



### Adding Value: Managing Risk in Public-Private Partnerships

Major highway and bridge projects across the United States are increasingly being handled through Public-Private Partnership (P3) arrangements. WJE's Bridge Management Advisory Services enable P3 stakeholders to successfully plan and execute these complex projects by better understanding all of the options available.

### Advisory Services Benefits

- **Managing Complexity** – Bridges inevitably present complex, costly variables over multidecade partnerships. Small decisions about maintenance or managing relationships among vendors can have an outsized impact.
- **Choosing the Right Options** – Understanding of the available options can be enhanced by applying thorough technical knowledge of bridge system materials behavior and deep experience in assessing unique structural conditions of bridge assets.
- **Mitigating Design and Construction Risks** – The construction/maintenance of bridges is fraught with risks of construction issues and disputes, potential litigation, and delays. Technical expertise in bridges can be a true differentiator—bringing skills and insight to shape and execute long-term contracts and help P3 stakeholders to:
  - Better monitor and predict conditions over time
  - Invest when and where it strategically makes sense
  - Improve long-term repair/replacement project quality, predictability, and cost profiles—in particular, addressing and averting disputes
  - Inject ongoing bridge-engineering innovation that enhances stakeholder effectiveness and profitability

# WJE's Bridge Management Advisory Capabilities Provide Value



WJE has deep technical expertise in bridge engineering that can enhance the effectiveness of P3 deals across all stages of their development and execution. We have capabilities and experience in working with all stakeholder groups—asset managers, concessionaires, public-sector agencies, and service providers integral to shaping projects (such as law, accounting, and business-consulting firms).

Delivering technical expertise is a hallmark of WJE, an interdisciplinary engineering, architecture, and materials science firm that has provided solutions for the built world for more than a half-century. For years, WJE has made technical skills and practical solutions from “asking the structure” into differentiators in diagnosing and resolving bridge problems.

This emphasis and our experience can improve the ability of P3 stakeholders in all stages of a deal to monitor and predict bridge conditions over time; invest when and where it makes best strategic sense; make repair/replacement projects better, more predictable, and less expensive over the life of a P3 deal; address issues among P3 companies to resolve disputes; and more.

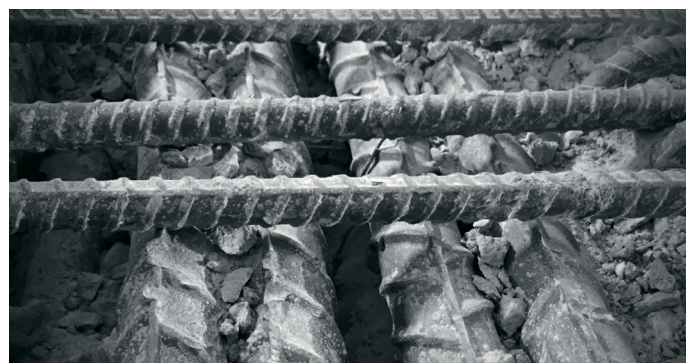
## What We Do and How We Deliver for Our Clients

Our Bridge Advisory Services can deliver technical knowledge and insights across four key areas:

### 1 ASSET SERVICE LIFE ESTIMATES

We develop statistically based service life estimates for new or existing assets that incorporate and weigh asset construction, condition, materials, environment, and loading factors. These estimates help us forecast future asset performance, identifying when asset repair and/or replacement may be advantageous for performance or economic reasons.

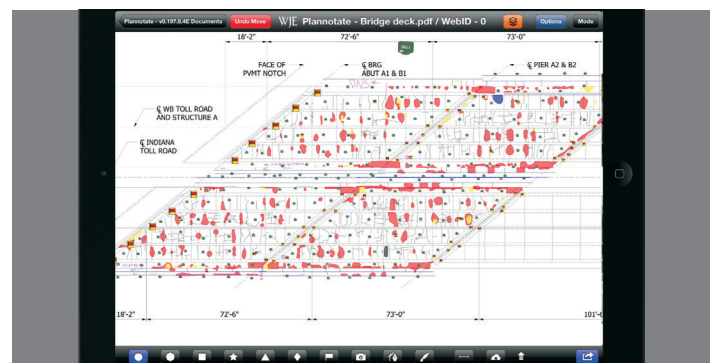
**DELIVERING THE SERVICE** Bridge owners today often demand 100-plus years of service life for their bridges. WJE has responded to this need by developing durability plans that combine a high-quality design with highly durable materials, effective construction and quality control, and future inspection and maintenance recommendations. We have developed and incorporated these plans into several new U.S. signature bridges—e.g., Hwy 61 Hastings Bridge in Hastings, Minnesota; I-65 East End Bridge in Louisville, Kentucky; and New Tappan Zee Bridge in Tarrytown, New York.



