



**Program Progress Performance Report  
for University Transportation Center - ATLAS Center**

Submitted to: U.S. Department of Transportation  
Office of the Assistant Secretary for Research & Technology

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Project Title: University Transportation Center  
The Center for Advancing Transportation Leadership and  
Safety (ATLAS Center)

*University of Michigan (U-M) Transportation Research  
Institute (UMTRI) (Lead Institution)  
Texas A&M Transportation Institute (TTI), a member of the  
Texas A&M University System (TAMU)*

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Signature:

# 1. ACCOMPLISHMENTS

## 1.1 What are the major goals of the program?

The ATLAS Center has five major goals:

- Sponsor/conduct high-quality, high-impact research.
- Engage in effective education and workforce development activities.
- Disseminate new traffic safety knowledge and information to a wide range of stakeholders through technology transfer efforts.
- Provide state, national and international traffic safety leadership.
- Develop and maintain traffic safety collaborations.

## 1.2 What was accomplished under these goals?

### 1.2.1 Sponsor/conduct high-quality, high-impact research

The ATLAS Center conducts three programs of sponsored research. The first is the **Research Excellence Program**. Under this program, the ATLAS Center partners (UMTRI and TTI) embrace the power of competition to produce the highest quality research results. Each institution uses a competitive selection process, whereby investigator-initiated research projects are reviewed and evaluated by experts. Projects are selected for sponsorship based on these reviews and the priorities of each ATLAS Center institution.

The ATLAS Center at UMTRI issued a Research Excellence Program request for proposals (RFP) on October 29, 2013, with a proposal deadline of December 2, 2013. All University of Michigan (U-M) faculty members were eligible to be a principal investigator (PI) on a proposal. Submitted proposals were sent out for peer-review to technical experts at U-M, other universities, the US Department of Transportation, and national and International organizations. Each proposal had at least three completed reviews. A research subcommittee, organized by the ATLAS Center at UMTRI's Research Coordinator, Dr. Lidia P. Kostyniuk, was convened and two proposals were selected. Sponsorship of these projects began on February 15, 2014 and will continue for 1 year. The following details these projects:

*Predicting Performance in the Occlusion Compliance Test in NHTSA Distraction Guidelines.* PI: Dr. Paul A. Green, UMTRI; Dr. Paul Milgram, University of Toronto; Ms. Lisa Southwick, Hyundai Kia.

*Abstract.* NHTSA's visual-manual guidelines specify how to determine if driver interfaces are distracting. In the visual occlusion method, subjects wear a pair of

goggles that cycle between being open (seeing the interface) and closed (not seeing the interface but seeing the road) to determine the task time. That method was used by the PI in a prior project to assess a next generation Hyundai navigation radio. Occlusion task time was estimated using task element times (e.g., button press durations) from SAE Recommended Practice J2365. To improve those estimates, a frame-by-frame analysis will be carried out to determine the exact time of each hand movement, etc., in the 24 hours of video data, along with the exact times the goggles cycle. Determined will be (1) the distributions of task element times, (2) how well those means compared with the times in J2365, (3) how the measured times were affected by an interrupting occlusion, (4) which task elements begun during vision were continued through occlusion, and other issues. Conceptual and computational human performance models will guide the data analysis. The results will be summarized in a technical report and revisions to SAE J2365 will be proposed. Periodic presentations to the entire SAE Safety and Human Factors Committee will be made several times per year, following the practice of that committee. In addition, a summary journal article will be produced. This research will be conducted by a team highly experienced in doing studies of visual occlusion, using data that already exist, to develop a low-cost assessment method codified as an SAE recommended practice for a safety-related topic that is of high priority to the US DOT. This represents a fundamental change in driver interface evaluation.

*Risk-Taking Behaviors and Pre-Frontal Cortex Activity of Male Adolescents in the Presence of Peer Passengers during Simulated Driving: A Functional Near-Infrared Spectroscopy (fNIRS) Study.* PIs: Dr. Anuj K. Pradhan, Dr. Lisa Buckley, UMTRI; Tina Sayer, Toyota Motor Corporation; Dr. Bruce Simons-Morton, National Institute for Child Health and Development.

