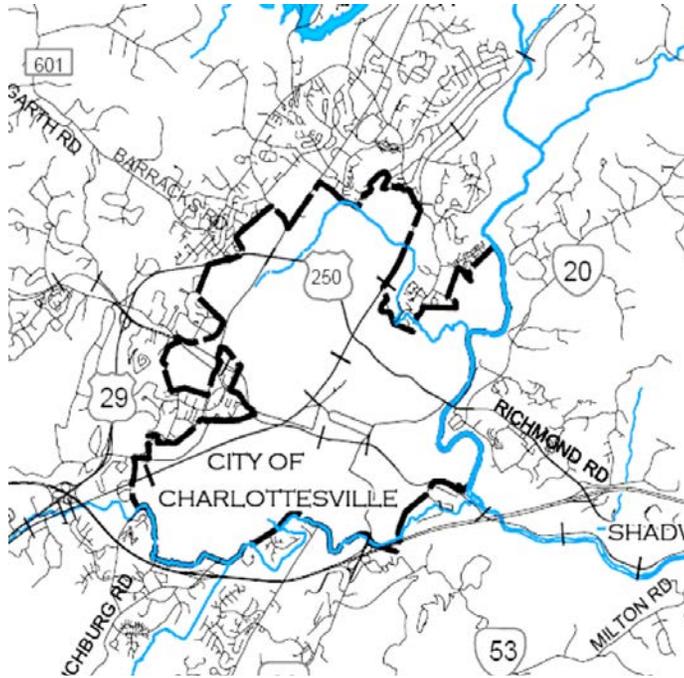


Transportation Engineering & Management Research



Michael Demetsky

Henry L. Kinnier Professor

mjd@virginia.edu

<http://cts.virginia.edu/Demetsky.htm>

Dept. of Civil and Environmental Engineering
University of Virginia
Charlottesville, VA
434.924.7464

“Educating transportation
professionals.”

Our group works closely with the Virginia Center for Transportation Innovation and Research (VCTIR), located at the University of Virginia, as part of their training to become transportation professionals. Our research is focused on the management of intermodal freight transportation, the development of performance analysis tools for transportation systems and their management and development/application of transportation integration of planning and operational analysis models.



Intermodal and Freight Transportation Planning and Operations

The mobility of freight is vital to the national economy. The growth in demand for freight transportation has already outgrown the infrastructure improvements taking place to accommodate the growth at many places. The problem is more acute on the highway system in metropolitan areas where severe congestion has reduced the efficiency of the freight transportation system. Because of the importance of freight movement in economic development, there has been an increased attention towards incorporating freight into the transportation planning process. Our work seeks to develop statewide intermodal freight transportation methodologies which could be adapted for national use.

Evaluation of ITS Deployments

In accordance with the guidelines of FHWA and the Transportation Equity Act of the 21st Century, each Intelligent Transportation System (ITS) project is required to undertake a self-evaluation. We work to develop and deploy evaluation plans which meet the goals, objectives, and measures of effectiveness important to managing party as well as the public.

Decision Support Systems for Transportation Systems Management

The state of transportation in the United States has reached a critical point. When the interstate system was constructed, beginning in the late 1950s, bridges were typically designed for a fifty-year lifespan; today, the average bridge is 43 years old. Further, freight tonnage on the highways has become much higher than was originally anticipated, and continues to increase. A lot of research has been done to identify critical infrastructure to protect and prevent potential security threats, while other work has been conducted on infrastructure asset management. Despite this work, no research has been done that sets a framework for prioritizing bridge repair and replacement based on structural need and economic importance for hauling freight traffic. Our group is working to fill this gap.

Performance Analysis of Transportation Systems

Our group works with local and state transportation administrators to evaluate current systems. An example project is the development of user-friendly software package which automates the several existing models that predict crash rate depending on various roadway conditions, daily traffic volume, signalized access density, median treatment, and unsignalized intersection access density.

RECENT RESEARCH DEVELOPMENTS

- Developed a strategy for performance assessment of Virginia's traffic management plans.
- Developed a planning level methodology for identifying high crash locations.

RECENT GRANTS

- Penn St. University/U.S. DOT – Mid-Atlantic Universities Transportation Center
- Penn St. University/U.S. DOT – University Transportation Centers Program: Economic Metrics for Freight Infrastructure Prioritization
- VDOT – Integration of Travel Demand Model Output with Operational Analysis Tools
- VDOT – Methods to Prioritize Maintenance of Aging or Obsolete ITS Infrastructure

SEAS Research Information

Pamela M. Norris, Associate Dean
University of Virginia
Box 400242
Charlottesville, VA 22903
pamela@virginia.edu
434.243.7683

