It has been a hectic and exciting end to 2015 and start to 2016. It was with a great sigh of relief for many transportation professionals around the US to finally have a long-term Federal transportation funding law in place. Among other things, the bill establishes new priorities for transportation research, will allow many organizations to start longer-term planning and goal-setting, and authorized a new UTC competition.

The ATLAS Center has been busy the past several months making and implementing decisions on our 2016 activities. We are funding several new research projects, continuing our support of the Summer Internship program and other educational programs, and enhancing our technology transfer activities. I’m particularly excited about the upcoming conference called "Meeting the Challenges of Safe Transportation in an Aging Society" to be held in Ann Arbor, Michigan on September 14-15, 2016. Along with the ATLAS Center, we are pleased to welcome as co-sponsors University of Michigan Transportation Research Institute (UMTRI), Elsevier Ltd, and two other UTCs: The Center for Accessibility and Safety for an Aging Population (ASAP) located at Florida State University, and Transportation Research Center for Livable Communities (TRCLC) located at Western Michigan University.

To find out more about the ATLAS Center and our several activities, I encourage you to visit our website (http://www.ATLAS-Center.org) or “like” our Facebook page. The ATLAS Center will continue to bring together researchers and professionals to share knowledge, plan future research, and make research outcomes accessible to the public and practitioners. You can read about these activities in this and future issues of the ATLAS Express.

If you have questions or feedback about the ATLAS Center, or you wish to contribute financially to our activities, please contact me at: ATLAS-Center@umich.edu.

My Best Regards,

David W. Eby, PhD
Director, ATLAS Center
Obeying the speed limit, not texting while driving, and making use of in-vehicle technologies like navigation and crash avoidance systems are well-known ways to increase safety. Just as important as these types of behaviors and technologies is having a safe roadway and environment in which to travel. Detailed research is continually needed to improve the designs of our networks of highways, intersections, sidewalks, and bridges so they are safe and functional for all road users. The ATLAS Center funds high-quality research that helps to predict and prevent crashes on roadways, ultimately creating the safest possible infrastructure for all.

Crashes can occur anywhere on any roadway, and involve all types of road users. The average number of crashes that might occur at a particular location can be estimated by safety performance functions (SPFs), or equations that use the amount of traffic and roadway length to estimate crash frequency at a specific place. The American Association of State Highway and Transportation Officials’ *Highway Safety Manual* (HSM) provides calibration measures so that local agencies can adapt SPFs to their area, but the sample size of crash data needed is not fully supported by documented research in some cases and in some cases is impossible to obtain due to low numbers of crashes. The ATLAS Center funded Texas A&M Transportation Institute (TTI) Associate Professor Dominique Lord and TTI Assistant Research Engineer Srinivas Geedipally to examine issues with the current calibration method and develop a procedure for estimating the required sample size needed to calibrate SPFs. Their results will help inform state and local public agencies and others that need to estimate the safety of roadways using SPFs.

Because crashes can occur anywhere, preventing crashes at specific roadway locations requires sound design and the consideration of other factors, including driver characteristics such as age. At channelized right turns (right turns separated from intersections by painted lines or raised barriers like triangular traffic islands) the design of the island can impact the safety of older drivers because of the difficulties these drivers may have turning their heads to see gaps when attempting to merge. However, the relationship between crashes at channelized right hand turns and age has not yet been explored. Kay Fitzpatrick, Senior Research Engineer at TTI, is leading a Center-funded study to examine the relationship between crashes and the design of islands, with a focus on driver age. The results of this study will inform intersection designers on how to best design these types of turns to maximize safety.

Pedestrian safety is just as important as driver safety when designing the roadway infrastructure. Most of us have used sidewalks, bridges and crosswalks to travel around a city or town, but sometimes we find ourselves as unintended pedestrians along a high-speed road because of a car break down or crash. TTI Associate Research Engineer Joan Hudson and her research team recently completed a Center-funded project in which they surveyed Departments of Transportation in 20 states with low pedestrian fatality rates to identify best practices for keeping pedestrians safe on these high speed roadways. Their results discuss countermeasures such as installing overpasses, underpasses, and fences, employing roadside assistance programs, and expanding move-over laws to ensure the safety of pedestrians.