*Abstract:* Crash statistics show that adolescent drivers are more likely to be involved in motor vehicle crashes than adults; with the presence of peer passengers being an additional risk factor for crashes. Experimental and observational studies show that risky driving behaviors of male teenagers increase in the presence of male peer passengers. There could be several mechanisms of the influence of peer passengers on teen drivers; however, it is evident that the male teenage driver with a male peer passenger makes riskier decisions than when driving alone, when driving with an adult, or when compared to an adult driver. It has been posited that the developing teenage brain's activity is different from that of adults during decision making, especially in regions associated with impulse control, response inhibition and risk taking. In order to study risk-taking behavior in simulated driving by male teenagers in the presence of male peer passengers, this study is employing an innovative experimental approach to investigate the brain activity of male teenage and adult drivers while driving alone and in the presence of peer passengers. Specifically, the study will use functional near-infrared spectroscopy (fNIRS) technology, a non-invasive optical brain imaging method that allows in vivo measurements of oxygenated and deoxygenated hemoglobin in

cortical tissue, to study regions in the prefrontal cortex of drivers performing an ecologically valid driving simulation task. Driving related risk-taking behaviors will simultaneously be measured. In addition, participants will undertake a well-validated computerized measure of risk taking (Balloon Analogue Risk Task) as an additional assessment of risk-taking behavior. It is hypothesized that for teenagers, the presence of a peer passenger while driving will show different activation in the selected brain regions associated with reward sensitivity, cognitive control, and response inhibition as compared to teenagers driving alone, and that the activation will be different for adults compared to teenagers.

The second research program conducted by the ATLAS Center is the **Cooperative Research Program**. A key strength of the ATLAS Center is the synergy created through collaboration between the Center's two institutional partners. Each year the Center will conduct a joint research project that will, at a minimum, include collaborative research conducted at UMTRI and TTI. In the first year, the research project was identified as part of our proposal. In future years, the Center plans to conduct an internal competition for this project with the ATLAS Center administration making the final selection of a project. The first year Collaborative Research Program project was awarded on January 23, 2014 and will be conducted for 1 year. The project title, researchers, and abstract are as follows:

*Identifying the Potential of Improved Heavy Truck Crashworthiness to Reduce Death, Injury, and Societal Costs of Heavy Truck Crashes.* Investigators: Dr. Dan Blower and Dr. Jonathan Rupp, UMTRI; Dr. Chiara Silvestri Dobrovoly, TTI.

*Abstract.* This project is intended to identify and characterize opportunities to protect heavy truck drivers and occupants in the context of current Advanced Crash Avoidance Technologies (ACATs). ACATs have been shown to fundamentally alter the distribution of crashes that trucks are exposed to and will thereby alter the need and prioritization for occupant protection in truck crashes. However, the effects of ACATs on the need for crashworthiness and occupant protection have not been studied. This project addresses that need. Statistical simulation and other work will be used to estimate the effect of ACATs on the distribution of truck crashes. Crash types not addressed by current ACATs will be identified and characterized to support finite element analysis (FEA) of heavy truck occupant kinematics in these crashes. FEA will be used to analyze heavy truck occupant safety in terms of injury pattern and severity. The researchers will evaluate the effectiveness of passive safety restraints (such as seatbelts, airbags, etc.) by comparing occupant injury results obtained from simulations performed with and without these restraints. It is expected that the study will result in significantly enhanced understanding of how truck drivers are injured in heavy truck crashes and will identify interior cab structures and surfaces that could be made more protective to improve safety for both belted and unbelted drivers.

The third ATLAS Center research program is the ***Strategic Initiatives Program***. This program is designed to be flexible enough to take advantage of strategic and/or timely research opportunities that might not otherwise fall under the timeframes of the ATLAS Center's other research programs. The ATLAS Center leaders selected one project for this program during this reporting period. The project was awarded on February 1, 2014 and will continue for one-half year. The project details are below:

*Further Examination of Alcohol Impaired Closed-Course Driving Study Data.* PI: Ms. Melisa Finley, TTI.

