

Curriculum Vitae

Robert W. Bielenberg, M.S.M.E., EIT

Midwest Roadside Safety Facility
 University of Nebraska-Lincoln
 130 Whittier Research Center
 2200 Vine Street
 Lincoln, Nebraska 68583-0853
 Phone: (402) 472-9064
 Fax: (402) 472-2022
 Email: rbielenberg2@unl.edu

1 Education and Employment History**1.1 Education History**

Doctor of Philosophy, Mechanical Engineering, in progress, August 2001-present, University of Nebraska-Lincoln, GPA 3.92
 Emphasis - Mechanical Engineering, Nonlinear Finite Element Analysis
 Dissertation - Undetermined

Master of Science, Mechanical Engineering, University of Nebraska-Lincoln, August 1999, GPA 3.894
 Emphasis - Mechanical Engineering, Nonlinear Finite Element Analysis
 Thesis - Finite Element Simulation of a Bullnose Median Barrier System

Bachelor of Science, Mechanical Engineering, University of Nebraska-Lincoln, May 1997, GPA 3.93
 Emphasis – Design and Analysis

1.2 Employment History

Research Associate Engineer, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, August 1999 - Present
 Graduate Research Assistant, Mechanical Engineering Department, University of Nebraska-Lincoln, May 1997 - August 1999
 Part Time Research Assistant, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, August 1996 - May 1997

2 Research Accomplishments**2.1 Publication Record****2.1.1 Peer-Reviewed Journal Publications (In print)**

25. Bielenberg, R.W., Faller, R.K., Reid, J.D., Rosenbaugh, S.K., and Lechtenberg, K.A., *Performance of Midwest Guardrail System with Rectangular Wood Posts*, Paper No. 14-2991, Transportation Research Record No. 2437, Journal of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2014, pages 27-40.
24. Rosenbaugh, S.K., Faller, R.K., Lechtenberg, K.A., and Bielenberg, R.W., *Weak-Post, W-Beam Guardrail Attachment to Culvert Headwalls*, Paper No. 14-3930, Transportation Research Record No. 2437, Journal of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2014, pages 41-51.
23. Reid, J.D., Bielenberg, R.W., Faller, R.K., Lechtenberg, K.A., and Sicking, D.L., *Racetrack SAFER Barrier on Temporary Concrete Barriers*, International Journal of Crashworthiness, Taylor & Francis, Volume 18, No. 4, May 2013, pages 343-355.
22. Reid, J.D., Faller, R.K., Bielenberg, R.W., and Lechtenberg, K.A., *Midwest Guardrail System Without Blockouts*, Paper No. 13-0418, Transportation Research Record No. 2377, Journal of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2013, pages 1-13.

21. Bielenberg, R.W., Arens, S, Sicking, D.L., Faller, R.K., Reid, J.D, and Lechtenberg, K.A., *Development of the Universal Breakaway Steel Post for the Bullnose Median Barrier*, Paper No. 12-3604, Accepted for publication and presentation to the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2012.
20. Lechtenberg, K.A., Mongiardini, M., Rosenbaugh, S.K., Faller, R.K., Bielenberg, R.W., and de Albuquerque, F.D.B., *Development and Implementation of the Simplified MGS Stiffness Transition*, Paper No. 12-3367, Accepted for Presentation and Publication at the Annual Meeting of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2012.
19. Bielenberg, R.W., Rosenbaugh, S.K., Faller, R.K., Reid, D.L., and Lechtenberg, K.A., *Transition of Temporary Concrete Barrier*, Journal of Transportation Safety & Security, Taylor & Francis, Volume 4, Number 2, Available online November 16, 2011, May 2012, pages 137-159..
18. Bielenberg, R.W., Rosenbaugh, S.K., Faller, R.K., Reid, J.D., and Lechtenberg, K.A., *Termination and Anchorage of Temporary Concrete Barrier*, Journal of Transportation Safety & Security, Taylor & Francis, Volume 3, Number 3, September 2011, pages 189-206.
17. Mongiardini, M, Rosenbaugh, S.K., Faller, R.K., Reid, J.D., Bielenberg, R.W., and Sicking, D.L., *Design and Testing of Two Bridge Railings for Transverse, Nail-Laminated, Timber Deck Bridges*, Paper No. 11-2936, Accepted for publication and presentation to the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2011.
16. Thiele, J.C., Sicking, D.L., Faller, R.K., Lechtenberg, K.A., Bielenberg, R.W., Reid, J.D., and Rosenbaugh, S.K., *Development of a Low-Cost, Energy-Absorbing Bridge Rail*, Paper No. 11-2687, Accepted for Presentation and Publication at the Annual Meeting of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2011.
15. Polivka, K.A., Bielenberg, R.W., Rosenbaugh, S.K., Faller, R.K., and Sicking, D.L., *High-Performance Aesthetic Bridge Rail and Median Barrier*, Paper No. 09-3051, Transportation Research Record No. 2120, Journal of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2009.
14. Polivka, K.A., Faller, R.K., Sicking, D.L., and Bielenberg, R.W., *Midwest Guardrail System Adjacent to a 2:1 Slope*, Paper No. 08-3076, Accepted for Publication at the Annual Meeting of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2008.
13. Sicking, D.L., Reid, J.D., Bielenberg, R.W., Faller, R.K., Rohde, J.R., and Polivka, K.A., *Safety Grates for Cross Drainage Culverts*, Paper No. 08-2509, Accepted for Publication at the Annual Meeting of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2008.
12. Polivka, K.A., Coon, B.A., Sicking, D.L., Faller, R.K., Bielenberg, R.W., Rohde, J.R., and Reid, J.D., *Development of the Midwest Guardrail System (MGS) W-Beam to Thrie Beam Transition*, Paper No. 07-2628, Transportation Research Record No. 2025, Journal of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2007.
11. Bielenberg, R.W., Faller, R.K., Sicking, D.L., Rohde, J.R., and Reid, J.D., *Midwest Guardrail System for Long Span Culvert Applications*, Paper No. 07-2539, Transportation Research Record No. 2025, Journal of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2007.
10. Faller, R.K., Bielenberg, R.W., Sicking, D.L., Rohde, J.R., Reid, J.D., "Development and Testing of the SAFER Barrier - Version 2, SAFER Barrier Gate, and Alternative Backup Structure", Paper No. 06MSEC-16, 2006 SAE Motorsports Engineering Conference and Exhibition, Dearborn, Michigan, December 5 through December 7, 2006.
9. Polivka, K.A., Coon, B.A., Sicking, D.L., Faller, R.K., Bielenberg, R.W., Rohde, J.R., and Reid, J.D., *Development of the Midwest Guardrail System (MGS) W-Beam to Thrie Beam Transition*, Paper No. 07-2628, Transportation Research Record No. 2025, Journal of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2007.

8. Faller, R.K., Sicking, D.L., Bielenberg, R.W., Rohde, J.R., Polivka, K.A., and Reid, J.D., *Performance of Steel-Post W-Beam Guardrail Systems*, Paper No. 07-2642, Transportation Research Record No. 2025, Journal of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2007.
7. Bielenberg, R.W., Faller, R.K., Sicking, D.L., Rohde, J.R., and Reid, J.D., *Tie-Downs and Transitions for Temporary Concrete Barriers*, Paper No. 06-1276, Transportation Research Record No. 1984, Journal of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2006.
6. R.W. Bielenberg, J.R. Rohde, D.L. Sicking and J.D. Reid, "SKT and FLEAT End Terminals for the Midwest Guardrail System," Transportation Research Record, TRB, National Research Council, Washington, D.C., submitted July 29, 2004.
5. Faller, R.K., Polivka, K.A., Kuipers, B.D., Bielenberg, B.W., Reid, J.D., Rohde, J.R., and Sicking, D.L., *Midwest Guardrail System for Standard and Special Applications*, Paper No. 04-4778, Transportation Research Record No. 1890, Best Paper Award - TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2004.
4. Bielenberg, B.W., Faller, R.K., Reid, J.D., Rohde, J.R., and Sicking, D.L., *Design and Testing of Tie-Down Systems for Temporary Barriers*, Paper No. 03-3146, Transportation Research Record No. 1851, Transportation Research Board, Washington D.C., November, 2003.
3. Bielenberg, R.W., Reid, J.D., and Faller, R.K., *NCHRP Report No. 350 Compliance Testing of a Bullnose Median Barrier System*, Paper No. 01-0204, Transportation Research Record No. 1743, Transportation Research Board, Washington, D.C., January 2001.
2. Faller, R.K., Sicking, D.L., Polivka, K.A., Rohde, J.R., and Bielenberg, R.W., *A Long-Span Guardrail System for Culvert Applications*, Paper No. 00-0598, Transportation Research Record No. 1720, Transportation Research Board, Washington, D.C., January 2000.
1. Reid, J. R., Bielenberg, B. W., *Using LS-DYNA Simulation to Solve a Design Problem: A Bullnose Guardrail Example*, Paper No. 99-0554, Transportation Research Record No. 1690, Transportation Research Board, Washington, D.C., November 1999.

2.1.2 Peer-Reviewed Journal Publications (Accepted for publication with or without revision)

2. Rosenbaugh, S.K., Faller, R.K., Lechtenberg, K.A., and Bielenberg, R.W., *Weak-Post, W-Beam Guardrail Attachment to Culvert Headwalls*, Paper No. 14-3930, Accepted for Publication in a Transportation Research Record, Journal of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., Presented in January 2014.
1. Bielenberg, R.W., Faller, R.K., Reid, J.D., Rosenbaugh, S.K., and Lechtenberg, K.A., *Performance of Midwest Guardrail System with Rectangular Wood Posts*, Paper No. 14-2991, Accepted for Publication in a Transportation Research Record, Journal of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., Presented in January 2014.

2.1.3 Peer-Reviewed Journal Publications (Submitted for review)

None

2.1.4 Books and Book Chapters

None

2.1.5 Other Peer-Reviewed Conference Proceedings, Papers, and Reports

7. Bielenberg, R.W., Rosenbaugh, S.K., Reid, J.D., Faller, R.K., Lechtenberg, K.A., and Sicking, D.L., *Termination and Transition of Temporary Concrete Barrier*, Paper No. 10-0431, Presented at the Annual Meeting of the Transportation Research Board and Published in the Compendium of Papers CD-ROM, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2010.

6. Faller, R.K., Bielenberg, R.W., Sicking, D.L., Rohde, J.R., and Reid, J.D., *Development and Testing of the SAFER Barrier - Version 2, SAFER Barrier Gate, and Alternative Backup Structure*, Paper No. 2006-01-3612, Publication No. P-399, Proceedings of the 2006 SAE Motorsports Engineering Conference and Exhibition, Dearborn, Michigan, December 5-7, 2006.
5. Bielenberg, R.W., Faller, R.K., Sicking, D.L., Rohde, J.R., Reid, J.D., Polivka, K.A., and Holloway, J.C., *Initial In-Service Performance Evaluation of the SAFER Racetrack Barrier*, Paper No. 2004-01-3526, Publication No. P-392, Proceedings of the 2004 SAE Motorsports Engineering Conference and Exhibition, Dearborn, Michigan, November 30 through December 2, 2004.
4. Bielenberg, R.W., Rohde, J.R., and Reid, J.D., *Design of the Safer Emergency Gate Using LS-DYNA*, IMECE2005-81078, Proceedings of IMECE'05, 2005 ASME International Mechanical Engineering Congress and Exposition, November 5-11, 2005, Orlando, Florida USA.
3. Bielenberg, R.W. and Reid, J.D., *Modeling of Crushable Foam for the SAFER Racetrack Barrier*, 8th International LS-DYNA Users Conference, Simulation 2004, Dearborn, MI, May 2-4, 2004.
2. Bielenberg, R.W. and Reid, J.D., *Concept Development of a Tie-Down Temporary Concrete Barrier System*, Paper No. DETC2001/DAC21117, 2001 ASME Design Engineering Technical Conferences & Computers and Information in Engineering Conference, Pittsburgh, Pennsylvania, September 2001.
1. Bielenberg, R. W., Magner, S.H., and Reid, J.D., *Sidewall Indentation and Buckling of Deformed Aluminum Beverage Cans*, 6th International LS-DYNA Users Conference, Simulation 2000, Dearborn, MI, April 9-11, 2000.

