



**PROGRAM PROGRESS PERFORMANCE REPORT FOR  
UNIVERSITY TRANSPORTATION CENTERS**

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Research and Innovative Technology Administration

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**Signature of Submitting Official:** 

## Overview

Safety Research using Simulation (SAFER-SIM) University Transportation Center has completed the 7<sup>th</sup> performance period associated with the 2013 SAFER-SIM grant. The center continues its high standard of work in safety research, leadership development, education and workforce development, technology transfer, collaboration, program efficacy, and diversity. No new projects have been funded. SAFER-SIM administrators and principal investigators are working to complete all research projects and submit all deliverables associated with the 2013 UTC. Education and outreach activities continue, yet where not associated with a specific 2013 grant funded project will be reported for the 2016 SAFER-SIM UTC. This report will describe the accomplishments, products, impacts, and plans of the 2013 SAFER-SIM UTC.

A copy of this report can be found on the SAFER-SIM website on the “Reports” tab under “2013 UTC” or at the following URL: [http://safersim.nads-sc.uiowa.edu/reports\\_2015.php](http://safersim.nads-sc.uiowa.edu/reports_2015.php)

## 1. Accomplishments

### a. Goals and objectives of the program

The goal of the SAFER-SIM University Transportation Center is to use simulation techniques to address the safety issues prioritized by the US DOT. Specifically, our center has identified seven areas of activity:

#### 1. Research Activities

##### *Funded Projects*

SAFER-SIM research projects continued making progress on research tasks. Ten (10) research projects completed this period (*Table 1: Completed Research Projects this Period*). Overall, the UTC funded forty-three (43) individual and collaborative research projects as well as education-related projects. Twenty-three (23) have submitted all deliverables and are complete. Ten (10) projects have submitted final reports and are in the review process, the remaining ten (10) projects are still active. These active projects are in the final phases and are expected to be complete by the end of the next period. The center did not issue an RFP this period and will not issue any more RFPs with the 2013 grant.

**Table 1: Completed Research Projects this Period**

Research Project Title	School(s)	Accession #
Drugged Driving: Effects of Pain and Anxiety Medications on Driving Performance in a Simulator	UI	01644709
Driving After Distal Radius Fractures	UI	01642604
Do Prohibitive Warnings Improve Road-Crossing Safety for Texting and Non-texting Pedestrians?	UI	01646564

Community-Based Education and Public Awareness for All-Terrain Vehicle and Side-by-Side Safety to Reduce Roadway Deaths and Injuries	UI	01643712
Advanced Vehicle Technology Simulation and Research Outreach to STEM Programs	UI	01638980
Global Road Safety Online Course Development (Education)	UI	01638985
Perception of Time Influences on Driver Speed Selection	UM	01602585
Examining Distracted Drivers' Underestimation of Time and Overestimation of Speed	UM	01602587
Enhancing Non-Motorized Safety by Simulating Non-Motorized Exposure using a Transportation Planning Approach	UCF	01644094
A Driving Simulator Investigation of Road Safety Risk Mitigation under Reduced Visibility	UCF	01646515

Important information pertaining to SAFER-SIM research projects – including titles, abstracts, PIs, sites, and associated reports and summaries – can be accessed from the following webpage: <http://safersim.nads-sc.uiowa.edu> then clicking on the “Research” tab.

### *Webinars*

SAFER-SIM continues sponsoring a monthly webinar series relating to SAFER-SIM research projects. These webinars highlight the expertise of consortium researchers to interested individuals, such as researchers from other consortium sites and universities, employees within the Department of Transportation and other agencies, and professionals from the transportation industry. Presenters gain experience sharing their research findings with an audience. The webinars are recorded and uploaded onto the SAFER-SIM YouTube channel so they can be viewed and shared anytime.

SAFER-SIM sponsored eight (8) webinars during this reporting period (*Table 2: Webinars Presented this Period*) and will continue scheduling future webinars for the next grant year.

