

Contact: Diana Gonzalez

**REQUEST TO CREATE NEW CENTER AT IOWA STATE UNIVERSITY:
MIDWEST TRANSPORTATION CENTER**

Action Requested: Consider recommending approval of the request by Iowa State University to establish the Midwest Transportation Center (MTC) under the direction of the Vice President for Research.

Executive Summary: The purpose of the proposed center is to serve as the organizing structure that will administer the U.S. Department of Transportation grant and coordinate related research at ISU and its collaborating partners. This proposal was reviewed by the Board Office and the Council of Provosts and is recommended for approval. Board of Regents Policy §6.08 requires that all centers and institutes be approved by the Board. This request addresses the Board of Regents Strategic Plan priorities to provide “educational excellence and impact” and “economic development and vitality,” Goal #7 - “Iowa’s public universities shall contribute to the expansion and diversification of the Iowa economy,” and Goal #8 - “Iowa’s public universities and special schools shall be increasingly efficient and productive.”

Background:

- ◇ Description of proposed center. The Institute for Transportation (InTrans) at ISU was recently awarded a competitive grant from the Research and Innovative Technology Administration (RITA) in the U.S. Department of Transportation (DOT). The grant funds a federally-designated “university transportation center (UTC)” (www.rita.dot.gov/utc/). This regionally awarded grant is for \$2.52 million per year for a minimum of two years and requires a 100% match in non-federal funds. The majority of the match will come from research funding from state and local agencies, such as the Iowa and Missouri departments of transportation. The total impact of the grant is expected to be more than \$10 million during the two years. The grant may continue beyond two years with a continuing resolution of the current transportation bill, Moving Ahead for Progress in the 21st Century Act (MAP-21, signed into law in July 2012). Although funding is for two years, grant funds can be expended over four years.

The purpose of the grant is to solve transportation issues through targeted research and to develop the next generation of transportation professionals. ISU was awarded the UTC grant for U.S. DOT’s Region 7 (Iowa, Kansas, Missouri, and Nebraska). The grant will be led by ISU with five partner universities and one collaborating community college:

- ⇒ University of Missouri – Columbia in Columbia, MO
- ⇒ University of Missouri – St. Louis in St. Louis, MO
- ⇒ Wichita State University in Wichita, KS
- ⇒ Creighton University in Omaha, NE
- ⇒ Harris-Stowe University in St. Louis, MO
- ⇒ Seward County Community College in Liberal, KS (collaborator)

The MTC will address regional issues related to its theme, “Data Driven Performance Measures for Enhanced Infrastructure Condition, Safety, and Project Delivery.” This theme is synergistic with U.S. DOT priorities and aligns with the goals and objectives of the Highway Authorization Act, MAP-21. The MTC will be housed at the Institute for Transportation (InTrans).

- ◇ Need for proposed center. MTC has a long history with the UTC program. ISU was awarded one of the original 10 regional UTC grants in 1987; since then, ISU has been awarded several regional UTC grants and a Tier 1 UTC grant. In fact, ISU has won a UTC grant in every competition since the program was initiated, except for once when ISU was a sub-contractor to another institution. The current grant is the fourth regional award to ISU, demonstrating the MTC's history of success as a U.S. DOT UTC.

During the course of the past U.S. DOT UTC awards, the MTC was administered as a distinct entity at ISU under two titles. It was first administered as the "Midwest Transportation Center," a Regent-approved university center. Later, the name was changed to the Midwest Transportation Consortium which resulted in the center being dropped from the list of Regent-approved centers. This request is to re-instate the MTC as a university center because its size and scope are consistent with a center. Furthermore, formalizing its status as a university center will bring its structure in line with expectations for the U.S. DOT university transportation centers and will validate the MTC as a point of contact for conducting grant activities that will include faculty and researchers from a variety of departments across campus.

- ◇ Proposed center activities and objectives. The proposed center will address the following objectives:

- ⇒ Serve as a focal point with the region and nationally for research that develops data driven performance measures for Transportation Infrastructure Condition, Safety, and Project Delivery.
- ⇒ Ensure efficient use of funds by building on existing programs, avoiding duplication, leveraging existing resources, and developing creative cooperative activities with industry.
- ⇒ Develop products that are useful and relevant to stakeholders, including regional, national, state, and local transportation agencies, as well as industry and other researchers.
- ⇒ Provide leadership in the next generation of technology transfer beginning with the research itself, involving the user, innovative outreach, and new communications technology.
- ⇒ Develop the next generation of transportation professionals and provide opportunities for current professionals.
- ⇒ Provide leadership opportunities for students and young professionals.
- ⇒ Recruit and retain a diverse workforce.

