

# Kelly McNutt Consulting: Experts in Constructability

Start-up firm Kelly McNutt Consulting draws on decades of experience to crunch the numbers behind the scenes

by Monica Schultes

Relative newcomer Kelly McNutt Consulting LLC (KMC) has quickly established itself as an invaluable resource for designers and public agencies. The firm draws on its employees' decades of construction, planning, and engineering expertise to provide constructability input and construction estimates for complex bridges.

## Complex Bridges

Given the increased need to repair and replace aging infrastructure, complex bridge projects are a high priority for transportation agencies. However, these challenging projects can go off the rails with regard to budget or schedule—or both—if not properly planned.

According to a study by consulting and investment banking firm FMI,<sup>1</sup> bridge and tunnel megaprojects (that is, projects with budgets over \$1 billion) on average incur 35% cost overruns. To improve project outcomes on complex bridge projects that can take years to finish, it is critical to perform a complete engineering and risk analysis before breaking ground.

Kelly McNutt, principal and founder of KMC, believes that “if project owners spend a small percentage on early-stage engineering, they will achieve better results in on-time and on-budget delivery.” These early evaluations allow the team to consider issues that can be resolved or avoided before construction starts, saving time and money.

McNutt has assembled a team of construction professionals who have been involved in numerous cable-stayed and concrete segmental bridge projects in North America. They use their industry experience and

expertise to provide valuable support to such complex projects during the development stages. Since its founding in January 2020, KMC has been invited to consult on some of the most iconic bridge projects in the United States.

## Win-Win Strategy

McNutt started her firm with a focus on win-win strategies, guided by her deep-seated belief that if KMC could engage with the owner during the design process, the result would be better outcomes for all parties, including the traveling public. KMC approaches each project with a focus on not just what is being built, but how it is being built, and what is needed to build it within the allotted budget and schedule.

KMC can be most helpful to owners when the consultants are engaged early in the planning stages of a project. “That is when construction budgets are developed and schedules are publicized,

and it sets the foundation for the scope of work that will be funded, contracted, permitted, and introduced to social-justice stakeholders,” explains McNutt. In the later stages of project development, the opportunity for substantial improvement has typically already come and gone. “You really have to get involved early to have a positive influence. If not, that ship has sailed,” says Ralph Salamie, senior manager and director at KMC.

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Many owners seek alternative delivery methods to enable them to bring a contractor on board during design development. When conventional

A rendering of the Gordie Howe International Bridge between Detroit, Mich., and Windsor, Ontario. Kelly McNutt Consulting provided Parsons Transportation Group, the owner's engineer, with independent estimates, construction scheduling, and construction management support. Figure: Windsor-Detroit Bridge Authority.



design-bid-build procurement restricts early input from a contractor, agencies and designers have turned to KMC to provide the perspective of those who have worked on the construction side of projects. "That is one of the reasons why our business has been successful—it allows for input early on from someone other than a contractor," explains Salamie.

### Bottom-Up Estimates

Traditionally, agencies have relied on their database of bid tabulations and unit prices from past projects to estimate budgets. Since the start of the COVID-19 pandemic, the inaccuracies of this estimating method have been exacerbated by unprecedented material price escalations and labor shortages. "I heard from several owners and designers that they need bottom-up contractor-style estimates to establish budgets that are in line with real-world bids," says Salamie. In other words, "Estimate like a contractor."

All KMC employees were previously employed by contractors and have experience in building and estimating projects. "Estimating like a contractor is what we know," says McNutt. "We begin with a work plan and develop the staging and construction means and methods as we would if we were building the job," adds Salamie. When

clients ask about the extra cost to create a construction schedule, Salamie says he responds "by telling them they get a schedule with the estimate whether they ask for it or not. You cannot accurately determine construction overhead without one."

"There has been an interesting by-product from these early-stage design estimates that we have completed," says McNutt. She finds that the back-and-forth exchange between estimator and designer regarding project questions and challenges stimulates ideas to improve constructability. "We hear from clients when we submit our 'Estimate Peer Review Memo' that this process generates more than just an estimate."