*Abstract.* Although the majority of alcohol-impaired driving crashes occur at night, very little research has been conducted regarding the influence of alcohol on drivers at night. Recently, TTI researchers conducted a closed-course study in which participants drove a vehicle at four blood alcohol content (BAC) levels and completed standard field sobriety tests (SFSTs) at six BAC levels. Due to the limited scope of work on that project, all of the data collected could not be reduced and analyzed. For the project proposed herein, TTI researchers will further examine the existing dataset to better understand the effects of various BAC levels on driving during nighttime conditions. This research addresses MAP-21 research priorities by filling knowledge gaps in the effects of alcohol, nighttime conditions, and traffic control effectiveness by including human factors measures.

### **1.2.2 Engage in effective education and workforce development activities**

The ATLAS Center conducts several activities that promote education and workforce development activities in traffic safety each year. The following describes the activities conducted during this reporting period:

*Summer Internship Program:* The ATLAS Center at TTI is conducting a 10 week summer internship program at Texas A&M University. The program provides undergraduate students with the unique opportunity to work closely with a faculty mentor in a structured and intensive research environment. Student interests are matched with appropriate faculty and the program covers room and board and includes a \$5,000 stipend. The program coincides and is coordinated with other summer intern programs at Texas A&M University funded by the National Science Foundation, providing interns with an opportunity to interact with students in other disciplines and participate in university wide seminars, tours, poster sessions and other events for interns. A call for interns was sent by Robert Wunderlich (TTI) to all 10 UTCs with a focus on transportation safety. To date, two students from Texas A&M, one student from Brigham Young University, and three students from U-M have been accepted into the program which begins in June, 2014.

*Student of the Year:* Although the new Tier 1 centers were not eligible to have a student of the year at the 2014 CUTC annual awards ceremony, the ATLAS Center at UMTRI leadership wanted to recognize students who were engaged in research on traffic safety topics at U-M. The Center conducted a call for applications to all graduate students at U-M in early November, 2013. Applicants were required to: provide an overview of the transportation safety-related research project in which they were participating; describe their role on the project; describe the impact of this research project on society; discuss the most interesting thing they learned while working on the project; and provide a faculty letter of endorsement. Applications were reviewed by the ATLAS Center at UMTRI leadership team. Twelve applications were received, three applicants were interviewed, and one student of the year and two runner-up students of the year were selected, all of whom were doctoral students. The students are as follows: Student of the Year—Douglas Roehler (Public Health); Runner up—Joseph B. Bayer (Communications); and Runner up—Katelyn Klein (Biomedical Engineering).



*Professional Education Program:* The ATLAS Center at UMTRI supports the education of traffic safety professionals through various media, including on-site education, lectures and talks, hosting conferences and seminars, and web-based media to reach a wide variety of transportation professionals. During this reporting period, the following educational presentations were at least partially sponsored by the Center:

- Planning for an Older Driver Cohort Study. Presentation at the *Gerontological Society of America, Transportation and Aging Interest Group Meeting*. Dr. Lisa J. Molnar (New Orleans, LA, November, 2013).
- Has the Time Come for An Older Driver Vehicle? Presentation to Ford Motor Company representatives as part of the *U-M/Ford Alliance*. Drs. David W. Eby and Lisa J. Molnar (Dearborn, MI, March, 2014).

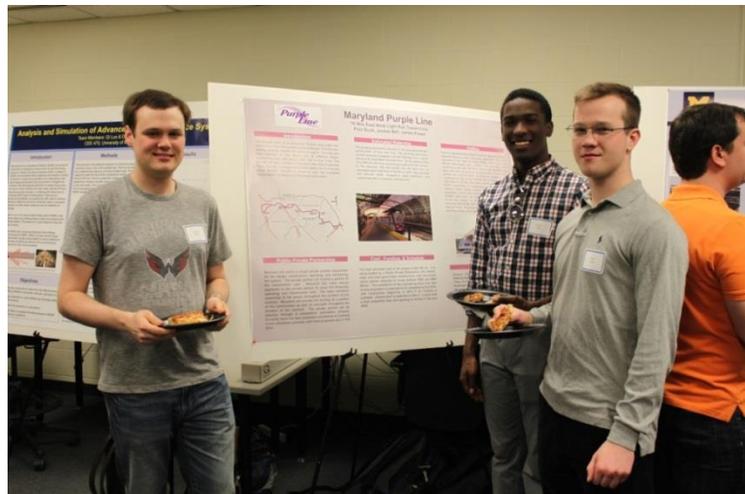
*Student Participation in Research:* Each research project awarded by the ATLAS Center requires the participation of at least one student or post-doctoral fellow. The

following students (and their area of study) are participating in ATLAS Center research projects: Marco Benedetti (Biostatistics); Nathaniel Schultz (Civil Engineering); Paola Betancourt (Civil Engineering); Tessa Elwart (Mechanical Engineering); and Douglas Roehler (Public Health).