**Table 2: Webinars Presented this Period**

<b>Title</b>	<b>Date</b>	<b>School(s)</b>	<b>Registrants</b>	<b>YouTube Views</b>
Identifying Postural Control and Thresholds of Instability Utilizing a Motion-based ATV Simulator	4/11/2017	UI	21	36
A Driving Simulator Evaluation of Cross-Section Design Elements and the Resulting Driver Behaviors	5/2/2017	UMA	57	55
The Impact of Vehicle Automation on the Safety of Vulnerable Road Users (Pedestrians and Bicyclists)	5/9/2017	UMA	125	50
Driving simulator Evaluation of Countermeasures to Improve Pedestrian and Bicycle Safety	6/13/2017	UI	36	53
Drugged Driving: Effects of Pain and Anxiety Medication on Driving Performance in a Simulator	7/10/2017	UI	44	31
Using Naturalistic Data to Develop Simulator Scenarios	7/25/2017	UI, UW	17	24
Community-Based Education and Public Awareness for ATV/SxS Safety	8/8/2017	UI	19	23
Driving after Distal Radial Fractures	8/22/2017	UI	19	24
<b>Total</b>			<b>338</b>	<b>295</b>
<b>Total Registrants and YouTube Views</b>				<b>633</b>

These webinars and past webinars can be found on the SAFER-SIM YouTube channel at the following URL: [https://www.youtube.com/channel/UCe8cN3jX8\\_mkAf8d8-UPzKQ](https://www.youtube.com/channel/UCe8cN3jX8_mkAf8d8-UPzKQ).

## 2. Leadership Development

### *Students involved in SAFER-SIM projects*

SAFER-SIM students are an integral part of the University Transportation Center. Forty-eight (48) college students worked on SAFER-SIM projects this period (*Table 3: Student Breakdown*). The students learn under faculty/staff researchers and build a solid research foundation. By the time they graduate, they are skilled professionals with quality experiences and invaluable connections gained through SAFER-SIM. We have not received updated information on number of students from our colleagues at the University of Puerto Rico – Mayaguez as they endeavor to recover from a hurricane, yet included their most recently reported information from June of 2017.

**Table 3: Student Breakdown**

Site	# Students	Postsecondary Level
University of Iowa	10	6 Undergraduate 4 Doctoral
University of Wisconsin – Madison	9	3 Undergraduate 1 Masters 5 Doctoral
University of Massachusetts – Amherst	16	2 Undergraduate 6 Masters 8 Doctoral
University of Central Florida	4	4 Doctoral
University of Puerto Rico – Mayaguez	5	2 Undergraduate 3 Masters
<b>Totals</b>	<b>44</b>	<b>13 Undergraduate 10 Masters 21 Doctoral</b>

### *SAFER-SIM Symposium*

SAFER-SIM symposia have been held at all five sites since the beginning of the grant. The final symposium was held at the **University of Iowa** in the last reporting period. Due to the success of previous symposia, SAFER-SIM will continue these symposia with the new grant to encourage collaboration and leadership development among UTC researchers and students. Plans are underway to hold a Virtual Symposium in October 2017 and an in-person symposium at the

**University of Central Florida** in February 2018. These events will be reported in the next 2016 SAFER-SIM PPPR.

#### *Peer Review Publications – 9 publications*

- University of Central Florida
  - Yina Wu, Mohamed Abdel-Aty, Yaoxian Ding, Bin Jia, Qi Shi, Xuedong Yan (2017). "Comparison of proposed countermeasures for dilemma zone at signalized intersections based on cellular automata simulations." *Accident Analysis & Prevention*. [in press]
  - Yina Wu, Mohamed Abdel-Aty, Jaeyoung Lee (2017). "Crash risk analysis during fog conditions using real-time traffic data." *Accident Analysis & Prevention*. [in press]
  - Wang, L., Abdel-Aty, M., & Lee, J. (2017). "Safety analytics for integrating crash frequency and real-time risk modeling for expressways." *Accident Analysis & Prevention*. (2017) 104, 58-64.
  
