

NICHOLAS J. WARD, Ph.D.

*Professor, Industrial and Management Systems
Engineering*

477 Golden Trout Way, Bozeman, MT. 59715
Ph: 406-581-1633 email: nic_john_ward@hotmail.com
Citizenships (passports): Britain, Canada, USA

Education

- Ph.D. Psychology (Human Factors, Organizational Psychology), Queen's University, 1993.
- MSc. Industrial and Organizational Psychology, Queen's University, 1990.
- BSc. Honors (First Class) Psychology, Simon Fraser University, 1987.

Career

- **Professor**, Industrial and Management Systems Engineering, Montana State University, Bozeman, MT. (2007 – present)
- **Associate Research Professor**, Mechanical Engineering, University of Minnesota, Saint Paul, MN. (2001 – 2007)
- **Lecturer**, Psychology, University of Leeds, West Yorkshire, England. (1996 – 2001)
- **Research Fellow**, Human Sciences and Advanced Technology (HUSAT), Loughborough University, Loughborough, England. (1993 – 1996)

Leadership

2014 – present

Director of the [Center for Health and Safety Culture](#), Montana State University.
(24 employees)

The Center for Health & Safety Culture (CHSC) is an interdisciplinary center serving communities and organizations through research, training, and support services to cultivate healthy and safe cultures. This multidisciplinary center has 24 employees including full-time research staff and part-time professional staff, and collaborates with faculty from psychology, sociology, engineering, nursing, and political science. CHSC is dedicated to applying research to develop sustainable solutions to complex social problems. Our research focuses on understanding how culture impacts behavior – especially behavior associated with health and safety – including substance misuse, traffic safety, child wellbeing, and interpersonal violence.

My Role: Obtain Board of Regent Approval for Center status; develop and implement the center's vision and strategic plan; create a career ladder for research staff; set budgets and spending priorities; represent center on university committees; coordinate with other research centers and faculty departments; identify and liaise with community partners; create national and international collaborative networks; identify staffing requirements and make hires; manage staff and conduct performance reviews.

2016 – present

Program Coordinator, IMSE [Graduate Program](#), Montana State University.
(20 students)

This graduate program in Industrial and Management Systems Engineering creates a multidisciplinary learning environment for students to integrate engineering and social sciences to create sustainable systems that promote social justice.

My Role: Revise program to attract a new generation of socially responsible engineers that design and manage systems that prioritize and support social justice; introduce and promote new “[accelerated](#)” master's degree program; continue to develop and oversee program policies; administer qualification exams; review and approve applications; monitor GTA budget and assignments.

2001 – 2007

Director of the [HumanFIRST Program](#), University of Minnesota.
(12 employees)

This research center employed a dozen people from multiple disciplines to design and evaluate technology to prevent injuries and support public health.

My Role: Devise mission and strategic plan for program; hire and manage staff; establish and manage a budget; liaise with community partners; create collaborative networks.

1998 – 2001

Director of the [Leeds Advanced Driving Simulator](#), University of Leeds.
(6 employees)

This driving simulator was a collaborative research facility for faculty from multiple disciplines to study driver behavior and evaluate vehicle design to increase traffic safety.

My Role: Revise facility mission and strategic plan; manage operations budget; build collaboration teams; facilitate student learning; network with faculty, external partners, and funding agencies.

Teaching

My teaching integrates cognitive and social psychology with systems engineering to design and evaluate (usability testing) products and systems based on the principles of system thinking and human-centered design.

Undergraduate

Multidisciplinary undergraduate courses include:

- ✓ Innovation and design ideation (School of Art, Montana State University)
- ✓ Work design and analysis (Industrial Engineering, Montana State University)
- ✓ Interaction design and user experience (Industrial Engineering, Montana State University)
- ✓ Introduction to systems thinking (Industrial Engineering, Montana State University)
- ✓ Introduction to human factors (Psychology, University of Leeds)
- ✓ Human factors and automated systems (Psychology, University of Leeds)

Graduate

Graduated 30 graduate students from multiple disciplines (Psychology, Engineering, Computer Science, Transportation Studies) and directed graduate programs in Psychology as well as Industrial and Management Systems Engineering. Examples of courses taught in human factors and system design include:

- ✓ Usability engineering for inclusive design (Industrial Engineering, Montana State University)
- ✓ Human factors in safety-critical systems (Industrial Engineering, Montana State University)
- ✓ Occupational injury prevention (Public Health, University of Minnesota)
- ✓ Human factors in transportation systems (Human Sciences, Loughborough University)

Research

My research has focused on three areas related to **human factors** and **system design** to improve **safety culture**: The grant funding and publication sections of my CV are organized under these research headings. I have been a Principle Investigator (PI) for more than 65 projects totaling over \$20 million in research funding from government, industry, and non-profit sources.