2.1.6 Conference Proceedings (Other than peer reviewed)

1. Bielenberg, R.W., Rosenbaugh, S.K., Reid, J.D., Faller, R.K., and Lechtenberg, K.A., Sicking, D.L., *Termination and Transition of Temporary Concrete Barrier*, Paper No. 10-0431, Presented at the Annual Meeting of the Transportation Research Board and Published in the Compendium of Papers CD-ROM, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2010.

2.1.7 Conference & Technical Presentations and Invited Speeches

51. *State of the Guardrail Industry: Advances in Longitudinal Barrier Design*, Video conference presentation for the North Dakota LTAP, North Dakota State University, Fargo, ND, February 18, 2015.
50. *Additional Considerations for Cable Median Barrier Evaluation in MASH*, Presented at the 94th Annual Meeting of the Transportation Research Board, Washington D.C., January 12, 2015.
51. *Flail Space Distance – MASH vs. NCHRP 350*, Presented at the TF 13 Subcommittee #7 Meeting, Sept. 2014.
50. *MASH Cable Median Barrier Evaluation: Critical Cable Position*, Presented at the TF 13 Subcommittee #7 Meeting, Sept. 2014.
49. *Recent Research Regarding Treatment of Intersecting Roadways*, Presented at the Task Force 13 joint meeting with the Midwest States Pooled Fund, University of Nebraska – Lincoln, Lincoln, NE, April 16, 2014.
48. *State of the Guardrail Industry: Advances in Longitudinal Barrier Design*, Webinar presentation for the North Dakota LTAP, February 19, 2014.
47. *TL-3 Guardrail to PCB Transition*, Presented at the 2014 Forum on Finite Element Modeling and Crash Simulation, George Mason University, Fairfax, VA, January 17, 2014.
46. *Performance of Midwest Guardrail System with Rectangular Wood Posts*, Presented at the 93rd Annual Meeting of the Transportation Research Board, Washington D.C., January 14, 2014.
45. *SAFER® Barrier Design, Applications, and Maintenance*, Presented at the 2014 NASCAR Summit, Concord, NC, January 7, 2014.
44. *2013 Inter-Lab Comparison Review and Discussion*, Presented at the TF 13 Subcommittee #7 Meeting, Sept. 26th, 2013.

43. *Breakout I: Hardware Research Needs*, Presented at the AFB20 – TCRS Joint Meeting, Safe System Approach to Roadway Departure Crashes, New Orleans, LA, July 7 – 12, 2013.
42. *2012 Inter-Lab Comparison Review and Discussion*, Presented at the TF 13 Subcommittee #7 Meeting, April 18th, 2013.
41. *MwRSF Cable Median Barrier Update*, Presented at the 92nd Annual Meeting of the Transportation Research Board, Washington D.C., January 14, 2013.
40. *Guardrail Applications for Bridges and Culverts*, Presented at the 2012 Highway Superintendents and Surveyors Winter Meeting, Nebraska Association of County Engineers, Kearney, NE, December 13, 2012.
39. *Breakout I: Crash Testing and FE Simulation*, Presented at the AFB20 – TCRS Joint Meeting, Strategic Directions on Roadway Departure Crashes: Supporting the Decade of Action, Irvine, CA, August 1, 2012.
38. *MASH Future Updates and Research Needs*, Presented at the Workshop on *Roadway Departure Crashes: Bridging the Gap between Testing and Real World Performance and Joint Meeting with AASHTO/AGC/ARTBA Task Force 13*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and AASHTO Task Force 13, Hyatt Regency Cleveland at the Arcade, Cleveland, Ohio, May 22 - 25, 2011.
37. *Development of a Low-Cost, Energy-Absorbing Bridge Rail*, Presented at the 90th Annual Meeting of the Transportation Research Board, Washington D.C., January 27, 2011.
36. *Universal Breakaway Steel Post Bullnose*, Presented at the 90th Annual Meeting of the Transportation Research Board, Washington D.C., January 24, 2011.
35. *31-in. Guardrail Testing*, Presented at the FHWA Office of Safety's Quarterly Focus Area Web Conference, July 15th, 2010.
34. *MwRSF Experiences with MASH*, Presented at the Workshop on *Managing Risk of Roadway Departure Crashes and Joint Meeting with AASHTO/AGC/ARTBA Task Force 13*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and AASHTO Task Force 13, Yountville, CA, May 16 - 19, 2010.
33. *Termination and Transition of Temporary Concrete Barrier*, Presented at the 89th Annual Meeting of the Transportation Research Board, Washington D.C., January 11, 2010.
32. *Midwest Guardrail System*, Presented at the MINK 2009 Conference, St. Joseph, MO, October 13, 2009.
31. *Summary of 31-in. Guardrail Testing*, Presented at the Workshop on *Design, Testing, Installation & Maintenance of Traffic Barriers: How MASH and Ongoing Research Will Affect You and Joint Meeting with AASHTO/ AGC/ARTBA Task Force 13*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and AASHTO Task Force 13, Hotel Contessa, San Antonio, Texas, May 31 - June 5, 2009.
30. *Using Barriers at Non-Standard Locations – MwRSF Experience*, Presented at the Workshop on *Design, Testing, Installation & Maintenance of Traffic Barriers: How MASH and Ongoing Research Will Affect You and Joint Meeting with AASHTO/ AGC/ARTBA Task Force 13*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and AASHTO Task Force 13, Hotel Contessa, San Antonio, Texas, May 31 - June 5, 2009.
29. *MwRSF Roadside Safety Hardware Design and Testing Update*, Presented at the ATSSA How To Conference, Kansas City, MO, 12/9/2008.
28. *Anchorage of Temporary Barriers*, Presented at the Workshop on the *Recent Advances in Roadside Safety Technology*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and the Wyoming DOT, Jackson, WY, June 16, 2008.
27. *MwRSF Ongoing Research Activities*, Presented at the Workshop on the *Recent Advances in Roadside Safety Technology*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and the Wyoming DOT, Jackson, WY, June 16, 2008.

26. *Safety Grates for Cross Drainage Culverts*, Presented at the 87th Annual Meeting of the Transportation Research Board, Washington D.C., January 16, 2008.
25. *Recent Developments in Temporary Concrete Barrier Design*, Presented at the 87th Annual Meeting of the Transportation Research Board, Washington D.C., January 16, 2008.
24. *Midwest Guardrail System for Long Span Culvert Applications*, Presented at the 86th Annual Meeting of the Transportation Research Board, Washington D.C., January 22, 2007.
23. *Transitions Between Cable Barriers and W-beam Systems*, Presented at the Workshop on the Cable Barrier Systems, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and the South Dakota DOT, Rapid City, SD, July 9, 2007.
22. *Encroachment Characteristics by Highway Type and Work Zone Configuration*, Presented at the Workshop on the Positive Protection in Work Zones, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and California Department of Transportation, Jackson Rancheria Casino Resort and Conference Center, Jackson, California, July 23-26, 2006.
21. *Tie-Downs and Transitions for Temporary Concrete Barriers*, Presented at the 85nd Annual Meeting of the Transportation Research Board, Washington D.C., January 23, 2006.
20. *Occupant Risk Evaluation*, Presented at the 85nd Annual Meeting of the Transportation Research Board, Washington D.C., January 23, 2006.
19. *Roadside Safety and the SAFER Barrier at the University of Nebraska*, Presented to the University of Nebraska ASCE Chapter, November 11, 2005
18. *Occupant Risk Evaluation*, Presented at the AFB20 Summer Workshop, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and Utah Department of Transportation, St. George, Utah, July 11, 2005.
17. *Critical Impact Points*, Presented at the AFB20 Summer Workshop, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and Utah Department of Transportation, St. George, Utah, July 11, 2005.
16. *Occupant Risk Criteria: Comparison of the NCHRP Report 350 and EN 1317 Flail Space Models*, Presented at the 84th Annual Meeting of the Transportation Research Board, Sponsored by Committee AFB20 on Roadside Safety Design, Washington, D.C., January 11, 2005.
15. *Development of a Tie-Down Temporary Barrier System for Asphaltic Roadways*, Presented at the 84th Annual Meeting of the Transportation Research Board, Sponsored by Committee AFB20 on Roadside Safety Design, Washington, D.C., January 11, 2005.
14. *Initial In-Service Performance Evaluation of the SAFER Racetrack Barrier*, Paper No. 04MSEC-87, 2004 SAE Motorsports Engineering Conference and Exhibition, Dearborn, Michigan, December 1, 2004.
13. *Simulation of a Crash Test of Minnesota's Aluminum Type III Barricade*, Paper No. IMEE2004/59323, 2004 ASME International Mechanical Engineering Congress & Exposition, Anaheim, CA, November 14, 2004.
12. *Modeling of Crushable Foam for the SAFER Racetrack Barrier*, 8th International LS-DYNA Users Conference, Simulation 2004, Dearborn, MI, May 3, 2004.
11. *Development of the SAFER Barrier for High-Speed Racetrack Applications*, 2004 Mid-Continent ASCE Conference, University of Nebraska - Lincoln, April 29, 2004.
10. *Simulation and Bogie Testing of a New Cable Barrier Terminal*, 2003 ASME International Mechanical Engineering Congress & Exposition, Washington, D.C., November 16-21, 2003
9. *Development of an Energy-Absorbing Barrier for High-Speed Racetrack Applications*, 2003 Kansas Transportation Engineering Conference, Manhattan, Kansas, April 16, 2003.

8. *Midwest Guardrail System Update*, Presented at the 82nd Annual Meeting of the Transportation Research Board, January 14, 2003.
7. *Temporary Barrier Tie-Down Systems*, Presented at the 82nd Annual Meeting of the Transportation Research Board, January 13, 2003.
6. *Tie-Down Temporary Barrier System*, Presented at the 81th Annual Meeting of the Transportation Research Board, January 21, 2002.
5. *Concept Development of a Tie-Down Temporary Concrete Barrier System*, Presented at the 2001 ASME Design Engineering Technical Conferences & Computers and Information in Engineering Conference, Pittsburgh, PA, September 10, 2001.
4. *NCHRP 350 Compliance Testing of a Bullnose Median Guardrail System*, Presented at the 80th Annual Meeting of the Transportation Research Board, January 10, 2001.
3. *Development of a Temporary Barrier Tie Down*, Presented at the 80th Annual Meeting of the Transportation Research Board, January 10, 2001.
2. *CIP Simulation of a Bullnose Guardrail System*, Presented at the Federal Highway Administration (FHWA) *LS-DYNA Workshop*, Texas Transportation Institute, Texas A&M University, June 19-23, 2000.
1. *Indentation and Buckling of Beverage Can Sidewalls*, Presented at the Alcoa Research Center, Presented to Alcoa Rigid Packaging Division, Alcoa Technical Center 100 Technical Drive, Alcoa Center, PA, 15069-0001, September 2, 1999.

