not only eminently possible; it has the capacity to transform what we think of as possible."

**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 protective

measures 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.

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 McArthur 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:**

- 2010 *Rebuilding America's Infrastructure* "Power List"
- 2010 Special Achievement Award, American Institute of Steel Construction
- *Esquire* magazine's "Best and Brightest of 2010"
- 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:**

- *Modern Steel Construction*, September 2011 – Ted Zoli featured in "people to know" as "A Master Craftsman – Bridge engineer creates structural beauty and efficiency in both construction and performance."
- *Civil Engineering News*, July 2011 – Ted Zoli recognized as leader of design team for innovative bridge: "NYC Pedestrian Bridge Blends Rustic Simplicity With Urban Modernism."
- *Harvard Magazine*, May/June 2011 – Ted Zoli quoted in "Throughways for Wildlife" regarding the international competition winning team's hypar-nature innovative design.
- *Transportation Builder*, May/June 2011 – Ted Zoli lauded as international leader in bridge design and engineering.
- *Popular Mechanics*, April 2011 – Ted Zoli's innovative bridge design: "A New Brooklyn Bridge – This Time Made of Trees."
- *Constructor Magazine*, January/February 2011 – Ted Zoli featured as one of foremost bridge designers in the U.S. and perhaps the world: "Safe Passage: Designing The Next Generation of Bridges."
- *Esquire*, December 2010 – Ted Zoli recognized as one of "The Brightest: 16 Geniuses Who Give Us Hope:" "Theodore Zoli: Bridge Engineer – There is poetry in a bridge, an economy of effort. Ted Zoli finds it."
- *Structural Engineering & Design*, December 2010 – Ted Zoli quoted regarding use of 2-D tiltmeters and 3-D accelerometers in monitoring a structure's stability.
- *NBC Nightly News*, December 31, 2009 – Ted Zoli featured for his MacArthur Fellowship work on designing and hardening bridges; the Mary Avenue Bicycle Footbridge in Cupertino, Calif.; the Blennerhassett Island Bridge in West Virginia; and the Bob Kerrey Pedestrian Bridge in Omaha, Neb.

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

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