

**Advanced Technologies in Transportation Management, MAUTC's guiding theme, recognizes the critical link between technology and management of transportation infrastructure and operations. It also leads MAUTC in a multidisciplinary approach to the transportation challenges facing the Mid-Atlantic Region.**

**MAUTC'S PRIMARY GOALS ARE TO:**

- **Design and implement research and educational programs that use advanced technologies for information acquisition, analysis, and management of the nation's transportation system.**
- **Apply a multidisciplinary approach to research, education, and technology transfer activities, emphasizing the operations and management of the nation's transportation system.**
- **Administer a multimodal mission that addresses passenger and freight transportation, highways and transit, and intermodal transportation.**



**B E N E F I T S**

**Develops tomorrow's workforce.** Graduate and undergraduate students, tomorrow's transportation leaders, receive financial support through internships, scholarships, and graduate assistantships. The students are provided an opportunity to conduct transportation research under the guidance of MAUTC universities' premiere faculty and researchers.

**Fosters collaboration.** Today's transportation challenges are complex and call for a multidisciplinary research approach. MAUTC projects bring together faculty, students, and researchers from diverse fields such as psychology; business logistics; business law; civil, environmental, mechanical and electrical engineering; and agricultural sciences, to name a few.

**Strengthens partnerships.** State and local governments and private organizations leverage their research dollars by partnering with MAUTC researchers to find solutions to critical transportation issues.

**Advances new technologies.** Disseminating research results to potential users in a form that can be directly implemented, used, or otherwise applied advances the state of the art and practice in transportation management.

**Promotes state-of-the-art research and solutions.** Research conducted at MAUTC universities spans the range from developing new theories to applying new technologies for solving local, state, and national transportation problems.

**S U C C E S S E S**

■ Researchers at Virginia Polytechnic Institute and State University are developing a prototype of an instrumented city in Blacksburg, Virginia. The test bed will provide a state-of-the-art data collection environment to evaluate the impacts on efficiency and energy use, the environment, and safety of traffic flow improvement projects that include Intelligent Transportation Systems (ITS) and Intelligent Vehicle Initiatives (IVI). The instrumented city will serve as a unique educational tool, allowing practitioners and undergraduate and graduate students to access and analyze real-life traffic data.

■ At Penn State, researchers and students developed CentreSim, the first spatial and temporal, activity-based, travel-demand forecasting application in the U.S. that is combined with a four-step software program. The regional travel-demand model uses activity-based methods to predict the number of persons present each hour in each traffic analysis zone and the traffic volume on the regional network for each of these 24 hours. Local consultants have combined CentreSim data with traffic simulation to study the Penn State University Park campus and recommend new investments in area infrastructure.

■ Across the nation, there is a critical need for engineers in the transportation field. West Virginia University is capturing the imaginations of secondary school students and teachers through its innovative Transportation Careers Awareness Program (TCAP). TCAP's goal is to better prepare and encourage secondary school students to pursue higher education, and to increase their awareness of engineering careers in the transportation field. TCAP has partnered with the American Society of Civil Engineers (ASCE) to promote the West Point Bridge Competition, and TCAP hosts an annual West Virginia Bridge Building contest.

■ A major emphasis at the University of Pennsylvania is freight transportation and logistical networks, including industrial research collaboration and student internships. One recent project developed new methods for planning product deliveries and truck movements. A current project is developing methods for assessing Transportation System Capacity, Flexibility, and Vulnerability. Changes in trade patterns from globalization as well as threats from natural and man-made disasters converge to make this a high priority research topic.

■ Researchers at the University of Virginia determined that data collected from Advanced Signal Control Systems (ASCS) can be used to generate information that is useful for transportation engineering analyses other than signal optimization and control. For example, the data can support the derivation of useful transportation engineering performance measures, such as daily volume counts, if the system's detectors placement are deployed in an appropriate configuration. This research has provided significant benefit to DOTs by demonstrating how to realize greater return from ITS investments and how to better design advanced systems.



MAUTC is a five-university consortium consisting of The Pennsylvania State University, University of Pennsylvania, University of Virginia, Virginia Polytechnic Institute and State University, and West Virginia University. Its mission is to attract talented researchers and students to the study of transportation and to engage them in new approaches to the transportation issues of today and tomorrow.

MAUTC is one of 26 centers in the University Transportation Centers (UTC) program, which was established in 1987 to advance U.S. technology and expertise in the many disciplines comprising transportation, through research, education, and technology transfer at university-based centers of excellence.

MAUTC operates on an annual grant from the Federal Highway Administration and the Federal Transit Administration that is matched with funds from state, local, university, and private sources. The University Transportation Centers Program is administered through the U.S. Department of Transportation's Research and Special Programs Administration.

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  - **University of Pennsylvania**
  - **University of Virginia**
  - **Virginia Polytechnic Institute and State University**
  - **West Virginia University**

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