Montana State University

Safety Culture

1. Ward, N. (Principal, UNC as prime), "Research roadmap for traffic safety culture and the safe system approach" Sponsored by National Cooperative Highway Research Program (NCHRP). (2021 - 2022). Grant #: W9446. **Total Budget:** \$59,000.00
2. Ward, N. (Principal, Battelle as prime), "Organization Safety Culture Self-Assessment Tool for Transportation Agencies" Sponsored by Federal Highway Administration (FHWA). (2020 - 2022). Grant #: W8849. **Total Budget:** \$63,000.00
3. Ward, N. (Principal), "Traffic Safety Pooled Fund Project" Transportation Pooled Fund Program led by Montana Department of Transportation (MDOT). (January 6, 2020 - October 31, 2025). Grant #: W8193. **Total Budget (Management):** \$50,000 (per year) **Total Budget (Research):** \$1,300,000 (per 5-year cycle). Project now in second 5-year cycle (\$1,500,000). Example project:
 - Ward, N. (Principal). "A Review of Methods to Change Beliefs" Led by Montana Department of Transportation (MDOT). (February 13, 2019 - September 30, 2020). Grant #: W7693. **Total Budget:** \$52,926.00.
 - Ward, N. (Principal), Austin, E. (Co-Principal), "Evaluation of Traffic Safety Culture Strategies" Led by Montana Department of Transportation (MDOT). (February 13, 2019 - September 30, 2020). Grant #: W7693. **Total Budget:** \$52,926.00.
 - Ward, N. (Principal), "Traffic Safety Culture Primer" Led by Montana Department of Transportation (MDOT). (June 19, 2018 - October 31, 2019). Grant #: W7267. **Total Budget:** \$45,682.00
 - Ward, N. (Principal), "Key Information for DUIC Policy" Led by Montana Department of Transportation (MDOT). (June 19, 2018 - August 31, 2019). Grant #: W7266. **Total Budget:** \$10,919.00
 - Ward, N. (Principal), "Understanding Law Enforcement Support for Traffic Safety" Led by Montana Department of Transportation (MDOT). (March 31, 2017 - June 30, 2019). Grant #: W6614. **Total Budget:** \$168,149.00
 - Ward, N. (Principal), "International Travel to Support Collaboration with the European Traffic Safety Culture Project (TraSaCu)" Led by Montana Department of Transportation (MDOT). (July 1, 2015 - September 30, 2019). Grant #: W5456. **Total Budget:** \$20,812.50.
 - Ward, N. (Principal), "An Assessment of Traffic Safety Culture: Exploring Traffic Safety Citizenship" Led by Montana Department of Transportation (MDOT). (June 5, 2015 - December 31, 2016). Grant #: W5482. **Total Budget:** \$149,830.00.
 - Ward, N. (Principal), "An Assessment of Traffic Safety Culture related to Driving after using Cannabis" Led by Montana Department of Transportation (MDOT). (June 5, 2015 - December 31, 2016). Grant #: W5483. **Total Budget:** \$142,000.00.
4. Ward, N. (Principal), "Traffic Safety Culture and Impaired Driving" Sponsored by National Highway Administration (NHTSA) (NATHWYTR). (April 15, 2019 - April 14, 2021). Grant #: W8589. **Total Budget:** \$240,000.00.
5. Ward, N. (Principal), Otto, J. R. (Co-Principal), "Creating a Target Zero Culture in Companies by Reducing Workplace Distracted Driving" Sponsored by Washington Traffic Safety Commission (WTSC) (WASTRA002). (October 1, 2019 - September 30, 2020). Grant #: W8032. **Total Budget:** \$66,980.64
6. Ward, N. (Principal), "Traffic Safety Culture and Impaired Driving" Sponsored by US National Highway Traffic Safety Administration (NATHWYTR). (April 15, 2019 - April 14, 2021). Grant #: W7717. **Total Budget:** \$238,714.00
7. Ward, N. (Principal), "Creating a Target Zero Culture in Companies by Reducing Workplace Distracted Driving" Sponsored by Washington Traffic Safety Commission (WASTRA002). (November 14, 2018 - September 30, 2019). Grant #: W7552. **Total Budget:** \$66,892.32
8. Ward, N. (Principal), "Transforming the Safety Culture to Achieve the "Towards Zero Deaths" Vision" Sponsored by North Dakota Dept of Transportation (NORDAK005). (July 1, 2018 - September 30, 2018). Grant #: W7310. **Total Budget:** \$9,000.00
9. Ward, N. (Principal), Otto, J. R. (Co-Principal), "NV DOT TSC Guide Project" Sponsored by Nevada Department of Transportation (NEVDEP). (October 31, 2017 - December 31, 2019). Grant #: W6980. **Total Budget:** \$70,000.00
10. Ward, N. (Principal), "WA Traffic Safety Culture" Sponsored by Washington Traffic Safety Commission (WASTRA002). (June 1, 2017 - June 30, 2019). Grant #: W6685. **Total Budget:** \$239,628.00
11. Ward, N. (Principal), "Survey of Culture Amongst Groups of Different Transportation Mode Users to Promote Safe Inter-

Modal Interactions" Sponsored by US Federal Highway Administration (FHWA). (April 1, 2017 - September 30, 2019). Grant #: W6636. **Total Budget:** \$198,682.00

