DECEMBER 2024

ABOUT THIS PROJECT

PROJECT NAME: Demonstrating the Use of Small Uncrewed Aircraft System Capabilities and Data for Iowa Transportation and Infrastructure Work

PROJECT NUMBER: SPR-RE24(010)-8H-00

PROJECT FUNDING PROGRAM:
State Planning and Research

PROJECTED END DATE: June 2027

PROJECT CHAMPION:
Matthew Miller, Iowa DOT
matthew.miller@iowadot.us

PROJECT MANAGER:
Khyle Clute, Iowa DOT
khyle.clute@iowadot.us

PRINCIPAL INVESTIGATOR:
Iowa State University

RESEARCH IN PROGRESS

Demonstrating drone capabilities to meet transportation and infrastructure needs

Potential uses of small uncrewed aircraft systems or aerial vehicles (drones) in transportation have increased significantly due to advancing technologies and decreasing costs. Various sensors, cameras, and lidar capabilities enable data collection, mapping, and monitoring. But agencies must consider many factors when choosing the right drone platform and sensor types for a specific use.

Iowa DOT has tested drone technology for traffic management and flood monitoring. These devices offer safety benefits and efficiencies, keeping workers out of harm's way and allowing quick, easy data collection. Iowa DOT is exploring how these technologies could be applied to routine agency functions.

"We've tried drones for some tasks, but applications for transportation infrastructure may be much greater," explained Matthew Miller, director of Iowa DOT's Emerging Technologies. "We want to understand how to maximize applications of drone technologies to design, build, maintain, and operate transportation infrastructure systems."

Pilot projects will demonstrate multiple uses of drone technologies such as developing as-built plans for a construction project, monitoring traffic changes over time, and tracking erosion risk through measurements and vegetation monitoring. Two additional projects will explore tasks of interest to Iowa county transportation agencies, such as mapping and inspections.

A best practices guide and technical references will help agencies select and use drone technologies for transportation and infrastructure needs. "This work can result in enhanced safety, improved productivity, and reduced costs for many common transportation agency functions," Miller said.

The research is expected to conclude in June 2027.

To learn more about this project and subscribe to updates, visit Idea #3173.

IOWA DOT RESEARCH

iowadot.gov/research
ideas.iowadot.gov

IOWA | DOT