Together, these projects help create safer infrastructure and roadway environments with as few crashes, fatalities, and injuries as possible. The ATLAS Center will continue to fund research in this area within our theme of **integrated solutions for transportation safety**. You can learn more about these projects and their findings at www.ATLAS-Center.org.
Meet the ATLAS Center Team

Donna Girbach has been employed at UMTRI for almost 21 years, most recently as a Senior Administrative Assistant supporting four active groups. Her duties and responsibilities include procurement, processing travel requests and expense reports, payroll and time keeping, meeting and event planning, and serving as recharge coordinator for her groups’ auxiliary activity.

Previously, Donna worked in the Transportation Data Center group providing data entry services. She then began work for the Bio-sciences Group Crash Investigation Team, doing injury coding using the Abbreviated Injury Scale to classify injuries for data retrieval by sponsors. Other duties included reviewing and editing final reports of all crash investigation cases. In her spare time, Donna enjoys going to auctions, antiquing, visiting the casino, and wine tasting.

Sergiu Stanciu received his bachelor’s degree in psychology from Wayne State University in 2015, and recently joined UMTRI’s Behavioral Sciences Group (BSG).

While at UMTRI, Sergiu has worked on BSG and/or ATLAS Center projects and activities involving older driver self-regulation, safety, and mobility and safety belt use. His research interests include older driver self-regulation, psychosocial factors related to seat-belt usage, and survey design. In his free time Sergiu likes to learn new languages, read, draw, take online courses, and design game modifications.
Meeting the Challenges of Safe Transportation in an Aging Society Symposium

We are pleased to announce the upcoming symposium, “Meeting the Challenges of Safe Transportation in an Aging Society,” co-sponsored by UMTRI; Elsevier Limited; The Center for Accessibility and Safety for an Aging Population (ASAP); and the Transportation Research Center for Livable Communities (TRCLC). This symposium will be held September 14-15, 2016 at the University of Michigan (U-M) in Ann Arbor.

This symposium will address the latest research to improve the safe transportation of older adults from a broad array of disciplines including, but not limited to, engineering, public health, psychology and social sciences, medicine, public policy, economics, and urban planning. Research should focus on older adults themselves, the modes of transportation they use, or the roadway environment within which they function.

Call for Presentation Abstracts

Presentations (individual oral presentations, full session [4-6 speakers], or posters) are welcome. Topics of special interest include but are not limited to: advanced technologies including autonomous and connected vehicles; infrastructure and engineering countermeasures; licensing and other policy issues, health-related challenges; training; and driver assessment. Students are encouraged to submit for a student poster session and awards will be given.

Abstracts due: March 31, 2016
Notification: May 31, 2016
Submission Instructions: www.ATLAS-Center.org/Events

Any questions, please email Beth Jakubowski, Conference Coordinator, at bethlj@umich.edu
Research News

**Touch-Screen Task-Element Times for Improving SAE Recommended Practice J2365: A First Proposal**

**U-M Research Team:** Paul A. Green, Te-Ping Kang, Brian Lin

Vehicle designers and engineers face a challenge in designing in-vehicle information and entertainment systems that minimally distract drivers from driving the vehicle. This project’s final report discusses methods that can be used to identify various task elements (e.g. pressing a button) and then adding up their durations to estimate the time it takes a driver to complete each task (e.g. dialing a phone) of a particular system.

**Development of a Statistical Method for Predicting Human Driver Decisions**

**U-M Research Team:** Carol Flannagan, Yaoyan Vincent Tan, Michael Elliott

To improve the capability of autonomous vehicles to anticipate behaviors of human-driven vehicles, researchers developed a model for predicting whether or not a human driver intended to stop before making a left turn, by analyzing changes in the human-driven vehicle’s speed as it approached an intersection. The prediction model performance improved as the driver approached the intersection, but performed well even at 25 meters from the center of the intersection.

**Risk-Taking Behaviors and Prefrontal Cortex Activity of Male Adolescents in the Presence of Peer Passengers during Simulated Driving: A Functional Near-Infrared Spectroscopy (fNIRS) Study**

**U-M Research Team:** Anuj K. Pradhan, Lisa Buckley, Xiao-Su [Frank] Hu

This study used fNIRS technology, a noninvasive optical brain-imaging method, to study the prefrontal cortex of drivers in a simulation task. The results indicated that for certain risky-driving scenarios, adults showed increased activity in regions of the left and right prefrontal cortex when driving with a passenger versus driving alone, but these activations were not evident in teenaged drivers in similar situations.

**Best Practices for Addressing Pedestrian Crashes on High Speed Roadways**

**TTI Research Team:** Joan G. Hudson, Haotian Zhong, Maarit Moran, Vichika Iragavarapu, Vickie Vincent, Boya Dai

The project team surveyed departments of transportation in 20 states to find out what they are currently doing or have done to address pedestrian safety on high speed roadways. Their final report discusses best practices for ensuring pedestrian safety and why they are effective.