12. Ward, N. (Principal), "Survey of Employer/Employee Culture regarding Alternative Transportation Modes to Support Traffic Demand Management" Sponsored by US Federal Highway Administration (FHWA). (February 1, 2017 - April 30, 2018). Grant #: W6548. **Total Budget:** \$25,723.00
13. Ward, N. (Principal), "Utilization of Workforce Training Resources in Local and Tribal Agencies" Sponsored by US Federal Highway Administration (FHWA). (January 1, 2017 - November 30, 2018). Grant #: W6539. **Total Budget:** \$124,646.00
14. Ward, N. (Principal), Finley, K. L. (Co-Principal), "Applying Traffic Safety Culture in Minnesota" Sponsored by Minnesota Department of Transportation (MINDEP001). (September 28, 2016 - May 31, 2020). Grant #: W6349. **Total Budget:** \$782,430.00
15. Ward, N. (Principal), "Assessing the Operational and Cultural Environment of the Transportation Workforce" Sponsored by US Federal Highway Administration (FHWA). (January 30, 2015 - November 30, 2017). Grant #: W5395. **Total Budget:** \$204,480.30
16. Ward, N. (Principal), "A Strategic Approach to Transforming Traffic Safety Culture to Reduce Deaths and Injuries" Sponsored by National Academies of Science (NATA002). (July 1, 2014 - June 30, 2017). Grant #: W4984. **Total Budget:** \$299,989.00
17. Linkenbach, J. (Co-Principal), Ward, N. (Principal), "Measuring Minnesota's Traffic Safety Culture" Sponsored by Minnesota Department of Transportation (MINDEP001). (June 22, 2012 - April 30, 2015). Grant #: W4066. **Total Budget:** \$235,217.00
18. Ward, N. (Principal), Linkenbach, J. (Co-Principal), "UTC Pilot Study of Traffic Safety Culture" Sponsored by US Federal Highway Administration (FHWA). (July 26, 2011 - September 30, 2013). Grant #: W3689. **Total Budget:** \$30,336.00
19. Ward, N. (Principal), "UTC Traffic Safety Culture Book Chapter" Sponsored by US Federal Highway Administration (FHWA). (January 15, 2011 - September 30, 2011). Grant #: W3445. **Total Budget:** \$10,572.00
20. Ward, N. (Principal), "White Paper Toward Zero Deaths: A National Strategy on Highway Safety" Sponsored by Vanasse Hangen Brustlin Inc (VANHAN). (April 1, 2010 - December 30, 2010). Grant #: W3048. **Total Budget:** \$27,767.18

Human Factors

21. Ward, N. (Principal), "Examine the Feasibility of a Standardized Field Test for Marijuana Impairment" Sponsored by Yale University (YALUNI001). (September 29, 2016 - September 28, 2019). Grant #: W6595. **Total Budget:** \$16,755.00
22. Ward, N. (Principal), "Neuroscience of Marijuana Impaired Driving" Sponsored by Yale University (YALUNI001). (August 1, 2015 - May 31, 2020). Grant #: W5717. **Total Budget:** \$330,997.00
23. Albert, S. (Co-Principal), Ward, N. (Principal), "Safety Center for Excellence: Rural and Surface Transportation" Sponsored by US Federal Highway Administration (FHWA). (December 1, 2014 - May 31, 2020). Grant #: W5229. **Total Budget:** \$3,432,263.70
24. Stanley, L. (Principal), Ward, N. (Co-Principal), "Modeling the Validity and Transfer of Eye-scanning Patterns for Hazard Perception from Virtual Reality Training Environments to Reality" Sponsored by National Science Foundation (NSF). (August 1, 2011 - July 31, 2015). Grant #: W3706. **Total Budget:** \$499,610.00
25. Ward, N. (Principal), "MDT Match: Distracted and Drowsy Driving Intervention for Teen Drivers in Rural America" Sponsored by Montana Department of Transportation (MDOT). (December 1, 2009 - January 31, 2011). Grant #: W2928. **Total Budget:** \$25,000.00
26. Ward, N. (Principal), "Distracted and Drowsy Driving Intervention for Teen Drivers in Rural America" Sponsored by Pacific Institute for Research and Evaluation (PACINS). (July 1, 2008 - July 31, 2010). Grant #: W2461. **Total Budget:** \$174,789.00

System Design

27. Ward, N. (Principal), "Human Factors Research on Seat Belt Interlocks" Sponsored by Virginia Tech (VIRTEC001). (September 26, 2013 - December 30, 2017). Grant #: W4693. **Total Budget:** \$30,477.00
28. Ward, N. (Principal), Wang, Y. (Co-Principal), "An Exploration of Risk Maps" Sponsored by Electric Power Research Institute Inc (ELEPOW). (August 1, 2015 - April 30, 2017). Grant #: W5450. **Total Budget:** \$108,000.00
29. Ward, N. (Principal), "EPRI Phase I" Sponsored by Electric Power Research Institute Inc (ELEPOW). (June 1, 2014 - December 31, 2014). Grant #: W4883. **Total Budget:** \$79,161.00
30. Ward, N. (Principal), "Heads Up Displays and Distraction Potential" Sponsored by Virginia Tech (VIRTEC001). (September 29, 2014 - January 28, 2017). Grant #: W5208. **Total Budget:** \$23,500.00

31. Ward, N. (Principal), "Connected Vehicle Integration Research and Design Guidelines Development" Sponsored by Virginia Tech (VIRTEC001). (September 23, 2011 - May 31, 2014). Grant #: W3800. **Total Budget:** \$452,834.00
32. Ward, N. (Principal), "UTC Human Factors Workshop at 2011 TRB" Sponsored by US Federal Highway Administration (FHWA). (January 14, 2011 - August 28, 2011). Grant #: W3444. **Total Budget:** \$8,921.00
33. Ward, N. (Principal), "Interface Metrics for IntelliDrive" Sponsored by Westat (WESTAT). (September 1, 2010 - December 30, 2011). Grant #: W3381. **Total Budget:** \$265,042.00
34. Ward, N. (Principal), Ye, Z. (Co-Principal), "Coord Speed Management Systems to Reduce Crashes on Rural" Sponsored by California Dept of Transportation (CALDOT). (June 1, 2010 - June 30, 2013). Grant #: W3215. **Total Budget:** \$819,891.00
35. Ward, N. (Principal), "In-Cab Feedback Human Factors Review/Evaluation" Sponsored by DriveCam (DRICAM). (April 30, 2010 - December 1, 2010). Grant #: W3074. **Total Budget:** \$11,500.00
36. Ward, N. (Principal), "Making Driving Simulators More Useful for Behavioral Research" Sponsored by University of Iowa (IOWUNI). (March 1, 2009 - March 30, 2013). Grant #: W2629. **Total Budget:** \$277,141.00
37. Ward, N. (Principal), "Advanced Vehicle Based Countermeasures for Alcohol-Related Crashes" Sponsored by University of Iowa (IOWUNI). (October 25, 2007 - April 30, 2010). Grant #: W2004. **Total Budget:** \$40,500.00
38. Ward, N. (Principal), "SHRP II: S02 Proposal: Integration of Analysis Methods and Development of Analysis Plan" Sponsored by University of Iowa (IOWUNI). (September 1, 2008 - March 31, 2010). Grant #: W2350. **Total Budget:** \$21,386.00

