



EXPERTS TALK

Bridge Innovation through Collaboration with Tammy Heffron

Collaboration generates ideas out of complex problems to yield best value solutions

During a bridge project, it's not uncommon for owners, stakeholders and technical leaders to bring their own set of priorities to the table. But out of smart collaboration, open-minded and creative partners with complementary strengths work to deliver results — results that will ultimately be viewed and vetted through multi-disciplined lenses. Out of this holistic approach, the most creative solutions are borne.



Based in our Denver office, Tammy Heffron, P.E., ENV SP, is our Central Region bridge leader. Her talent and leadership exemplify our bridges and structures practice. She has designed and managed multidisciplinary transportation projects that

include timber, steel and concrete bridges for roadways, light rail transit and non-motorized traffic. Adept at navigating intricate stakeholder processes, Tammy has helped our clients deliver award-winning projects such as the Point Bonita Lighthouse Bridge Replacement in the San Francisco Bay Area and the I-70 Eastbound Mountain Express Lane in the Colorado Rockies. Contact **Tammy Heffron** for more information on bridge innovation through collaboration.

Q. You're having dinner with several industry professionals. A client turns to you and asks "What is the relationship between collaboration and innovation?" What do you say?

A. The most successful innovations are borne through smart collaboration. Unique perspectives join together toward a common goal that benefits all team members. Collaborative ideas can then develop into a unique solution that is vetted from multiple perspectives, and the solution gains the momentum and support it needs to flourish into a successful innovation.

Q. What is a bridge project you worked on where you witnessed collaboration leading to an innovative solution?

A. The first project that comes to mind is currently in design. It's the Platte Avenue over Sand Creek Bridge Replacement project in Colorado Springs, Colorado. Our scope of work includes running a multi-use trail beneath a new bridge that's replacing two existing bridges. The trail, however, needs to stay high enough to be above Sand Creek's 10-year hydraulic

event level, yet low enough to provide 10 feet of overhead clearance for trail users.

Our team's discipline leads — consisting of roadway, bridge, hydraulic and utility engineers — all came to the table with their own requirements to meet. Each discipline lead has to adapt puzzle pieces so they fit with the puzzle pieces adjacent, all while working toward the project's goals. It's an iterative process that incorporates stakeholder feedback and leads to the best overall project solution.

Through collaborative ideas, our team was able to develop a span configuration that provided for a shallower structure over the trail, which gave us the clearance we needed. This innovation not only met our footprint requirements for the new trail, but also met hydraulic requirements while minimizing impacts to the environment and the roadway above the trail. It was a total team effort and a win for the community of Colorado Springs.

Q. What types of collaboration are most likely to lead to innovation? In other words, collaboration between what kinds of project partners?

A. Successful collaboration begins with partners that have complementary strengths; whether it be expertise or resources. The partners have a shared vision or goal and are able to keep the long view in mind. With diverse minds at the table, offering unique perspectives, you are able to understand what individual and collective goals exist, and work together to reach them.

Q. What should you look for in a partner to collaborate with?

A. Partners who are open-minded and creative allow for unique ideas to be combined and quickly vetted against different criteria. Having a team with diverse backgrounds and diverse strengths will facilitate ideas from different viewpoints and provide the energy to take the innovation from idea to implementation.



Inspiration & Advice

Q. What inspired you to become a bridge engineer?

A. At first, I loved the way math and science combined to give us an understanding of how different bridge types behave under different loading conditions. While at Lehigh University for undergrad, I worked in the engineering research lab during school. We ran tests on structural members, the enormity of which staggered me. It helped me appreciate the loads that bridges are required to carry. And since then, I have grown to love the symbolic and social roles bridges play — in our daily lives and as iconic symbols of connection in our communities.

Q. What advice do you have for bridge designers who are new to the profession?

A. LEARN! There are so many amazing and brilliant people at HDR and in the industry to learn from. Ask questions so that you can augment your understanding with broad experience — from different structure and material types to how a project develops from conception through construction. Build a solid foundation early so that the passion you discover can take off into a rewarding career.

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