- ◇ Relationship of proposed center to University's Strategic Plan. The MTC is intended to be interdisciplinary and will operate under InTrans. It will support the Institute's and ISU mission in the following manner:

- ⇒ *Create Knowledge.* The MTC will conduct research to develop safer and more efficient highway infrastructures. The MTC will conduct a portfolio of research in coordination with state and local agencies in Iowa, Kansas, Missouri, and Nebraska to address regional transportation needs. Center activities will also be aligned with federal transportation priorities.

- ⇒ *Share and Apply Knowledge.* One of the proposed center's objectives is to translate research into practice. Each research activity will have an outreach and implementation component that will be coordinated with state and local transportation agencies to meet their needs. In particular, the proposed center will ensure that knowledge gained through research and education activities is disseminated so that transportation agencies and practitioners can use the information for better decision making and more efficient allocation of resources. Ideally, this will result in dollars saved for Iowa and other states as well as in fewer traffic deaths.
- ⇒ *Provide Education.* Another key objective of the proposed center is to recruit and retain a diverse transportation workforce. The center will coordinate with ISU's Department of Civil, Construction, and Environmental Engineering to fund an array of activities to enhance undergraduate education. This includes development of undergraduate research grants, support of graduate students, and development of a transportation scholars program, which will foster research and leadership activities for graduates and undergraduates. The proposed center will also coordinate similar activities with its six partners.

The proposed center will conduct a variety of activities to interest K-12 students in engineering and transportation fields. MTC funds an online e-zine for middle and high school students and works with other programs, such as ISU's "Road Less Traveled" conference for middle and high school girls. In particular, activities will encourage participation of female and under-represented minority students.

- ◇ Unique features of Iowa State University to support the proposed center. Iowa State University's Institute for Transportation ranks seventh among the top university-based transportation research organizations in the United States, with more than \$14.2 million in annual expenditures from a variety of funding sources and 26 full-time researchers and 20 affiliated faculty. InTrans serves as an umbrella organization for seven university centers and five long-term funded programs. InTrans partners closely with the Department of Civil, Construction, and Environmental Engineering at ISU. InTrans maintains support staff to administer programs and grants and help communicate research results. The organizational and administrative structure of InTrans ensures collaboration between each of the existing seven centers and five programs. Therefore, InTrans is ideally positioned to support the proposed center.
- ◇ Relationship of proposed center to existing centers/institutes. As appropriate, the proposed center will coordinate efforts with existing centers/institutes at the university as described in the table on the following page.

Center/Institute	MTC overlap	Distinction between MTC and center/institute
InTrans	InTrans covers all aspects of transportation research	MTC will function under InTrans. MTC focuses on the educational aspect of transportation research. It will also serve as a focal point for performance measure research applications, which makes it unique from other centers/programs at InTrans.
Ames Lab	Conducts research with DOE, some research may be transportation related	InTrans has collaborated with Ames lab, but the MTC does not conduct energy-related research.
Bioeconomy Institute (BEI)	MTC collaborates with BEI researchers who conduct sustainable pavement research	Biorenewables are not the focus of MTC.
Center for Transportation Research and Education (CTRE)	Both organizations conduct traffic safety related research	MTC will coordinate with CTRE. MTC has a broader focus on research, education, diversity, and outreach activities. CTRE is also housed at InTrans, which will facilitate collaboration.
Iowa Energy Center (IEC)	Focuses on energy research	InTrans has collaborated with IEC, but the MTC does not conduct energy-related research.
Bridge Engineering Center (BEC)	BEC does some infrastructure-related work but focuses only on bridges.	MTC will coordinate with BEC. MTC has a broader focus on research, education, diversity, and outreach activities. BEC is also housed at InTrans, which will facilitate collaboration.
Center for Weather Impacts on Mobility and Safety (CWIMS)	CWIMS focuses on the safety and mobility impacts of weather.	MTC will coordinate with CWIMS. MTC has a broader focus on research, education, diversity, and outreach activities. CWIMS is also housed at InTrans, which will facilitate collaboration.
National Concrete Pavement Technology Center (CP-TECH)	CP-TECH focuses on concrete materials. Infrastructure performance measures are related to concrete materials.	MTC will coordinate with CP-TECH. MTC has a broader focus on research, education, diversity, and outreach activities. CP-TECH is also housed at InTrans, which will facilitate collaboration.