University of Minnesota

Safety Culture

39. Ward, N. (Principal), "Comparing Differences in Risk Perception and Safety Culture Between Young and Older Drivers" Sponsored by Local Road Research Board. (October 2, 2006 - September 29, 2008). Grant #: 530-6737. **Total Budget:** \$119,000.00
40. Ward, N. (Principal), "Comparing Risk Perception and Safety Culture between Rural and Urban Drivers" Sponsored by Minnesota Department of Transportation. (July 1, 2005 - November 30, 2006). Grant #: 530-6664. **Total Budget:** \$188,804.00

Human Factors

41. Ward, N. (Principal), "Measuring Cognitive and Motorcycle Riding Impairment as a Function of Alcohol Level" Sponsored by National Highway Traffic Safety Administration. (September 19, 2005 - March 15, 2007). Grant #: 530-6680. **Total Budget:** \$576,540.00
42. Ward, N. (Principal), "Comparing Cognitive and Driving Impairment from Distraction and Alcohol" Sponsored by Minnesota Department of Transportation. (March 1, 2003 - January 31, 2005). Grant #: 530-6602. **Total Budget:** \$187,000.00

System Design

43. Ward, N. (Principal), "Design and Evaluation of Intuitive Icons to Communicate Vehicle Fuel and Battery Levels" Sponsored by General Motors. (April 10, 2008 - October 10, 2008). Grant #: 530-6790. **Total Budget:** \$115,765.00
44. Ward, N. (Co-Principal), "Designing a Mobile System to Alert Novices to Risks while Driving" Sponsored by Minnesota University Transportation Center. (October 2, 2006 - September 29, 2008). Grant #: 530-6724. **Total Budget:** \$94,000.00
45. Ward, N. (Principal), "Use of Video Feedback on Risky Driving Events to Improve Novice Driver Risk Perception" Sponsored by the University of Iowa (IOWUNI). (July 15, 2006 - February 28, 2009). Grant #: 530-674. **Total Budget:** \$51,000.00
46. Ward, N. (Co-Principal), "Field Development and Evaluation of Decision Support System for Gap Acceptance at Intersections" Sponsored by Federal Highway Administration. (June 22, 2006 - June 30, 2011). Grant #: 530-6707. **Total Budget:** \$3,250,000.00
47. Ward, N. (Principal), "Evaluating a New Menu System Based on a Cognitive Task Analysis" Sponsored by Minnesota Department of Transportation. (February 1, 2006 - May 30, 2007). Grant #: 530-6685. **Total Budget:** \$139,984.00
48. Ward, N. (Principal), "Measuring Driver Workload and Behavioral Adaptation to Automated Speed and Headway Control" Sponsored by Nissan Motor Vehicle Company. (September 15, 2005 - March 31, 2006). Grant #: 530-6681. **Total Budget:** \$189,998.00
49. Ward, N. (Principal), "Evaluating an Interface for a Lane Departure System" Sponsored by National Highway Traffic Safety Administration. (September 1, 2004 - June 29, 2005). Grant #: 530-6645. **Total Budget:** \$245,275.00

50. Ward, N. (Principal), "Developing an Ecological Interface based on Haptic Feedback to Convey Risk" Sponsored by Nissan Motor Vehicle Company. (April 1, 2002 - March 31, 2005). Grant #: 530-6538. **Total Budget:** \$1,761,927.00
51. Ward, N. (Principal), "Design of a Decision Support System Based on a Cognitive Analysis of Intersection Gap Acceptance" Sponsored by Minnesota Department of Transportation. (January 1, 2003 - June 30, 2006). Grant #: 530-6583. **Total Budget:** \$488,421.00

University of Leeds

Human Factors

52. Ward, N. (Principal), "Impaired Motorists: Methods for Roadside Testing and Licensing" Sponsored by European Union (EEC). (January 1, 2002 - June 30, 2005). Grant #: 441234. **Total Budget:** \$1,000,000.00
53. Ward, N. (Principal), "Vision and Safety while Driving" Sponsored by Nissan Motor Vehicle Company. (March 1, 1998 – February 28, 1999). Grant #: 440723. **Total Budget:** \$10,000.00
54. Ward, N. (Principal), "Measuring driver impairment" Sponsored by British Royal Society. (May 1, 1997 - April 30, 1998). Grant #: 444036. **Total Budget:** \$20,000.00

System Design

55. Ward, N. (Principal), "Evaluation of a Smart Brake System" Sponsored by United Kingdom Department of Transportation. (August 1, 1997 – July 31, 1998). Grant #: 440007. **Total Budget:** \$100,000.00
56. Ward, N. (Principal), "Human Implications of New Vehicle Technology" European Union (EEC). (January 1, 1997 - December 31, 1998). Grant #: 446592. **Total Budget:** \$30,000.00

Publications

My research is published in the primary high impact journals within my field including *Ergonomics*, *Accident Analysis and Prevention*, *Journal of Safety Research*, and *Transportation Research Part F: Traffic Psychology and Behaviour*.