### Market Rates

Keeping abreast of material price fluctuations is an ongoing priority. "Not a day goes by when we are not keeping tabs on market conditions," says McNutt. What is the current cost of a cubic yard of concrete in this area? What is productivity like in Baton Rouge, La., versus Boise, Idaho? What is the price of lumber in Boston? Market conditions are influenced by a myriad of variables, and KMC aims to quantify what the market costs are on a given day. "Then we address the unknowns as part of our risk-contingency matrix," McNutt says.

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"We continue to stay in touch during construction to validate the actual numbers and keep our pencils sharp," she adds. "It is more challenging to keep up with changing prices when you are not working for a contractor, but it is essential to what we do."

### Project Delivery Models

KMC assists public agencies and design firms in the four primary project delivery models used today. For design-bid-build and design-build contracts, KMC typically serves as a supporting member of the design team. The firm provides constructability and construction scheduling services along with budgetary estimates for different alternatives as the design is being developed.

When the owner chooses construction manager/general contractor or progressive-design-build project delivery models, KMC plays a different role. "We work with public agencies directly in a more formal capacity to provide impartial cost estimates independent of the contractor," says Salamie. In these procurement models, the team selected

When the 22nd Street Bridge cast-in-place concrete segmental bridge in Tucson, Ariz., was awarded as an alternative delivery construction manager/general contractor project, Kelly McNutt Consulting performed the independent construction estimate for the owner. Figure: City of Tucson.





The two concrete towers, one in Windsor, Ontario, and the other in Detroit, Mich., for the Gordie Howe International Bridge are approximately 722 ft in height. Each tower is composed of two pylons, which give the structures the shape of an inverted “Y”. The top third of each tower houses the cable-stayed system that supports the bridge deck. Photo: Kelly McNutt Consultants.

submits their bid as a sole source, with no other contractors challenging their numbers. KMC provides that parallel estimate to ensure that the contractor is providing a fair price.

### High-Profile Projects

McNutt says that KMC’s work on construction estimates and constructability reviews for complex bridges has led to invitations from public agencies to support negotiations with contractors on major change orders. Being able to provide a client with a contractor’s perspective goes a long way to understanding how to negotiate change orders.

Working with the Harris County, Tex., Toll Road Authority and designer COWI, KMC assisted with complicated change orders for the Sam Houston Tollway Ship Channel Bridge, which has 514-ft-tall pylons. KMC provided a complete bottom-up, independent estimate of the precast concrete segmental, cable-stayed bridge that was under construction. This estimate provided the agency with the backup information needed to move forward.

KMC provided services, including independent estimates, construction

scheduling, and construction management support, for Parsons Transportation Group on the 1.5-mile-long Gordie Howe International Bridge project between Detroit, Mich., and Windsor, Ontario. The project is being delivered by a design-build contract with a portion funded by a public-private partnership. The cast-in-place concrete towers of the cable-stayed bridge are 722 ft tall. The tower legs, or pylons, are constructed with jump-form systems and give each tower a distinctive inverted-Y shape.

Most of the KMC staff is based in the Northwest, and they often have personal ties to projects in that region. One employee worked on the concrete segmental bridge construction of the West Seattle Bridge in the 1980s, and was involved again in the estimating and access planning for the West Seattle Bridge emergency repair project after the bridge was closed in March 2020. (See the Spring 2023 issue of *ASPIRE*® for more on the West Seattle Bridge emergency repair project.) Employees who live in Portland, Ore., and Vancouver, Wash., have a personal interest in the Interstate 5 over the Columbia River project. The consultants’ project knowledge and the relationships they

developed over the years are helpful in bringing value to the design team and clients during early development decisions.

