

College of Engineering Curriculum Vitae

Name: **Ronald K. Faller, Ph.D., P.E.**
 Title: **Director and Research Full Professor**
 Designation: **Willa Cather Research Professor**
 Unit: **Midwest Roadside Safety Facility and Civil & Environmental Engineering Department**
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Section 1 Education and Employment History

Section 1.1 Education History

Doctor of Philosophy, University of Nebraska-Lincoln, May 1998, GPA 3.98
 Emphasis - Structural Engineering and Mechanics
 Dissertation - Response of Rectangular Elastoplastic Beams to Monotonic and Alternating Yield Conditions

Master of Science, Civil Engineering, University of Nebraska-Lincoln, December 1989, GPA 3.92
 Emphasis - Structural Engineering and Transportation Safety
 Thesis - Cost-Effectiveness: Study to Evaluate Lateral Obstacle Clearance Policies for Utility Facilities in Nebraska Urban Areas

Bachelor of Science, Civil Engineering, University of Nebraska-Lincoln, December 1986, GPA 3.65
 Emphasis – Structural Engineering

Section 1.2 Employment History

Research Full Professor, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, April 2018 – Present
 Research Associate Professor, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, July 2013 – March 2018
 Director, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, June 2013 – Present
 Interim Director, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, November 2012 – May 2013
 Assistant Director, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, January 2011 – October 2012
 Research Assistant Professor, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, July 1998 – June 2013
 Research Associate Engineer, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, January 1990 - June 1998
 Interim Director, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, May 1991 - August 1992
 Research Specialist, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, January 1989 - December 1989
 Graduate Research Assistant, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, January 1987 - December 1988

Section 2 Research Accomplishments

Section 2.1 Publication Record

Section 2.1.1 Peer-Reviewed Journal Publications (In print)

88. Rosenbaugh, S.K., Faller, R.K., and Bielenberg, R.W., *Development of a Bridge Railing Optimized for Rural, Low-Volume Roads*, Paper No. 22-00678R1, Transportation Research Record No. 00(0), Transportation Research Board (TRB) International Conference on Low-Volume Roads, Washington, D.C., Available online on March 6, 2023, <https://doi.org/10.1177/03611981231155912>, 2023.
87. Yosef, T.Y., Fang, C., Faller, R.K., and Kim, S., *A Multi-Material ALE Model for Investigating Impact Dynamics of Pile-Soil Systems*, Paper No. SDEE_107648, Soil Dynamics and Earthquake Engineering, Volume 164, ScienceDirect, Elsevier, S0267-7261(22)00493-6, Accepted on November 2, 2022, Available online on November 10, 2022, <https://doi.org/10.1016/j.soildyn.2022.107648>, 2023.

86. Ruskamp, R.J., Pajouh, M.A., Bielenberg, R.W., Rosenbaugh, S.K., Faller, R.K., and Ranjha, S.A., *Development, Crash Testing, and Evaluation of Portable Concrete Barriers Gap-Spanning Hardware*, Paper No. TRBAM-22-03525, Tracking No. 21-00924 on 12/22/2021, [Journal of the Transportation Research Board](#), Transportation Research Record No. 2676, Issue No. 9, TRB AKD20 Committee on Roadside Safety Design, Transportation Research Board, Washington, D.C., <https://doi.org/10.1177/03611981221088204>, Pages 635-649, January 2022, Accepted online on May 10, 2022, Updated on September 2022.
85. Pajouh, M.A., Rosenbaugh, S.K., and Faller, R.K., *Development and Evaluation of Top-Mounted Sockets for Weak-Post, Midwest Guardrail System on Culverts*, Paper No. TRBAM-22-03178, Tracking No. 21-01191 on 12/22/2021, [Journal of the Transportation Research Board](#), Transportation Research Record No. 2676, Issue No. 10, TRB AKD20 Committee on Roadside Safety Design, Transportation Research Board, Washington, D.C., <https://doi.org/10.1177/03611981221089296>, Pages 265-278, January 2022, Accepted online on May 7 2022, Updated November 2022.
84. Rasmussen, J.D. Rosenbaugh, S.K., Faller, R.K., and Bielenberg, R.W., *Development of a Test Level 3 Approach Guardrail Transition to Steel Tube Bridge Rail*, Paper No. TRBAM-22-03608, Tracking No. 21-00894 on 01/04/2022, [Journal of the Transportation Research Board](#), Transportation Research Record No. 2676, Issue No. 8, TRB AKD20 Committee on Roadside Safety Design, Transportation Research Board, Washington, D.C., <https://doi.org/10.1177/03611981221082578>, Pages 74-89, January 2022, Accepted online on March 17, 2022, Updated on August 2022.
83. Loken, A.E., Steelman, J.S., Rosenbaugh, S.K., Faller, R.K., and Holt, J.M., *Comparison of Modified Yield-Line and Punching Shear Capacities for Concrete Traffic Barriers and Bridge Rails*, Paper No. 20-06903 and TRBAM-21-02987, [Journal of the Transportation Research Board](#), Transportation Research Record No. 2675, Issue No. 12, Transportation Research Board, Washington, D.C., January 2021, <https://doi.org/10.1177/03611981211031222>, Pages 689-701, Accepted online on April 20, 2021, Published September 4, 2021.
82. Asadollahi Pajouh, M., Lechtenberg, K.A., Faller, R.K., Yosef, T., *Development, Crash Testing, and Evaluation of Steel-Post, Trailing-End, Guardrail Anchorage System*, Paper No. 20-06866 and TRBAM-21-04171, [Journal of the Transportation Research Board](#), Transportation Research Record No. 2675, Issue No. 12, **Best Paper Award** - TRB AKD20 Committee on Roadside Safety Design, Transportation Research Board, Washington, D.C., <https://doi.org/10.1177/03611981211031901>, January 2021, Pages 952-966, Available online on May 12, 2021, Published August 6, 2021.
81. Fang, C., Rasmussen, J.D., Bielenberg, R.W., Lechtenberg, K.A., Faller, R.K., and Linzell, D.G., *Experimental and Numerical Investigation on Deflection and Behavior of Portable Construction Barrier Subjected to Vehicle Impacts, Engineering Structures*, Volume 235, Paper No. ENGSTRUCT_2020_3313R1, <https://doi.org/10.106/j.engstruct.2021.112071>, Available online on March 3, 2021, .May 15, 2021, 112071.
80. Loken A.E., Steelman, J., Rosenbaugh, S.K., and Faller, R.K., *Autonomous Vehicle Safe Operating Speeds on the Automated Skyway Express in Jacksonville, Florida*, Paper No. 20-02469R2, [Journal of the Transportation Research Board](#), Transportation Research Record No. 2675, Issue 6, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., Pages 188-199, DOI 10.1177/0361198121991834, January 2021.
79. Ronspies, K., Stolle, C.S., Faller, R.K., and Bielenberg, R.W., *Recommended Test Vehicle Update for Manual for Assessing Safety Hardware*, Paper No. 20-05970R1, [Journal of the Transportation Research Board](#), Transportation Research Record No. 2675, Issue 3, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board 2020, Washington D.C., Pages 98-111, DOI 10.1177/0361198120964792, 2021.
78. Rosenbaugh, S.K., Rasmussen, J.D. and Faller, R.K., *Development and Testing of a Test Level 4 Concrete Bridge Rail and Deck Overhang*, Paper No. 20-06150, [Journal of the Transportation Research Board](#), Transportation Research Record No. 2674, Issue 8, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., Pages 455-465, DOI 10.1177/0361198120924406, January 2020.
77. Asadollahi Pajouh, M., Bielenberg, R.W., Rasmussen, J.D. and Faller, R.K., *Crash Testing and Evaluation of Culvert-Mounted Midwest Guardrail System*, Paper No. 20-04189, [Journal of the Transportation Research Board](#), Transportation Research Record No. 2674, Issue 7, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., Pages 161-171, DOI 10.1177/0361198120921168, January 2020.
76. Rasmussen, J.D. Rosenbaugh, S.K., Faller, R.K., Bielenberg, R.W., Steelman, J., Pena, O., and Mauricio, P., *Development of a Test Level 4, Side-Mounted, Steel-Tube Bridge Rail*, Paper No. 20-06151, [Journal of the Transportation Research Board](#),