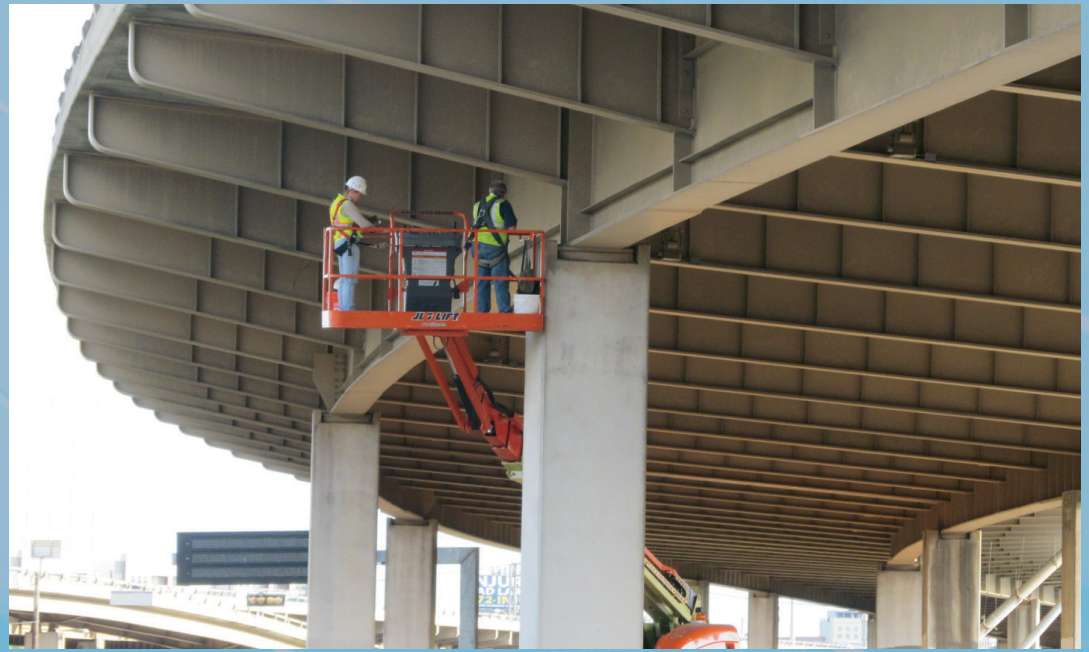
### 2 CUSTOMIZED ASSET MANAGEMENT APPROACH

We know how to create and apply an enterprise asset management approach that is consistent with asset investment principles so that allocated resources are optimized for asset preservation, operation, and capital replacement. We provide strategic investment decisions that account for underlying risks associated with the assets.

**DELIVERING THE SERVICE** A major metropolitan transit agency sought a modern, electronic bridge management and inspection system to manage its inventory of more than five hundred bridges. WJE's extensive inspection experience and ongoing development of customized electronic input and data storage software allowed us to fulfill specific project requirements, producing an asset management tool customized for the owner's needs.







### 3 CRADLE-TO-GRAVE ASSET PERFORMANCE KNOWLEDGE

WJE bridge experts identify and assess the performance of assets across their lifecycle—from design through replacement—and preserve them to minimize overall costs. With this insight, we develop informed maintenance strategies to address diagnosed conditions that balance asset access interruptions and investment goals.

**DELIVERING THE SERVICE** A North American toll road concessionaire engaged WJE after other consultants had initially recommended full deck replacement and other costly repairs to address advanced corrosion-related deterioration on its inventory of bridges. Given that full deck replacement would have triggered significant geometric and roadway upgrades and modifications, WJE proposed condition assessment and service-life modeling to salvage existing bridge decks to add 15 to 20 years of service life. The results?