KMC provided the constructability review and independent construction estimate for the 22nd Street Bridge in Tucson, Ariz. This project, which was awarded as an alternative delivery construction manager/general contractor project, involves widening the existing 22nd Street from Kino Parkway to Tucson Boulevard and includes two new cast-in-place concrete segmental bridge structures with three lanes in each direction. KMC worked directly for the City of Tucson and had no bias toward any particular type of structural solution.

The replacement of the Shoemaker Bridge in Long Beach, Calif., will be an iconic cable-supported structure over the Los Angeles River. Working for lead designer HDR, KMC is providing early-stage construction scheduling and estimating for this signature structure.

Teamed with Stanton Constructability Services, KMC will provide independent construction estimates and constructability review input on two major cable-stayed bridge projects in



Kelly McNutt Consulting (KMC) worked with WSP on the emergency rehabilitation of the West Seattle Bridge in Seattle, Wash. KMC provided an independent construction estimate for the retrofit project. Photo: Kraemer North America.

Cincinnati, Ohio: the Brent Spence Bridge and the Western Hills Viaduct. The Brent Spence Bridge spans the Ohio River along Interstate 75 and connects Ohio and Kentucky. The northernmost stretch of the Brent Spence Corridor project will connect to the Western Hills Viaduct Replacement bridge via a new interchange. The current Western Hills Viaduct is more than 90 years old and is at the end of its useful life. The proposed replacement is a single-deck extradosed bridge supported by two pairs of cable-stayed towers. The new bridge will reside 50 ft south of the existing viaduct, which will remain in place and continue to carry traffic until its replacement is finished.

### Managing Risk

Since its founding, KMC has witnessed the precipitous rise in the cost of bridge construction. On large high-risk, technical bridge projects, many contractors are taking a more conservative approach toward risk. The number of qualified bidders is

decreasing, and prices are escalating above the current inflation rates. Owners are looking for input on market conditions and risk allocation to better understand and manage the cost of their major programs.

A common concern among agencies is how to manage financial risk and alleviate costs associated with infrastructure projects. According to Salame, it is only natural for clients to want to pass on as much risk as possible to the contractor. However, that comes at a price, especially for design-build projects of high risk. KMC has helped clients develop a more equitable division with the contractor to reduce their risk profile.

KMC focuses on the basics: supporting clients with highly talented estimators, construction managers, and schedulers. In just a few years, the firm has achieved a national reputation for providing valuable services on complex bridge projects.

## History of Kelly McNutt Consulting

Established in 2020, Kelly McNutt Consulting LLC (KMC) is certified in six states as a Disadvantaged Business Enterprise, Women-Owned Business Enterprise, and Small Business Enterprise. Although the firm is young, KMC's employees have decades of experience in heavy civil construction management, including bridge, highway, tunnel, marine, and transit work. While many employees work from home, KMC has a home office in Vancouver, Wash.

Kelly McNutt started in construction as a teenager working in the family contracting company. She earned a bachelor's degree in construction management from Washington State University and apprenticed with Washington State University Facilities Services Operations. After graduation, she was employed by a well-known construction firm and had the opportunity to work on a variety of projects. That experience helped McNutt gain a deep knowledge of the industry and build great professional relationships, which were to be the foundation for her business.

When KMC was founded, the construction market was characterized by labor shortages and unstable material prices, and transportation agencies and designers were often finding that their internal estimates no longer matched contractor bids. "Kelly was in the right place at the right time," recalls Ralph Salame, senior manager and director at KMC. "Not only did she assemble a team of talented and experienced engineers who have made their careers building and estimating complex infrastructure projects, but she chose the right time to do so."

The KMC team continues to add depth and technical expertise. The firm has expanded from 4 to 24 people, and repeat business is the hallmark of their success.

### Reference

1. Strawberry, B. 2019. "FMI Corporation 2019 North American Megaprojects." [https://fmicorp.com/uploads/media/FMI\\_N-American\\_Megaprojects\\_2019.pdf](https://fmicorp.com/uploads/media/FMI_N-American_Megaprojects_2019.pdf).