Transportation Research Record No. 2674, Issue 9, **Best Paper Award** - TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., Pages 525-537, DOI 10.1177/0361198120930227, January 2020.

75. Rosenbaugh, S.K., Faller, R.K., Schmidt, J.D., and Bielenberg, R.W., *Development of a 34-in. Tall Thrie-Beam Guardrail Transition to Accommodate Future Roadway Overlays*, Paper No. 19-03446, Journal of the Transportation Research Board, Transportation Research Record No. 2673, Issue 2, **Best Paper Award** - TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., Pages 489-501, DOI 10.1177/0361198118825464, January 2019.
74. Temel, S., Vuran, M.C., Lunar, M.M.R., Zhao, Z., Salam, A., Faller, R.K., and Stolle, C.S., *Vehicle-to-Barrier Communication During Real-World Vehicle Crash Tests*, Paper No. 2017-364-R2, Computer Communications, Elsevier, Volume 127, Pages 172-186, <https://doi.org/10.1016/j.comcom.2018.05.009>, May 2018.
73. Asadollahi Pajouh, M., Schmidt, J.D., Bielenberg, R.W., Faller, R.K., Reid, J.D., and Emerson, E., *Development of Transition Between Free-Standing and Reduced-Deflection Portable Concrete Barriers*, Paper No. 18-05516, Journal of the Transportation Research Board, Transportation Research Record No. 2672, Issue 39, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., Pages 118-129, DOI 10.1177/0361198118774745, January 2018.
72. Rosenbaugh, S.K., Schmidt, J.D., and Faller, R.K., *Development of a Standardized Buttress for Approach Guardrail Transitions*, Paper No. 18-05386, Journal of the Transportation Research Board, Transportation Research Record No. 2672, Issue 39, **Best Paper Award**, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., Pages 41-51, DOI 10.1177/0361198118758676, January 2018, Practice-Ready Paper.
71. Bielenberg, R.W., Faller, R.K., Reid, J.D., Schmidt, J.D., Asadollahi-Pajouh, M., and Emerson, E., *Development of Retrofit, Low-Deflection Portable Concrete Barrier System*, Paper No. UTSS-2017-XXXX, Journal of Transportation Safety & Security, Taylor & Francis, Volume 11, 2019, Issue 4, Pages 333-352, DOI: 10.1080/19439962.2017.1420717, Published Online on February 8, 2018.
70. Stolle, C.S., Bielenberg, R.W., Reid, J.D., Emerson, E., and Faller, R.K., *Large-Radius Curved Guardrail Installations for Intersecting Roads*, Paper No. UTSS-2015-0020.R4, Journal of Transportation Safety & Security, Taylor & Francis, Volume 11, 2019, Issue 3, Pages 261-286, DOI: 10.1080/19439962.2017.1389791, Published Online on December 11, 2017.
69. Asadollahi-Pajouh, M., Schmidt, J.D., Meyer, C.L., Lechtenberg, K.A., and Faller, R.K., *Crash Reconstruction Technique for Cable Barrier System*, Paper No. UTSS-2016-0171, Journal of Transportation Safety & Security, Taylor & Francis, Volume 11, 2019, Issue 3, Pages 243-260, DOI: 10.1080/19439962.2017.1386251, Published Online on November 27, 2017.
68. Asadollahi-Pajouh, M., Stolle, C.S., Reid, J.D., and Faller, R.K., *Rail Height Effects on Safety Performance of Midwest Guardrail System*, Paper No. GCPI-2017-0098, Traffic Injury Prevention, Taylor & Francis, 2018 Volume 19, Number 2, Pages 219-224, DOI: 10.1080/15389588.2017.1353687, Published Online on September 21, 2017.
67. Asadollahi-Pajouh, M., Bielenberg, R.W., Schmidt, J.D., Faller R.K., and Reid, J.D., *Safe Placement of Breakaway Luminaire Poles Behind Midwest Guardrail System*, Paper No. IJCR.1261, International Journal of Crashworthiness, Taylor & Francis, Volume 23, 2018, Issue 5, Pages 521-539, DOI: 10.1080/13588265.2017.1359367, Published Online on August 4, 2017.
66. Bielenberg, R.W., Gutierrez, D., Faller, R.K., Reid, J.D., and TenHulzen, P., *Development of a MASH TL-3 Transition Between Guardrail and Portable Concrete Barriers*, Paper No. 17-01712, Journal of the Transportation Research Board, Transportation Research Record No. 2638, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., DOI 10.3141/2638-09, January 2017, Practice-Ready Paper.
65. Rosenbaugh, S.K., Schmidt, J.D., Faller, R.K., Larsen, H., and Pankratz, A., *Development and Testing of the Manitoba Constrained-Width Tall Wall Barrier*, Paper No. 17-04592, Journal of the Transportation Research Board, Transportation Research Record No. 2638, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., DOI 10.3141/2638-07, January 2017, Practice-Ready Paper.
64. Lechtenberg, K.A., Bielenberg, R.W., Rosenbaugh, S.K., Faller, R.K., and Reid, J.D., *Standard Midwest Guardrail System Placed at IV:2H Slope Break Point or with Omitted Post*, Paper No. 17-06921, Journal of the Transportation Research Board, Transportation Research Record No. 2638, **Best Paper Award** - TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., DOI 10.3141/2638-08, January 2017.