- University of Iowa
  - Jennissen, CA, Sweat, S, Wetjen, K, and Hoogerwerf, P. Feasibility and cost of an ATV safety poster project. *Journal of Agromedicine*. Epub date July 25, 2017.
  - O’Neal, E. E., Jiang, Y., Franzen, L., Rahimian, P., Yon, J. P., Kearney, J. K., & Plumert J. M. (2017). Changes in perception-action tuning over long time scales: How children and adults perceive and act on dynamic affordances when crossing roads. *Journal of Experimental Psychology: Human Perception and Performance*.
  - Jiang, Y., O’Neal, E.E., Yon, J.P., Franzen, L., Rahimian, P., Plumert, J.P., and Kearney, J.K. (in press). Acting together: Joint pedestrian road crossing in an immersive virtual environment. *ACM Transactions of Applied Perception*.
  - Rahimian, P., O’Neal, E. E., Zhou, S., Plumert, J. M., Kearney, J. K. (under review). Harnessing Vehicle-to-Pedestrian (V2P) Communication Technology: Sending Traffic Alerts and Warnings to Texting Pedestrians" submitted to *Human Factors: The Journal of the Human Factors and Ergonomics Society*.
  
- University of Massachusetts – Amherst
  - Fournier, N., Christofa, E., and Knodler, M.A. 2017. A Mixed Method Investigation of Bicycle. Exposure in Crash Rates, *Accident Analysis & Prevention*, doi.org/10.1016/j.aap.2017.02.004 [in press]
  - Fournier, N., Christofa, E., and Knodler, M.A. 2017. A Sinusoidal Model for Seasonal Bicycle Demand Estimation. *Transportation Research Part D: Transport and the Environment*, 50:154–169.

#### *Conference Presentations and Papers – 21 presentations and papers*

- University of Central Florida
  - Juneyoung Park, Mohamed Abdel-Aty, Yina Wu, Ilaria Mattei (submitted). "Optimization of in-vehicle warning and assistance information design under reduced visibility in

- connected vehicle environment” (18-00716), 97th Annual Meeting of the Transportation Research Board, Washington, D.C.
  - Yina Wu, Mohamed Abdel-Aty, Juneyoung Park, Jiazheng Zhu (submitted). “Effects of Connected-Vehicle Warning Systems on Rear-End Crash Avoidance Behavior under Fog Conditions” (18-01064), 97th Annual Meeting of the Transportation Research Board, Washington, D.C.
  - Saad, Moatz, Abdel-Aty, Mohamed, Lee, Jaeyoung, and Cai, Qing (submitted). “Safety Analytics for Integrating Crash Frequency and Real-Time Risk Modeling for Expressways.” Transportation Research Board 97th Annual Meeting,
  - Wang, L., Abdel-Aty, M., & Lee, J. (submitted). “Safety analytics for integrating crash frequency and real-time risk modeling for expressways.” Transportation Research Board 97th Annual Meeting, Washington, D.C.
  - Yina Wu, Mohamed Abdel-Aty, Juneyoung Park. "Developing a rear-end crash risk algorithm under fog conditions using real-time data." In Models and Technologies for Intelligent Transportation Systems (MT-ITS), 2017 5th IEEE International Conference on, pp. 568-573. IEEE, (2017).
  - Abdel-Aty, M., & Wang, L. (2017). “Implementation of Variable Speed Limits to Improve Safety of Congested Expressway Weaving Segments in Microsimulation.” 20th EURO Working Group on Transportation Meeting. Budapest, Hungary.
  - Abdel-Aty, M., & Wang, L. (2017). “Reducing Real-time Crash Risk for Congested Expressway Weaving Segments Using Ramp Metering.” 5th IEEE International Conference on Models and Technologies for Intelligent Transportation System. Napoli, Italy.
  - Saad, Moatz, Abdel-Aty, Mohamed, and Lee, Jaeyoung (2017). “Driving Behavior Analysis at Expressway Toll Plazas Using Driving Simulation.” Road Safety & Simulation, Accepted.
- University of Iowa
  - Schwarz, C. (2017). National Advanced Driving Simulator Measures Driver Interactions with Automated Driving System, UTC Spotlight, USDOT
  - Schwarz, C., Brown, T.L., Gaspar, J., Keum, C. (2017). “Transfer from Highly Automated to Manual Control: Performance and Trust.” Proceedings of the 25<sup>th</sup> ESV conference, Detroit, MI.
  - Schwarz, C. Brown, T.L., Gaspar, J., Keum, C. (2017). “Transfer from Highly Automated to Manual Control Encountering a Slow Lead Vehicle,” Automated Vehicle Symposium, San Francisco, CA.
  - Schwarz, C., Gaspar, J., Brown, T. L., (accepted), “Demographic Observations in Conditionally Automated Driving in a Simulator,” 97<sup>th</sup> Annual Meeting of the Transportation Research Board, Washington D. C.
  - Jennissen, CA. “Recreational Off-Highway Vehicle Exposure, Safety Behaviors and Crash Experiences of Iowa Future Farmers of America Members.” Annual Conference of the American Academy of Pediatrics. September 16-19, 2017. Chicago, IL
  - Rahimian, P. and Kearney, J. K., Optimal Camera Placement for Motion Capture Systems, invited presentation at SIGGRAPH 2017, Los Angeles, CA, August, 2017.