Journal Articles

Under review

1. Austin, E., **Ward**, N., Otto, J., Green, K., & Watson, H. (under review). Assessing the Impact of Culture: A Systemic Analysis of Culture Interventions and Evaluations in Different Organizational Settings. *International Journal of Organization and Behavior*.
2. Ahmed, J., Ward, N., Otto, J., & McMahill, A. (under review). How does Emotional Intelligence Predict Driving Behavior among Commercial Drivers? *Journal of Safety and Health and Work*. Manuscript submitted for publication (under review).
3. Ahmed, J., Ward, N., Otto, J., & McMahill, A. (under review). Developing a Scale to Assess Emotional Intelligence in the Context of Driving. *Transportation Research Part F: Traffic Psychology and Behavior*. Manuscript submitted for publication.

Safety Culture

4. Ahmed, J., Ward, N., Otto, J., & McMahill, A. (2022). How does emotional intelligence predict driving behaviors among non-commercial drivers? *Transportation Research Part F: Traffic Psychology and Behaviour*, 85, 38-46.
5. Scott, B., **Ward**, N., & Otto, J. (2021) Modeling the system of beliefs that affect driving under the influence of cannabis AND alcohol (DUICA) in Washington state. *Journal of Drug Issues*, 51(4):661-678.
6. Scott, B., Otto, J., **Ward**, N., & Finley, K. (2021) Modeling the System of Beliefs That Influence Willingness and Intention to Drive Under the Influence of Cannabis (DUIC). *Accident Analysis and Prevention*, 151, 105988.
7. Otto, J., **Ward**, N., Finley, K., Bladwin, S., & Grondel, D. (2021). The Culture of Driving Under the Influence of Cannabis and Alcohol (DUICA) in Washington State. *Journal of Applied Social Science*, 15(1):29-46.
8. **Ward**, N. J., Finley, K., Otto, J., Kack, D., Gleason, R., & Lonsdale, T. (2020). Traffic safety culture and prosocial driver behavior for safer vehicle-bicyclist interactions. *Journal of Safety Research*, 75, 24 – 31.
9. Finley, K., Otto, J. & **Ward**, N.J. (2018). The Role of Social Capital in Traffic Safety Citizenship. *The International Journal of Interdisciplinary Civic and Political Studies*, 13(2), 29-41.

10. **Ward**, N.J., Otto, J., Schell, W., Kelley-Baker, T., & Finley, K. (2018). Developing a theoretical foundation to change road user behavior and improve traffic safety: Driving under the influence of cannabis (DUIC), *Traffic Injury Prevention*, 19, 358-363.
11. **Ward**, N.J., Otto, J., Schell, W., Finley, K., Kelley-Baker, T., & Lacey, J.H. (2017). Cultural predictors of the future intention to drive under the influence of cannabis (DUIC), *Transportation Research Part F: Traffic Psychology and Behavior*, 49, 215-225.
12. Nagler, M. & **Ward**, N.J. (2016). Lonely Highways: The role of social capital in rural traffic safety. *Eastern Economic Journal*, 42, 135 – 156.
13. **Ward**, N.J., Otto, J., Swinford, S., Keller, S., & Linkenbach, J. (2015). Traffic Safety Culture Paradigm. In A. Smiley (Ed.) *Human Factors in Traffic Safety* (3rd ed). Tucson, AZ: Lawyers & Judges Publishing Company.
14. **Ward**, N.J. & Özkan, T. (2014). In consideration of traffic safety culture, *Transportation Research Part F: Traffic Psychology and Behavior*, 26(B), 291 – 292.
15. **Ward**, N. J., Otto, J., & Linkenbach, J. (2014). A Primer for Traffic Safety Culture. *ITE Journal Institute of Transportation Engineers*, 84(5), 41-47.
16. Nagler, M. & **Ward**, N.J. (2014). Lonely Highways: The role of social capital in rural traffic safety. *Eastern Economic Journal*.
17. Rakauskas, M.E., **Ward**, N.J., & Gerberich, S. (2009). Identification of differences between rural and urban safety cultures. *Accident Analysis and Prevention*. 41, 931 – 937.

Human Factors

20. Hofman, G.M., Summers, C.G., **Ward**, N.J., Bhargava, E., Rakauskas, M.E., & Holleschau, A.M. (2012). Use of a Driving Simulator to Assess Performance under Adverse Weather Conditions in Adults with Albinism. *Perception and Motor Skills*, 114, 679 – 692.
21. Sanddal, T.L., Sanddal, N.D., **Ward**, N.J., & Stanley, L., (2010). Ambulance crash characteristics in the US defined by the popular press: A retrospective analysis. *Emergency Medicine International Journal*. vol. 2010, Article ID 525979, 7 pages.
22. Creaser, J., **Ward**, N.J., Rakauskas, M.E., Shankwitz, C., & Boer, E. (2009). Effects of alcohol impairment on motorcycle riding skills. *Accident Analysis and Prevention*, 41, 906 – 913.
23. Rakauskas, M.E., **Ward**, N.J., Boer, E., Bernat, E., Cadwallader, M., Patrick, C. (2008). Combined effects of alcohol and distraction on driving performance. *Accident Analysis and Prevention*, 40, 1742 – 1749.
24. Smith, P., Waterman, M & **Ward**, N. J. (2006). Driving aggression in forensic and non-forensic populations; relationships to self-reported levels of aggression, anger, and impulsivity. *British Journal of Psychology*, 97, 387 – 403.
25. Lawton, R. & **Ward**, N.J. (2005). A systems analysis of a fatal train crash. *Journal of Accident Analysis and Prevention*, 37, 235-244.
26. Rakauskas, M., Gugerty, L., & **Ward**, N.J. (2004). Effects of Cell Phone Conversation on Driving Performance with Naturalistic Conversations. *Journal of Safety Research*, 35, 453-464.
27. Laberge, J. & **Ward**, N.J. (2004). Cannabis and driving: Research needs and policy issues. *Journal of Drug Issues*, 34(4), 971-990.
28. Bernat, E., Cadwallader, M., Rakauskas, M., **Ward**, N.J, Collins, P., & Patrick, C., (2004). Effects of intoxication on attention allocation in a naturalistic driving environment. *Psychophysiology*, 41, S40.
29. Read, N.L., **Ward**, N.J., Parkes, A.M. (2000). The role of dynamic tests in assessing the fitness to drive of healthy and cognitively impaired elderly. *Journal of Traffic Medicine*, 28 (2S), 34-35.
30. **Ward**, N.J. (1992). Railway crossings with obstructed visibility: Perceived danger and driving behavior. *International Journal of Psychology*, 27, 500.
31. **Ward**, N.J. (1991). Occupational suitability bias for full-time and part-time employment in sex-typed jobs. *Sex Roles*, 25, 81-89.

