



How do we create a more sustainable infrastructure?

Through innovative research and education of the next generation of sustainability conscious workforce professionals.

About the UTC-MiSTI

In 2005, the University Transportation Center for Materials in Sustainable Transportation Infrastructure (UTC-MiSTI) was established at Michigan Technological University (Michigan Tech). The UTC-MiSTI, one of 60 US Department of Transportation funded University Transportation Centers, conducts research, education, technology transfer, and workforce development to assist state and national transportation agencies in achieving their respective missions. Under the guidance of the Research and Innovative Technology Administration (RITA), the UTC-MiSTI focuses its efforts in the area of civil infrastructure materials. Traditional materials of interest include bituminous concrete (asphalt), portland cement concrete, and aggregates and soils. The Center is also exploring new material applications including increasing the use of supplementary cementitious materials such as coal fly ash and slag, and developing new materials such as geopolymer concrete. In the area of bituminous concrete, Center researchers are developing Warm Mix Asphalt technology applications for cold climates, and investigating the use of recycled asphalt materials and other industrial by-products including shingles and tires. With diminishing available sources of high quality virgin aggregate, developing the use of lower quality aggregate sources and recycled aggregate materials in the construction of highways and other infrastructure are critical areas of investigation for the Center.

Michigan Tech, ranked in the top 25% of public research institutions by the National Science Foundation, has annual research expenditures exceeding \$60 million. Combined undergraduate and graduate student enrollments top 7,100 students including more than 500 students pursuing degrees in civil engineering. More than 56% of Michigan Tech's student population is enrolled in science and engineering degree fields with a campus-wide graduation placement rate of 90%.

For additional information on the UTC-MiSTI, visit:

www.misti.mtu.edu

Center Program Highlights

Research and Technology Transfer Activities

National Cooperative Highway Research Program

- NCHRP 18-13 Specifications and Protocols for Acceptance Tests of Fly Ash Used in Highway Concrete

Michigan Department of Transportation

- Use of Recycled Concrete in Michigan Pavements
- Evaluation of Warm Mix Asphalt
- An Integrative Framework to Study Carbon Emissions of Road Construction Projects
- Impact of Hydrated Cement Paste Quality and Entrained Air-Void System on the Durability of Concrete

Wisconsin Department of Transportation

- Reduction of Minimum Required Weight of Cementitious Materials in WisDOT Concrete

South Dakota Department of Transportation

- Technology transfer support of TPF-5 (042) The Deleterious Chemical Effects of Concentrated Deicing Solutions on Portland Cement Concrete

Workforce Development Initiatives

- K-12 Outreach and Career Awareness
- Supporter of Michigan's Construction Career Days
- Host Site for Michigan's only National Summer Transportation Institute Program
- AASHTO TRAC Program-Teacher Training Partner
- MDOT TRAC Pipeline-Scholarship Sponsor

Undergraduate and Graduate Education

- Pavement Design, Construction and Materials Enterprise Program-Undergraduate Project Management Experience
- Summer Scholars Program-Undergraduate Research Experience
- Graduate Research Assistantships
- New Curriculum Development
- Sponsorship of Industry Site Visits and Speakers



Michigan Technological University houses a wide complement of transportation-related programs partnering in research, technology transfer, education, and workforce development. Under the umbrella of the Michigan Tech Transportation Institute, federally funded centers collaborate with state and internally funded centers and programs. Federally funded programs include the UTC-MiSTI, Michigan's Local Technical Assistance Program, and the Region 2 Tribal Technical Assistance Program. State funded research centers and laboratories include the Michigan Department of Transportation funded Transportation Materials Research Center and the Center for Structural Durability. Internal programs include the Center for Technology and Training, and the Rail Transportation Program.

For more information about these programs, visit

www.mtti.mtu.edu

Michigan Tech

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