63. Albuquerque, F.D.B., Sicking, D.L., Stolle, C.S., Faller, R.K., Lechtenberg, K.A., and Emerson, E., *Optimal Guardrail Runout Lengths for Freeways*, Manuscript ID UTSS-2016-0008, Journal of Transportation Safety and Security, Taylor & Francis, Volume 9, No. 4, Published Online February 14, 2017, pages 403-418, DOI 10.1080/19439962.2016.1237599, 2017.
62. Schmidt, J.D., Rosenbaugh, S.K., Bielenberg, R.W., Faller, R.K., Reid, J.D., and Schmidt, T.L., *MASH TL-4 Design and Evaluation of a Restorable, Energy-Absorbing Concrete Barrier*, Paper No. 16-0650, Journal of the Transportation Research Board, Transportation Research Record No. 2588, **Best Paper Award** - TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., DOI 10.3141/2588-11, pages 98-109, January 2016, Practice-Ready Paper.
61. Schmidt, J.D., Rosenbaugh, S.K., and Faller, R.K., *Evaluation of the Midwest Guardrail System Stiffness Transition with Curb*, Manuscript ID UTSS-2015-0043, Journal of Transportation Safety and Security, Taylor & Francis, Volume 9, No. 1, Published Online June 16, 2016, pages 105-121, DOI 10.1080/19439962.2015.1134741, 2017.
60. Rosenbaugh, S.K., Schmidt, J.D., and Faller, R.K., *Development of Socketed Foundations for Cable Guardrail Posts*, Paper No. 15-4518, Journal of the Transportation Research Board, Transportation Research Record No. 2521, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2015, Practice-Ready Paper, pages 128-136, DOI 10.3141/2521-14.
59. Schmidt, J.D., Weiland, N.A., Reid, J.D., and Faller, R.K., *Minimum Effective Length for the Midwest Guardrail System*, Paper No. 15-0484, Journal of the Transportation Research Board, Transportation Research Record No. 2521, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2015, Practice-Ready Paper, pages 67-78, DOI 10.3141/2521-07.
58. Lechtenberg, K.A., Stolle, C.S., Faller, R.K., and Schrum, K.D., *Cost-Effective Safety Treatment of Trees on Low-Volume Rural Roads*, Paper No. 11LVR-0129, Transportation Research Record No. 2472, Journal of the Transportation Research Board, Low-Volume Roads 2015, Volume 1, pages 194-202, TRB AFB99D Committee for the 11th International Conference on Low-Volume Roads, Transportation Research Board, Washington D.C., July 12-15 2015, Pittsburgh, Pennsylvania, USA.
57. Stolle, C.S., Reid, J.D., Faller, R.K., and Mongiardini, M., *Dynamic Strength of a Modified W-Beam BCT Trailing-End Termination System*, Paper No. IJCR 886R1, Manuscript ID 1009308, International Journal of Crashworthiness, Taylor & Francis, Volume 20, No. 3, Published Online February 23, 2015, pages 301-315, DOI 10.1080/13588265.2015.1009308.
56. Schmidt, J.D., Jowza, E.R., Faller, R.K., Rosenbaugh, S.K., and Reid, J.D., *Safety Investigation and Guidance for Retrofitting Existing Approach Guardrail Transitions*, Paper No. 14-4613, Transportation Research Record No. 2437, Journal of the Transportation Research Board, **Best Paper Award** - TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2014, pages 52-62.
55. 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.
54. 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.
53. Schrum, K.D., Sicking, D.L., Faller, R.K., De Albuquerque, D.B., Lechtenberg, K.A., and Reid, J.D., *Cost Benefit Analysis of Crash Cushion Systems*, Journal of Transportation Safety & Security, Taylor & Francis, Volume 7, Number 1, Available online on October 28, 2014, 2015, pages 1-19.
52. Schrum, K.D., De Albuquerque, D.B., Sicking, D.L., Faller, R.K., and Reid, J.D., *Benefits of Slope Flattening*, Journal of Transportation Safety & Security, Taylor & Francis, Volume 6, Number 4, Available online May 5, 2014, May 2014, pages 356-368.
51. Schrum, K.D., De Albuquerque, D.B., Sicking, D.L., Faller, R.K., and Reid, J.D., *Correlation Between Crash Severity and Embankment Geometry*, Journal of Transportation Safety & Security, Taylor & Francis, Volume 6, Number 4, Available online May 5, 2014, May 2014, pages 321-334.

