NORTH TEXAS TRANSPORTATION RESEARCH CONSORTIUM

Accomplishments: To enable continued economic development of the North Texas region in the context of internationalization of commerce, researchers at four North Texas institutions have:

- Established a working group with diverse and synergistic skills
- Developed a “meso-scale” simulator of a subset of North Texas that can model up to 1 million simultaneous point-to-point trips
- Collaborated with partners within Texas and across the nation

Goals:

- Provide a resource for addressing public policy problems related to population growth, economic growth, infrastructure security, emergency management, and NAFTA
- Collect data and construct models that provide insight into solving problems related to traffic congestion, air quality, and health and social problems
- Provide a systems approach to multi-modal transportation demand management and land use policies
- Track and forecast urban development patterns including land use, business expansion, and housing
- Educate the next generation of transportation planners and engineers
- Appropriation request: $5.5 million over five years

By the year 2030 the population of Texas will double and in North Texas will have four of the State’s most populous counties compared to two today. The consortium to be established based on our current working group will play a major role in reducing congestion, enhancing safety, expanding economic opportunity, improving air quality, and addressing medical issues associated with the safety and air quality concerns.

Via separate investments and achievements of researchers at the University of North Texas, Southern Methodist University, the University of Texas at Arlington, and the UNT Health Science Center, great strides have been made in addressing transportation issues stretching from congestion modeling of downtown Dallas to policies affecting mass transit ridership. Due to the increase of international trade, e.g., NAFTA, inter-city transportation is becoming a new issue that must be addressed by local jurisdictions. In order to address these concerns, as well as add air quality and health-related studies, the four institutions will establish the North Texas Transportation Research Consortium in order to work in concert on the complex problems that our region faces.

The Consortium will marshal talent from across our institutions to solve problems related to region-wide system performance, modernize the education of future traffic engineers and public policy planners, and raise awareness of the importance of the transportation system to our economic well-being. Pressing questions for which models and, in some cases, solutions will developed are: (1) How is the overall system performance of a combination of bus, rail, and personal vehicle usage measured as a function of congestion, delays, passenger/freight costs, and volume? (2) How may current patterns and projected policies be used to forecast capacity needs, land-use changes, and social impact in order to assist planning for increasing the value of transportation assets? (3) What are the factors, both within and outside the transportation system, that produce air quality alerts and how may the effect be mitigated to bring the region into compliance with federal guidelines? (4) What precautionary measures in the health care industry will reduce the negative impact on the well being of the popula-
tion within our region that arise from concomitant environmental effects and the inevitable increase in incidents? (5) What safety, security, and capacity measures are necessary to cope with the increasing flow of commercial goods by rail and roadway to and from Latin America? Initial and subsequent investigations will be selected in consultation with regional Metropolitan Planning Offices (MPOs) with the goal of achieving the greatest benefit vs. available resources and likelihood of achieving success by having a beneficial impact on North Texas.

The current working group has developed a number of relevant technologies and knowledge bases as well as consulted with regional providers on specific projects. Some representative accomplishments are planning for experiments to determine policies for value pricing of managed lanes; simulating the traffic flow on expressways and arterial routes across one of the most congested subregion of North Texas; predicting roadway incidents based on observable traffic conditions. We are in close contact with some of the most successful research centers in the Nation such as the Texas Transportation Institute (TTI), the University of Minnesota Transportation Research Center, SMARTLAB at the University of Virginia, and Berkeley Transportation Systems, Inc.

Discussions with staff members at the North Central Texas Council of Governments, DART (Dallas Area Rapid Transit), North Texas Fusion Center, and various MPOs and municipal traffic engineers indicate that there is much data that can be released to the research team comprising the Consortium. This enables leveraging of funding and facilitating technology transfer to the benefit of travelers throughout North Texas.