Please view final reports, videos, and one page briefs for these and all ATLAS Center projects or go to: www.ATLAS-Center.org
Educational News

2016 Summer Transportation Safety Research Internship

The ATLAS Center is accepting applications from U-M and Texas A&M University (TAMU) undergraduate students for a 10-week summer internship Program that runs May 31 through August 5, 2016. The internship includes active involvement on safety-related research projects with a mentor at TTI, providing students an opportunity to make a contribution to ongoing transportation safety research and further their knowledge of the transportation field.

U-M Student Deadline: Friday, March 11 by 5:00 pm EST
Texas A&M Student Deadline: Thursday, March 31 by 5:00 pm CST

To apply go to: Summer Internship Application

TRB Presentations by Former Interns

Marci Early and George Gillette, former ATLAS Center summer interns, had the opportunity to present the research that they worked on during their internship at the TRB Conference last month.

Marci presented Operational Performance at Two-Way Stop Controlled Intersections, a research project that surrounds analysis of driver perception, behavior, and understanding of right-of-way regarding left turns within a Two-Way Stop Controlled Intersection (TWSC).

“The internship helped me to solidify my desire to pursue a career in transportation! I'll be able to use what I learned at TTI and with my research, and integrate it into my Transportation Senior Design Project next fall. Also, with this internship, I met some really incredible people. Everyone, from my fellow ATLAS interns to the researchers at TTI made the program a truly delightful experience.” ~ Marci

George presented The Effect of Distractions on a Pedestrian’s Waiting Behavior at Traffic Signals: An Observational Study, a study to investigate how distractions (e.g. talking on a phone, texting) may affect pedestrian start-up time and crossing behaviors.

“With the experience provided by the ATLAS REU [Research Experience for Undergraduates] program, I gained invaluable insight into the nuances of research practice. Additionally, this experience has assisted me in deciding my career path, realizing that transportation research is something I truly enjoy and want to pursue post-graduation. Outside of the academic benefit, this internship opportunity was really enjoyable and expanded my cultural horizons, meeting people and making friendships with students from both around the United States and Puerto Rico.” ~ George
The ATLAS Center provided support for UMTRI Visiting Scholar Mehri Mohebbi, a doctoral candidate in the Department of Urban Planning at the University of Cincinnati, to complete her research. Mehri explored how cultural and ethnic factors affected walkability in urban neighborhoods, and focused specifically on the experience of Muslim women.

Mehri was recently awarded a fellowship from the American Association of University Women (AAUW) and worked as AAUW research fellow at the School of Planning (SOP), College of Design, Arts, Architecture, and Planning (DAAP) at the University of Cincinnati. She has six years of management, research, and teaching experiences at the University of Semnan in Iran. Since 2008, she has worked as the national delegate of ISOCARP (International Society of City and Regional Planners) in Iran, as well as board member for the “City Image Committee” at Semnan City Council. Her main research interests are: Racial/Ethnic Minorities' Urban Accessibility, Active Lifestyle Planning, Transportation and Social Equity, Environmental Justice and Urban Accessibility, and Equitable Place-Making.

Each year, the ATLAS Center recognizes an exemplary student involved in transportation-related research. In October 2015, the Center conducted a call for applications of eligible U-M students for our Student of Year program. Each student submitted an endorsement letter from a faculty member, a summary of the research or activity on which he or she worked, and a curriculum vitae. The Center’s leadership team at UMTRI reviewed the applications and selected the winners. We congratulate Tessa Elwart, a recent U-M graduate in Mechanical Engineering, as our ATLAS Center Outstanding Student of the Year. Tessa received a $1,000 award and a trip to the Council of University Transportation Centers annual banquet (CUTC) and Transportation Research Board (TRB) 95th annual meeting held in January in Washington, DC.

We also congratulate Daniel Crecca, our ATLAS Center Student of the Year Runner Up, for his achievements in Center research and activities. Daniel received a $500 award for his excellence in work on Center funded projects, particularly Improving the Safety of Older Heavy-Vehicle Drivers: Developing a Framework for Moving Forward, a project led by Center Associate Director Lisa Molnar.