System Design

32. **Ward**, N.J., Mueller, J., & Velasquez, M. (2013). Response interference under near-concurrent presentation of safety and non-safety information. *Transportation Research Part F: Traffic Psychology and Behaviour*, 21, 253 – 266.

33. Lee, J.D., McGehee, D.V., Brown, J.L., Richard, C.M., Omar, A., **Ward**, N.J., Hallmark, S., & Lee, J. (2011). Matching simulator characteristics to highway design problems, *Transportation Research Record*, 2248, 53 – 60.
34. Stanley, L. & **Ward**, N.J. (2010). An evaluation of a cooperative avoidance warning system. *International Journal of Vehicle Safety*, 5, 86 – 99.
35. Kuge, N., Yamamura, T., Boer, E.R., **Ward**, N.J., & Manser, M.P. (2007). Study on driver's car following abilities based on an active haptic support function. *SAE Transactions Journal of Passenger Cars - Electronic and Electrical Systems*, 115(7), 157 – 169.
36. Brovold, S., **Ward**, N., Donath, M., Simons, S., Shankwitz, N. (2007). In-vehicle Technology to Correct Teen Driving Behaviour: Addressing Patterns of Risk. *Journal of Safety Research*, 38, 413 – 422.
37. Creaser, J.I., Rakauskas, M.E., **Ward**, N.J., Laberge, J.C., & Donath, M. (2007). Concept evaluation of intersection decision support (IDS) systems to support drivers' gap acceptance decisions at rural stop-controlled intersections. *Transportation Research Part F: Traffic Psychology and Behaviour*, 10, 208 – 228.
38. Laberge, J.C., Creaser, J.I., Rakauskas, M.E., **Ward**, N.J. (2006). Design of an Intersection Decision Support (IDS) Interface to Reduce Crashes at Rural Stop-Controlled Intersections. *Transportation Research Part C: Emerging Technologies*, 14, 39 – 56.
39. Boer, E.R., **Ward**, N.J., Manser, M.P., & Kuge, N. (2006). Driver-model-based assessment of behavioral adaptation. *Transaction of Society of Engineers of Japan*, 37, 21 – 26.
40. **Ward**, N.J., Shankwitz, C., Gorgestani, A., Donath, M., de Waard, D., & Boer, E. (2006). An evaluation of a lane support system for bus rapid transit on narrow shoulders and the relation to bus driver mental workload. *Ergonomics*, 49, 832-859.
41. Alexander, L., Cheng, P., Donath, M., Gorgestani, A., Menon, A., Newstrom, B, Shankwitz, C., **Ward**, N., & Starr, R., (2006). Rural expressway intersection surveillance for an Intersection Decision Support System. *Transportation Research Record*, 1944, 26 – 34.
42. **Ward**, N. J., Gorgestani, A., Shankwitz, C., & Donath, M. (2004). A preliminary demonstration study of the usability of a vision enhancement system for state patrol vehicles. *Journal of Intelligent Transportation Systems*, 8, 169-185.
43. Wright, S., **Ward**, N.J., & Cohn, A.G. (2002). Enhanced presence in driving simulators using autonomous traffic with virtual personalities. *Presence*, 11(6), 578-590.
44. Parkes, A.M., **Ward**, N.J., & Vaughan, G. (2001). A Human Factors evaluation of a novel display and control concept for in-vehicle audio systems: A case study. *International Journal of Vehicle Design*, 26, 339-352.
45. **Ward**, N.J. & Parkes, A.M. (2001). Special edition on car phone design (Preface). *International Journal of Vehicle Design*, 26, 1-3.
46. **Parkes**, A.M. & **Ward**, N.J. (2001). Case study: A safety and usability evaluation of two different car phone designs. *International Journal of Vehicle Design*, 25, 12-29.
47. **Ward**, N. J. (2000). Automation of task processes: An example of Intelligent Transportation Systems. *Human Factors and Ergonomics in Manufacturing*, 10, 395-408.
48. **Ward**, N.J. & Beusmans, J. (1998). Simulation of accident risk displays in motorway driving with traffic. *Ergonomics*, 41, 1478-1499.
49. **Ward**, N.J. & Hirst, S.J. (1998). An exploratory investigation of information attributes of reverse/parking aids. *International Journal of Vehicle Design*, 19, 41-49.
50. **Ward**, N.J. & Hirst, S.J. (1997). The philosophy and function of in-vehicle information systems. *Behavior and Information Technology*, 16, 88-97.
51. **Ward**, N.J. & Hirst, S.J. (1996). Design considerations for a Blind Spot Detector. *International Journal of Vehicle Design*, 17, 198-207.
52. **Ward**, N.J. & Wilde, G.J.S. (1996). Driver approach behavior at railway crossings before and after enhancement of lateral sight distances: An experimental investigation of a risk perception and compensation hypothesis. *Journal of Safety Research (Special Edition)*, 22, 63-75.
53. **Ward**, N.J., Parkes, A.M., Crone, P. (1995). The effect of background scene complexity and field dependence on the legibility of Head-Up Displays. *Human Factors*, 37, 735-745.
54. Parkes, A.M., **Ward**, N.J., & Bossi, L.L.M. (1995). The potential of vision enhancement systems to improve driver