2.1.8 Other Publications – Research Reports

111. Weiland, N.A., Reid, J.D., Faller, R.K., Bielenberg, R.W., and Lechtenberg, K.A., *Increased Span Length for the MGS Long-Span Guardrail System*, Final Report to the Midwest State's Pooled Fund Program, Transportation Research Report No. TRP 03-310-14, Project No.: TPF-5(193) Supplement #56, Project Code: RPPF-13-MGS-3 Year 23, Midwest Roadside Safety Facility, University of Nebraska Lincoln, Lincoln, Nebraska, December 17, 2014.
110. Winkelbauer, B.J., Putjenter, J.G., Rosenbaugh, S.K., Lechtenberg, K.A., Bielenberg, R.W., Faller, R.K., and Reid, J.D., *Dynamic Evaluation of MGS Stiffness Transition with Curb*, Final Report to the Midwest State's Pooled Fund Program, Transportation Research Report No. TRP 03-291-14, Project No.: TPF-5(193) Supplement #58 & #63, Project Codes: RPPF-13-AGT-1 & 14-AGT-1 Years 23 and 24, Midwest Roadside Safety Facility, University of Nebraska Lincoln, Lincoln, Nebraska, June 30, 2014.
109. Gutierrez, D.A., Bielenberg, R.W., Faller, R.K., Reid, J.D., and Lechtenberg, K.A., *Development of a MASH TL-3 Transition Between Guardrail and Portable Concrete Barriers*, Final Report to the Nebraska Department of Roads and Smart Work-Zone Deployment Initiative, Transportation Research Report No. TRP 03-300-14, NDOR Project No.: SPR-P1(13)M326; SWZDI Contract No.: 14074; FHWA Pooled Fund Study TPF-5(081), Midwest Roadside Safety Facility, University of Nebraska Lincoln, Lincoln, Nebraska, June 26, 2014.
108. Winkelbauer, B.J., Stolle, C.S., Faller, R.K., Lechtenberg, K.A., Reid, J.D., and Bielenberg, R.W., *Cable Guardrail with Strong J-Bolts*, Final Report to the New York State Department of Transportation, Transportation Research Report No. TRP 03-299-14, Project No.: TPF-5(193) Supplement #61, Midwest Roadside Safety Facility, University of Nebraska Lincoln, Lincoln, Nebraska, May 29, 2014.
107. Price, C.W., Schmidt, T.L., Bielenberg, R.W., Lechtenberg, K.A., Faller, R.K., and Reid, J.D., *Universal Breakaway Steel Post for Other Applications*, Final Report to the Midwest State's Pooled Fund Program, Transportation Research Report No. TRP 03-288-14, Project No.: TPF-5(193) Supplement #55, Project Code: RPPF-13-UBSP Year 23, Midwest Roadside Safety Facility, University of Nebraska Lincoln, Lincoln, Nebraska, April 1, 2014.
106. Stolle, C.S., Reid, J.D., Bielenberg, R.W., Faller, R.K., Sicking, D.L., and Lechtenberg, K.A., *Extending TL-2 Short-Radius Guardrail to Larger Radii*, Final Report to the Wisconsin Department of Transportation, Transportation Research Report No. TRP 03-296-14, Project No.: TPF-5(193) Supplement #27, Midwest Roadside Safety Facility, University of Nebraska Lincoln, Lincoln, Nebraska, March 31, 2014.

105. Bielenberg, R.W., Quinn, T.E., Faller, R.K., Sicking, D.L., and Reid, J.D., *Development of a Retrofit, Low-Deflection, Temporary Concrete Barrier System*, Final Report to the Wisconsin Department of Transportation, Transportation Research Report No. TRP 03-295-14, Project No.: TPF-5(193) Supplement #15, Project Code: RFPF-WISC-4, Midwest Roadside Safety Facility, University of Nebraska Lincoln, Lincoln, Nebraska, March 31, 2014.
104. Schmidt, J.D., Schmidt, T., Faller, R.K., Sicking, D.L., Reid, J.D., Lechtenberg, K.A., Bielenberg, R.W., Rosenbaugh, S.K., Holloway, J.C., *Evaluation of Energy Absorbers for Use in a Roadside/Median Barrier*, Final Report to the Nebraska Department of Roads and Federal Highway Administration, Transportation Research Report No. TRP 03-280-14, NDOR Project No.: DPU-STWD (94), Midwest Roadside Safety Facility, University of Nebraska Lincoln, Lincoln, Nebraska, February 6, 2014.
103. Gutierrez, D.A., Lechtenberg, K.A., Bielenberg, R.W., Faller, R.K., Reid, J.D., and Sicking, D.L., *Midwest Guardrail System (MGS) with Southern Yellow Pine Posts*, Final Report to the Midwest State's Regional Pooled Fund Program, Transportation Research Report No. TRP 03-272-13, Project No.: TPF-5(193), Project Code: RFPF-11-MGS-1 Years 21, Midwest Roadside Safety Facility, University of Nebraska Lincoln, Lincoln, Nebraska, September 4, 2013.
102. Bateman, R.J., Faller, R.K., Bielenberg, R.W., Sicking, D.L., Reid, J.D., Stolle, C.S., Lechtenberg, K.A., and Rosenbaugh, S.K., *Design of Cable-To-Post Attachments for Use in a Non-Proprietary, High-Tension, Cable Median Barrier*, Final Report to the Midwest State's Regional Pooled Fund Program, Transportation Research Report No. TRP 03-285-13, Project No.: TPF-5(091) and TPF-5(193), Project Code: RFPF-09-01 and RFPF-12-Cable 1&2 Years 19 and 22, Midwest Roadside Safety Facility, University of Nebraska Lincoln, Lincoln, Nebraska, August 29, 2013.
101. Weiland, N.A., Reid, J.D., Faller, R.K., Sicking, D.L., Bielenberg, R.W., and Lechtenberg, K.A., *Minimum Effective Guardrail Length for MGS*, Final Report to the Wisconsin Department of Transportation, Transportation Research Report No. TRP 03-276-13, Project No.: TPF-5(193) Supplement #29, Midwest Roadside Safety Facility, University of Nebraska Lincoln, Lincoln, Nebraska, August 12, 2013.
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2.2 Grantsmanship Record

2.2.1 Internally-Funded Research Grants

None

2.2.2 Externally-Funded Research Grants and Contracts – Principal or Co-Principal Investigator

New Conceptual Development of an Impact Attenuation System for Intersecting Roadway – Phase II, Awarded by the Nebraska Department of Roads, **NDOR Agreement No. SPR-P1(15) M332**, NDOR Project Designation TSPTI-02, [Principal Investigator, Co-Principal Investigators: John Reid and Robert Bielenberg, July 1, 2015 - December 31, 2016, Total Award: \$256,184, NDOR: \$256,184; UNL: \$0].

Midwest States Pooled Fund Program for Roadside Safety - Year 25 (2014-2017), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, Wyoming, Illinois, Indiana, and New Jersey, TPF-5(193) Supplemental Nos. 79 through 85 (7 Projects), [Co-Principal Investigator, Principal Investigator: John Reid, Co-Principal Investigators: Robert Bielenberg, Karla Lechtenberg, and Scott Rosenbaugh, August 1, 2014 - July 31, 2017, Total Award: \$780,000, Sponsor: \$780,000, UNL: \$0], **WBS Nos. 26-1121-1111-001 through 26-1121-1117-001**.

Attachment of Combination Rails to Concrete Parapets Utilizing Epoxy Adhesive Anchors – Phase I, Awarded by the Iowa Department of Transportation, Agreement No. TPF-5(193) Supplement #73, [Principal Investigator, Co-Principal Investigator: Ron Faller, John Reid, and Scott Rosenbaugh, February 1, 2014 - July 31, 2015, Total Award: \$50,891, NDOR: \$50,891; UNL: \$0], **WBS Nos. 26-1113-0087-001**.

Vehicle and Debris Catch Fence for Use in Oval Track Racing – Phase I, Awarded by Zodiac Aerospace, [Principal Investigator, Co-Principal Investigators: Robert Bielenberg and John Reid, May 1, 2014 - April 30, 2015, Total Award: \$50,000, Sponsor: \$50,000, UNL: \$0], **WBS No. 26-1113-0088-001**.

FY 2015 Wisconsin DOT Roadside Safety Research Program (2014-2017), Phase IIA Vehicle Dynamics Testing, Validation of Vehicle Models, and Computer Simulation of Rock Ditch Liners, TPF-5(193) Supplemental No. 77, Awarded by Wisconsin Department of Transportation, [Co-Principal Investigator, Principal Investigator: John Reid, Co-Principal Investigators: Robert Bielenberg and Karla Lechtenberg, June 30, 2014 - June 30, 2017, Total Award: \$110,000, Sponsor: \$110,000, UNL: \$0], **WBS No. 26-1113-0089-001**.

FY 2015 Wisconsin DOT Roadside Safety Research Program (2014-2017), Transition from Free-Standing Temporary Barrier to Reduced-Deflection Temporary Barrier, TPF-5(193) Supplemental No. 78, Awarded by Wisconsin Department of Transportation, [Principal Investigator, Co-Principal Investigators: John Reid and Robert Bielenberg, June 30, 2014 - June 30, 2017, Total Award: \$95,852, Sponsor: \$95,852, UNL: \$0], **WBS No. 26-1113-0090-001**.

Redesign of Low-Tension Cable Barrier Adjacent to Steep Slopes, Awarded by the Nebraska Department of Roads, NDOR Agreement No. TPF-5(193) Supplement #74, NDOR Project Designation RHE-03, [Principal Investigator, Co-Principal Investigator: Ron Faller and John Reid, July 1, 2014 - December 31, 2015, Total Award: \$124,345, NDOR: \$124,345; UNL: \$0], **WBS Nos. 26-1121-1106-001**.

Length of Need for Free-Standing, F-Shape, Portable 12.5-ft Concrete Protection Barrier, Awarded by the Nebraska Department of Roads and the Smart Work-Zone Deployment Initiative (SWZDI) at Iowa State University, NDOR Agreement No. TPF-5(193) Supplement #75, NDOR Project Designation RHE-08, SWZDI Agreement No. TPF(295) and Contract No. 16346, [Principal Investigator, Co-Principal Investigator: Ron Faller and John Reid, July 1, 2014 - December 31, 2015, Total Award: \$239,817, NDOR: \$189,820, SWZDI: \$49,997, UNL: \$0], **WBS Nos. 26-1121-1107-001 and 26-1121-1109-001**.

Development of a TL-3 Transition between Temporary Free-Standing, F-Shape 12.5-ft Concrete Protection Barrier and Guardrail – Phase II, Awarded by the Nebraska Department of Roads and the Smart Work-Zone Deployment Initiative (SWZDI) at Iowa State University, NDOR Agreement No. TPF-5(193) Supplement #76, NDOR Project Designation RHE-11, SWZDI Agreement No. TPF(295) and Contract No. 16347, [Principal Investigator, Co-Principal Investigators: Robert Bielenberg and John Reid, July 1, 2014 - December 31, 2015, Total Award: \$263,677, NDOR: \$213,677, SWZDI: \$50,000, UNL: \$0], **WBS Nos. 26-1121-1108-001 and 26-1121-1110-001**.

Attachment of Combination Rails to Concrete Parapets Utilizing Epoxy Adhesive Anchors – Phase I, Awarded by the Nebraska Department of Roads, NDOR Agreement No. TPF-5(193) Suppl. #73, [Principal Investigator, Co-Principal Investigators: Robert Bielenberg, Ron Faller, and Scott Rosenbaugh, February 1, 2014 - July 31, 2014, Total Award: \$50,891, NDOR: \$50,891; UNL: \$0].