In addition to its formal research grant programs, the ATLAS Center provides resources for graduate students who are conducting transportation safety research for a thesis or dissertation. During this reporting period, the ATLAS Center is providing office space, administrative support, and mentoring to Jonathon Vivoda for his doctoral work in Public Health at U-M.

Finally, the Center also provides resources for undergraduate students. During this reporting period, the Center sponsored a poster session for student research projects in an upper-level undergraduate engineering course at U-M — Introduction to Transportation Engineering. The poster titles and authors were:

- *Ann Arbor Integrated Transit Plan.* Andrew Krzysnik.
- *Analysis and Simulation of Advanced Driver Assistance Systems.* Qi Luo & Daniel Rickmar.
- *Maryland Purple Line.* Paul Scott, Jordan Bell & James Power.
- *Analysis of Traffic Flow at the Intersection of South State Street and South University Avenue.* Zachary Costello.
- *Improvements in Transportation Engineering Materials.* Carolyn Viloni, Tyler Patrick & Grant Karr.
- *Exploration of Safety Pilot Model Deployment.* John Hurtado, David Wilkins & Zachary Zechmeister.
- *CC Little Pedestrian Crosswalk.* Mark Kemp, Brad Houtschilt & Chris Hawkins.
- *The Future of Hydrogen Fuel Cell Vehicles.* Elizabeth Wong, Grizelda Sukmoro, Lukas Raak & Joe Norman.
- *Military Airfield Design.* Matthew Blanchard, Rob Carver & Michael Konieczny.
- *Evaluation of Crime Rates and Road Conditions in Michigan and Their Effects on Driver Safety.* Mike Gallo.
- *Traffic Study: Central Campus Transit Center Crosswalk.* Elijah Butler, Matt Drago, Joe McConeghy & Ben Shapiro.



*STEM Outreach Program:* This program is designed to facilitate UMTRI's ongoing outreach to primary and secondary school students to foster student interest in the STEM fields and encourage the pursuit of STEM careers. During this reporting period, the ATLAS Center at UMTRI agreed to support "Take Your Child to Work Day" at UMTRI and is providing support to develop a traffic-safety based curriculum that is focused on acquainting primary and secondary school students with traffic safety issues.

*ATLAS Symposium Series Program:* Each year, the ATLAS Center plans to sponsor two faculty at each institution to travel to the partner institution to meet with researchers and make a research presentation. The intent of this program is to support collaboration between UMTRI and TTI, to assist in the development of high quality joint research projects, and facilitate the exchange of scholarly information. During this reporting period, faculty at each institution have been identified and plans are being made for travel and the symposia.

*Student Travel Assistance Program:* A portion of the ATLAS Center at TTI's funds will be allocated to deserving graduate or undergraduate students to support travel to attend the Texas Traffic Safety Conference and TexITE meetings. Students will benefit both from networking opportunities with practicing safety professionals and industry employers and from practicing their presentation skills in a professional setting.

*Advancement Via Individual Determination (AVID) Program Support:* The ATLAS Center at TTI will incorporate transportation safety elements into existing TTI interactions with the AVID program in College Station Independent School District schools. AVID is a college readiness system for elementary through higher education targeting underserved boys and girls of all ethnic backgrounds who fall in the academic middle, simultaneously raising expectations and providing a support system for their college attendance. Safety activities will be integrated into the day-long field trip hosted at by TTI for 60 to 70 6th grade participants in the program. Creating this relationship at the middle school level creates opportunity to continue to work with students in the program through high school to foster and sustain students' interest in transportation careers. This program is currently being organized and will be conducted May 2<sup>nd</sup> and May 9<sup>th</sup>, 2014.

### **1.2.3 Disseminate new traffic safety knowledge and information to a wide range of stakeholders through technology transfer efforts**

The ATLAS Center has an active program of technology transfer to ensure that transportation knowledge and information is disseminated to government entities, practitioners, researchers, and the public. The following describes ATLAS Center technology transfer activities during this reporting period.

