



EXPERTS | 2018

HNTB expert:

Bala Sivakumar, PE

Director of Special Bridge Projects

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“ABC uses innovative methods of planning, design contracting and construction to dramatically reduce mobility impacts – bridge replacement projects that took years can be constructed in a matter of days.”

Bala Sivakumar is vice president and director of special bridge projects for HNTB Corporation and leads HNTB’s accelerated bridge construction practice nationally. He has more than 35 years of experience and is a national expert and practitioner of ABC for routine and complex bridges. He has been the lead designer for numerous award-winning projects, including the lateral slide of two I-84 bridges in New York.

Working with the Transportation Research Board and the American Association of State Highway and Transportation Officials, Sivakumar led the development of the Strategic Highway Research Program Report S2-R04-RR-2: Innovative Bridge Designs for Rapid Renewal: ABC Toolkit. He authored numerous technical papers and has conducted training courses and workshops for several departments of transportation and other transportation agencies.

A nationally recognized expert in bridge evaluation, bridge live-load modeling, weight-in-motion studies and bridge code development, Sivakumar often is called upon to serve as a technical consultant to the industry. He was a key member of the forensic investigation team for the I-35W Bridge collapse in Minneapolis and the Hoan Bridge failure in Milwaukee.

Among the more recent and notable projects in which Sivakumar has been involved are the Gov. Mario M. Cuomo Bridge and Kosciuszko Bridge, both in New York; Franklin Avenue Bridge restoration in Minneapolis; as well as similar projects in Iowa and Michigan.

Infrastructure industry opportunities and trends Sivakumar can help address include:

- **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.
- **The ABC approach**
ABC 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.

LRFR Implementation: Sivakumar has assisted several states in their transition to the adoption of load and resistance factor rating standards, posting and permit approval methods. He also has performed statewide weight-in-motion studies to characterize truck traffic and performed state-specific or site-specific calibration of LRFR load factors using recent WIM data.

Education

Bachelor's, Technology, civil engineering
Indian Institute of Technology, Madras, India

Master of Science, structural engineering
Cornell University

"SHRP2 ABC Toolkit and examples of projects using Toolkit," Indiana DOT Design Conference 2016, Indianapolis; Feb 16, 2016

"What Engineers Need to Know about Designing for ABC." ASCE SEI Philadelphia Chapter; Technical Lecture; Feb 25, 2016

Professional affiliations and honors

American Society of Civil Engineers

Transportation Research Board

Professional Engineer: New York, New Jersey, Texas, Oregon, Wisconsin

Independent adviser to the U.S. government and federal agencies, including the Federal Highway Administration

ACEC National Recognition Award

Northeast Region American Transportation Awards, "Best Use of Innovation"

AASHTO America's Transportation Awards in the Best Use of Innovation, Small Project Category

"ABC Presentations on Precast Elements and Connections," ASCE Overland Park Industry Event; April 21, 2016

"Design-Build Replacement of the Kosciuszko Bridge," ASCE NY Met Section Spring Seminar; NY City, May 18, 2016

Technical committee activities

Committee Member - Transportation Research Board Committee on General Structures, 2005 - Present

Committee Member - Transportation Research Board Subcommittee on Safety and Security of Bridges AHD35 (1), 2005 - Present

Committee Member - Transportation Research Board Committee on Bridge Management Systems, June 2001 - Present

Committee Member - ASCE Technical Committee on Load and Resistance Factor Design, 1998 - Present

NCHRP Panel Member - NCHRP Project 12-56, Application of the LRFD Bridge Design Specifications to High Strength Structural Concrete: Shear Design.

Presentations and media

"Safety in bridge construction: some say it's as simple as ABC," *ConstructionDive*, July 18, 2018

"Bridge Replacement Overnight!" *Nikkei Construction*, December 2017

"How we're building bridges better, faster – and with less impact to traffic," BuiltWorlds episode of *Lightbulb*, March 28, 2017

"Bridge Sliding: ABC Method to reduce Construction Time," Transportation Research Board Annual Conference - Washington DC; January 12, 2016

"Design and Construction Challenges at the Kosciuszko Bridge," ASCE NY Met Section Construction group Technical Lecture New York City; Jan 28, 2016

To schedule an interview with Bala Sivakumar and for more information, contact:

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