50. Mongiardini, M., Faller, R.K., Reid, J.D., and Sicking, D.L., *Dynamic Evaluation and Implementation Guidelines for a Non-Proprietary W-Beam Guardrail Trailing-End Terminal*, Paper No. 13-5277, 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 61-73.
49. 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.
48. Mongiardini, M., Faller, R.K., Reid, J.D., Meggers, D., El-Aasar, M.G., and Plunkett, J.D., *Design and Testing of a Concrete Safety Barrier for Use on a Temporary FRP Composite Bridge Deck*, Journal of Bridge Engineering, American Society of Civil Engineers (ASCE), Volume 18, Number 11, November 2013, pages 1198-1208.
47. 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.
46. Bielenberg, R.W., Rosenbaugh, S.K., Faller, R.K., Reid, J.D., 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.
45. Bielenberg, R.W., Arens, S.A., Lechtenberg, K.A., Faller, R.K., Sicking, D.L., and Reid, J.D., *Development of Universal Breakaway Steel Post for Bullnose Median Barrier*, Paper No. 12-3604, Transportation Research Record No. 2309, Journal of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2012.
44. Lechtenberg, K.A., Mongiardini, M., Rosenbaugh, S.K., Faller, R.K., Bielenberg, R.W., and Albuquerque, F.D.B., *Development and Implementation of the Simplified MGS Stiffness Transition*, Paper No. 12-3367, Transportation Research Record No. 2309, Journal of the Transportation Research Board, **Best Paper Award** - TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2012.
43. Rosenbaugh, S.K., Faller, R.K., and Sicking, D.L., *Head Ejection During Barrier Impacts*, Journal of Transportation Engineering, American Society of Civil Engineers (ASCE), Vol. 138, Number 1, January 2012, pages 1-11.
42. Schmidt, J.D., Faller, R.K., Lechtenberg, K.A., and Sicking D.L., *Analysis of Existing Work-Zone Sign Supports Using Manual for Assessing Safety Hardware Safety Performance Criteria*, Journal of Transportation Safety & Security, Taylor & Francis, Volume 3, Number 4, December 2011, pages 237-251.
41. De Albuquerque, F. D.B., Sicking, D.L., Faller, R.K., and Lechtenberg, K.A., *Evaluating the Cost-Effectiveness of Roadside Culvert Treatments*, Journal of Transportation Engineering, American Society of Civil Engineers (ASCE), Vol. 137, Number 12, December 2011, pages 918-925.
40. 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.
39. 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, Transportation Research Record No. 2262, Journal of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2011.
38. Lechtenberg, K.A., Faller, R.K., Sicking, D.L., Rohde, J.R., and Reid, J.D., *Non-Blocked, Midwest Guardrail System for Wire-Faced, MSE Walls*, Paper No. 11-2684, Transportation Research Record No. 2262, Journal of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2011.
37. 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, Transportation Research Record No. 2262, Journal of the Transportation Research Board, **Best Paper Award & Practice-Ready Paper Award** - TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2011.

36. Reid, J.D. and Faller, R.K., *A New TL-2 Rough Stone Masonry Guardwall*, Paper No. 10-0087, Transportation Research Record No. 2195, Journal of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2010.
35. 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.
34. Faller, R.K., Reid, J.D., Kretschmann, D.E., Hascall, J.A., and Sicking, D.L., *Midwest Guardrail System with Round Timber Posts*, Paper No. 09-0547, 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.
33. Reid, J.D., Hascall, J.A., Sicking, D.L., and Faller, R.K., *Inertial Effects During Impact Testing*, Paper No. 09-0215, 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.
32. Reid, J.D., Kuipers, B.D., Sicking, D.L., and Faller, R.K., *Impact Performance of W-Beam Guardrail Installed at Various Flare Rates*, International Journal of Impact Engineering, Volume 36, Issue 3, March 2009, pages 476-485.
31. 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, Transportation Research Record No. 2060, Journal of the Transportation Research Board, **Best Paper Award** - TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2008.
30. 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, Transportation Research Record No. 2060, Journal of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2008.
29. Reid, J.D., Faller, R.K., and Hascall, J.A., *Deck-Mounted Steel Post Barrier System*, Manuscript No. BE 23205, Journal of Bridge Engineering, Volume 12, Number 4, American Society of Civil Engineering (ASCE), July/August 2007, 449-455.
28. 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.
27. 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, **Best Paper Award** - TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2007.
26. 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.
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Section 2.1.2 Peer-Reviewed Journal Publications (Accepted for publication with or without revision)