- Y. Jiang, E. E. O’Neal, L. Franzen, J. P. Yon, J. M. Plumert, and J. K. Kearney (2017). The influence of stereoscopic image display on pedestrian road crossing in a large-screen virtual environment. In Proceedings of ACM Symposium on Applied Perception, Cottbus, Germany, September 2017.
  - Y. Jiang, E. E. O’Neal, S. Zhou, J. M. Plumert, J. K. Kearney (2017). Crossing Roads with a Computer-Generated Agent: Lasting Effects on Perception-Action Tuning, poster presented at the ACM Symposium on Applied Perception, Cottbus, Germany, September 2017.
  - Allen, Shawn (2017). Streamlining Conversion From transportation Design Models to Driving Simulator Scenarios. Presentation at Mid-Continent Transportation Research Symposium. Ames, Iowa. August 2017.
  - Allen, Shawn, (2017). Automated Roadway Design Model Conversion for Driving Simulation. Poster at 2017 Joint Meeting of AASHTO Standing Committee on Environment and Subcommittee on Design. Des Moines, Iowa. July 2017.
- University of Massachusetts – Amherst
    - Sabhanayagam, A., Knodler, M.A., Christofa, E., Hajiseyedjavadi, F., and Khalighi, F. (2017). Impact of S-Curves on Speed in a Modern Roundabout. *2017 Road Safety & Simulation Conference*, 17-19 October, The Hague, Netherlands.
    - Ryan, A., Tainter, F., Fitzpatrick, C., Page, M., Christofa, E., and Knodler, M. (2017). Alternative Merge Design Downstream of Intersections. *2017 Road Safety & Simulation Conference*, 17-19 October, The Hague, Netherlands.
    - Wolfgram, J., Christofa, E., and Knodler, M.A. (2017). Microsimulation Safety Assessment of Continuous Flow Intersections. *2017 Road Safety & Simulation Conference*, 17-19 October, The Hague, Netherlands.

**Awards – 2 awards**

- Dr. Mohamed Abdel-Aty (faculty), **University of Central Florida**
  - University of Central Florida Trustee Chair
- Nicholas Fournier (student), **University of Massachusetts – Amherst**
  - People’s Choice Award for Poster at 18<sup>th</sup> Annual Technical Day for poster: “Bicycle Infrastructure from the Driver Seat: Evaluating Bicycle Infrastructure Using a Driver Simulator,” April 26, 2017.