*Website:* The ATLAS Center contracted with a professional company to develop a website based on the specifications developed by the ATLAS Center leadership. The website includes all of the information required by the UTC program. This website operates on the WordPress platform, so it can be edited and content be added by the ATLAS Center Administrative Coordinator, Beth Jakubowski. The website, ATLAS-Center.org, is updated on a regular basis. Analyses of website usage from Google Analytics showed that between December 24, 2013 and April 24, 2014, the site had nearly 5,000 page views from over 1,000 users.

*Newsletter:* The ATLAS Center developed a template and logo for the Center's newsletter called the ATLAS Express. The first newsletter was sent electronically to more than 4,300 recipients. We continue to add to this distribution list. A copy of the newsletter can be found on the ATLAS Center website. The second newsletter is in production.

*Facebook Page:* On February 5, 2014, the ATLAS Center created a Facebook page to help disseminate our research results and keep stakeholders informed about Center activities. We regularly post to this site and are actively seeking more people to "like" our site.

*Development of Promotional Materials:* As a first step in our technology transfer efforts, we had a logo developed by a professional graphic artist. We also developed and printed a three-fold brochure, lapel pins, a banner, and other materials that we distribute at our various events.



*Publication Support:* The ATLAS Center encourages publication of research results in peer-reviewed journals or esteemed academic publications targeted at transportation and safety professionals by providing support to develop and/or publish articles. During this reporting period, the Center helped support the development of a technical report into a peer-reviewed journal article that was eventually published in the *Journal of Ergonomics*.

*Dissemination Plan for Research Results:* Each ATLAS Center research project includes a detailed dissemination/technology transfer plan. Once the current round of research projects are completed, the ATLAS Center leadership will ensure that these plans are followed so that results can be widely disseminated.

*ATLAS Center Annual Conference:* A joint annual ATLAS Center Transportation Conference will be held each year, alternating between TTI and UMTRI. The first annual conference is scheduled to take place in San Antonio, TX on May 12-14, 2014. During this reporting period, all of the planning for the conference has taken place, including development of the program and coordinating with the venue. Several ATLAS Center leaders will present at the conference and the Center will be providing sponsorship for several students to present their research. The conference will also highlight ATLAS Center sponsored research.

*Community Outreach and Education Program:* The ATLAS Center supports the efforts of Education Coordinator, Renée St. Louis, to utilize her skills as a nationally certified child passenger safety technician to promote the safety and wellbeing of children and families in the community. Ms. St. Louis works with Safe Kids Huron Valley and C.S. Mott Children's Hospital at monthly events to educate parents and caregivers about car seat safety. The primary goal of each event is to prevent injuries and fatalities to children involved in motor vehicle crashes. Ms. St. Louis provides individualized hands-on instruction to community members participating in the events and informs parents and caregivers about: how to properly install a car seat; safety features of a car seat; the unique safety features of their vehicle and how the vehicle works with their chosen car seat; car seat recalls and expired seats; and the proper positioning of their children in car seats.

*Conference Presentations and Publications:* During this reporting period, ATLAS Center members gave several presentations and published articles. Lists of these presentations and publications are provided in section 2 of this report.

#### **1.2.4 Provide state, national, and international traffic safety leadership**

ATLAS Center faculty and staff are recognized state, national, and international leaders in traffic safety. This reputation for quality leadership is demonstrated by ATLAS Center members serving in leadership positions, on state/national/international committees, and involvement in the scientific peer-review process. The following lists the leadership positions, committees, and peer-review activities of ATLAS Center members:

##### **Leadership Positions:**

- Daniel Blower, Member, Michigan Truck Safety Commission.
- Dennis Christiansen, Board of Directors, ITS America.

- Paul A. Green, At-Large Executive Council Member, Human Factors and Ergonomics Society.
- Lisa J. Molnar, Secretary, Safe Mobility for Older Adults Committee of the Transportation Research Board of the National Academies.
- Melissa Tooley, Vice Chairperson at Large, The American Road and Transportation Builders Association (ARTBA).