5. Fang, C., Steelman, J., Bielenberg, R., Faller, R., and Perry, B., *Analysis and Evaluation of Slip Base Aluminum Single Post Sign Supports Under MASH Safety Performance Criteria*, Paper No. TRBAM-23-03988, Publication Tracking No. 22-00891, Accepted for Lectern Presentation at the 2023 102nd Annual Meeting of the Transportation Research Board, TRB AKD20 Committee on Roadside Safety Design, Transportation Research Board, Washington, D.C., January 2023.
4. Yosef, T., Fang, C., Kim, S., Faller, R., Bielenberg, R., Stolle, C., and Pajouh, M., *Adaptive Coupling of Finite Element Method and Smoothed Particle Hydrodynamics for Simulating Impact Dynamics of Post-Soil Systems*, Paper No. TRBAM-23-03770, Publication Tracking No. 22-00893, Accepted for Presentation and Publication, Submitted to 2023 102nd Annual Meeting of the Transportation Research Board, TRB AKD20 Committee on Roadside Safety Design, Transportation Research Board, Washington, D.C., January 2023.
3. Loken, A., Steelman, J., Bielenberg, R., Rosenbaugh, S., and Faller, R., *Performance Case Study of Concrete Bridge Rail Post on Deck Overhang*, Paper No. TRBAM-23-04093, Publication Tracking No. 22-00897R1, Accepted for Presentation and Publication, Submitted to 2023 102nd Annual Meeting of the Transportation Research Board, TRB AKD20 Committee on Roadside Safety Design, Transportation Research Board, Washington, D.C., January 2023.
2. Pajouh, M., Lechtenberg, K., Faller, R., Rosenbaugh, S., and Bielenberg, R., *Evaluation of the Hawaii Modified Delaware Retrofit Thrie-Beam Bridge Railing and Approach Guardrail Transition*, Paper No. TRBAM-23-03757, Publication Tracking No. 22-00890, Accepted for Presentation and Publication, Submitted to 2023 102nd Annual Meeting of the Transportation Research Board, TRB AKD20 Committee on Roadside Safety Design, Transportation Research Board, Washington, D.C., January 2023.
1. Stolle, C., Rasmussen, J., Faller, R., Fang, C., and Bielenberg, R., *Updated Zone of Intrusion Envelopes to MASH Impact Conditions*, Paper No. TRBAM-23-04626, Publication Tracking No. 22-00954, Accepted for Presentation and Publication, Submitted to 2023 102nd Annual Meeting of the Transportation Research Board, TRB AKD20 Committee on Roadside Safety Design, Transportation Research Board, Washington, D.C., January 2023.

Section 2.1.3 Peer-Reviewed Journal Publications (Submitted for review)

1.NA

Section 2.1.4 Books and Book Chapters

1. Stolle, C., Rasmussen, J., Rodriguez, Bielenberg, R., Faller, R., and Dowler, N., National Academies of Sciences, Engineering, and Medicine 2022, *Zone of Intrusion Envelopes Under MASH Impact Conditions for Rigid Barrier Attachments*, National Cooperative Highway Research Program (NCHRP) Research Report No. 1018, NCHRP Project No. 22-34, Washington, D.C., The National Academies Press, <https://doi.org/10.17226/26796>, November 4, 2022.

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

69. Asadollahi Pajouh, M., Yosef, T., Bielenberg, R.W., and Faller, R.K., *Soil-Embedded Guardrail Post Modeling under Vehicle Impacts*, Paper I.D.: 0621_0877_000397, ASCE Geo-Congress 2023, Los Angeles, CA, March 2023.
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29. Pajouh, M.A., Julin, R., Stolle, C.S., Reid, J.D., and Faller, R.K., *Maximum Mounting Height for Midwest Guardrail System (MGS)*, Paper No. 17-03364, 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., Presented in January 2017.
28. Temel, S., Vuran, M.C., Lunar, M.M.R., Faller, R.K., and Stolle, C.S., *Vehicle-to-Barrier Communication During Real-World Vehicle Crash Tests*, Paper No. 1570313059, Paper Accepted for Publication and Presented at the 2016 IEEE Vehicular Networking Conference (VNC), December 8-10, 2016, Columbus, Ohio, USA.
28. Temel, S., Vuran, M.C., and Faller, R., *A Primer on Vehicle-to-Barrier Communications: Effects of Roadside Barriers, Encroachment, and Vehicle Braking*, Paper No. 90172, Paper Accepted for Publication and Presented at the 2016 IEEE 84th Vehicle Technology Conference (VTC), September 18-21, 2016, Montreal, Quebec, Canada.
27. Bielenberg, R.W., Gutierrez, D., Faller, R.K., Reid, J.D., and TenHulzen, P., *Development of a MASH TL-3 Transition Between Guardrail and Portable Concrete Barriers*, Paper No. 17-01712, 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., Presented in January 2017, Practice-Ready Paper.
26. Pajouh, M.A., Julin, R., Stolle, C.S., Reid, J.D., and Faller, R.K., *Maximum Mounting Height for Midwest Guardrail System (MGS)*, Paper No. 17-03364, 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., Presented in January 2017.
25. Rosenbaugh, S.K., Schmidt, J.D., Faller, R.K., Larsen, H., and Pankratz, A., *Development and Testing of the Manitoba Constrained-Width Tall Wall Barrier*, Paper No. 17-04592, 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., Presented in January 2017, Practice-Ready Paper.