Dynamic Evaluation of Cable Guide Rail with Strong J-Bolts Under MASH with 1500A Retest, Awarded by the New York State Department of Transportation and the Nebraska Department of Roads, TPF-5(193) Supplemental No. 72, [Principal Investigator, Co-Principal Investigators: Robert Bielenberg, Karla Lechtenberg, John Reid, and Cody Stolle, September 12, 2013 - May 31, 2014, Total Award: \$35,770, Sponsor: \$35,770, UNL: \$0], **WBS No. 26-1121-1105-001**.

Midwest States Pooled Fund Program for Roadside Safety - Year 24 (2013-2016), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, Wyoming, and Illinois, TPF-5(193) Supplemental Nos. 63 through 69, [Co-Principal Investigator, Principal Investigator: John Reid, Co-Principal Investigators: Robert Bielenberg and Karla Lechtenberg, July 1, 2013 - June 30, 2016, Total Award: \$650,000, Sponsor: \$650,000, UNL: \$0], **WBS Nos. 26-1121-1095-001 through 26-1121-1101-001 and 26-1121-1103-001**.

FY 2014 Wisconsin DOT Roadside Safety Research Program (2013-2016), Phase I Safety Investigation and Design Guidance for Curb and Gutter Near Energy-Absorbing Terminals, TPF-5(193) Supplemental No. 62, Awarded by Wisconsin Department of Transportation, [Principal Investigator, Co-Principal Investigators: John Reid, Robert Bielenberg, and Karla Lechtenberg, July 1, 2013 - June 30, 2016, Total Award: \$173,716, Sponsor: \$173,716, UNL: \$0], **WBS No. 26-1121-1094-001**.

MST Project No. 16 - Consulting for SAFER Research and Other Safety Issues, Awarded by Motorsports Safety Technology, [Principal Investigator, Co-Principal Investigator: Robert Bielenberg, April 1, 2013 - September 30, 2014, Total Award: \$50,000, Sponsor: \$50,000, UNL: \$0], **WBS No. 26-1121-1092-001**.

Dynamic Evaluation of Cable Guide Rail with Strong and Standard J-Bolts Under MASH, Awarded by the New York State Department of Transportation and the Nebraska Department of Roads, TPF-5(193) Supplemental No. 61, [Principal Investigator, Co-Principal Investigators: Robert Bielenberg, Karla Lechtenberg, John Reid, and Cody Stolle, December 1, 2012 - May 31, 2014, Total Award: \$257,478, Sponsor: \$257,478, UNL: \$0], **WBS No. 26-1121-1090-001**.

Midwest States Pooled Fund Program for Roadside Safety - Year 23 (2012-2015), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, Wyoming, and Illinois, TPF-5(193) Supplemental Nos. 53 through 58 and 60, [Co-Principal Investigator, Principal Investigator: John Reid, Co-Principal Investigators: Dean Sicking, Robert Bielenberg, and Karla Lechtenberg, July 1, 2012 - June 30, 2015, Total Award: \$650,000, Sponsor: \$650,000, UNL: \$0], **WBS Nos. 26-1121-1079-001 through 26-1121-1084-001 and 26-1121-1086-001**.

FY 2013 Wisconsin DOT Roadside Safety Research Program (2012-2015), Phase IIA Vehicle Dynamics Testing, Validation of Vehicle Models, and Computer Simulation of Rock Ditch Liners, TPF-5(193) Supplemental No. 59, Awarded by Wisconsin Department of Transportation, [Principal Investigator, Co-Principal Investigators: John Reid, Dean Sicking, Robert Bielenberg, Karla Lechtenberg, and Mario Mongiardini, July 1, 2012 - June 30, 2015, Total Award: \$100,000, Sponsor: \$100,000, UNL: \$0], **WBS No. 26-1121-1085-001**.

Development of a TL-3 Transition between Temporary Concrete Barrier and Guardrail, Awarded by the Nebraska Department of Roads and the Smart Work-Zone Deployment Initiative (SWZDI) at Iowa State University, NDOR Agreement No. SPR-P1(13) M326, NDOR Project Designation TSPTI-06, SWZDI Contract No. 14074, [Principal Investigator, Co-Principal Investigators: John Reid, Robert Bielenberg, Karla Lechtenberg, and Mario Mongiardini, July 1, 2012 - December 31, 2013, Total Award: \$141,814, NDOR: \$91,814, SWZDI: \$50,000; UNL: \$0].

New Conceptual Development of an Impact Attenuation System for Intersecting Roadway, Awarded by the Nebraska Department of Roads, NDOR Agreement No. SPR-P1(13) M332, NDOR Project Designation RHE-08, [Principal Investigator, Co-Principal Investigators: John Reid, Dean Sicking, and Robert Bielenberg, July 1, 2012 - December 31, 2013, Total Award: \$120,469, NDOR: \$120,469; UNL: \$0].

Ponderosa Pine Round Post Equivalency Study, Awarded by the Forest Products Laboratory, Forest Service, U.S. Department of Agriculture and Arizona Log & Timber Works, Agreement No. ??, [Principal Investigator, Co-Principal Investigators: John Reid, Dean Sicking, and Robert Bielenberg, March 15, 2012 - March 31, 2013, Total Award: \$71,027; FPL: \$31,371; ALTW: \$25,000; UNL: \$14,656].

Dynamic Testing and Evaluation of a Temporary Concrete Barrier Under MASH, Awarded by Powell Contracting Ltd, [Principal Investigator, Co-Principal Investigators: Ron Faller, Dean Sicking, John Reid, Robert Bielenberg, and Karla Lechtenberg, 2012-2013, Total Award: \$58,997, Sponsor: \$58,997, UNL: \$0].

MST Project No. 16 - Consulting for SAFER Research and Other Safety Issues, Awarded by Motorsports Safety Technology, [Co-Principal Investigator, Principal Investigator: Dean Sicking, Co-Principal Investigator: Robert Bielenberg, December 1, 2011 - December 31, 2013, Total Award: \$35,000, Sponsor: \$35,000, UNL: \$0], WBS No. 26-1121-1057-001.

Deflection of Curved Runs of Cable Guide Rail Under MASH TL-3 Impacts, Awarded by the New York State Department of Transportation and the Nebraska Department of Roads, TPF-5(193) Supplemental No. 30, [Principal Investigator, Co-Principal Investigators: Dean Sicking, John Reid, Karla Lechtenberg, and Robert Bielenberg, 2010-2011, Total Award: \$180,655, Sponsor: \$180,655, UNL: \$0].

Dynamic Testing and Evaluation of Delta Bloc's DB80 Temporary Concrete Barriers According to MASH Test Level 3, Awarded by Delta Bloc Europa GmbH (Austria), [Principal Investigator, Co-Principal Investigators: Dean Sicking, John Reid, Robert Bielenberg, and Karla Lechtenberg, 2010, Total Award: \$94,180, Sponsor: \$94,180, UNL: \$0].

Dynamic Evaluation of High-Tension Cable Barrier System Under TL-3 of NCHRP Report No. 350, Awarded by Safence Inc., [Principal Investigator, Co-Principal Investigators: Dean Sicking, John Reid, Robert Bielenberg, Karla Lechtenberg, and James Holloway, 2010, Total Award: \$153,001, Sponsor: \$153,001, UNL: \$0].

FY 2010 Wisconsin DOT Roadside Safety Research Program (2009-2011), Awarded by Wisconsin Department of Transportation, [Principal Investigator, Co-Principal Investigators: Dean Sicking and John Reid, 2009-2011, Total Award: \$601,736, Sponsor: \$601,736, UNL: \$0].

Universal Breakaway Steel Post for Guardrail, Awarded by the Minnesota Department of Transportation, SPR-3(017) Supplemental No. 39, [Co-Principal Investigator, Principal Investigator: John Rohde, Co-Principal Investigators: Robert Bielenberg and John Reid, 2007-2009, Total Award: \$197,494, Sponsor: \$197,494, UNL: \$0].

Dynamic Evaluation of an Aluminum Pedestrian Pole Using NCHRP 350 (2009), Awarded by the New York State Department of Transportation and the Nebraska Department of Roads, TPF-5(193) Supplemental No. 10, [Principal Investigator, Co-Principal Investigators: Dean Sicking, Karla Lechtenberg, Robert Bielenberg, and John Reid, 2009, Total Award: \$40,842, Sponsor: \$40,842, UNL: \$0].

Dynamic Evaluation of a Plastic Guardrail Blockout, Awarded by EXULTROB of Tampa, Florida, [Co-Principal Investigator, Co-Principal Investigators: Robert Bielenberg and James Holloway, 2009, Total Award: \$5,220.26, Sponsor: \$5,220.26, UNL: \$0].

Certification of Valmont Industries, Inc. New Dynamic Impact Testing Facility, Awarded by Valmont Industries, Inc., [Co-Principal Investigator, Principal Investigator: Dean Sicking, Co-Principal Investigator: Robert Bielenberg, 2008-2009, Total Award: \$13,291, Sponsor: \$13,291, UNL: \$0].

Development of a Test Level 1 Timber Curb-Type Railing for Use on Transverse, Timber, Nail-Laminated Deck Bridges, Awarded by the West Virginia Department of Transportation, SPR-3(017) Supplemental No. 53, [Principal Investigator, Co-Principal Investigators: John Reid, Dean Sicking, Robert Bielenberg, and Karla Polivka, 2007-2009, Total Award: \$136,491, Sponsor: \$136,491, UNL: \$0].

Development of a Test Level 2 Steel Bridge Railing and Transition for Use on Transverse, Timber, Nail-Laminated Deck Bridges - Phase I, Awarded by the West Virginia Department of Transportation, SPR-3(017) Supplemental No. 52, [Principal Investigator, Co-Principal Investigators: John Reid, Dean Sicking, Robert Bielenberg, and Karla Polivka, 2007-2009, Total Award: \$53,923, Sponsor: \$53,923, UNL: \$0].

Dynamic Evaluation of a Plastic Guardrail Blockout, Awarded by Omni Products (formerly Anro Timber Products, Inc.) of Ada, Michigan, [Principal Investigator, Co-Principal Investigators: James Holloway and Robert Bielenberg, 2007, Total Award: \$3,011.32, Sponsor: \$3,011.32, UNL: \$0].

Qualification of Type II and Type I End Terminals for Box Beam and Evaluation of Box Beam Stiffening of Temporary Concrete Barrier, Awarded by the New York State Department of Transportation and the Nebraska Department of Roads, [Co-Principal Investigator, Principal Investigator: Dean Sicking, Co-Principal Investigators: Robert Bielenberg, Karla Polivka, and John Reid, 2007, Total Award: \$196,127].

Test Plans and Impact Management Systems for the Next Generation Rail Tank Car (NGRTC) Project, Awarded by Union Pacific Railroad, The Dow Chemical Company, and Union Tank Car Company, [Principal Investigator, Co-Principal Investigators: John Reid, Dean Sicking, and Robert Bielenberg, 2007, Total Award: \$63,641].

Universal Breakaway Steel Post for Guardrail, Awarded by the Minnesota Department of Transportation, [Principal Investigators: Ronald Faller and Robert Bielenberg, 2007-2009, Total Award: \$197,494, Sponsor: \$197,494, UNL: \$0].

Development of a New Precast Concrete Bridge Railing System, Awarded by the Nebraska Department of Roads, [Principal Investigator, Co-Principal Investigators: Ron Faller, John Reid, and Maher Tadros, 2006, Total Award: \$229,726].

Engineering and Consulting Services for Iowa Speedway, Awarded by the Iowa Speedway, [Principal Investigator, Co-Principal Investigators: John Rohde and Robert Bielenberg, 2006, Total Award: \$20,446, Sponsor: \$20,446, UNL: \$0].