The existing bridges were repaired with an expected 15-plus years of additional service life. WJE's solution:

- Executed that work at a fraction of the cost associated with bridge deck replacement
- Utilized a novel WJE-developed approach to eliminate bridge deck joints to minimize future maintenance costs
- Completed work using accelerated bridge construction technology, thus avoiding long-term lane closures, significantly reducing anticipated traffic delays, improving work-zone safety for the motoring public, and minimizing lost toll revenues

### 4 DISPUTE RESOLUTION

WJE plays a formal role on large projects as an advisor in dispute resolution to help keep multiple parties on track and out of litigation, if problems arise.

**DELIVERING THE SERVICE** The design and construction of a multibillion-dollar rapid transit system resulted in numerous construction claims among the design-build team members. Representing the contractor, WJE was tasked with evaluating the merits of the claims and providing opinions on standard of care achieved by the designer. The designer acknowledged that many of the claims were substantive and subsequently presented remediation options that included repairs and removal and replacement. Construction was completed without litigation of these claims.



## Next Steps

Interested in exploring the deep technical knowledge in bridge engineering and management WJE can bring to your P3 challenge?

### See how we can bring value to your deal by:

- Making management plans that balance competing needs based on a sophisticated view of conditions
- Strategically investing limited funds over time to meet contractual and P3 business goals
- Controlling capital costs and producing a more reliable rate of return for investors
- Managing performance of an asset from end to end
- Helping P3 stakeholders operate effectively under an “availability payment” model in which the private sector is paid based on agreed-upon performance criteria for delivering, maintaining, and operating bridge assets
- Serving as an independent arbitrator in the event of design or construction claims

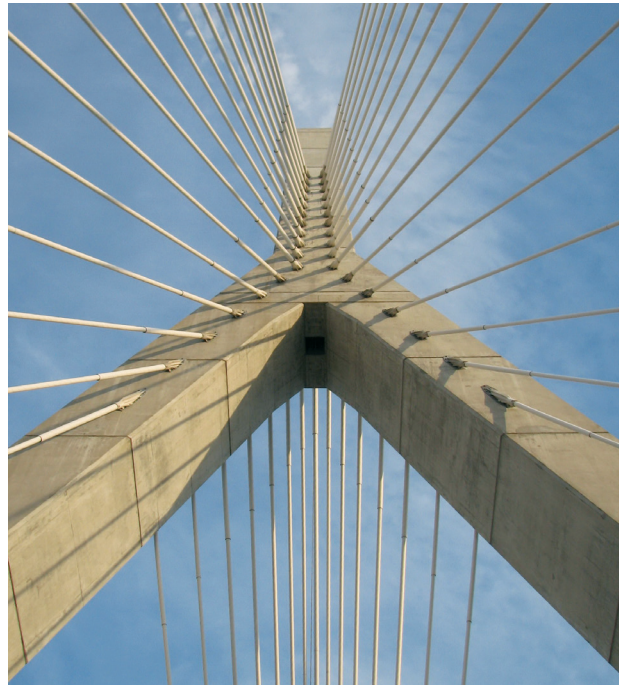
#### Contact:

**Jonathan McGormley**

Principal

847.753.7234

[jmcmgormley@wje.com](mailto:jmcmgormley@wje.com)



## About Wiss, Janney, Elstner Associates, Inc.

Founded more than sixty years ago, WJE is an interdisciplinary engineering, architecture, and materials science firm specializing in delivering practical, innovative, and technically sound solutions across all areas of new and existing construction. With more than 600 employees, WJE has the resources to respond to virtually any problem, with expertise in all aspects of construction technology. The firm's engineers, architects, and materials scientists are supported by technicians who are experts in testing and instrumentation. Our Janney Technical Center laboratory and testing facility is one of the nation's largest privately owned construction-based testing laboratories.

**Our bridge practice.** WJE's knowledge of bridge performance is supported by technical expertise in structural engineering, materials, laboratory and field testing, and instrumentation. WJE bridge engineers have extensive experience conducting field investigations of bridge decks, superstructure, and substructure problems for a wide range of bridge materials and structure types. Supported by extensive laboratory facilities and in-house expertise in nondestructive testing, WJE professionals are routinely called upon to complete fatigue and fracture investigations, corrosion assessments, and collapse investigations.

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**WJE** | ENGINEERS  
ARCHITECTS  
MATERIALS SCIENTISTS

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