24. Bielenberg, R.W., Schmidt, J.D., Faller, R.K., Reid, J.D., and Emerson, E., *Development of a Retrofit, Low-Deflection Temporary Concrete Barrier System*, Paper No. 16-1596, Presented at the Annual Meeting of the Transportation Research Board and Published in the Compendium of Papers, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., Presented in January 2016, Practice-Ready Paper.
23. Julin, R.D., Stolle, C.S., Reid, J.D., and Faller, R.K., *Maximum Mounting Height for the Midwest Guardrail System (MGS)*, Paper No. 16-4047, 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., Presented in January 2016.
22. Rosenbaugh, S.K., Schmidt, J.D., and Faller, R.K., *Evaluation of the Midwest Guardrail System Stiffness Transition with Curb*, Paper No. 15-4502, 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., Presented in January 2015, Practice-Ready Paper.
21. Albuquerque, F.D.B., Stolle, C.S., Sicking, D.L., Faller, R.K., Lechtenberg, K.A., and Emerson, E., *Optimizing Guardrail Length-of-Need*, Paper No. 15-3366, Presented at the Annual Meeting of the Transportation Research Record and Published in the Compendium of Papers CD-ROM, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., Presented in January 2015, Practice-Ready Paper.
20. Schrum, K.D., Sicking, D.L., Faller, R.K., Stolle, C.S., Lechtenberg, K.A., and Emerson, E., *Objective Functional Classification for Use in Benefit-Cost Analysis*, Paper No. 15-0802, Presented at the Annual Meeting of the Transportation Research Record and Published in the Compendium of Papers CD-ROM, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., Presented in January 2015.
19. Lechtenberg, K.A., Stolle, C.S., Faller, R.K., and Schrum, K.D., *Cost-Effective Safety Treatment of Foreslopes and Ditches on Low-Volume Rural Roads*, Proceedings of the 1st IRF Asia Regional Congress, International Road Federation (IRF), Bali Nusa Dua Convention Center, Bali, Indonesia, November 17 through 19, 2014.
18. Lechtenberg, K.A., Stolle, C.S., Faller, R.K., and Schrum, K.D., *Cost-Effective Safety Treatment of Culverts and Bridges on Low-Volume Rural Roads*, Proceedings of the 1st IRF Asia Regional Congress, International Road Federation (IRF), Bali Nusa Dua Convention Center, Bali, Indonesia, November 17 through 19, 2014.
17. Faller, R.K., Lechtenberg, K.A., Stolle, C.S., and Reid, J.D., *Three-Cable Barrier System Adjacent to Steep Slopes*, Proceedings of the 1st IRF Asia Regional Congress, International Road Federation (IRF), Bali Nusa Dua Convention Center, Bali, Indonesia, November 17 through 19, 2014.
16. Stolle, C.S., Mongiardini, M., Reid, J.D., and Faller, R.K., *Testing and Simulation of Modified Breakaway Cable Terminal End Termination*, Paper No. 14-0515, Presented at the Annual Meeting of the Transportation Research Record and Published in the Compendium of Papers CD-ROM, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., Presented in January 2014.
15. Albuquerque, F.D.B., Stolle, C.S., Sicking, D.L., and Faller, R.K., *Assessment of Guardrail Length-Of-Need*, Proceedings of the 17th World Meeting and Exhibition, International Road Federation (IRF), Intercontinental Riyadh Hotel and Conference Center, Riyadh, Saudi Arabia, November 10 through 12, 2013.
14. Lechtenberg, K.A., Schrum, K.D., Stolle, C.S., Faller, R.K., and Sicking, D.L., *Cost-Effective Safety Treatment of Trees on Low-Volume Roads*, Paper No. 13-5333, 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 2013.
13. 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.
12. Kretschmann, D.E., Faller, R.K., Hascall, J.A., Reid, J.D., Rohde, J.R., Shilts, D., and Nelson, T., *Investigating the Use of Small-Diameter Softwood as Guardrail Posts*, [Research Paper FPL-RP-640](#), Madison, Wisconsin, U.S. Department of Agriculture, Forest Service, Forest Products Laboratory, July 2007, 23 p.

11. Reid, J.D., Kuipers, B.D., Sicking, D.L., and Faller, R.K., *Guardrail Flare Rates*, Paper No. 07-0517, 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 2007.
10. 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.
9. 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.
8. Reid, J.D., Faller, R.K., and Sicking, D.L., *High-Speed Crash Barrier Investigation Using Simulation, Crashworthiness, Occupant Protection, and Biomechanics in Transportation Systems - 2000*, Applied Mechanics Division (AMD) - Vol. 246, BED - Vol. 49, 2000 ASME International Mechanical Engineering Congress and Exposition, Orlando, Florida, November 5-10, 2000.
7. Ritter, M.A., Faller, R.K., Lee, P.D.H., Rosson, B.T., and Duwadi, S.R., *Plans for Crash-Tested Wood Bridge Railings for Concrete Decks*, General Technical Report No. FPL-GTR-108, United States Department of Agriculture - Forest Service - Forest Products Laboratory and Federal Highway Administration, August 1998.
6. Ritter, M.A., Faller, R.K., Bunnell, S., Lee, P.D.H., and Rosson, B.T., *Plans for Crash-Tested Bridge Railings for Longitudinal Wood Decks on Low-Volume Roads*, General Technical Report No. FPL-GTR-107, United States Department of Agriculture - Forest Service - Forest Products Laboratory and Federal Highway Administration, August 1998.
5. Faller, R.K., Rosson, B.T., Ritter, M.A., Lee, P.D.H., and Duwadi, S.R., *Railing Systems for Longitudinal Timber Deck Bridges*, *National Conference on Wood Transportation Structures*, Madison, Wisconsin, October 23-25, 1996, General Technical Report No. FPL-GTR-94, United States Department of Agriculture - Forest Service - Forest Products Laboratory and Federal Highway Administration, October 1996.
4. Ritter, M.A., Faller, R.K., Lee, P.D.H., Rosson, B.T., and S.R. Duwadi, *Plans for Crash Tested Bridge Railings for Longitudinal Wood Decks*, General Technical Report No. FPL-GTR-87, United States Department of Agriculture, Forest Service, Forest Products Laboratory, Madison, Wisconsin, September 1995.
3. Ritter, M.A., Faller, R.K., and Duwadi, S.R., *Crash-Tested Bridge Railings for Timber Bridges*, Fourth International Bridge Engineering Conference, Volume 2, Conference Proceedings 7, San Francisco, California, August 28-30, 1995, Transportation Research Board, Washington, D.C.
2. Faller, R.K., Rosson, B.T., Ritter, M.A., Sicking, D.L., and Bunnell, S., *Design and Evaluation of Two Low-Volume Bridge Railings*, Sixth International Conference on Low-Volume Roads, Volume 2, Conference Proceedings 6, University of Minnesota, Minneapolis, Minnesota, June 25-29, 1995, Transportation Research Board, Washington, D.C.
1. Ritter, M.A., Post, E.R., and Faller, R.K., *Crashworthy Railing Systems for Timber Bridge Decks*, Structures Congress 1991, Compact Papers, 9th Structures Congress Proceedings, 1991 April 29 - May 1, Indianapolis, IN, American Society of Civil Engineers, Pages 540-543, 1991.