Dynamic Bogie Testing and Evaluation of an Alternative Post Blockout Material, Awarded by the Iowa Department of Transportation, [Principal Investigator, Co-Principal Investigators: John Rohde and Ron Faller, 2003, Total Award: \$6,832].

2.2.2 Externally-Funded Research Grants and Contracts – Proposal Author and/or Key Researcher

Midwest States Pooled Fund Program for Roadside Safety - Year 22 (2011-2014), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, Wyoming, and Illinois, [Co-Principal Investigator, Principal Investigator: John Reid, Co-Principal Investigator: Dean Sicking, 2011-2014, Total Award: \$650,000, Sponsor: \$650,000, UNL: \$0].

Project No. 12A Continuation - Additional Phase I Funding for Concept Development of a Crash Cushion for High-Speed Race Tracks, Awarded by Motorsports Safety Technology, [Principal Investigator, Co-Principal Investigator: John Reid, 2011, Total Award: \$15,024, Sponsor: \$15,024, UNL: \$0].

Midwest States Pooled Fund Program for Roadside Safety - Year 21 (2010-2013), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, Wyoming, and Illinois, [Co-Principal Investigator, Principal Investigator: John Reid, Co-Principal Investigator: Dean Sicking, 2010-2013, Total Award: \$704,774, Sponsor: \$704,774, UNL: \$0].

FY 2011 Wisconsin DOT Roadside Safety Research Program (2010-2013), Minimum Effective Guardrail Length for MGS - TPF-5(193) Supplemental No. 29, Awarded by Wisconsin Department of Transportation, [Principal Investigator: John Reid, Co-Principal Investigator: Dean Sicking, 2010-2013, Total Award: \$122,477, Sponsor: \$122,477, UNL: \$0].

FY 2011 Wisconsin DOT Roadside Safety Research Program (2010-2013), Downstream Anchoring Requirements for MGS - TPF-5(193) Supplemental No. 28, Awarded by Wisconsin Department of Transportation, [Principal Investigator: John Reid, Co-Principal Investigator: Dean Sicking, 2010-2013, Total Award: \$235,065, Sponsor: \$235,065, UNL: \$0].

FY 2011 Wisconsin DOT Roadside Safety Research Program (2010-2013), Short-Radius Guardrail for Large Radii - TPF-5(193) Supplemental No. 27, Awarded by Wisconsin Department of Transportation, [Principal Investigator: John Reid, Co-Principal Investigator: Dean Sicking, 2010-2013, Total Award: \$57,929, Sponsor: \$57,929, UNL: \$0].

FY 2010 Wisconsin DOT Roadside Safety Research Program (2009-2011), Awarded by Wisconsin Department of Transportation, [Co-Principal Investigators: Dean Sicking and John Reid, 2009-2011, Total Award: \$601,736, Sponsor: \$601,736, UNL: \$0].

Research, Development, testing, and Evaluation of Foam Block Energy absorbers for Use in SAFER Barrier, Awarded by Owens Corning - Foam Engineered Products, [Principal Investigator: John Rohde, 2009-2010, Total Award: \$28,287, Sponsor: \$28,287, UNL: \$0].

Midwest States Pooled Fund Program for Roadside Safety - Year 20 (2009-2012), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, Wyoming, and Illinois, [Principal Investigator: John Reid, Co-Principal Investigator: Dean Sicking, 2009-2012, Total Award: \$600,000, Sponsor: \$600,000, UNL: \$0].

Midwest States Pooled Fund Program for Roadside Safety - Year 19 (2008-2010), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, Wyoming, and Illinois, [, Principal Investigator: John Reid, Co-Principal Investigator: Dean Sicking, 2008-2010, Total Award: \$590,000, Sponsor: \$590,000, UNL: \$0].

Project No. 9A - SAFER Barrier Attached to Movable Barrier V2, Awarded by Motorsports Safety Technology, [Principal Investigator, 2008-2010, Total Award: \$146,446, Sponsor: \$146,446, UNL: \$0].

Project No. 16 - Continued SAFER Research and Evaluation, Awarded by Motorsports Safety Technology, [Principal Investigator: John Rohde, 2008-2009, Total Award: \$6,151, Sponsor: \$6,151, UNL: \$0].

Project No. 15 - Track Plan Review, Awarded by Motorsports Safety Technology, [Principal Investigator: John Rohde, 2008-2009, Total Award: \$12,350, Sponsor: \$12,350, UNL: \$0].

Dynamic Bogie Testing of SAFER Foam Blocks, Awarded by the Indy Racing League, [Principal Investigator: Dean Sicking, 2008, Total Award: \$14,992.56, Sponsor: \$14,992.56, UNL: \$0].

Continued Evaluation of SAFER Applications, Awarded by Motorsports Safety Technology, [Co-Principal Investigators: John Rohde, Dean Sicking, and John Reid, 2007-2008, Total Award: \$55,409, Sponsor: \$55,409, UNL: \$0].

Midwest States Pooled Fund Program for Roadside Safety - Year 18 (2007-2009), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, Wyoming, and Illinois, [Co-Principal Investigator, Principal Investigator: John Reid, Co-Principal Investigators: Dean Sicking, and John Rohde, 2007-2009, Total Award: \$545,000, Sponsor: \$545,000, UNL: \$0].

Midwest States Pooled Fund Program for Roadside Safety - Year 17 (2006-2007), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, California, Connecticut, New Jersey, Wyoming, and Illinois [Researcher, Principal Investigator: John Rohde, Co-Principal Investigators: John Reid and Dean Sicking, 2005-2006, Total Award: \$535,000, Sponsor: \$535,000, UNL: \$0].

NCHRP 22-14 Follow-On Testing Program - Phase IV (12000S Truck Test), Improved Procedures for Safety Performance Evaluation of Roadside Features, NCHRP Project Number 22-14(02), Awarded by the National Cooperative Highway Research Program [Researcher, Study: 2005-2006, Total Award: \$54,269].

NCHRP 22-14 Follow-On Testing Program - Phase III, Improved Procedures for Safety Performance Evaluation of Roadside Features, NCHRP Project Number 22-14(02), Awarded by the National Cooperative Highway Research Program [Researcher, Study: 2005-2006, Total Award: \$118,259].

LS-DYNA Modeling Support for NASCAR's Car of Tomorrow, Awarded by NASCAR [Researcher, Principal Investigator: John Reid, 2005-2006, Total Award: \$30,468].

Retest of the Steel Post Bullnose with a 2000P Vehicle, Awarded by the Minnesota Department of Transportation, [Researcher, Principal Investigator: John Rohde, Co-Principal Investigators: Dean Sicking, 2005-2006, Total Award: \$39,774].

Midwest States Pooled Fund Program for Roadside Safety - Year 16 (2005-2006), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, California, Connecticut, New Jersey, Wyoming, and Illinois [Researcher, Principal Investigator: John Rohde, Co-Principal Investigators: John Reid and Dean Sicking, 2005-2006, Total Award: \$535,000, Sponsor: \$535,000, UNL: \$0].

Improved Procedures for Safety – Performance Evaluation of Roadside Features, NCHRP Project Number 22-14(02), Awarded by National Cooperative Highway Research Program [Researcher, Study: 2002-2005, Total Award: \$299,987; Testing: 2004-2006, Total Award: \$361,425; Testing: 2005-2006, Total Award: \$118,259, Ext. January, 2006].

High-Energy, Dynamic Evaluation of a Prototype Stock Car Chassis, Awarded by NASCAR, [Researcher, Co-Principal Investigators: Dean Sicking, John Rohde, John Reid, and James Holloway, 2005, Total Award: \$33,240].

Improving Race Track Containment Fences, Awarded by Indy Racing League and NASCAR, [Researcher, Co-Principal Investigators: Dean Sicking, John Rohde, John Reid, and James Holloway, 2004-2006, Total Award: \$87,236] (Project No. 1 of 8).

Development of a SAFER Barrier Gate, Awarded by Indy Racing League and NASCAR, [Researcher, Co-Principal Investigators: Dean Sicking, John Rohde, John Reid, and James Holloway, 2004-2006, Total Award: \$134,151] (Project No. 2 of 8).

Developing Crash Cushions for Race Tracks, Awarded by Indy Racing League and NASCAR, [Researcher, Co-Principal Investigators: Dean Sicking, John Rohde, John Reid, and James Holloway, 2004-2006, Total Award: \$137,385] (Project No. 3 of 8).

Analysis, Design, and Simulation of SAFER Barrier Attached to Movable Concrete Barriers, Awarded by Indy Racing League and NASCAR, [Researcher, Co-Principal Investigators: Dean Sicking, John Rohde, John Reid, and James Holloway, 2004-2006, Total Award: \$65,658] (Project No. 4 of 8).

Analysis, Design, and Simulation of a Backup Structure for Dover, Awarded by Indy Racing League and NASCAR, [Researcher, Co-Principal Investigators: Dean Sicking, John Rohde, John Reid, and James Holloway, 2004-2006, Total Award: \$62,768] (Project No. 5 of 8).

Continued Support for Installation Recommendations, Inspection, and Field Performance Evaluation of IRL/NASCAR Racetracks for SAFER Barrier, Awarded by Indy Racing League and NASCAR, [Researcher, Co-Principal Investigators: Dean Sicking, John Rohde, John Reid, and James Holloway, 2004-2006, Total Award: \$163,453] (Project No. 6 of 8).

Support of Foam Optimization for the Radiused SAFER Barrier, Awarded by Indy Racing League and NASCAR, [Researcher, Co-Principal Investigators: Dean Sicking, John Rohde, John Reid, and James Holloway, 2004-2006, Total Award: \$138,361] (Project No. 7 of 8).

Development of Alternative Backup Structures for the SAFER Barrier, Awarded by Indy Racing League and NASCAR, [Researcher, Co-Principal Investigators: Dean Sicking, John Rohde, John Reid, and James Holloway, 2004-2006, Total Award: \$141,387] (Project No. 8 of 8).

Midwest States Pooled Fund Program for Roadside Safety - Year 15 (2004-2005), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, Texas, and Illinois [Researcher, Principal Investigator: John Rohde, Co-Principal Investigators: John Reid and Dean Sicking, 2004-2005, Total Award: \$545,000, Sponsor: \$545,000, UNL: \$0].

2004 Minnesota Roadside Safety Workshop - MnDOT, Awarded by Minnesota Department of Transportation, Researcher, Principal Investigator: Dean Sicking, Co-Principal Investigator: John Rohde, January to June 2004, Total Award: \$18,000].

Development of a Steel Post Option for the Thrie Beam Bullnose Guardrail System, Awarded by the Minnesota Department of Transportation, [Researcher, Principal Investigator: John Rohde, Co-Principal Investigators: Dean Sicking and John Reid, 2004-2005, Total Award: \$91,490].

Continued Development, Evaluation, and Field Installation of the SAFER Barrier for High-Speed Racetrack Applications, Awarded by Indy Racing League, [Researcher, Co-Principal Investigators: Dean Sicking, John Rohde, John Reid, and James Holloway, 2003-2005, Total Award: \$427,333].

Development of a New, TL-3 Transition for Use with Rigid and Free-Standing Temporary Concrete Barriers, Awarded by the Florida Department of Transportation and the Nebraska Department of Roads, [Researcher, Principal Investigator: John Rohde, Co-Principal Investigator: Jim Holloway, 2002-2004, Total Award: \$135,878].

Development of a New, TL-3 Transition for Use with Rigid and Free-Standing Temporary Concrete Barriers - Small Car Transition Test, Awarded by the Florida Department of Transportation and the Nebraska Department of Roads, [Researcher, Principal Investigator: John Rohde, Co-Principal Investigator: Jim Holloway, 2002-2004, Total Award: \$34,994].

