ATLAS CENTER
Advancing Transportation Leadership and Safety
Research and Education Programs

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Research Coordinator
ATLAS Center

• Tier 1 University Transportation Center

• Partnership between University of Michigan and Texas A&M University
  • UM – UM Transportation Research Institute (UMTRI)
  • TAMU – Texas Transportation Institute (TTI)

• Theme: Integrated Solutions for Transportation Safety
ATLAS Center Team

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U-M Project Coordinator

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UMTRI Business Manager

Francine Romine
Communications Coordinator

Ruth Halsey
Financial Manager

Barb Lorenz
TTI Program Coordinator
### Integrated solutions for transportation safety

<table>
<thead>
<tr>
<th>Key</th>
<th>Pre-Drive/Pre-Crash</th>
<th>Crash</th>
<th>Post-Crash</th>
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<tr>
<td>Vehicle</td>
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<td><img src="red" alt="Out of Scope" /></td>
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- **Pre-Drive/Pre-Crash**: (Education, training, enforcement, ITS, roadway markings, etc.)
- **Crash**: (Connected vehicles, crashworthiness, etc.)
- **Post-Crash**: (Crash notification, rescue, etc.)

- **Primary** solutions are directly related to reducing the risk of accidents.
- **Secondary** solutions help in mitigating the consequences of accidents.
- **Out of Scope** solutions are not included in the safety scope.

The Haddon matrix is a framework for analyzing and understanding the causes of road accidents and designing effective safety strategies.
ATLAS Center Research

• Research Excellence Program
  • Competitive Programs at UM and TAMU

• Cooperative Research Program
  • Collaborative Projects UMTRI & TTI

• Strategic Initiatives Program
  • Addresses MAP-21 Research Priority

• Research Funding Total for Years 1 & 2
  $1,041,000
ATLAS Center Research

• Research Excellence Program

  • Competitive Programs at UM and TAMU
  • Intended as pilot projects
  • Quad approach required at UM
    Collaborators from two academic departments, non university (industry, nonprofit, gov’t), student
  • Outside monitor required at TAMU

• 11 projects funded in years 1 and 2
  • UM - 4.5
  • TAMU – 6.5
Research Excellence Program Projects

• Connected Vehicles
  – Predicting and communicating human driving decisions to automated vehicles in the connected environment – *UMTRI, UM Biostatistics, Ford Motor Co.
  – Incorporating driver behavior into simulations for connected vehicle applications – *TAMU, Univ. of Nebraska

• Age-related Driving Behavior
  – Age and channelized right-turn crashes- *TAMU Civil Engr., FHWA
  – Support for Older Drivers – * TTI, TAMU Industrial and Systems Engr.

• Driver Distraction
  – Occlusion compliance test for distraction guidelines – *UMTRI, Univ. of Toronto, Hyundai Kia
  – Touchscreen, multitasking, distraction, *TAMU Psychology, TTI Univ. of Utah, Precision Driving Research

*collaborators and monitors
Research Excellence Program Projects

• **Infrastructure Related**
  – Roadside safety hardware and vehicle safety standard evaluation criteria – *UMTRI, TTI, Tenn. DOT

• **Crash Prediction Modeling**
  – Improving Development of Safety Performance Factor (SPF) calibration factors - *TTI, TAMU Civil Engr.

• **Pedestrian Safety**
  – Countermeasures for high-speed-road pedestrian crashes- *TTI, TX DOT

*collaborators and monitors
ATLAS Center Research

• **Cooperative Research Program**
  - Identifying the Potential of Improved Heavy Truck Crashworthiness to Reduce Death, Injury, and Societal Costs of Heavy Truck Crashes
    - TTI and UMTRI - heavy truck crash analysis, statistics, biomechanics, finite element analysis
    - Advanced crash avoidance technologies (ACATs) have changed distribution of crash types. This project identifies opportunities to further reduce heavy truck driver fatalities and injuries by identifying and quantifying crashes currently not mitigated by ACATs.

• **Strategic Initiatives Program**
  - Further Examination of Alcohol-Impaired Closed Course Driving Study Data
    - TTI – Human factors, statistical data analysis
    - Analysis of effects of BAC levels and night time conditions on driving measures.
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#### Vehicle
- Primary
- Secondary

#### Person
- Primary
- Secondary

#### Environment/Roadway
- Primary
- Secondary
- Out of Scope

**Haddon matrix**

- **Pre-Drive/Pre-Crash**
  - Safety Scope: Pre-Drive/Pre-Crash
  
- **Crash**
  - Safety Scope: Crash

- **Post-Crash**
  - Safety Scope: Post-Crash
ATLAS Center: Education

• Student participation in research (UMTRI/TTI)
• Outstanding Student of the Year Award Program (UMTRI/TTI)
• K-12 Outreach (UMTRI/TTI)
• STEM Outreach Program (UMTRI/TTI)
• ATLAS Symposium Series Program (UMTRI/TTI)
  • Faculty travel between institutions
ATLAS Center: Education

- Workforce Development Partnership Program (UMTRI)
- Emerging Scholars Program (UMTRI)
- Professional Education Program (UMTRI)
- Summer Intern Program (TTI)
  - 3 students from U-M chosen to participate this year
- Student Travel Assistance Program (TTI)
- Community Outreach/Education Program (TTI)
ATLAS Center: Education

- Advancement Via Individual Determination (AVID) Program Support (TTI):
  - College readiness program for underserved students
- Summer Transportation Institute (STI) Program Support (TTI)
  - Encourage 11th and 12th grader minority and women to attend college and choose STEM majors
ATLAS Center Research

Information about ATLAS Research and education program - including research project reports and summary videos of completed projects are on our website at www.ATLAS-Center.org

Thank You!