Section 2.1.6 Conference Proceedings (Other than peer reviewed)

11. Rosenbaugh, S.K., Faller, R.K., and Sicking, D.L., *Development of a Head Ejection Envelope for Use in Barrier Design*, Paper No. 09-2820, Presented at the Annual Meeting of the Transportation Research Board, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Washington D.C., January 2009.
10. Reid, J.D. and Faller, R.K., *Interaction Between Single Unit Trucks and Concrete Barriers in High Speed Impacts*, Proceedings of IMECE2007, 2007 ASME International Mechanical Engineering Congress and Exposition, Seattle, Washington, November 11-15, 2007.

9. Kretschmann, D.E., Faller, R.K., Reid, J.D., Hascall, J.A., Sicking, D.L., and Rohde, J.R., *Small-Diameter Roundwood, Strong-Post W-Beam Guardrail Systems*, Proceedings of the 9th World Conference on Timber Engineering (WCTE), August 6-10, 2006, Portland, Oregon.
8. Ritter, M.A., Faller, R.K., and Duwadi, S.R., *Crashworthy Railing for Timber Bridges*, Proceedings of the 1999 Pacific Timber Engineering Conference (PTEC), Rotorua, New Zealand, March 14-18, 1999, New Zealand Forest Research Institute, Forest Service Research Bulletin No. 212, Volume 3: 325-332.
7. Faller, R.K., and Rosson, B.T., *Crashworthy Barriers for Timber Deck Bridges*, 18th Annual Structural Conference - Engineered Wood Systems, Sponsored by the University of Nebraska-Lincoln and the American Society of Civil Engineers Nebraska Section, Kiewit Conference Center, Omaha, Nebraska, October 2, 1998.
6. Faller, R.K., Rohde, J.R., Rosson, B.T., Smith, R.P., Addink, K.H., *Development of a TL-3 F-Shape Temporary Concrete Median Barrier*, Paper No. 971207, 76th Annual Meeting of the Transportation Research Board, Washington, D.C., January 1997.
5. Reid, J.D., Faller, R.K., and Paulsen, G.W., *A New Breakaway Concept for Neighborhood Delivery & Collection Box Units*, Paper No. 970119, 76th Annual Meeting of the Transportation Research Board, Washington, D.C., January 1997.
4. Rosson, B.T. and Faller, R.K., *Effective Moment of Inertia of Elasto-Plastic Beams*, Engineering Mechanics Conference 1996, Proceedings of the 11th ASCE Engineering Mechanics Conference, May 19-22, 1996, Fort Lauderdale, FL, American Society of Civil Engineers, Pages 254-257.
3. Ritter, M.A. and Faller, R.K., *Crashworthy Bridge Railings for Longitudinal Wood Decks*, Proceedings of the 1994 Pacific Timber Engineering Conference (PTEC) - Timber Shaping the Future, Gold Coast, Australia, Fortitude Valley MAC, Queensland, Australia, July 11-15, 1994, Timber Research and Advisory Council, Volume 2: 298-307.
2. Rosson, B.T. and Faller, R.K., *Bridge Rail Impact Forcing Functions*, American Society of Civil Engineers (ASCE) Structures Congress and the IASS International Symposium, ASCE Structural Division, Atlanta, Georgia, April 24-28, 1994.
1. Rosson, B.T., Maller, A., and Faller, R.K., *Structural Performance of Clustered Rhombic Dodecahedral Buildings*, Fourth International Conference on Space Structures, University of Surrey, Guildford, U.K., September 5-10, 1993, Pages 1109-1117.

Sections 2.1.7 and 2.1.8 Conference, Technical, General Presentations, Invited Speeches, Seminars, Panel Discussions, & Research Overviews

152. *Research on Roadside Safety, Threat Mitigation, & Motorsports Safety*, Presented to the National Society of Professional Engineers, Nebraska Chapter Meeting, Platte County Agricultural Park, Fair Park Grille, Columbus, Nebraska, March 6, 2023.
151. *Heavy Vehicle Impacts: An Overview from a Safety and an Infrastructure Perspective*, 2022 International Road Federation (IRF) Global R2T Conference & Exhibition, Sponsored by the International Road Federation, Executive Session ES13 – Advances in Roadside Safety, The Mayflower Autograph Hotel, Washington, D.C., October 31 through November 3, 2022.
150. *AASHTO MASH, Roadside Safety Features, Breakaway Devices, & Recent Research*, Missouri 2022 Highway Safety and Traffic Conference, Show-Me Zero – Driving Missouri Toward Safer Roads, Holiday Inn Executive Center, Columbia, Missouri, September 27-29, 2022.
149. *Development a New, MASH Test Level 6 Concrete Barrier for Median, Roadside, & Bridge Applications*, University Transportation Centers (UTC) Technology Transfer Workshop, ASCE International Conference on Transportation & Development 2022, Hyatt Regency Downtown, Seattle, Washington, May 31, 2022.
148. *Safe and Efficient Entry Control Facilities at Military Installations with ERDC*, 2021 Congressional Staff Campus Visit – Preparing and Protecting Our Nation, Resilience, Security, and Infrastructure Session, Co-Presented with Dr. Cody Stolle, University of Nebraska-Omaha, Mammel Hall, Omaha, Nebraska, November 8, 2021.
147. *Sign Supports & Poles: Current Trends & Recent Findings – MwRSF's Perspective*, Presented in Session 1 at the Joint Committee Meeting Sponsored by the Transportation Research Board (TRB) Committee AKD20 on Roadside Safety Design and AASHTO Technical Committee on Roadside Safety (TCRS), TRB Virtual Event, July 12, 2021.