**Invited Presentations – 7 presentations**

- University of Central Florida
  - Lee, Jaeyoung. Current Safety and Behavior Researches. Kunming University of Science and Technology, August 2017.
  - Lee, Jaeyoung. State-of-the-Art Driving Simulator Experiment Studies in the United States. Beijing Jiaotong University, August 2017.



- University of Iowa
  - Schwarz, C. 64<sup>th</sup> Annual Professional Development Conference and Expo. Iowa-Illinois Safety Council. April 2017.
  - Denning, Gerene. How to Address Safety Issues for ATVs and Other Off-Road Vehicles. National Center for Rural Road Safety. July 2017.
  - Denning, Gerene. Enforcement of ATV Laws. Statewide Traffic Records Coordinating Committee (STRCC). September 2017.
  - Marshall, Dawn. SAFER-SIM Research Overview. Statewide Traffic Records Coordinating Committee (STRCC). September 2017.
  
- University of Massachusetts – Amherst
  - Christofa, E., 2017. Safety Assessment of Alternative Intersection Designs and Infrastructure Treatments, Highway Engineering Course Invited Lecture, Transportation & Urban Infrastructure Studies, Morgan State University, 13 September, Baltimore, MD.

*Journal editing and reviewing activity – 16 journals*

- Accident Analysis and Prevention
- Advances in Transportation Studies
- ASCE Journal of Transportation Engineering
- Case Studies on Transport Policy
- Driving Assessment
- IEEE Intelligent Transportation Systems Magazine
- KSCE Civil Engineering
- Journal of Safety Research
- Journal of Pediatrics
- Traffic Injury and Prevention
- Traffic Research Part D
- Transportation Research Board
- Transportation Research Record
- Transportmetrica A
- Transportmetrica B
- Western Journal of Emergency Medicine

*Leadership positions in professional organizations – 6 leadership positions*

- Editor-in-Chief, Accident Analysis & Prevention, Dr. Mohamed Abdel-Aty (UCF)
- TRB Standing Committee on Transportation Safety Management (ANB10), Dr. Jaeyoung Lee (UCF)
- TRB Standing Committee on Vehicle Automation (AHB30), Dr. Chris Schwarz (UI)
- TRB Standing Committee on User Information Systems (AND20), Dr. John Gaspar (UI)
- TRB Standing Committee on User Information Systems (AND20), Ms. Dawn Marshall (UI)

- American Academy of Pediatrics (AAP) Sub-Committee on Injury and Poison Prevention, Dr. Charles Jennissen (UI)
- Paper Review Chair and Member, Transportation Research Board AHB25 Traffic Signal Systems Committee, Dr. Eleni Christofa (UM)
- TADD55 Task Force on Arterials and Public Health, Dr. Eleni Christofa (UM)

*Invitations to Panels and Advisory Committees – 3 panels and committees*

- University of Massachusetts – Amherst
  - Transit Cooperative Research Program (TCRP) Syntheses Project J-07/Topic SA-43, Dr. Eleni Christofa
  - Transit Service Evaluation Standards Panel Member, Dr. Eleni Christofa
  - FHWA/ U.S. DOT Work Zone Model Expert Panel Member, Dr. Eleni Christofa

### **3. Education and Workforce Development**

SAFER-SIM consortium members continue to organize and participate in events focusing on students and members of the workforce, yet where not associated with a specific 2013 grant funded project will be reported in detail for the 2016 SAFER-SIM UTC, which will have a longer second reporting period. As an interim report between April 1 and September 30, 2017 SAFER-SIM has attended 15 events and interacted with 2389 K-12 students and 168 college students. A description of each event can be found on the SAFER-SIM website: [http://safersim.nads-sc.uiowa.edu/education\\_2015.php](http://safersim.nads-sc.uiowa.edu/education_2015.php).