#### **Committees:**

- Chiara Silvestri Dobrolvolny, Roadside Safety Design Committee, Young Member, Transportation Research Board of the National Academies.
- David W. Eby, Member, Occupant Protection Committee of the Transportation Research Board of the National Academies.
- David W. Eby, Member, Safe Mobility for Older Adults Committee of the Transportation Research Board of the National Academies.
- David W. Eby, Member, Michigan Senior Mobility Work Group.
- David W. Eby, Member and Former Convener, Transportation and Aging Interest Group, Gerontological Society of America.
- Melisa Finely, Work Zone Traffic Control Committee, Member, Transportation Research Board of the National Academies.
- Lidia P. Kostyniuk, Member, Transportation and Aging Interest Group, Gerontological Society of America.
- Lisa J. Molnar, Member and Former Convener, Transportation and Aging Interest Group, Gerontological Society of America.
- Lisa J. Molnar, Member, Driver Medical Review Subcommittee, Transportation Research Board of the National Academies.
- Lisa J. Molnar, member, Michigan Senior Mobility Work Group.
- Melissa S. Tooley, Member, Committee on the Role of Freight Transportation in Economic Competitiveness: The 8th University Transportation Center Spotlight Conference, Transportation Research Board of the National Academies.
- Melissa S. Tooley, Member, Transportation Education and Training Committee of the Transportation Research Board of the National Academies.
- Robert C. Wunderlich Member, Subcommittee on Global Road Safety, Transportation Research Board of the National Academies.
- Robert C. Wunderlich, Member, Institute of Transportation Engineers Safety Council

#### **Editor/Peer-Review/Grant Review:**

- David W. Eby, Associate Editor, *Accident Analysis & Prevention*.
- David W. Eby, Editorial Board Member, *Journal of Safety Research*.
- David W. Eby, Grant Proposal Reviewer, 15<sup>th</sup> Cycle Undergraduate Research Experience Program, Qatar National Research Fund (December, 2013).

- David W. Eby, Conference Presentation Reviewer. Annual Meeting of the Gerontological Society of America (February, 2014).
- Lidia P. Kostyniuk, Editorial Board Member, *Journal of Safety Research*.
- Lidia P. Kostyniuk, Editorial Advisory Board, *Accident Analysis & Prevention*.
- Lidia P. Kostyniuk, Editorial Advisory Board, *Transportation*.
- Lidia P. Kostyniuk, Grant Proposal Reviewer, Research Grants Council of Hong Kong (February 2014).
- Lisa J. Molnar, Conference Presentation Reviewer. Annual Meeting of the Gerontological Society of America (February, 2014).
- Robert C. Wunderlich, Proposal Reviewer, Southeastern Transportation Center Grants for Opportunity/Exploratory Projects (February 2014)

### **1.2.5 Develop and maintain traffic safety collaborations**

The ATLAS Center is actively seeking and establishing traffic safety collaborations. The following is a list of organizations for which the ATLAS Center has an existing collaboration or is working toward establishing a collaborative relationship:

- AAA Foundation for Traffic Safety
- Alamo Area Council of Governments
- Capital Metropolitan Transportation Authority, Dallas, Texas
- Centers for Disease Control and Prevention
- City of Austin, Texas
- Dallas Area Rapid Transit System
- East Carolina University
- Gerontological Society of America
- Lakehead University (Canada)
- Michigan Department of Transportation
- Monash University (Australia)
- North Texas Tollway Authority
- Please be Kind to Cyclists – Texas
- School of Public Health, Texas A&M University
- Southeastern Transportation Center, Knoxville, TN
- Southwest Research Institute
- Texas Department of Public Safety
- Texas Department of State Health Services
- Texas Department of Transportation
- University of Massachusetts, Boston
- University of Ottawa (Canada)
- University of Texas Health Science Center – San Antonio

- University of Texas Health Science Center, Center for Translational Injury Research, Hermann-Memorial Hospital, Houston, TX
- USAA Insurance

### **1.3 How have the results been disseminated?**

As discussed previously, the Center has a range of activities that we undertake to disseminate research results and to increase awareness of our activities. Because research projects are still in their early phases, there are no research results to disseminate. Once these projects are completed, the results will be disseminated through conference presentations, published articles, and interviews with news media. The Center activities are disseminated through a wide range of outlets including a website, a Facebook page, a newsletter, and presentations by Center leadership.