Find out more about Tessa, Daniel, and the 2016 Student of the Year program at:

ATLAS Center Student of the Year
In October 2015, Melisa Finley led another AVID event. Thirty-one 8th grade AVID students and three teachers from A&M Consolidated Middle School visited TTI facilities. This event allowed students to learn about the world of transportation engineering, safe and smart biking skills, distracted driving, transportation and the environment, and traffic control devices. They also watched a crash test presentation and created “puff-mobiles” as a hands-on activity. The ATLAS Center helped sponsor this event and provided lunch for the students.

The summer internship program is featured in the February edition of the UTC Spotlight newsletter. Click here to view.

The ATLAS Center’s partnership with the Workforce Intelligence Network (WIN) has continued over the last several months. WIN was funded by the ATLAS Center to produce an analysis and profile of Michigan’s transportation safety workforce. A report is being completed that will detail occupations related to transportation safety sub-categorized by occupational family (e.g. transportation infrastructure, construction, transportation manufacturing, transportation testing). The ATLAS Center is also funding an additional workforce development activity with WIN to research and analyze the workforce related specifically to connected and automated vehicles.

In November 2015, Robert Hampshire, Assistant Research Professor in UMTRI’s Human Factors group, traveled to TTI Austin and College Station. Robert was hosted by ATLAS Center Associate Director Robert Wunderlich and Michael Martin for his symposium talk Transportation Analytics: The Case of Smart Parking and Pedestrian Safety.

In October 2015, Melisa Finley led another AVID event. Thirty-one 8th grade AVID students and three teachers from A&M Consolidated Middle School visited TTI facilities. This event allowed students to learn about the world of transportation engineering, safe and smart biking skills, distracted driving, transportation and the environment, and traffic control devices. They also watched a crash test presentation and created “puff-mobiles” as a hands-on activity. The ATLAS Center helped sponsor this event and provided lunch for the students.
The ATLAS Center has been busy during the last two years providing educational opportunities for students, sponsoring research, disseminating transportation safety information to practitioners, and more.

You can read about our achievements and activities during the past two years in our recently completed biannual report, available in electronic form at http://www.atlas-center.org/technology-transfer/bi-annual-report/.

As in the past two years, the ATLAS Center’s annual conference will be a joint conference held with TTI’s Center for Transportation Safety’s Traffic Safety Conference. The 2016 conference will be held in College Station, Texas and is scheduled for June 6-9, 2016.

As mentioned earlier in this issue, several new web briefing videos are available for recently completed projects. These videos are meant to provide a brief, concise summary of the methods and findings of each project, presented by the researchers that did the work.

If you enjoyed reading about our research, education/workforce development, and other activities in this issue of The ATLAS Express, we encourage you to view past issues at www.atlas-center.org/technology-transfer/newsletters/.

New issues are available on a quarterly basis.
Activities

Winter 2016 CUTC/TRB Meetings

The ATLAS Center provided sponsorship for the Winter CUTC meeting in Washington, DC in January, and Center personnel David W. Eby, Lisa Molnar, Robert Wunderlich, and Beth Jakubowski, along with UMTRI Interim Director Carol Flannagan, attended the event.

Secretary Anthony Foxx was the esteemed keynote speaker. ATLAS Center was given the opportunity to be a Bronze sponsor of the event this year.

David and Lisa also attended the TRB conference. David gave a presentation on advanced in-vehicle technologies and older drivers at the Safe Mobility of Older Persons Committee Meeting. Lisa has taken over as chair of the TRB Joint Subcommittee on Senior Mobility Options.

Lisa Molnar gave two presentations at the 68th Annual Meeting of the Gerontological Society of America in November 2015. Lisa presented Self-Regulation of Driving Among Older Adults: Improving the Knowledge Base for Driver Safety Programs and Travel Training for Older Adults: Promoting a Healthy Transition from Driving.
Enjoy the Winter Season!

David, Lisa, Robert, Melissa, Lidia, Renée, Nicole, Serge, Barb, and Beth

Front Cover Photo: TTI in Winter — TTI Media
Inside Photos: Feature Photos — TTI Media and Joan Hudson; Meet ATLAS Team—U-M Media; Research News — U-M Media; Jumping Interns—TTI Media; Marci Early & George Gillette at TRB — Laura Higgins; Mehri Mohebbi—Linked-In photo; Tessa Elwart CUTC photo — CUTC Media; Dan Crecca—U-M Media; Symposium & AVID — TTI Media; Safety Conference Photo—TTI Media; CUTC Meeting: Anthony Foxx—CUTC Media; Group Photo—Jane Ritter; and Sponsor Sign—Beth Jakubowski
Back Cover Photo: Daniel Earle—Faawn Facebook page—Deer Ann Arbor