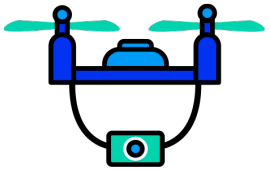
SMART GRANTS PROGRAM



Smart Counties in Kansas: System Integration for Safe and Resilient Transportation Assets

North Central Regional Planning Commission

PROJECT PARTNERS

Build America Center

University of Maryland

Kansas Counties of Cloud, Saline, Sedgwick, Cowley

NCRPC

North Central Regional Planning Commission

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INNOVATIVE FINANCING AND DELIVERY OF TRANSPORTATION INFRASTRUCTURE

PROJECT CHALLENGE

This project addresses the issue of timely and safe bridge inspection utilizing drone technology along with GIS to effectively gather, share and store data. Traditional inspection is time consuming and labor intensive. In response to inspection demands, drone technology collects data and completes inspection tasks efficiently and effectively, especially in conditions unsafe or unreachable for workers. The number of structurally deficient bridges in the project area is significant and some bridge records lack current information on safety status.

IMPACT

The project location is four Kansas counties: Sedgwick, Saline, Cowley, and Cloud and is a regional collaboration impacting a total population of 611,692 individuals. The project's area covers 57 Historically Disadvantaged Communities with a total population of 200,287 individuals. The benefits of employing drone technology include 1.) the potential reduction in the number of bridge closures 2.) potential reduction in the traffic volume impacted by such bridge closures, and 3.) potential improvements in emergency response times.

CURRENT STATE OF THE ISSUE

The average proportion of structurally deficient bridges in the project area is nearly 4%. Further, on average, approximately 56% of bridges do not meet currently accepted standards with respect to at least one traffic safety feature (i.e., bridge railings, transitions, approach guardrail, approach guardrail ends) or are missing this information.

STAGE 1 OUTCOMES

Success in Stage 1 will be a) using system integration and innovative aviation technology to develop a proof-of-concept for asset condition monitoring and assessment, and b) evaluating feasibility of expanding the project to additional locations. Other benefits accruing by sharing project results, will create opportunities for quicker and safer bridge inspection, cost savings, and enhanced information collection.

STAGE 2 VISION

Significant benefits by using advanced data, technology, and application could include increased inspection details; reduced re-inspection; earlier detection of deficiencies; increased inspection safety; and increase knowledge of overall bridge quality in rural Kansas.