### **1.4 What do you plan to do during the next reporting period to accomplish the goals?**

A number of activities are planned for the next reporting period that will facilitate accomplishing the goals of the ATLAS Center. These activities are:

- Conducting the Annual ATLAS Center Research Conference.
- Providing co-sponsorship to the 2014 Traffic Safety Conference.
- Providing sponsorship for graduate student poster session at 2014 Traffic Safety Conference.
- Collecting quarterly project summaries and posting them on our website.
- Tracking and adding publications to our website.
- Developing and disseminating the next issue of the ATLAS Express newsletter.
- Convening the ATLAS Center Advisory Board.
- Convening the ATLAS Center at UMTRI Executive Committee.
- Completing the development of an internal reporting system for tracking performance indicators.
- Conducting the 2014 Summer Student Internship program.
- Conducting ATLAS sponsored AVID program in College Station ISD Schools.
- Providing support for Summer Transportation Institute (STI) program at Prairie View A&M
- Holding the first ATLAS Center Symposium.

## **2. PRODUCTS**

The ATLAS Center was established on October 1, 2013 and since that time we have placed considerable effort into hiring staff, working through cost-match funding issues, and establishing our various programs. As such, the creation of products from these

efforts is necessarily minimal. We anticipate increases in our products as our programs become better established.

## **2.1. Publications, conference papers, and presentations**

The following are lists of publications, conference papers, and presentations that were at least partially sponsored by the ATLAS Center:

### **2.1.1 Presentations:**

- Eby, D.W. (2014). The state of the field: Aging, driving, and automotive technology/design. Keynote address at the workshop on: *The Road to Automated Vehicles and the Aging Population*. Stanford University. Palo Alto, CA.
- Kostyniuk, L.P. (2014) Michigan TACT Program and Evaluation, *Michigan Trucking Association, West Michigan Safety Council*, Grand Rapids, MI.
- Wunderlich, R. (2014). It's about the traveler. Texas A&M Institute of Transportation Engineers Student Chapter. College Station, TX.

### **2.1.2 Conference Papers:**

- Nothing to report

### **2.1.3 Publications:**

- Bolon K, Keoleian G, Kostyniuk LP. (2013). Fuel use and optimality of assignments in multi-vehicle households: trends from 2001-2009. *Transportation Research Record: Journal of the Transportation Research Board*, 2382. 83-91.
- Eby, D.W. & Molnar, L.J. (2014). Has the time come for an older driver vehicle? *Journal of Ergonomics*. S3: 002. doi:10.4172/2165-7556.S3-002.

## **2.2 Website(s) or other internet site(s)**

- The ATLAS Center website link is: [www.ATLAS-Center.org](http://www.ATLAS-Center.org).
- The ATLAS Center also has a Facebook page: <https://www.facebook.com/ATLASCenter>

## **2.3 Technologies and techniques**

Nothing to report for this period.

## **2.4 Inventions, patent applications, and/or licenses**

Nothing to report for this period.

## **2.5 Other products**

Nothing to report for this period.

## **3. PARTICIPANTS AND COLLABORATING ORGANIZATIONS**

The ATLAS Center places great value on multidisciplinary, collaborative activities. Indeed, collaboration is the hallmark of our Center. We are working to establish several collaborations.

### **3.1 What organizations have been involved as partners?**

The ATLAS Center is a collaboration between UMTRI in Ann Arbor, Michigan and TTI in College Station, Texas. Several of the Center's programs are designed to facilitate collaborative efforts among the two institutions.

As part of some of the ATLAS Center research projects, partners outside these two institutions have been brought in as research collaborators. These partners include:

- Mr. Mack Cowan (Texas Department of Public Safety).
- Dr. Paul Milgram (University of Toronto).
- Ms. Tina Sayer (Toyota Motor Corporation).
- Dr. Bruce Simons-Morton (National Institute for Child Health and Development, NIH).
- Ms. Lisa Southwick (Hyundai Kia).

The ATLAS Center at UMTRI has a commitment from the Michigan Department of Transportation for cost match funding for the first 2 years of operation. We are working with this organization to determine how this funding can be utilized.

