

Proceedings of the
Mid-Continent Transportation Symposium 2000

**Center for Transportation Research and Education
Iowa State University**

PROCEEDINGS OF THE
MID-CONTINENT TRANSPORTATION SYMPOSIUM 2000

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The following acronyms may be used without definition in this proceedings:

| | |
|--------|--|
| AASHTO | American Association of State Highway and Transportation Officials |
| ASCE | American Society of Civil Engineers |
| ASME | American Society of Mechanical Engineers |
| ASTM | American Society of Testing and Materials |
| FHWA | Federal Highway Administration |
| NCHRP | National Cooperative Highway Research Program |
| NHTSA | National Highway Traffic Safety Administration |
| SHRP | Strategic Highway Research Program |
| TRB | Transportation Research Board |
| USDOT | United States Department of Transportation |

PREFACE

The Mid-Continent Transportation Symposium 2000 was the third biennial transportation research conference cosponsored by the Center for Transportation Research and Education (CTRE) at Iowa State University and the Iowa Department of Transportation. The conference and proceedings were developed under a collaborative arrangement between the two organizations formalized in a Memorandum of Agreement in 1992 and expanded in 1996 to include the University of Iowa and the University of Northern Iowa. This year the symposium was held in conjunction with the spring conference of the Missouri Valley Section of the Institute for Transportation Engineers (MOVITE).

The day-and-a-half conference provided an opportunity for Iowans and other Midwesterners to focus on regional and national transportation research and technology transfer issues through presentations of the caliber generally found at national events. The conference allowed transportation professionals from the region to attend a content-rich event without having to travel outside the region.

This document is the set of papers presented at the conference. Twenty-six categories of papers were presented in five concurrent sessions. Papers were included from all areas of interest, ranging from transportation infrastructure design to intelligent transportation systems to transportation policy and asset management systems. Together the 79 presentations at the symposium showcase the variety of research that is shaping the next era of transportation.

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