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Summit Focuses on Future of Civil Engineering; Leaders Share Visions of Profession in 2025

By Mark Fitzgerald

It may be too neat and easy to say that two decades from now the civil engineering profession will be different than it is today. But what civil engineers in 2025 will be doing on the national and world stage—the roles they will play, for instance, within the profession, the opportunities they will have for serving the public and making a difference in people’s lives, and the knowledge, skills, and attitudes they will need to meet a wide range of new challenges—is much harder to predict.

Yet for some time now ASCE has recognized the importance of defining a collective vision for the future and establishing goals for which the profession’s leaders can begin to chart a course. As a way of generating a variety of ideas, aspirations, and forecasts for 2025, the Society hosted a summit entitled, *The Future of Civil Engineering*, June 21–23 at the Lansdowne Resort in Lansdowne, Virginia. The summit, which was facilitated by David G. Mongan, P.E., M.ASCE, brought together leaders in industry, academia, and government, and featured keynote addresses from Ralph R. Peterson, P.E., M.ASCE, the president and chief executive officer of CH2M HILL, John G. Voeller, M.ASCE, a senior vice president and chief technology officer of Black & Veatch, and Henry J. “Hank” Hatch, P.E., Hon.M.ASCE, a retired army lieutenant general and a former commander of the U.S. Army Corps of Engineers.

“I believe it is our duty and responsibility as civil engineers to bring about change that improves the quality of life for all people who live on this earth,” Dennis R. Martenson, P.E., DEE, F.ASCE, ASCE’s president, said at the outset of the summit. “We must continue our efforts to influence public policy in the U.S. and possibly in other parts of the world going forward.”

Attendees who participated in the summit were asked to offer visions of the future—in light of such influences as globalization, technology, and leadership—that took into account a wide range of issues, including civil engineering practice, infrastructure, sustainability, and new global demographics, both in terms of who in the year 2025 will be practicing civil engineering and where it will be practiced.

“We’re not content to just stand on the sidelines and croon that old adage, *que será, será*,” emphasized David Mongan. “We are committed to shaping and directing the future of civil engineering. Our task is to define a vision that reflects the collective aspirations of the profession.” Mongan, who played a key role in organizing the event, asked participants to begin with the end in mind—on envisioning the profession in 2025—rather than concentrating on the means that might be utilized to reach that horizon. “We will focus on what civil engineering will be about, but we do not want to focus on the how,” he explained. “Obviously some of the how will creep into our discussions and that will be unavoidable, but the how will be the subject of future activities, both within and outside of ASCE.”

In his keynote address, Ralph Peterson discussed various aspects of globalization and the probable impact it will have on the civil engineering profession in 2025. Such factors as communication and information technology, population and demographic shifts, trade and democratization, worldwide industry and organizational consolidation, and natural resources and environmental issues will be, Peterson predicted, the “global driving forces” that shape the context and parameters of the civil engineering profession in the next decades.

“The future is going to happen with or without us,” he said. “So we can either react to unfolding events and external influences or we can get to work on analyzing those influences and driving forces that we think are going to shape our profession’s future. We can get to work on articulating some realistic and achievable visions about the future that we’d like to create and we can get busy shaping our actions as best we can

so that they propel our profession towards the future that we choose instead of the one that we simply get.”

Peterson, who last year as part of ASCE’s Outstanding Projects and Leaders (OPAL) program received an award recognizing his lifetime contributions to management, considered the implications of several forecasts, including speculations that 60 percent of the world’s population will live in urban areas by the year 2025 and 80 percent of the infrastructure that will be constructed over the next 20 years will occur outside of the U.S. “When you add this up, you get a smaller proportion of civil engineers that will originate from the U.S. than from other industrialized countries,” Peterson reasoned. “You get urbanized development and infrastructure growth concentrated in what we now call developing countries. You get larger and more youthful workforces residing in Asia, Africa, and Latin America. And you get rapid economic growth in these robust emerging nations. So you can see then that civil engineers in the U.S. in 2025 will be part of a truly global and truly multi-cultural profession.”

John Voeller later discussed the importance of technology in the future and emphasized the need for civil engineers to be intrepid in envisioning their profession two decades hence. “All too often we tend to shrink away from thinking about the future because we feel it’s too hard, or we don’t like the risk that we’re taking,” he said. “But the future is really not any harder to think about than the present, because the present isn’t that simple. Just because it is temporarily proximal doesn’t mean that it’s simple. Our current events are definitely not simple, and the future isn’t any more daunting.”

According to Voeller, how civil engineers communicate in the year 2025 will be essential to their success. “As engineers, we have to figure out a way to level the playing field linguistically,” he said. “Because everything we produce and everything we try to accomplish will depend on effective communication.”

Voeller also suggested that 20 years onward civil engineering leaders might be more adept at incorporating lessons from the past into the future. “We have to begin to imagine that what happened in New Orleans last year and what happened in Southeast Asia the year before are part and parcel of today and tomorrow,” he added. “While technology can help us improve our ability to predict and plan, a big part of the future of civil engineering will be learning not to simply do something and walk away from it.

Each endeavor should be set up as an opportunity to learn. Many of the problems we have today are because we didn't figure out a way to learn how our infrastructure will degrade. We're building roads today that are lucky to last five years because we put new materials in them with no method to learn about what we've done, and they're falling apart faster than we thought."

In the afternoon Hank Hatch offered various insights related to leadership and its likely impact on the future of civil engineering. "If we as a profession ever aspire to be master integrators and truly multi-disciplinary, we cannot keep our technical blinders on," he cautioned. "We will need to engage in joint efforts with the sciences and many other disciplines. As engineers we normally begin and end with cold facts and logic, but in looking to the future that simply will not be enough. We will need to convey a passion capable of carrying our messages forward in ways that will capture attention, imagination, and support. We will need a strong and unified voice."

The findings of the summit—especially ideas that arose in the discussion groups—will be incorporated into a document and sent to participants to review and revise as appropriate. An official report of these findings is expected to be ready for publication in December.