### **3.2 Have other collaborators or contacts been involved?**

In addition to collaboration with organizations outside of U-M and Texas A&M University (TAMU), the ATLAS Center intends to take full advantage of the breadth of expertise available within these two universities. The following is a list of departments/institutes for which ATLAS Center has collaborated with during the reporting period.

- Chemical Engineering, U-M
- Civil Engineering, U-M
- C.S. Mott Children's Hospital, U-M
- Department of Asian Languages and Culture, U-M
- Department of Communication Studies, U-M
- Department of Earth and Environmental Sciences, U-M

- Department of Health Behavior and Health Education, U-M
- Department of Health Management and Policy, U-M
- Department of Psychiatry, U-M
- Department of Psychology, U-M and TAMU
- Department of Statistics, U-M
- Department of Surgery, U-M
- Economics Department, U-M
- Geriatrics Center, U-M
- Industrial and Manufacturing Systems Engineering, U-M
- Industrial and Operations Engineering, U-M
- Institute for Gerontology, U-M
- Institute for Social Research, U-M
- Materials and Science Engineering, U-M
- Mechanical Engineering, U-M

## **4. IMPACT**

The ATLAS Center has just begun to implement programs, and many of the programs require a year or more in order to have outcomes that are impactful. At this early stage of the Center's operation, it is difficult to estimate the impact of most of our activities.

### **4.1 What is the impact on the development of the principal discipline(s) of the program?**

It is too early to assess ATLAS Center's impact on the field of transportation safety.

### **4.2 What is the impact on other disciplines?**

It is too early to assess ATLAS Center's impact on fields outside of transportation safety.

### **4.3 What is the impact on the development of transportation workforce development?**

During this reporting period, the ATLAS Center supported several student activities with the long-term goal of fostering increased interest in and commitment to pursuing transportation related careers. Specifically the Center:

- Provided the opportunity for a high performing student to attend the Transportation Research Board meeting and present research results at a committee meeting.

- Agreed to provide support for several undergraduate students to participate in a summer research internship program focused on transportation.

#### **4.4 What is the impact on physical, institutional, and information resources at the university or other partner institutions?**

The Center, while still early in its life, has already strategically positioned itself to have a strong impact on transportation safety because of the synergy it has created, and the breadth and depth of knowledge it has brought together through the partnership of UMTRI and TTI. The Center has begun to harness the wealth of transportation expertise and information resources residing in each institution into a single entity, which will lead to integrated, innovative solutions for improving the transportation system within all of the areas of safety within our scope. In addition, by adding a formalized structure to the partnership between the institutions, we are achieving significant operational efficiencies by reducing duplication in research, education/workforce development, and technology transfer efforts. Establishment of the Center has also led to UMTRI and TTI partnering on other transportation related initiatives that likely would not have come about in the absence of the Center. Similarly, through the Center's outreach to other U-M departments (e.g., the research and student grant competitions), we have increased awareness of and interest in transportation safety in departments that otherwise would have limited involvement in this area.

#### **4.5 What is the impact on technology transfer?**

It is too early to assess ATLAS Center's impact on technology transfer. However, the interest in Center activities as measured by visits to the website and receipt of the newsletter suggest that relatively large numbers of stakeholders are seeking out and receiving information about Center programs and activities.

#### **4.6 What is the impact on society beyond science and technology?**

It is too early to assess ATLAS Center's impact on society beyond science and technology.

## **5. CHANGES/PROBLEMS**

### **5.1 Changes in approach and reasons for change**

There are no changes in the approach during this reporting period.

### **5.2 Actual or anticipated problems or delays and actions or plans to resolve them**

The ATLAS Center at UMTRI has been working with the Michigan Department of Transportation (MDOT) to determine how cost match funds can be utilized. We continue to explore options with MDOT.

### **5.3 Changes that have a significant impact on expenditures**

Nothing to report for this period.

### **5.4 Significant changes in use or care of human subjects, vertebrate animals, and/or biohazards**

There are no changes in the use or care of human subjects. There are no plans for the use of vertebrate animals or biohazards in any center activities.

### **5.5 Change of primary performance site location from that originally proposed**

There have been no changes in the primary performance sites and no changes are anticipated in the future.

### **5.6 Additional information regarding Products and Impacts**

Nothing to report for this period

## **6. SPECIAL REPORTING REQUIREMENTS**

There are no special reporting requirements.