Midwest States Pooled Fund Program for Roadside Safety - Year 14 (2003-2004), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, Texas, and Illinois [Co [Principal Researcher, 2003-2004, Total Award: \$550,000, Sponsor: \$550,000, UNL: \$0].

Midwest States Regional Pooled Fund Program - Year 13 (2002-2003), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, Texas, Montana, and Connecticut [Principal Researcher, 2002-2003, Total Award: \$505,000, Sponsor: \$505,000, UNL: \$0].

Development of Steel Tube and Foam Energy Reduction (SAFER) Barrier for Small Radius Racetrack Applications, Awarded by Indy Racing League, [Researcher, Co-Principal Investigators: Dean Sicking, John Rohde, John Reid, and James Holloway, 2000-2003, Total Award: \$256,898].

Dynamic Evaluation of 8"x6" Steel Tube and Foam Energy Reduction (SAFER) Barrier for Rearward Tracking IRL Vehicles, Awarded by Indy Racing League, [Researcher, Co-Principal Investigators: Dean Sicking, John Rohde, John Reid, and James Holloway, 2000-2003, Total Award: \$59,868].

Development of Steel Tube and Foam Combination Barrier System (May 2002 Continuation No. 1), Awarded by Indy Racing League, [Principal Investigator, Co-Principal Investigators: Dean Sicking, John Rohde, John Reid, and James Holloway, 2000-2002, Total Award: \$20,714].

Full-Scale Crash Testing of Steel Tube and Foam Combination Barrier Prototypes (February 2002 Continuation), Awarded by Indy Racing League, [Researcher, Co-Principal Investigators: Dean Sicking, John Rohde, John Reid, and James Holloway, 2000-2002, Total Award: \$109,673, Sponsor: \$98,772, UNL: \$10,901].

Full-Scale Crash Testing of Steel Tube and Foam Combination Barrier Prototypes (October 2001 Continuation), Awarded by Indy Racing League, [Researcher, Co-Principal Investigators: Dean Sicking, John Rohde, John Reid, and James Holloway, 2000-2002, Total Award: \$110,809, Sponsor: \$99,568, UNL: \$11,240].

Full-Scale Crash Testing of Steel Tube and Foam Combination Prototypes, Awarded by Indy Racing League, Researcher, Co-Principal Investigators: Dean Sicking, John Rohde, John Reid, and James Holloway, 2000-2002, Total Award: \$201,698, Sponsor: \$181,358, UNL: \$20,340].

Midwest States Regional Pooled Fund Program - Year 12 (2001-2002), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, Texas, Montana, and Connecticut [Principal Researcher, 2001-2002, Total Award: \$630,527, Sponsor: \$505,000, UNL: \$125,527].

Midwest States Regional Pooled Fund Program - Year 11 (2000-2001), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, and Ohio, [Principal Researcher, 2000-2001, Total Award: \$525,885, Sponsor: \$445,000, UNL: \$80,885].

Midwest States Regional Pooled Fund Program - Year 10 (1999-2000), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, and Ohio, [Principal Researcher, 1999-2000, Total Award: \$500,446, Sponsor: \$400,000, UNL: \$100,446].

Midwest States Regional Pooled Fund Program - Year 9 (1998-1999), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, and Ohio, [Principal Researcher, 1998-1999, Total Award: \$520,903, Sponsor: \$430,618, UNL: \$90,285].

Midwest States Regional Pooled Fund Program - Year 8 (1997-1998), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, and Ohio, [Principal Researcher, 1997-1998, Total Award: \$ 645,625, Sponsor: \$469,519, UNL: \$157,106, CIR: \$19,000].

2.2.3 External Research Grants – Submitted But Unfunded

No records have been maintained of the significant number of research proposals that have been prepared, submitted, but unfunded.

2.3 Research Patents and Awards

2.3.1 Patents

Faller, R.K., Sicking, D.L., Rohde, J.R., Reid, J.D., Keller, E.A., Bielenberg, R.W., Holloway, J.C., Addink, K.H., and Polivka, K.A., *High-Impact, Energy-Absorbing Vehicle Barrier System*, U.S. Patent No. 6,926,461 B1, August 9, 2005.

Faller, R.K., Rohde, J.R., Sicking, D.L., Bielenberg, R.W., Reid, J.D., Holloway, J.C., and Polivka, K.A., *High-Impact, Energy-Absorbing Vehicle Barrier System*, U.S. Patent No. 7,410,320 B2, August 12, 2008.

Rohde, J.R., Faller, R.K., Sicking, D.L., Holloway, J.C., Reid, J.D., Bielenberg, R.W., and Polivka, K.A., *Cable Release Lever*, U.S. Patent No. 7,913,981 B2, March 29, 2011.

2.3.2 National and International Research Awards, Nominations, and Recognition

2013 College Staff Award for Outstanding Service, University of Nebraska – Lincoln College of Engineering, April 2, 2013.

2012 Best Paper Award - TRB Committee AFB20 - Roadside Safety Design - *Development and Implementation of the Simplified MGS Stiffness Transition*, Lechtenberg, K.A., Mongiardini, M., Rosenbaugh, S.K., Faller, R.K., Bielenberg, R.W., and de Albuquerque, F.D.B., Presented at the 2012 Annual TRB Meeting.

2011 Best Paper Award - TRB Committee AFB20 - Roadside Safety Design - *Development of a Low-Cost, Energy-Absorbing, Bridge Rail*, Thiele, J.C., Sicking, D.L., Faller, R.K., Lechtenberg, K.A., Bielenberg, R.W., Reid, J.D., and Rosenbaugh, S.K., Presented at the 2011 Annual TRB Meeting.

2009 National Roadway Safety Awards - Best Practices - Honorable Mention in Infrastructure Improvements Category - Development of the Midwest Guardrail System - Presented by the Roadway Safety Foundation and the Federal Highway Administration, U.S. Department of Transportation, Presented to the Midwest States Pooled Fund Program, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, November 2009.

2008 Governor's Transportation Safety Challenge - Special Recognition Awards - Lane Departure Prevention Category - Development of the Midwest Guardrail System - Presented by the Nebraska Interagency Safety Committee, Presented to the Midwest Roadside Safety Facility, Nebraska Transportation Center, University of Nebraska-Lincoln, April 8, 2009.

2008 Best Paper Award - TRB Committee AFB20 - Roadside Safety Design - *Midwest Guardrail System Adjacent to a 2:1 Slope* - Polivka, K.A., Faller, R.K., Sicking, D.L., and Bielenberg, R.W., Presented at the 2008 Annual TRB Meeting.

2007 Best Paper Award - TRB Committee AFB20 - Roadside Safety Design - *Midwest Guardrail System for Long Span Culvert Applications* - Bielenberg, R.W., Faller, R.K., Sicking, D.L., Rohde, J.R., and Reid, J.D., Presented at the 2007 Annual TRB Meeting.

2006 Better Roads Magazine Top Rollout Award - Awarded for the development of the *MGS Barrier System*, Developed by the Midwest Roadside Safety Facility (MwRSF), Presented at the 2006 American Traffic Safety Services Association (ATSSA) Annual Meeting, Jacksonville, Florida, January 2006.

2006 Catalog of Practical Papers, Paper No. 06-1276, *Tie-Downs and Transitions for Temporary Concrete Barriers*, by Bielenberg, R.W., Faller, R.K., Reid, J.D., Rohde, J.R., and Sicking, D.L., Design and Construction Practice - Ready Papers - Safety, Transportation Research Board, Washington D.C., 2006.

2004 Best Paper Award - TRB Committee AFB20 - Roadside Safety Design - *Midwest Guardrail System for Standard and Special Applications* - Faller, R.K., Polivka, K.A., Kuipers, B.D., Bielenberg, B.W., Reid, J.D., Rohde, J.R., and Sicking, D.L., Presented at the 2004 Annual TRB Meeting.

Faller, R.K., Polivka, K.A., Kuipers, B.D., Bielenberg, B.W., Reid, J.D., Rohde, J.R., and Sicking, D.L., *Midwest Guardrail System for Standard and Special Applications*, Paper No. 04-4778, Submitted to the Transportation Research Board, 83rd Annual Meeting, Washington D.C., January 2004. [Paper was nominated for the 2004 K.B. Woods Award which is given by the Transportation Research Board of The National Academies]

2004 Inaugural Pioneering and Innovation Award, *Development of the SAFER Barrier*, Presented to Tony George and to the Creators of the SAFER Barrier (Midwest Roadside Safety Facility, University of Nebraska-Lincoln), Presented at the 2004 Autosport Awards Banquet at the Grosvenor House, London, United Kingdom, December 5, 2004.

2004 Pocono Raceway Bill France, Sr., Award of Excellence, *Development of the SAFER Barrier*, Presented to the Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Presented at the 2004 Pocono 500 NASCAR Nextel Cup Series Awards Banquet at Pocono, Pennsylvania, June 12, 2004.

2004 Catalog of Practical Papers, Paper No. 04-4778, *Midwest Guardrail System for Standard and Special Applications*, by Faller, R.K., Polivka, K.A., Kuipers, B.D., Bielenberg, R.W., Reid, J.D., Rohde, J.R., and Sicking, D.L., Safety, Division A - Technical Activities, Group 2 Standing Committees and Task Forces, Subject Area - Design, Transportation Research Board, Washington D.C., 2004.

2003 NASCAR Bill France, Jr., Award of Excellence, *Development of the SAFER Barrier*, Presented to the Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Presented at the 2003 Winston Cup Awards Banquet at New York City, New York, December 5, 2003.

Runner-up, 2003 Phillip Rollhaus Essay Competition, *THE "SMART" WORK ZONE, Increased Work Zone Safety Through the Use of New Technologies*.

2003 R&D 100 Awards, Steel and Foam Energy Reduction (SAFER) barrier was selected by the independent judging panel and editors of R&D Magazine as one of the 100 most technologically significant products introduced into the marketplace over the past year.

2003 Catalog of Practical Papers, Paper No. 03-3146, *Design and Testing of Tie-Down Systems for Temporary Barriers*, by Bielenberg, B.W., Faller, R.K., Reid, J.D., Rohde, J.R., and Sicking, D.L., Safety, Division A - Technical Activities, Group 2 Standing Committees and Task Forces, Design and Construction of Transportation Facilities, Transportation Research Board, Washington D.C., 2003.

2002 SEMA Motorsports Engineering Award, *Development of the SAFER Barrier*, Presented to the Midwest Roadside Safety Facility and the Indy Racing League/Indianapolis Motor Speedway, Sponsored by Specialty Equipment Market Association (SEMA) in conjunction with the Society of Automotive Engineers (SAE) and the 2002 Motorsports Engineering Conference and Exhibition, Indianapolis, Indiana, December 3, 2002.

2002 Best of What's New Award (BOWN) and Top 100 Tech Innovations 2002, *SAFER Barrier*, Automotive Technology Category, Popular Science Magazine, December 2002 Issue.

2001 Best Paper Award - TRB Committee A2A04 - Roadside Safety Appurtenances - *NCHRP Report No. 350 Compliance Testing of a Bullnose Median Barrier System* - Bielenberg, B.W., Reid, J.D., and Faller, R.K., Presented at the 2002 Annual TRB Meeting.

2001 Catalog of Practical Papers, Paper No. 01-0204, *NCHRP Report 350 Compliance Testing of a Bullnose Median Barrier System*, by Bielenberg, B.W., Reid, J.D., and Faller, R.K., Section 10 - Safety, Division A - Technical Activities, Group 2 Standing Committees and Task Forces, Design and Construction of Transportation Facilities, Transportation Research Board, Washington D.C., 2001.

