READY RESULTS
Sharing Innovative Practices from State DOTs

NCHRP NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

FOCUS ON: NCHRP U.S. Domestic Scan 22-02

January 2024

Maximizing highway construction technologies

Image courtesy of Pennsylvania DOT

By 2025, Pennsylvania DOT plans to bid all of its construction projects using 3D technology.

SCAN FOCUS

A variety of cutting-edge tools and technologies—such as 3D modeling, e-construction, digital as-builts, e-ticketing, and unmanned aerials systems—offer to make highway construction projects safer and more efficient. However, in order to make the most of these innovations a transportation agency must have a holistic understanding of the tools' capabilities, as well as knowledge of the agency's current processes and future goals. Integrating these digital construction technologies with existing practices can present a number of challenges, and states have deployed them at varying degrees. To encourage more widespread adoption, Domestic Scan 22-02 sought to learn the successful strategies states have used in their implementation efforts.

PERSON-TO-PERSON RESEARCH

The team invited 10 state transportation agencies and FHWA to participate in a virtual workshop in June 2023 to share how implementing some of the most common digital technologies affected the operations and performance of their program. The scan team members then synthesized their findings and developed a list of recommendations to help other agencies achieve similar success in their own states.

NEXT STEPS
Put It into Practice

EXPLORE NEW IDEAS

The strategies that have worked well for other public and private organizations may suit your agency's needs as well.

GET INVOLVED

Help problem-solve with AASHTO's Committee on Construction at transportation.org/construction.

READ MORE

The full Scan 22-02 report will be available soon at domesticscan.org/22-02.

SUGGEST FUTURE SCANS

What topic do you have for an NCHRP Domestic Scan? See domesticscan.org/.

PRELIMINARY FINDINGS

During the workshop, which included state presentations and whole-group discussions, a number of themes emerged. Among these, the scan team noted that having a culture of innovation, leadership support and partnerships with industry and other stakeholders were all integral to the states' successful experiences.

Additionally, having policies and procedures already in place prepared states for managing and retaining the data inherently involved with digital construction tools, and helped to make transitioning easier.

Image courtesy of Caltrans

Drones and other UAS technologies help Caltrans capture photos and videos of construction projects.

PUTTING IT TO WORK

The team developed several recommendations to help improve states' success as they embrace new digital construction technologies. Some of these include:

- Invest in innovation. Start with proven technologies and learn from other states' examples to incorporate them into existing processes.
- Build a supportive foundation. Agencies should adjust their organizational structures to make it easier to adopt new digital tools and adapt to change.
- Support ideas. Encourage agency staff to embrace innovation and help move new technologies forward.

SHARING THE RESULTS

As part of their role on the scan team, members have already presented their findings at a variety of state, local and national gatherings of transportation professionals. The information will also be shared at a number of events in 2024.

ABOUT THE PROGRAM: The NCHRP U.S. Domestic Scan Program (NCHRP Project 20-68, domesticscan.org) recognizes the value of firsthand sharing of new technologies and practices. Launched in 2006, the program typically sponsors two or three scans per year, putting state and federal DOT practitioners who need solutions in touch with innovative peers around the country, speeding the transfer of technology and know-how. During the intense experience of the scan (typically one to two weeks), participants see how a new technology or practice works in the real world. They also develop close professional relationships that remain readily available to them years later.

SCAN PARTICIPANTS

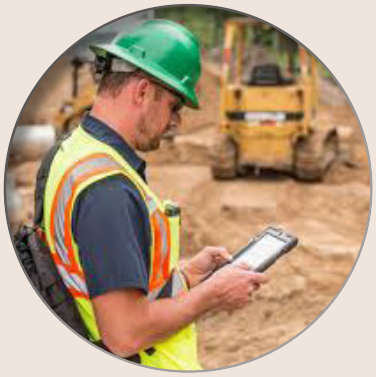

Image courtesy of Pennsylvania DOT

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