

Results

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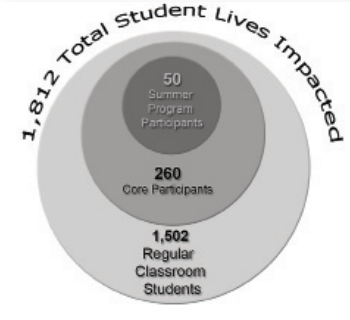
MATC After School Program

Roads, Rails and Race Cars

Student Impact 2012-2013

In terms of impact, we predict this year the program will reach:

- **260** core participants
- **50** summer program participants
- **1,502** students in the classrooms of participating K-12 teachers



A total of **1,812** students will be impacted by the after school program curricula.

The program will operate with:

- **73** transportation-related lesson plans in an ever-growing repository
- **13** teacher partners at K-12 sites
- **16** undergraduate and graduate student mentors

These figures will continue to grow as the program expands to new sites.

Participant Comments

Sometimes the numbers speak for themselves, but Roads, Rails and Race Cars also functions on a very personal level, building relationships among students, teachers, industry partners, and university mentors.

"Being a mentor for Roads, Rails and Race Cars has given me the opportunity to share my experience and knowledge with the next generation of students. And the club is great practice for presenting to the general public. Not many people can ask in-your-face questions like middle school students can!"

-Scott Sorensen, Mentor

"The program has changed what I thought about science and math because it makes me think more about engineering and what the field really requires."

-Zach Harris, Middle School Student

"In our competitive society it is important for students to not only receive a solid education, but to work with someone who builds hope for their future. That is why collaboration with the UNL graduate and undergraduate students, as well as community members, is exciting, meaningful, and rewarding. Being a teacher for RRRC is the best part of my day."

-Mary Herrington, Teacher

US DOT REGION 7 UNIVERSITY TRANSPORTATION CENTER

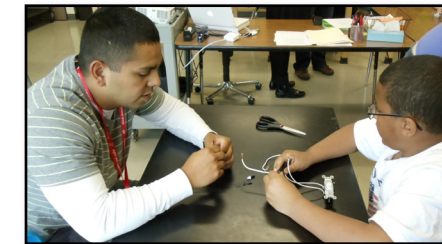


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MID-AMERICA
TRANSPORTATION CENTER



Through a partnership between the Mid-America Transportation Center and the Nebraska Department of Education, this program seeks to inform and excite the next generation of transportation workers by...

engaging elementary through high school students in hands-on activities in an extracurricular setting and...

educating students about STEM fields by focusing on transportation-related lesson plans!

Inform. Innovate. Impact.

Funding provided by:

FHWA Garrett A. Morgan Technology and Transportation Education Program

Goals

The mission of the program is to educate the diverse leaders of tomorrow about the infrastructure around them, using multimedia math and science lessons and the many related career opportunities that are available for them.

This involves combining the talents of primary and secondary teachers, industry professionals, and engineering undergraduate and graduate mentors from the University of Nebraska.

Together, these leaders introduce elementary through high school students to...

- Basic principles of science, technology, engineering and math
- Career information about transportation fields
- Interactive games, modeling activities and demonstrations

Scope

The after school program was first implemented at Culler Middle School in Lincoln, Nebraska, during the 2010-2011 academic year. Following its success in 2011-2012, the program expanded to other K-12 institutions in the Lincoln Public Schools (LPS) system, including:

- 1 high school
- 3 middle schools
- 1 elementary school

During the 2012-2013 academic year, organizers plan to implement the program at schools in the Omaha Public Schools (OPS) system, as well as two out-of-state sites coordinated by other University Transportation Centers (UTCs) in Iowa and Wisconsin for an expansion of:

- 2 high schools
- 7 middle schools
- 2 elementary schools



The framework and curricula of the program are sustainable and easily transferable, as proven in the site expansion within LPS. Thus, the possibilities for expansion are only limited by the willingness of participants and partners to join the movement.

Pedagogy

Each after school club hosts 10-20 students at every weekly session. During each meeting, teachers and mentors lead students in interactive and informative activities about transportation.



The curriculum of the program is developed by mentors with guidance from lessons created during the Summer Institute. At the annual Summer Institute, teachers create STEM-related lesson plans with guidance from engineering and logistic faculty at UNL.

These lessons demonstrate transportation in action, through a variety of activities, such as:

- Building penny barges to learn about freight transportation
- Creating pudding embankments and watching the effects of milk "flooding"
- Constructing bridges and conducting strength tests
- Digging tunnels through clay mountains to determine the most effective tunnel structures
- Crashing toy cars and measuring the impact to learn about crash barriers
- Observing walking, running and skipping speeds; then using LIDAR guns to calculate speed and velocity

The final component of Roads, Rails and Race Cars is in the students' hands: participants themselves present a topic at a celebration with their parents and community members at the end of the program. This showcase allows students to communicate about what they have learned and how they can apply it to real-world transportation problems.

In addition, each summer, MATC invites students to participate in a summer intensive experience. This 2-day session gives students further access to interactive transportation learning, by touring additional lab facilities at UNL and meeting industry partners as well as visiting their respective sites.

Partners

MATC educational programs have been successful because of their ability to bridge various groups: industry, academia, education, and the community itself. Roads, Rails and Race Cars has embraced the generous support from organizations and individuals throughout the community, and these relationships have shaped the experience for every student in the after school clubs.

MATC—and the Nebraska Department of Education—would like to recognize its partners in this endeavor:

- Center for Research on Children, Youth, Families & Schools
- Faubel Financial Services
- Flatbed Express
- Lincoln Community Learning Centers
- Lincoln Public Schools
- Metropolitan Community College
- Nebraska Department of Roads
- Nebraska Transportation Center
- Nebraska Children & Families Foundation
- Nebraska Trucking Association
- Southeast Community College
- University of Nebraska–Lincoln