- ◇ Existence of proposed center at other Iowa institutions. The proposed center does not exist elsewhere in the state. The University of Iowa has a number of centers/institutes related to transportation but they do not appear to significantly duplicate the objectives of the proposed center at Iowa State University.
 - ⇒ *Injury Prevention Research Center (IPRC)* focuses on prevention and control of rural injuries including traffic crashes. The proposed center includes traffic safety research but primarily focuses on the roadway side while IPRC focuses on the driver. InTrans will collaborate with IPRC as appropriate.

- ⇒ *Public Policy Center (PPC)* focuses on transportation policy. While some overlap exists with MTC's traffic safety focus, PPC primarily conducts human factors research while MTC focuses on the roadway aspect of traffic safety. MTC also has a broader focus on the performance measure aspect of safety. InTrans collaborates regularly with PPC researchers.
- ⇒ *National Advanced Driving Simulator (NADS)* and MTC conduct research to explore the relationship between the driver and roadway as it relates to traffic safety. NADS primarily conducts human factors research while MTC focuses on the roadway aspect of traffic safety. InTrans collaborates regularly with PPC researchers. MTC also has a broader focus on the performance measures aspect of safety.
- ◇ Inter-institutional and collaborative efforts with other entities. Inter-institutional cooperation and collaboration will be encouraged by the proposed center leadership. In addition to the collaborative efforts with its six partners, the proposed center will collaborate with the University of Iowa as appropriate.
- ◇ Resources. The proposed center will require a program assistant to coordinate reporting requirements, coordinate grant activities, and coordinate with partner institutions. The grant will also require approximately 10% of an existing accounting specialist currently employed by InTrans. Other personnel needs will be met by InTrans' current full-time support staff which includes accounting experts, program coordinators, communications staff, IT personnel, and event coordinators. MTC will fund its share of these staff members.

InTrans occupies a 25,000 square-foot facility in the ISU Research Park. Most of the researchers who will be affiliated with the MTC already have office space at InTrans or in the Department of Civil, Construction, and Environmental Engineering. Office space will be necessary at InTrans for the program assistant and the 10-15 graduate research assistants who will be supported by the grant. No additional equipment will be required to support the proposed center.
- ◇ Expected need. The MTC has been in existence in some form since 1987. The current grant is for two years at \$2.5 million per year; the MTC will have up to four years to expend the funding. Historically, existing UTCs have received additional years of funding under a continuing resolution if a new transportation bill has not been passed when the grant is slated to end. The University anticipates competing for another grant at the end of the four years.
- ◇ Communication with existing campus structures. InTrans, the Vice President for Research, the Department of Civil, Construction, and Environmental Engineering, the College of Engineering, and governmental relations staff at ISU were all involved in discussions regarding the match requirements for the grant.
- ◇ Costs and funding sources. The total cost to operate the proposed institute will be \$1.032 million in Year One, increasing to \$3.097 million in Year Four. Grant funds will account for 50% of the cost and cost share revenue will account for the other 50%. The following sources of funds are estimated for the four years of the grant:

- ⇒ External funding from the grant is \$5,163,200.
- ⇒ Match
 - ✓ External research sponsors funding is \$2,350,000.
 - ✓ ISU indirect cost return is \$630,000.
 - ✓ ISU College of Engineering graduate student tuition support is \$183,000.
 - ✓ Partner institutions funding is \$2,000,000.

PROPOSED CENTER COSTS AND FUNDING SOURCES

	SOURCES OF FUNDS	TOTAL COSTS
Year 1	Grant	\$516,320
	Cost Share Revenue	\$516,320
Year 2	Grant	\$1,548,960
	Cost Share Revenue	\$1,548,960
Year 3	Grant	\$1,548,960
	Cost Share Revenue	\$1,548,960
Year 4	Grant	\$1,548,960
	Cost Share Revenue	\$1,548,960

- ◇ Implementation. After obtaining Board approval, Iowa State University will be prepared to implement the Midwest Transportation Center immediately.