safety. *Le Travail Humain*, 58, 151-169.

55. **Ward**, N.J. & Wilde, G.J.S (1995). Field observation of advance warning/advisory signage for passive railway crossings with restricted lateral sightline visibility: An experimental investigation. *Accident Analysis and Prevention*, 27, 185-197.
56. **Ward**, N.J. & Wilde, G.J.S. (1995b). A comparison of vehicle approach speed and braking between day and night-time periods at an automated railway crossing. *Safety Science*, 19, 31-44.
57. **Ward**, N.J. & Parkes, A.M. (1994). Head-Up Displays and their automotive application: An overview of the Human Factors issues. *Accident Analysis and Prevention*, 26, 703-718.

Books & Chapters

Safety Culture

58. **Ward**, N.J., Watson, B., & Fleming, K. (2019). *Traffic Safety Culture: Definition, Foundation, and Application*. Emerald Publishing Group: Bingley, England.
59. **Ward**, N.J., Otto, J. & Finley, K. (2019). *Ten Principles of Traffic Safety Culture*. In N.J. Ward, B. Watson, & K. Fleming, K. (Eds.) *Traffic Safety Culture: Definition, Foundation, and Application*. Emerald Publishing Group: Bingley, England.
60. Otto, J., **Ward**, N.J., & Finley, K. (2019). Guidance for the Measurement and Analysis of Traffic Safety Culture. In N.J. Ward, B. Watson, & K. Fleming, K. (Eds.) *Traffic Safety Culture: Definition, Foundation, and Application*. Emerald Publishing Group: Bingley, England.
61. **Ward**, N.J., Linkenbach, J., Otto, J., Swinford, S, & Keller, S. (2015). The Traffic Safety Culture Paradigm. In A. Smiley. R.E. Dewar, & P.L. Olson (Eds.) *Human Factors and Traffic Safety*. Lawyers & Judges Publishing, Tucson, AZ.
62. Ward, N.J., (2007). The culture of traffic safety in rural America. *Improving Traffic Safety Culture in the US: The Journey Forward*. AAA Foundation for Traffic Safety. Washington, DC.

Human Factors

58. **Ward**, N.J. & Fairleigh, S. (1997) Acceptance of driver status monitoring systems: Individual differences in subjective fatigue. In T. Rothengatter and E. Vaya (Eds.) *Traffic and Transport Psychology*. Amsterdam, The Netherlands: Paragon Press.
59. Creaser, J., **Ward**, N.J., & Rakauskas, M. (2011). Alcohol Research in Driving Simulators. In D.L. Fisher, M. Rizzo, J. Caird, & J. Lee (Eds.) *Handbook of Driving Simulation for Engineering, Medicine, and Psychology*. CRC Press (Taylor & Francis), New York, NY.

System Design

60. Boer, E.R., Manser, M.P., **Ward**, N.J., & Kuge, N. (2006) Impact of an ecologically valid haptic driver support on visual sampling and multi-tasking strategies. In A.G. Gale, I.D. Brown, C.M. Haslegrave, & S.P. Taylor (Eds.), *Vision in Vehicles XI*. Elsevier Science Publishers: Amsterdam.
61. Boer, E.R., **Ward**, N.J., Manser, M.P., & Kuge, N. (2005). Driver model-based assessment of behavioral adaptation. Society of Automotive Engineers, Japan. JSAE Technical Paper 2005-08-0307.
62. Rakauskas, M., **Ward**, N., Gorjestani, A., Shankwitz, C., Donath, M. (2005). Evaluation of a DGPS driver-assistive system for snowplows and emergency vehicles. *Traffic and Transport Psychology*, Amsterdam, The Netherlands: Elsevier.
63. Stapleton, L., **Ward**, N.J., & Parkes, A.M. (1998). Automotive Contact Analogue Head-Up-Display Images and Distance Estimation. In A.G. Gale (Ed.) *Vision in Vehicles 6*, Amsterdam, The Netherlands: Elsevier Press.
64. Bossi, L.L.M., **Ward**, N.J., Parkes, A.M., & Howarth, P.A. (1997). The effect of vision enhancement systems on driver peripheral visual performance. In I. Noy (Ed.) *Ergonomics of IVHS*, Hillsdale, New Jersey: Lawrence Erlbaum Associates, Inc.
65. **Ward**, N.J., Stapleton, L, & Parkes, A.M. (1996). Night-time gap acceptance and time-to-coincidence judgments based on visible wavelength and infra-red imaging. In A.G. Gale (Ed.) *Vision in Vehicles 5*, Amsterdam, The Netherlands: Elsevier Press.
66. Stapleton, L, **Ward**, N.J., & Parkes, A.M. (1996). Methodological problems associated with the use of eye movement measuring techniques in evaluation contact analogue Head-Up Displays. In A.G. Gale (Ed.) *Vision in Vehicles 5*, Amsterdam, The Netherlands: Elsevier Press.

