Achieving
The Vision
for Civil Engineering in 2025

A Roadmap for the Profession

Prepared by the ASCE Task Committee to Achieve the Vision for Civil Engineering in 2025

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Entrusted by society to create a sustainable world and enhance the global quality of life, civil engineers serve competently, collaboratively, and ethically as master:

- planners, designers, constructors, and operators of society’s economic and social engine—the built environment;
- stewards of the natural environment and its resources;
- innovators and integrators of ideas and technology across the public, private, and academic sectors;
- managers of risk and uncertainty caused by natural events, accidents, and other threats; and
- leaders in discussions and decisions shaping public environmental and infrastructure policy.
Executive Summary

“Now that the Summit [on the Future of Civil Engineering—2025] is complete, the Vision articulated, and the report completed, leaders of civil engineering organizations around the globe should move the civil engineering community toward the Vision.” Those words concluded the “Executive Summary” of the groundbreaking 2007 report *The Vision for Civil Engineering in 2025*.¹ They afford a fitting start to the summary of this new plan for action—an ambitious “roadmap” for civil engineers to shape their own future and grasp a bold Vision for their profession.

Vision 2025 sets an aspirational target for a new global state of affairs: Civil engineers will be entrusted by society to help achieve a sustainable world and raise the global quality of life. Civil engineers, as a body of professionals, will be master (1) planners, designers, and constructors; (2) stewards of the natural environment; (3) innovators and integrators of technology; (4) managers of risk; and (5) leaders in shaping public policy, where “master” implies “leader” in both role and knowledge. Those are intrepid, far-reaching words, and following the release of the Vision 2025 report, the American Society of Civil Engineers (ASCE) selected a group of member volunteers to sketch a roadmap to transform that Vision into concrete action. The Roadmap is articulated through the five Vision statement outcomes and a series of “supporting outcomes.” These are followed by high-level action steps called “tactics” to achieve each supporting outcome, augmented in Appendix A by some potential, more detailed “actions.”

Master Builders

To achieve the first Vision outcome, civil engineers—as leaders in planning, designing, and constructing the built environment—will have to light the torch and position themselves at the helm of multi-disciplinary, global, collaborative teams that carry out successful projects. In their role as master builders, they will have to acquire a new, more expansive body of knowledge, provide ethical guidance, attract a diverse workforce, and define the knowledge and responsibilities for each member of a well-defined hierarchy of professionals and paraprofessionals. In addition, civil engineers must educate their colleagues, partners, and the public on what civil engineers bring to the table, and become knowledgeable, vocal advocates of sustainable economic growth through infrastructure renewal.
Stewards of the Environment

Civil engineers will enter 2025 having long recognized the imperative for sustainable practices and the urgency for social equity in the consumption of resources. In that year, policies and government funding will encourage or require sustainability and resilient approaches. Civil engineers will have put new technology, techniques, and financial methods in place for sustainable planning, design, construction, operation, and maintenance in carrying out their vital role. In addition, civil engineers will routinely encourage owners to adopt new environmental technologies and techniques to improve the quality of life, while environmental stewardship becomes an integral part of engineering education and research.

Innovators

To become master innovators and integrators of technology, civil engineers must define the strategic research direction for leading-edge technologies in the built and natural environment and serve as active participants and partners in the research process. This will take a variety of efforts, including identifying and prioritizing emerging technologies and innovations, fostering civil engineering input into strategic research planning, influencing and bolstering funds for research, promoting faster application of new technologies and multi-national knowledge exchange, championing diversity and inclusion in the profession, and accelerating the integration of technology through spirited partnerships among diverse sectors.

Managers of Risk

To achieve the managers of risk outcome, civil engineers will have shown their mettle in assessing and managing risk—forging new tactics for reducing the incidence and effects of natural and man-made disasters. Civil engineers will lead enterprise-wide risk management efforts and routinely make project-specific risk decisions, communicating risks and mitigation options to project colleagues, clients, government agencies, and the general public. At the same time, they will advance new approaches to balance business risk and reward. To have an impact, risk management must become part of every civil engineering project—a step as basic as scheduling and budgeting—and a key ingredient of all communication channels.
Leaders in Public Policy

Finally, to greatly expand their role as public policy leaders, civil engineers will possess the skills for broad-based policy discussions and serve as opportunity finders as well as problem solvers. They will become the go-to professionals for insights on public policy decisions that shape the built and natural environment. Through the efforts of civil engineers, policy-makers and the public will understand the hard-wired link between infrastructure and the quality of life. That means civil engineers must be given the tools and training for engagement in public policy work, while they become more vocal participants in public policy forums and increasingly serve in appointed and elected positions. Civil engineers will learn to lead and become motivated to initiate, communicate, negotiate, and participate in cross-professional efforts to envision societal changes that shape the quality of life.

Getting There

Turning the Roadmap's tactics into long-term action plans can be summarized in a few overarching steps. First, the global civil engineering community must broadly embrace the Roadmap, with a burgeoning collection of stakeholders—individuals and organizations—getting involved. That community must be armed with an inventory of what is already being done to achieve the Vision, be enthused about doing more, and have a sense for the possible barriers and how to break them down. Civil engineers around the globe must be informed, educated, and recruited to help achieve the Vision, and bring to the fore key issues for stakeholders. Finally, the whole effort must be monitored, evaluated, and measured over the long term, with course corrections made along the way. Such a broad activity set will not be centrally controlled, but ASCE will do its part to stimulate and facilitate coordination. In the end, the common, unifying driver will have to be the Vision, and the Roadmap to achieve the Vision. By achieving the Vision, civil engineers will have reshaped their professional stature and remained the force behind their own destiny, discovering a practical reality in what was once just imagined.