

HNTB expert:

Ted Zoli, PE

National Bridge Technical Director

HNTB Corporation

Limited resources offer opportunity to think about bridges differently

Innovation and creativity play an increasingly essential role in modern bridge design and engineering today. With one in every four bridges in America structurally deficient or functionally obsolete, our nation is facing an investment of billions of dollars to rebuild or replace its aging bridge infrastructure.

Bridges are first and foremost socio-economic lifelines, vital to our economic health at the local, regional and national scale. Many parts of the country can directly associate growth with the construction of a new bridge. A community is incapacitated when it loses a bridge because the very configuration of the urban environments and regional transportation systems are predicated on bridge infrastructure. It is imperative that our nation sees bridges for what they are: a durable investment in our future.

Certainly allocating the funds needed to rebuild or replace deficient bridges is a significant challenge for the nation. Traditional state and federal gas tax revenue is in decline due to inflation and increased fuel efficiency of vehicles, while departments of transportation are facing severe budget cuts. Our elected and appointed officials are challenged with identifying and leveraging new and improved ways of financing infrastructure.

The challenge for those who design, engineer and build bridges is to discover new ways to do more for our bridge infrastructure with fewer resources.

It is a game-changing opportunity.

Meeting the challenge requires us to think about projects in a different manner. We must improve and

better integrate our efforts on rapid renewal – a process that generates economies of scale in manufacturing and construction, reduces traffic disruption and increases safety.

The first step in that process: Design new bridges with “constructability” in mind. The way a bridge is designed can speed the construction process helping to create bridges that can be built on an accelerated timeframe to minimize labor costs and reduce negative economic impacts that often result from an extended closure period. For example, HNTB’s accelerated bridge construction methods include the use of bridge movement technology to maneuver completed bridges or bridge sections into place. These applications were successfully incorporated in the Lake Champlain Bridge project in upstate New York and the Jerrold Avenue Bridge project in San Francisco.

When it comes to the retrofit or rehabilitation of a bridge, we must engineer solutions that are less expensive than those of the past yet result in infrastructure that is effective and long-lasting. For example, HNTB utilized a span lift strategy to widen the Huey P. Long Bridge in New Orleans that was faster than traditional stick-build methods, and minimized impact to local commerce and the community.

Infrastructure is an engine that drives our economy. To keep that engine running well, we need to be focused on the restoration and renewal of our infrastructure – bridges are a key. Securing funding is essential, but creativity, innovation and inspiration in the engineering and design process of our bridge infrastructure are the game changers that will maximize our investment and deliver real economic growth.

HNTB expert contact information:

Ted Zoli, PE

National Bridge Technical Director

HNTB Corporation

(212) 915-9545

Email: tzoli@hntb.com

HNTB Corporation is an employee-owned infrastructure firm serving public and private owners and contractors. With nearly a century of service, HNTB understands the life cycle of infrastructure and solves clients' most complex technical, financial and operational challenges. Professionals nationwide deliver a full range of infrastructure-related services, including award-winning planning, design, program delivery and construction management. For more information, visit www.hntb.com.

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