

Aurora is one of 20 pooled funds that Iowa DOT leads. The study provides Iowa and its partners with critical road weather information to improve safety and service during snow and ice events.



# RESEARCH SOLUTIONS

## Iowa leverages resources with pooled funds to maximize research impact

Iowa DOT is always on the lookout for new materials, methods, and technologies that can help improve safety, increase efficiency, and save money. However, transportation research projects can be expensive, and often Iowa is interested in lines of inquiry that might duplicate efforts of other states with similar needs. By sharing the research cost and oversight with other state departments of transportation (DOTs) through the federal **Transportation Pooled Fund (TPF) Program**, Iowa DOT has found a way to get the best of both worlds: cutting-edge research within an established budget.

### BACKGROUND

Research informs nearly every transportation-related decision, from designing roads and bridges to selecting products and techniques for construction and scheduling maintenance tasks. But since each research project can cost hundreds of thousands—or even millions—of dollars, an agency conducting

research on its own may be limited in what it can afford to study.

Pooled funds—arrangements among two or more DOTs with a shared research goal—offer an attractive alternative. By joining forces, agencies get all the benefits of the research results, but each pays for only a fraction of the work.

### PROGRAM

With hundreds of active pooled funds, the TPF Program regulates the process of helping state DOTs find and fund projects. It also provides the framework for a successful multiagency partnership, outlining the various roles and responsibilities needed. A TPF study operates like a committee, with each member

*(continued)*



**“Pooled funds are a great way for Iowa DOT to get more value out of our research investment. Without the TPF mechanism, it would take us 67 years to fund the same amount of research.”**

**— KHYLE CLUTE,**  
Iowa DOT SPR Research Engineer

agency contributing a portion of what it costs to conduct the research in exchange for the opportunity to help guide and shape the project.

And like any committee, a pooled fund requires a leader to manage the project and perform administrative functions. It's a role that suits Iowa DOT, which serves as the lead agency on more pooled funds than any other state.

## SUCCESS STORIES

Iowa-led TPF studies generally fall into one of the following categories: *general research*, *program*, or *workshop*. The examples below illustrate how each type brings significant value to Iowa.

→ *GENERAL RESEARCH* pooled fund projects typically have a narrow focus and are formed to solve a regional or issue-specific challenge. They tend to be smaller and have fewer members.

**Evaluation and Full Scale Testing of Concrete Prefabricated Bridge Rails** (study number TPF-5(367)) is an Iowa-led general research pooled fund studying the durability of a prefabricated concrete barrier design developed by Iowa State University. With eight partners, Iowa is leveraging a \$20,000 annual investment to a total of \$480,000 worth of research. The results will help Iowa and others meet national standards for barrier crash testing.

→ *PROGRAM* pooled fund studies are often ongoing projects designed to address a variety of smaller initiatives under a broad theme, and they tend to have more participants.

**Aurora (TPF-5(435))** is an Iowa-led program pooled fund. Iowa DOT invests \$25,000 annually with 17 other partners, for almost half a million dollars in research each year. Now in its third decade, **Aurora** seeks to use weather-related information to help agencies make better highway maintenance decisions. Issues of study include evolving technology, equipment, road condition monitoring, and performance measures.

Four **Aurora** projects have been approved for 2020 and include developing a tool to help DOTs calculate the costs of measuring weather data, identifying issues associated with weather severity indices, and using infrared technology to detect ice on roadways.

→ *WORKSHOP* pooled fund studies provide recurring opportunities for DOTs to share lessons learned and best practices.

**Innovations in Freight Data Workshop (TFP-5(383))** is an Iowa-led workshop pooled fund. With eight other partners and an annual investment of \$14,000, Iowa meets with representatives from local, regional, state, federal, and international agencies every other year to discuss developments and

issues as they pertain to transporting goods via highway, rail, water, and air.

Hot topics from the **2019 workshop** included novel methods of data collection, developing freight data into decision-making information, and machine learning and computer vision to improve data collection.

## IOWA BENEFITS

Iowa DOT is a nationally recognized leader in transportation research, and this extends to pooled funds. By collaborating with other DOTs with similar interests, Iowa DOT is able to invest in more research projects than it could on its own. The resulting knowledge helps the agency make better-informed decisions, conserve resources, and remain on the cutting edge of technological advancements.

## BY THE NUMBERS

**18** The average pooled fund returns a **benefit 18 times greater than its cost** to Iowa DOT.

**67** Without participating in pooled funds, it would take Iowa DOT **67 years to fund the same amount of research**.

**60** As of August 2020, Iowa DOT **participates in 60 active pooled funds** (leading 20 of these) among 170 currently active.

**48** Currently **48 states** participate in Iowa-led pooled funds.

## ABOUT THIS PROGRAM

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