2000 Catalog of Practical Papers, Paper No. 000598, *A Long-Span Guardrail System for Culvert Applications*, by Faller, R.K., Sicking, D.L., Polivka, K.A., Rohde, J.R., and Bielenberg, R.W., Section 10 - Safety, Division A - Technical Activities, Group 2 Standing Committees and Task Forces, Design and Construction of Transportation Facilities, Transportation Research Board, Washington D.C., 2000.

2.3.3 National and International – Practical & Practice-Ready Papers – Transportation Research Board

2014 Practice-Ready Paper – Paper No. 14-3930, *Weak-Post, W-Beam Guardrail Attachment to Culvert Headwalls*, Rosenbaugh, S.K., Faller, R.K., Lechtenberg, K.A., and Bielenberg, R.W., Design and Construction Practice - Ready Papers - Design Transportation Research Board, Washington D.C., January 2014.

2014 Practice-Ready Paper – Paper No. 14-2991, *Performance of Midwest Guardrail System with Rectangular Wood Posts*, Bielenberg, R.W., Faller, R.K., Reid, J.D., Rosenbaugh, S.K., and Lechtenberg, K.A., Design and Construction Practice - Ready Papers - Design Transportation Research Board, Washington D.C., January 2014.

2013 Practice-Ready Paper, Paper No. 13-0418, *Midwest Guardrail System Without Blockouts*, Reid, J.D., Faller, R.K., Bielenberg, R.W., and Lechtenberg, K.A., Design and Construction Practice - Ready Papers - Design, Transportation Research Board, Washington D.C., January 2013.

2012 Practice-Ready Paper, Paper No. 12-3367, *Development and Implementation of the Simplified MGS Stiffness Transition*, Lechtenberg, K.A., Mongiardini, M., Rosenbaugh, S.K., Faller, R.K., Bielenberg, R.W., and de Albuquerque, F.D.B., Design and Construction Practice - Ready Papers - Design, Transportation Research Board, Washington D.C., 2012.

2012 Practice-Ready Paper, Paper No. 12-3604, *Development of Universal Breakaway Steel Post for Bullnose Median Barrier*, Bielenberg, R.W., Arens, S.A., Lechtenberg, K.A., Faller, R.K., Sicking, D.L., and Reid, J.D., Design and Construction Practice - Ready Papers - Design, Transportation Research Board, Washington D.C., January 2012.

2011 Practice-Ready Paper, Paper No. 11-2687, *Development of a Low-Cost, Energy-Absorbing, Bridge Rail*, Thiele, J.C., Sicking, D.L., Faller, R.K., Lechtenberg, K.A., Bielenberg, R.W., Reid, J.D., and Rosenbaugh, S.K., Design and Construction Practice - Ready Papers - Design, Transportation Research Board, Washington D.C., 2011.

2011 Practice-Ready Paper, Paper No. 11-2936, *Design and Testing of Two Bridge Railings for Transverse, Nail-Laminated, Timber Deck Bridges*, Mongiardini, M., Rosenbaugh, S.K., Faller, R.K., Reid, J.D., Bielenberg, R.W., and Sicking, D.L., Design and Construction Practice - Ready Papers - Design, Transportation Research Board, Washington D.C., 2011.

2010 Practice-Ready Paper, Paper No. 10-0431, *Termination and Transition of Temporary Concrete Barrier*, Bielenberg, R.W., Rosenbaugh, S.K., Reid, J.D., Faller, R.K., Lechtenberg, K.A., and Sicking, D.L., Design and Construction Practice - Ready Papers - Design, Transportation Research Board, Washington D.C., 2010.

2006 Catalog of Practical Papers, Paper No. 06-1276, *Tie-Downs and Transitions for Temporary Concrete Barriers*, by Bielenberg, R.W., Faller, R.K., Reid, J.D., Rohde, J.R., and Sicking, D.L., Design and Construction Practice - Ready Papers - Safety, Transportation Research Board, Washington D.C., 2006.

2004 Catalog of Practical Papers, Paper No. 04-4778, *Midwest Guardrail System for Standard and Special Applications*, by Faller, R.K., Polivka, K.A., Kuipers, B.D., Bielenberg, R.W., Reid, J.D., Rohde, J.R., and Sicking, D.L., Safety, Division A - Technical Activities, Group 2 Standing Committees and Task Forces, Subject Area - Design, Transportation Research Board, Washington D.C., 2004.

2003 Catalog of Practical Papers, Paper No. 03-3146, *Design and Testing of Tie-Down Systems for Temporary Barriers*, by Bielenberg, B.W., Faller, R.K., Reid, J.D., Rohde, J.R., and Sicking, D.L., Safety, Division A - Technical Activities, Group 2 Standing Committees and Task Forces, Design and Construction of Transportation Facilities, Transportation Research Board, Washington D.C., 2003.

2001 Catalog of Practical Papers, Paper No. 01-0204, *NCHRP Report 350 Compliance Testing of a Bullnose Median Barrier System*, by Bielenberg, B.W., Reid, J.D., and Faller, R.K., Section 10 - Safety, Division A - Technical Activities, Group 2 Standing Committees and Task Forces, Design and Construction of Transportation Facilities, Transportation Research Board, Washington D.C., 2001.

2000 Catalog of Practical Papers, Paper No. 000598, *A Long-Span Guardrail System for Culvert Applications*, by Faller, R.K., Sicking, D.L., Polivka, K.A., Rohde, J.R., and Bielenberg, R.W., Section 10 - Safety, Division A - Technical Activities, Group 2 Standing Committees and Task Forces, Design and Construction of Transportation Facilities, Transportation Research Board, Washington D.C., 2000.

2.3.4 Regional and Local Research Awards, Nominations, and Recognition

None

2.4 Other Research Accomplishments

2.4.1 Workshops, Conferences, Advanced Training, and Review Panels

Participated in the 2015 Forum on Finite Element Modeling and Crash Simulation, Sponsored by the FHWA and CCSA, George Mason University, Fairfax, VA, January 15, 2015.

Participated in the Workshop on Roadway Departure: Addressing Present Challenges and Planning for Future Needs, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and AASHTO Technical Committee on Roadside Safety (TCRS), Portland Marriott Sable Oaks, Portland, Maine, July 13 through 16, 2014, [Breakout Topic F Session Leader – Critical Research Needs].

Participated in the 2014 Forum on Finite Element Modeling and Crash Simulation, Sponsored by the FHWA and CCSA, George Mason University, Fairfax, VA, January 17, 2014.

Participated in the Workshop on Safe System Approach to Roadway Departure Crashes, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and TCRS, New Orleans, LA, July 7 – 12, 2013, [Breakout Group Session Leader - Hardware Research Needs - Group I].

Participated in the Workshop on *Strategic Directions on Roadway Departure Crashes: Supporting the Decade of Action*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and TCRS, Irvine, CA, July 29 - August 1, 2012, [Breakout Group Session Leader - Crash Testing and FE Simulations - Group I].

Participated in the Computational Mechanics Workshop on the *Workshop on Improving the Modeling of Tire, Steering & Suspension (TSS) System Failures in Angular Crashes*, Sponsored by the FHWA and NCAC, FHWA Turner-Fairbank Highway Research Center, McLean, Virginia, January 26th & 27th, 2012.

Participated in the Workshop on *Roadway Departure Crashes: Bridging the Gap between Testing and Real World Performance and Joint Meeting with AASHTO/AGC/ARTBA Task Force 13*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and AASHTO Task Force 13, Hyatt Regency Cleveland at the Arcade, Cleveland, Ohio, May 22 - 25, 2011, [Breakout Group Session Leader - MASH Future Updates and Research Needs - Group C].

Participated in the Workshop on *Managing Risk of Roadway Departure Crashes and Joint Meeting with AASHTO/AGC/ARTBA Task Force 13*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and AASHTO Task Force 13, Yountville, CA, May 16 - 19, 2010.

Participated in the Workshop on *Design, Testing, Installation & Maintenance of Traffic Barriers: How MASH and Ongoing Research Will Affect You* and Joint Meeting with AASHTO/AGC/ARTBA Task Force 13, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and AASHTO Task Force 13, Hotel Contessa, San Antonio, Texas, May 31 - June 5, 2009.

Participated in the Workshop on *Recent Advances in Roadside Safety Technology*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design, Snow King Resort Hotel and Conference Center, Jackson, Wyoming, June 15-18, 2008.

Participated in the Workshop on *Roadside Safety and Finite Element Analysis*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design, Snow King Resort Hotel and Conference Center, Jackson, Wyoming, June 15-18, 2008.

Participated in the Workshop on *Cable Barrier Systems*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design, Rushmore Plaza Holiday Inn, Rapid City, South Dakota, July 8-11, 2007, [Breakout Group Session Leader - Roadside Safety Research Needs].

Participated in the Workshop on the *Positive Protection in Work Zones*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and California Department of Transportation, Jackson Rancheria Casino Resort and Conference Center, Jackson, California, July 23-26, 2006.

Participated in the Computational Mechanics Workshop on the *Finite Element Analysis of Roadside Crashes*, Sponsored by the Transportation Research Board (TRB) AFB20 Sub-Committee on Computational Mechanics, Jackson Rancheria Casino Resort and Conference Center, Jackson, California, July 23-26, 2006.

Participated in the *2006 Nonlinear Finite Element Analysis Course*, instructed by Dr. Thomas Hughes and Dr. Ted Belytschko in Austin, TX, May 22-26, 2006

Participated in the AFB20 Summer Workshop on , Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and Utah Department of Transportation, St. George, Utah, July 11, 2005.

Participated in and chaired a session of the 2004 ASME International Mechanical Engineering Congress & Exposition, Anaheim, CA, Novemeber 14, 2004.

Participated in the Workshop on the *Update to NCHRP Report 350 and Current Safety Issues*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and Kansas Department of Transportation, Double Tree Hotel Overland Park-Corporate Woods, Overland Park, Kansas, July 18-21, 2004.

Participated in the Workshop on *Context Sensitive Utilization of Roadside Safety Features*, Sponsored by the Transportation Research Board (TRB) Committee A2A04 on Roadside Safety Features and Minnesota Department of Transportation, Radisson Hotel South, Minneapolis, Minnesota, July 13-16, 2003.

Participated in the Workshop on *Updating Needs for NCHRP 350 Guidelines - Revisited*, Sponsored by the Transportation Research Board (TRB) Committee A2A04 on Roadside Safety Features and California Department of Transportation, Asilomar Conference Grounds, Pacific Grove, California, July 21-24, 2002.

Participated in the FHWA and NDOR Roadside Safety Hardware Workshop, Sponsored by the Federal Highway Administration, Midwest States Pooled Fund, and the Nebraska Department of Roads, Clifford Hardin Nebraska Center for Continuing Education, Lincoln, Nebraska, April 3, 2002.

Participated in the Federal Highway Administration (FHWA) *LS-DYNA Workshop*, An Advanced Lecture by Paul DuBois, Worcester Polytechnic Institute, June 19-23, 2002.

Participated in the Federal Highway Administration (FHWA) *LS-DYNA Workshop*, An Advanced Lecture by Paul DuBois, Texas Transportation Institute, Texas A&M University, June 19-23, 2000.

Participated in the *Improved Procedures for Safety Performance Evaluations*, Sponsored by the Transportation Research Board (TRB) Committee A2A04 on Roadside Safety Features and the Federal Highway Administration, Estes Park, Colorado, August 1-4, 1999.