67. **Ward, N.J., Parkes, A.M., & Lindsay, P. (1995).** The effect of automotive Head-Up Displays on attention to critical events in traffic. In D.J. Garland and M.R. Endsley (Eds.) *Experimental Analysis and Measurement of Situation Awareness*, Florida, US: Embry-Riddle Aeronautical University Press.
68. **Ward, N.J., Fairleigh, S., & Humphreys, M. (1995).** The effect of task automatization in the automotive context: A field study of an Autonomous Intelligent Cruise Control system. In D.J. Garland and M.R. Endsley (Eds.) *Experimental Analysis and Measurement of Situation Awareness*, Florida, US: Embry-Riddle Aeronautical University Press.

Conferences and Invited (Plenary) Presentations

Overall, I have made more than 180 conference presentations, workshops, and panel sessions, including this sample of recent invited keynote and plenary presentations on the topic of **traffic safety culture**:

- Ward, N.J., National Transportation in Indian Country Conference, "Understanding the frames we use for our traffic safety messaging" Big Sky, MT. (September 18, 2019).
- Ward, N.J., EU Safety 2019, "Culture. Culture. Culture." Euro Safety, Luxembourg Institute of Health, Luxembourg. (October 3, 2019).
- Ward, N.J., Commercial Vehicle Safety Summit, "Traffic Safety Culture and DUIC: Exploring commercial drivers" FMCSA, UMASS, Northampton, MA. (November 19, 2019).
- Ward, N.J., Commercial Vehicle Safety Summit, "The role of culture in partnerships that thrive" FMCSA, UMASS, Northampton, MA. (November 19, 2019).
- Ward, N.J., Washington Traffic Safety Conference 2018, "The Culture of Traffic Safety" Washington Traffic Safety Commission, Kennewick, WA. (April 24, 2018).
- Ward, N.J., 6th Annual Distracted Driving Summit, "Traffic Safety Citizenship" Drive Smart, VA, Richmond, VA. (September 19, 2018).
- Ward, N.J., Road Safety 2020+ The Future of Safe EU Road Transport, "The Role of Traffic Safety Culture in Safe EU Road Transport" European Union, Vienna, Austria. (November 13, 2018).
- Ward, N.J., 43rd Annual Governor's Conference on Traffic Safety, "Traffic safety culture: A process" WIDOT, Appleton, WI. (August 22, 2017).
- Ward, N.J., MDT Annual Transportation Safety Meeting, "With is the cultural approach to traffic safety?" MDT, Helena, MT. (October 11, 2017).
- Ward, N.J., Driving Behavioral Change in Traffic Safety, "Successful Strategies in Changing Behavior" National Traffic Safety Administration, Fort Worth, TX. (March 1, 2016).
- Ward, N.J., EPRI 2nd Annual Occupational Health and Safety Research Conference, "Fleet driving safety culture and risk assessment research" Electric Power Research Institute, Charlotte, NC. (May 20, 2015).
- Ward, N.J., Nevada Traffic Safety Summit, "The role of culture in traffic safety planning" Nevada Department of Transportation, Reno, NV. (March 24, 2015).
- Ward, N.J., Washington Biennial Traffic Safety Conference, "Sake and Traffic Safety" Washington Traffic Safety Commission, Seattle, WA. (October 13, 2015).
- Ward, N.J., AASHTO Subcommittee on Safety Management Meeting, "Safety culture and the National TZD Strategy" American Association of State Highway Transportation Officials (AASHTO), San Diego, CA. (August 2013).
- Ward, N.J., National Roadway Safety Culture Summit, "Driving safety culture forward" Transportation Research Board, Washington, DC. (August 30, 2013).
- Ward, N.J. (2011). "Transforming Traffic Safety Culture: A necessary condition for TZD," Transportation Innovation Series of Research and Innovative Technology Administration (RITA), U.S. Department of Transportation (DOT), Washington, DC (Dec 21).
- Ward, N.J., (2010). "Traffic Safety Culture and the National Traffic Safety Strategy." *Toward Zero Deaths: A National Strategy on Highway Safety*. A workshop for US transportation agency and stakeholders, Washington DC (August 25).

Other Roles

As a “good citizen” in my institution, I have a responsibility to actively participate in the administration and promotion of my department, university, and profession. Here are some examples of these intramural and extramural roles:

Chair, Department Search Committee ♦ Chair, University Efficiency Committee ♦ Chair, Department Promotion and Tenure Review Committee ♦ Member, University Institutional Review Board ♦ Member, College Research Committee ♦ Member, Department Research Committee ♦ Member, Department Faculty Awards Committee ♦ Member, Journal Editorial Board (Accident Analysis and Prevention, Journal of Safety Research, Transportation Research Part F: Traffic Psychology and Behavior) ♦ Invited Journal Reviewer (Human Factors, Journal of Safety Research, Safety Science) ♦ Conference Organizing Committee ♦ Reviewer, National Academy of Science (USA) ♦ Engineering and Physical Sciences Research Council (UK) ♦ Member, National Academy of Science committees (AND10, AND30) ♦ Member, Professional Associations (APA, IAAP, ErgSoc, HFES) ♦ Visiting Professor (University of Minnesota, University of Leeds) ♦ Member, Advisory Board (Harborview Injury Prevention Research Center, Seattle: WA) ♦ Expert Panel / Subject Matter Expert (traffic safety, safety culture): FHWA, NHTSA, NCHRP.