*Employment status of past students – 6 students employed*

- Jaeyoung Lee (Ph.D, UCF, Spring 2014), Research Assistant Professor , University of Central Florida
- Juneyoung Park, (Ph.D., UCF, Summer 2015), Assistant Professor, Hanyang University, Korea
- Ling Wang (Ph.D., UCF, Summer 2016), Assistant Professor, Tongji University, China
- Claudia Bustamante (Master’s, UCF, Spring 2017) – Florida Department of Transportation
- Qing Cai (Ph.D.,UCF, Summer 2017), Post-Doctoral Associate, University of Central Florida
- Yina Wu (Ph.D., UCF, Fall 2017), Post-Doctoral Associate, University of Central Florida

### **4. Technology Transfer**

*Final Research Reports – 8 reports*

The 8 research projects that completed this period submitted final research reports and corresponding 2 page summaries. The technical reports vary in length but provide enough information for fellow researchers to understand the research questions, methods, and results.

The final reports have been shared with TRID. The 2 page summaries of each project are available for a quick overview of the projects. These summaries focus on recommended practices for transportation professionals providing easier access to key information than the technical report.

#### **Webinars – 8 webinars**

SAFER-SIM has hosted eight (8) webinars over the course of this reporting period. Students, researchers, and industry professionals from the United States and other countries view the SAFER-SIM webinars. A breakdown of the webinar can be found in *Table 2: Webinars Presented this Period* above. Some highlights below:

- 8 webinars
- 338 registrants
- 295 YouTube Views

There have been a total of 633 registrations and YouTube views for the eight (8) webinars resulting in an average of 79 contacts for each webinar.

#### **Online Presence**

**Website** – The website for SAFER-SIM is used to host research final reports and summaries and used to share recent news and progress. The website has been updated to reflect the information in the 2016 UTC grant. The website homepage is located at the following URL: <http://safersim.nads-sc.uiowa.edu>

**News Digest** – Another method SAFER-SIM uses to reach more individuals is through a news digest. Three hundred seventeen (317) subscribers receive content featuring SAFER-SIM news, webinars, final reports, and other transportation safety news. The news digest was sent out nine (9) times during this performance period.

**Social Media** – SAFER-SIM is active on Twitter, Facebook, and YouTube. These accounts help followers keep up to date with the most recent webinars, final reports, and other news. Social media allows the UTC to reach a larger audience.

- Twitter handle @SaferSimUTC
- Facebook page URL <https://www.facebook.com/SaferSimUTC/>
- YouTube channel [https://www.youtube.com/channel/UCe8CN3JX8\\_mkAf8d8-UPzKQ](https://www.youtube.com/channel/UCe8CN3JX8_mkAf8d8-UPzKQ)

### **5. Collaboration**

A main focus of SAFER-SIM UTC is collaboration, both within consortium sites and across disciplines. Consortium members engage in regular web conferencing, teleconferences, and email communications, as well as face-to-face interactions via site visits and time set aside during symposia. Site directors participate in a conference call once a month to share information about the progress at each university.

Regular updates to the SAFER-SIM website and social media accounts allow for up-to-date project information and outreach activities to spur ideas across sites. The webinar format builds greater engagement and a broader exchange of ideas among students, faculty, and industry

professionals. SAFER-SIM also emails a biweekly news digest to 317 individuals holding academic, government, and transportation industry positions. Researchers and students stay connected with each other through various platforms to conduct research and to share ideas.

SAFER-SIM researchers have a diverse range of professional backgrounds that span across many colleges throughout the universities. The variety of expertise within the consortium creates a collaborative environment to address safety issues from different perspectives. Some backgrounds include:

- Engineering
- Public Health
- Psychology
- Pharmacy
- Computer Science
- Emergency Medicine
- Science Education
- Orthopedic Surgery

## 6. Program Efficacy

SAFER-SIM continues to work diligently to complete research projects by projected end dates. Principal investigators submit progress reports to SAFER-SIM administrators before the deadline. SAFER-SIM administrators ascertain whether grant deliverables are submitted on time and ensure grant compliance. While several projects have past due technical reports, regular bi-weekly communication between administrators, site directors, and researchers is facilitating the completion of project deliverables. It is fully expected that all projects will have complete deliverables within the grant performance period.