Participated in the Federal Highway Administration (FHWA) *LS-DYNA Workshop*, An Advanced Lecture by Paul DuBois, University of Nebraska-Lincoln, June 21-25, 1999.

Participated in a *LS-DYNA Introductory Training Class*, A Short Course Taught by John D. Reid and John O. Hallquist, Livermore Software Technology Corporation (LSTC), June 3-6, 1997.

3 Teaching/Mentoring Accomplishments

3.1 Ph.D. Students - Completed

Over the years, I have provided research topics, project funding, general guidance, and/or support to numerous graduate students employed within the Midwest Roadside Safety Facility as well as the Civil and Mechanical Engineering Departments. A listing of the Ph.D. students, degree garnered, graduation year, and thesis/dissertation title is provided below. Special committee service is noted in parenthesis.

3.1.1 Civil Engineering Ph.D. Students – Supervised, Co-Supervised, and/or Supported

Kevin D. Schrum – Candidate - Ph.D. in Progress

Jennifer D. Schmidt (2012) – Development of a New Energy-Absorbing Roadside/Median Barrier System with Restorable Elastomer Cartridges

Cody S. Stolle (2012) – Cable Median Barrier Failure Analysis and Remediation

3.1.2 Mechanical Engineering Ph.D. Students – Supervised, Co-Supervised, and/or Supported

Ling Zhu (2009) - Development of Guidelines for Deformable and Rigid Switch in LS-DYNA Simulation

Brian A. Coon (2003) - Development of Crash Reconstruction Procedures for Roadside Safety Appurtenances

3.2 M.S. Students - Completed

Over the years, I have provided research topics, project funding, general guidance, and/or support to numerous graduate students employed within the Midwest Roadside Safety Facility as well as the Civil and Mechanical Engineering Departments. A listing of the M.S. students, degree garnered, graduation year, and thesis/dissertation title is provided below. Special committee service is noted in parenthesis.

3.2.1 Civil Engineering M.S. – Supervised, Co-Supervised, and/or Supported

Brandt Humphrey – MS in Progress

Bradley J. Winkelbauer – MS in Progress

David Gutierrez – (2014) – Development of a MASH TL-3 Transition Between Guardrail and Portable Concrete Barriers

Ryan J. Bateman (2013) – Design of Cable-to-Post Attachments for Use in a Non-Proprietary, High-Tension, Cable Median Barrier

Eric R. Jowza (2012) - Safety Investigation and Guidance for Retrofitting Existing Approach Guardrail Transitions

Benjamin J. Dickey (2011) - Development of a Design Procedure for Concrete Traffic Barrier Attachments to Bridge Decks Utilizing Epoxy Concrete Anchors

Jeffrey C. Thiele (2009) - Development of a Low-Cost, Energy-Absorbing Bridge Rail

Steven W. Arens (2009) - Investigating the Use of a New Universal Breakaway Steel Post

Scott Rosenbaugh (2007) - Development of a TL-5 Vertical-Faced Concrete Median Barrier Incorporating Head Ejection Criteria

Jason A. Hascall (2005) - Investigating the Use of Small-Diameter Softwood as Guardrail Posts

Ryan M. Nelson (2003) - Three-Cable Guardrail Adjacent to Steep Slope

3.2.2 Mechanical Engineering M.S. Students – Supervised, Co-Supervised, and/or Supported

Joe Putjenter – MS in Progress

Nicholas A. Weiland (2014) – Increased Span Length for the MGS Long-Span Guardrail System

Ramen D. Julin (2012) – Identification of a Maximum Guardrail Height for the Midwest Guardrail System Using Computer Simulation

Ryan J. Terpsma (2012) - Development and Recommendations for a Non-Proprietary, High-Tension, Cable End Terminal System

Curt L. Meyer (2011) - Feasibility Analysis and Concept Development of a Crash Cushion Diaphragm Structure for High-Speed Race Tracks

Cody S. Stolle (2010) - A Concise Model of 3x7 Wire Rope Used in Cable Guardrail Systems

Ling Zhu (2008) - Critical Offset of the Midwest Guardrail System Behind a Curb

Nitin Sharma (2007) - Crash Cushion Diaphragm Modeling and Correlation with Bogie Test

Beau D. Kuipers (2004) - Identification of a Critical Flare Rate for W-Beam Guardrail in High-Speed Facilities Using Computer Simulation

Dustin A. Boesch (2004) - Front Suspension and Tire Modeling - For Use in Culvert Grate Impact Simulation

Nicholas R. Hiser (2003) - Slip Base Modeling for Cable Guardrail Systems

3.3 Post-Doctoral Research Assistants

I have provided research topics, project funding, general guidance, and/or support to two post-doctoral research assistants within the Midwest Roadside Safety Facility, as noted below.

Mario Mongiardini, Ph.D. – May 2010 to October 2012

Cody Stolle, Ph.D. – December 2012 to Present

Jennifer Schmidt, Ph.D. – December 2012 to Present

3.4 Undergraduate Students

3.5 Teaching Awards and Recognition

3.5.1 International and National Teaching Awards and Recognition

None

3.5.2 Regional, Local, and University Teaching Awards and Recognition

None

3.6 Other Teaching Accomplishments (Volunteer)

3.6.1 UNL Undergraduate Courses

None

3.6.2 UNL Graduate Courses

None

3.7 Other Academic Mentoring

3.7.1 Fulbright Mentoring

None

4 Service Accomplishments

4.1 Professional Service

4.1.1 Journal Editorships

None

4.1.2 Journal Reviewer

Journal of the Transportation Research Board - Transportation Research Record
Journal of Transportation Safety and Security – Taylor & Francis

4.1.3 Leadership Positions in International and National Organizations

4.1.3.1 Transportation Research Board (TRB)

Subcommittee Member - National Academy of Sciences, Transportation Research Board (TRB), A2A04(1) and AFB20(1)
Subcommittee on Computational Mechanics, 2002-Present.

Subcommittee Member - National Academy of Sciences, Transportation Research Board (TRB), A2A04(2) and AFB20(2)
Subcommittee on International Activities, 2004-Present.

4.1.4 Leadership Positions in Regional and Local Organizations

None

4.1.5 Memberships in Professional Organizations

None

4.1.6 National and International Service Awards

None

4.1.7 Regional and Local Service Awards

None

4.1.8 Research Review Panels

None

4.2 University Service

4.2.1 Leadership on University Committees

None

4.2.2 Membership on University Committees

None

4.3 College Service

4.3.1 Leadership on College Committees

None

4.3.2 Membership on College Committees

None

4.4 Unit Service

4.4.1 Leadership on Unit Committees

None

4.4.2 Membership on Unit committees

None

4.5 Other Community Service

4.5.1 Youth Community Service

Coached YMCA Micro T-ball, summer 2011.

Member of Big Brothers, Big Sisters program from August 1999 to April 2001.

Assistant Coach for South Lincoln Track Club April 2002 to 2008 and 2010.

4.5.2 Service to Local Students

Guest lectured on the topic of computer simulation and design for high school students from East Butler High School, Lincoln, Nebraska, October 2014.

Guest lectured on the topic of computer simulation and design for high school students from East Butler High School, Lincoln, Nebraska, October 2013.

Guest lectured on the topic of computer simulation and design for high school students from East Butler High School, Lincoln, Nebraska, March 2013.

Guest lectured on the topic of computer simulation and design for high school students from Kearney High School, Lincoln, Nebraska, October 2010.

Guest lectured on the topic of computer simulation and design for high school students from Kearney High School, Lincoln, Nebraska, October 2009.

Guest lectured on the topic of computer simulation and design for high school students at Kearney High School, Kearney, Nebraska, November 2007.

Guest lectured on the topic of computer simulation and design for prospective high school engineering students at UNL, November 2005.

Sponsored students in the Engineering Research Center's (ERC's) MESA Program, June 1998, June 1999, June 2000, June 2001.

Guest lectured on the topic of computer simulation and design at Waverly High School, Waverly, Nebraska, March 2000, January 2001, March 2002, March 2003, March 2004, October 2006, October 2008, March 2010.

Guest lectured on the topic of roadside safety and crash testing at Sutton High School, Sutton, Nebraska, April 2001.

5 Other Accomplishments

5.1 Professional Licensure

Passed Engineer-In-Training (EIT) Exam, April 1997

5.2 Miscellaneous

Graduated with High Distinction from UNL, 1997

Graduated with M.S. in Mechanical Engineering with Distinction, University of Nebraska, Lincoln, 1999

Invited to University of Nebraska, Lincoln Honors Convocation 1992-1997

University of Nebraska, Lincoln Deans List from fall 1992 to summer 1999 and 2001 through 2002.

Awarded Walter Scott Jr. Engineering scholarship, 1993

Awarded University of Nebraska, Lincoln Regent's Scholarship, 1992

6 Professional Consulting

6.1 General Engineering Consulting

Stonewear Composite Stone Products, Carson City, Nevada - 2002

Tru-Form Steel and Wire, Inc., Hartford City, IN 47348 - 2007

6.2 Expert Witness and/or Safety Engineering Consultant

Michael Joseph Falcon, Terrance Baker, Guardian of the Person and Estate of Kelleigh Terran Falcon, and as Next Friend for Kierra Falcon and Kelese Falcon, Minor Children, et al. vs. Lufkin Industries, Inc., Cause No. 2004-320, County Court at Law, Panola County, Texas, Law Firm: White Shaver, Expert for the Defense, 2005 - 2006.

A.J. vs. Vehicle VIN No. 1GRAA06283T500670, et al., Civil Action No. H-04-4730, In the United States District Court, Southern District of Texas, Houston, Division, Law Firm: Inglesby, Falligant, Horne, Courington, and Chisholm, Expert for the Defense, January 2006 - November 2006.

Samantha Sharp, et al. vs. Missouri Highways and Transportation Commission, Circuit Court of Buchanan County, Missouri, Case No. 04CV77653, MHTC No. GC03-00571, Legal Counsel: Missouri Highways and Transportation Commission, November 2005 - March 2006, Case Decided in Favor of Claimants. [Deposition provided on November 28th, 2005] [Trial Testimony provided on March 24th, 2006 to three arbitration judges]

Consulting for Dr. George Gogos, Accident Report No. A5-141236, Vehicle Damage Discussion, Lincoln, Nebraska, 2005.

Misty Towery vs. Joie Marie Nelson, et al. Civil Action No. 2:04-cv-173 (tjw), In the United States District Court for the Eastern District of Texas, Marshall Division, Law Firm: Inglesby, Falligant, Horne, Courington, and Chisholm, Expert for the Defense, June 2005 - August 2005, Case Settled Out of Court. [**Deposition** provided on August 18th, 2005]

Lechuga vs. Alcorn Fence Company, Law Firm: Campion - Rodolff, LLP, Expert Witness for Defense, 2004, Case Settled Out of Court.

Wo Jie "David" Guan vs. Las Vegas Motor Speedway, Claim No. T 392-97-231, Case No. A399910, Law Firm: Backus - Carranza, Expert Witness for Defense - 2003, Case Settled Out of Court.

Nebraska State Attorney General's Office, Lincoln, Nebraska - 2001 - 2004.

Ruben Jorge Rodriguez Saldias, etc. et al. vs. Sports Car Racing Association of the Monterey Peninsula, et al., Gonzalo Rodriguez Accident, Monterey Superior Court Case No. M 50527, Law Firm: Charleston, Revich, and Chamberlin, LLP, Expert Witness for Defense, 2002 - 2003, Case Decided in Favor of Defense.

Reeves vs. California Speedway, Greg Moore Accident, Law Firm: Elliott, Snyder, and Reid, LLP, Expert Witness for Defense - 2002, Case Ended at Hearing.