

July 2015

The Midwest Transportation Center (MTC)—the U.S. DOT's Region 7 University Transportation Center (UTC) serving Iowa, Kansas, Missouri, and Nebraska—is in the third year of its **multi-million dollar** UTC award through the Office of the Assistant Secretary for Research and Technology. Housed and administered at **Iowa State University's Institute for Transportation**, the MTC is a consortium including the University of Missouri–Columbia, University of Missouri–St. Louis, Wichita State University, Creighton University (Omaha, NE), and Harris-Stowe State University (St. Louis, MO), a historically black university.

Since the UTC program was initiated in 1987, Iowa State University–led consortia have won four of six regional UTC competitions and one UTC Tier-1 competition.

The MTC's theme is **Data Driven Performance Measures for Enhanced Infrastructure Condition, Safety, and Project Delivery**. The MTC addresses regional issues related to the theme through a strategically focused program that is synergistic with U.S. DOT priorities and MAP-21 goals, with State of Good Repair as the ultimate objective.



IOWA STATE UNIVERSITY
Institute for Transportation

Making a Real Difference

Midwest Transportation Center

... in Iowa and Beyond

Teaching in the Fast Lane Workshop for Elementary Teachers

"I had a general idea before this class started that **engineers are problem solvers** who love tackling challenging projects, but I really had no idea how the process worked or how specialized it can be. I had never really considered how I could work the terms **engineer** or **engineering** into my **classroom vocabulary**, but now I **intend to use them as much as possible.**"

– Dan Loy, 4th grade, Beaver Creek Elementary

Goal

To introduce participating elementary school teachers to the field of engineering, engineering concepts, and the engineering professions.

Objective

To equip the participating teachers with the necessary information to effectively impart engineering concepts into their curricula.

About

The weeklong program included **presentations from Iowa State University (ISU) and Iowa Department of Transportation (Iowa DOT) engineers and educators:**

- Shauna Hallmark (Director, Institute for Transportation, ISU)
- Paul Trombino (Director, Iowa DOT)
- Jan Laaser-Webb (Supervisor, Dept. Transportation Safety, Iowa DOT)
- Kristie Tank (Assistant Professor, School of Education, ISU)
- Andy Stone (Bridge engineer, United Contractors, Inc.)

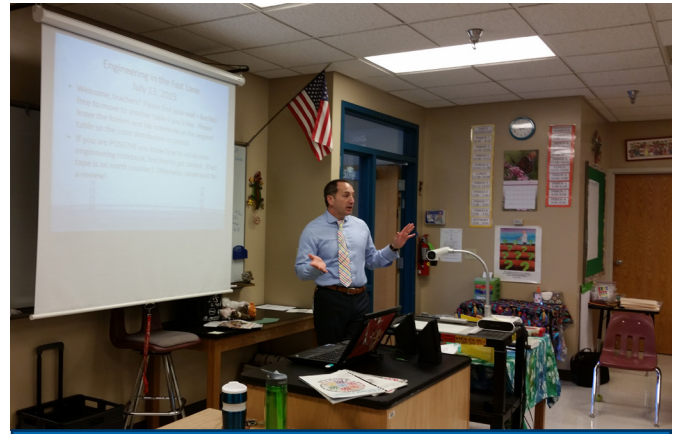
The program also included various **hands-on activities and field trips**, such as visiting the **Perry Bridge site during an inspection**. These field trips corresponded with activities from the American Association of State Highway and Transportation Officials (AASHTO) RIDES "Roadways in Developing Elementary Students" kit, together providing teachers with the supplies and knowledge to take these activities to the classroom.



Group of elementary teachers visiting the Perry Bridge during an inspection



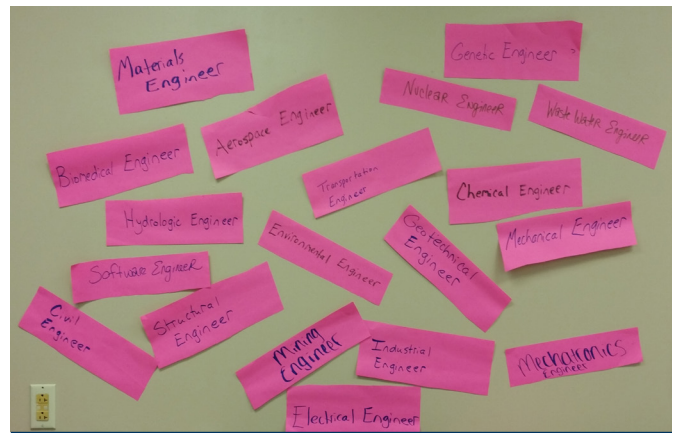
Elementary teachers test toothpick bridges with varying weights



Iowa DOT Director Paul Trombino speaks during workshop



Test bridges were made out of toothpicks and Elmer's school glue



The product of a brainstorm activity on engineering professions

Mini Kits

Each participant was provided with a modified version of the **AASHTO RIDES kit**, which included a variety of ready-to-use supplies for implementation of newly learned activities. Each kit included items such as a set of engineering process flash cards, hot wheel cars, spring scales, stopwatches, foam board ramps, toothpick bridge book/guide, calculators, and many other items.

Participation

Twenty-four teachers from across the state of Iowa attended the Teaching in the Fast Lane workshop. There were a range of school districts that participated:

- Des Moines Community School District (12 Teachers)
- Norwalk Community School District (3 Teachers)
- Johnston Community School District (2 Teachers)
- Waukee Community School District (2 Teachers)
- Ankeny Community School District (1 Teacher)
- Colo-Nesco Community School District (1 Teacher)
- Grand View Christian School (1 Teacher)
- Westwood Community School District (1 Teacher)
- Southeast Polk Community School District (1 Teacher)

Teacher Quotes

“My role at the elementary level is to **engage, excite, and introduce students to STEM.** Part of this introduction should (and will) include working our way through the **engineering design process.**”

– Nikki Thies, 4th grade,
Greenwood Elementary

“I am amazed at the **different types of engineering** there are and how so many intertwine with my class. I will use **civil engineering** as an example then branch off to **transportation, environmental, geotechnical, and structural.**”

– Joni McConnell, 2nd grade,
Greenwood Elementary