## 7. Diversity

SAFER-SIM impacts underserved and underinvested populations by bringing more minority students into the transportation sector. The minority groups represented include various people of color, Asian and Hispanic ethnic origins, and women. Seventeen (17) individuals from these groups worked on SAFER-SIM projects this period (*Table 4: Minority Students*). Please note that due to hurricane recovery, we have not received an update from University of Puerto Rico-Mayaguez. Previously reported information is included here.

**Table 4: Minority Students**

Site	# Minority Students
University of Iowa	6
University of Wisconsin – Madison	2

<b>University of Massachusetts – Amherst</b>	1
<b>University of Central Florida</b>	3
<b>University of Puerto Rico – Mayaguez</b>	5
<b>Total</b>	17

A SAFER-SIM consortium member, **the University of Puerto Rico – Mayaguez** is a minority serving institution. In addition, minority students make up one-third of the student population at the **University of Central Florida**. SAFER-SIM is dedicated to educating the next generation of safety professionals, building the transportation workforce for tomorrow, and fostering a vibrant community of simulation researchers.

### b. Products

SAFER-SIM projects have produced several products during the current reporting period. Details about these products are provided in the research activities, leadership development, and technology transfer sections above.

- 8 technical reports for research projects
- 9 peer reviewed publications
- 21 conference presentations and papers
- 8 webinars

### c. Participants & collaborating organizations

Significant collaboration continues across departments and institutions within SAFER-SIM and with other partners. The symposia held by SAFER-SIM have provided transportation students and faculty with valuable networking and collaboration opportunities. The relationship forged during these events branch out into the transportation workforce as students involved in SAFER-SIM projects join the workforce or pursue additional education at other institutions. Consortium institutions collaborate with state DOTs and other organizations on events that focus on transportation safety and mobility.

### d. Impact

#### *Research Impact*

The impact of SAFER-SIM research projects will lead to a better understanding of road-user behavior and the advancement of simulation techniques and technologies. SAFER-SIM will share knowledge learned through technical reports and 2-page summaries.

#### *Leadership Development Impact*

The impact of leadership development among SAFER-SIM researchers and students will lead to improved research, increased publications, and overall improvement in safety research using simulation.

#### *Education and Workforce Development Impact*

The impact of SAFER-SIM education and development will create curious students and employees in the transportation industry that will lead to advanced innovations and improved safety

### *Technology Transfer Impact*

The impact of SAFER-SIM technology transfer will result in the spread of safety research and information, and individuals will be more conscious about transportation safety.

### *Collaboration Impact*

The impact of SAFER-SIM collaboration will lead to a large network of interdisciplinary, safety professionals driving transportation forward in all industries and locations.

### *Program Efficacy Impact*

The impact of SAFER-SIM program efficacy will lead to continued funding of the center and the University Transportation Center Program

### *Diversity Impact*

The impact of SAFER-SIM diversity will lead to improved transportation safety in less privileged communities and will open the door for future, minority transportation professionals.

## e. Changes/Problems

Several projects have past due technical reports. Administrators have begun regular bi-weekly communication through email and conference calls with site directors and researchers to discuss progress on report completion and expected timelines for submission. It is fully expected that all projects will have complete deliverables within the grant performance period.

## 2. Plan for Next Reporting Period

SAFER-SIM plans to complete all project, submit all written deliverables, and present all webinars by September 2018. SAFER-SIM will continue education and outreach programming, but the events and numbers will be reported in the 2016 UTC PPPR.

- Complete all research projects
- Submit all deliverables
- Complete all webinars
- Continue regularly scheduled director calls
- Continue online communications