146. *Midwest Roadside Safety Facility Research Activities Update*, April 2021 Task Force 13 Virtual Meeting, April 22-23, 2021.
145. *Roadside Safety for Trees and Utility Poles with Q&A*, Session 3: Trees and Poles, Joint Virtual Summer Zoom Webinar, Workshop, and Committee Meeting – August 3, 5, 7, 11, & 13, 2020, Sponsored by the Transportation Research Board (TRB) Committee AKD20 on Roadside Safety Design and AASHTO Technical Committee on Roadside Safety (TCRS), August 7, 2020.
144. *MASH Testing & Implementation – Myths Vs. Reality*, 2019 International Road Federation (IRF) Global R2T Conference & Exhibition, Sponsored by the International Road Federation, Session SRD1, Tropicana Hotel & Conference Center, Las Vegas, Nevada, November 19-22, 2019.
143. *MASH TL-4 Steel Tube Beam & Post Bridge Railing – Development to Implementation*, 2019 Ohio Transportation Engineering Conference (OTEC) – *Fueling Transportation Transformation*, Sponsored by the Ohio Department of Transportation and Ohio State University, Session 66: Structures MASH-Up, Columbus Convention Center, Columbus, Ohio, October 29-30, 2019.
142. *Roadside Safety Research R&D to Implementation*, PACTRANS and CSET Regional Transportation Conference – *Bridging Innovations and Practice for Enhanced Mobility and Safety*, Safety Track – Session 2, Intellectual House, University of Washington, Seattle, Washington, October 11, 2019.
141. *Roadside Safety & Physical Security Research at UNL*, Presentation to Nebraska’s State and National Legislative Representatives & Staff, and UNL/NU Officials, Consultants, and Lobbyists, Prem S. Paul Research Center at Whittier School, University of Nebraska-Lincoln, Lincoln, Nebraska, October 2, 2019.
140. *Safety Research on Bridge Railings & Transitions Under USDA-FS-FPL Program*, Presentation via Webex from Reno, Nevada to the U.S. Bureau of Reclamation Bridge Training Program, Denver, Colorado, July 24, 2019.
139. *Roadside Safety Hardware Eligibility – Past, Present, & Future*, Presentation to AFB20(2) Subcommittee Meeting on International Research Activities, 2019 Annual Meeting of the Transportation Research Board (TRB), Marriott Marquis Hotel & Convention Center, Washington, D.C., January 14, 2019.
138. *MwRSF Overview & Innovations in Roadside Safety Research*, Presentation to the Southeast Chapter of Nebraska Society of Professional Engineers (NSPE), Lincoln, Nebraska, December 12, 2018.
137. *MwRSF’s Safety Research Program*, Presentation to The Emeriti Association, University of Nebraska-Lincoln Emeriti Faculty, Prem S. Paul Research Center at Whittier School, University of Nebraska-Lincoln, Lincoln, Nebraska, October 15, 2018.
136. *MwRSF’s Safety Research Program and Collaborative Opportunities*, Presentation to Duncan Aviation, Othmer Hall, University of Nebraska-Lincoln, Lincoln, Nebraska, October 5, 2018.
135. *MwRSF’s Safety Research Program*, Presentation to UNL Student Chapter of American Society of Mechanical Engineers (ASME), Nebraska Hall, University of Nebraska-Lincoln, Lincoln, Nebraska, October 3, 2018.
134. *MwRSF’s Safety Research Program and Collaborative Opportunities*, Presentation to Nebraska Local Technical Assistance Program (LTAP), Prem S. Paul Research Center at Whittier School, University of Nebraska-Lincoln, Lincoln, Nebraska, October 3, 2018.
133. *MwRSF’s Research Program and Partnership with Traffix Devices Inc.*, NUtech Ventures Quarterly Board of Directors Meeting, Nebraska Innovation Campus, University of Nebraska-Lincoln, Lincoln, Nebraska, May 18, 2018.
132. *Innovations in Barrier Systems and Other Roadside Safety Features*, 1-Hour Presentation for University of Nebraska-Omaha Professional Development Course for USSTRATCOM Strategic Leadership Fellows Program, Whittier Research Center, University of Nebraska-Lincoln, Lincoln, Nebraska, February 21, 2018.
131. *NCHRP Project 03-119: Application of MASH Test Criteria to Breakaway Sign & Luminaire Supports & Crashworthy Work-Zone Traffic Control Devices*, Presented at the 2018 Annual Meeting of the Transportation Research Board, AFF10(1) Subcommittee on Traffic Structures, AFB20 Committee on General Structures, Washington, D.C., January 9, 2018.

130. *Development of a MASH TL-2 Crashworthy Pedestrian Railing System*, First International Roadside Safety Conference – Safer Roads, Saving Lives, Saving Money, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, San Francisco, California, June 12-15, 2017.
129. *Investigation and Mitigation of Post Penetration into Floor Pan of 1100C Small Cars*, First International Roadside Safety Conference – Safer Roads, Saving Lives, Saving Money, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, San Francisco, California, June 12-15, 2017.
128. *Safety Research at Nebraska*, ¾-Hour Presentation for University of Nebraska-Omaha Professional Development Course for USSTRATCOM Strategic Leadership Fellows Program, Whittier Research Center, University of Nebraska-Lincoln, Lincoln, Nebraska, March 29, 2017.
127. *Innovations in Guardrail Systems & Other Roadside Safety Features*, 107th Annual Transportation Engineers Association of Missouri (TEAM) Conference, Workshop No. 6: Roadside Safety – MGS Rail & MASH End Treatment, Hilton Hotel and Conference Center, Branson, Missouri, March 23, 2017.
126. *AASHTO MASH Safety Performance Criteria, Hardware Implementation Plan, & Ongoing NCHRP 03-119 Research Program*, Presented at the 2017 Annual Meeting of the Transportation Research Board, AFF10(1) Subcommittee on Traffic Structures, AFB20 Committee on General Structures, Washington, D.C., January 11, 2017.
125. *Ongoing MwRSF Research on Bridge Railings, Culvert Barriers, and Transitions*, 2016 AASHTO Subcommittee on Bridges and Structures Annual Meeting, T-7 Technical Committee on Guardrails and Bridge Rail, Marriot City Center Hotel and Conference Center, Minneapolis, Minnesota, June 27, 2016.
124. *MASH Update Needs – Who, What, When, and How?*, Moderator for Panel Discussion at the Workshop on *Roadway Departure Safety – Building on the Past and Heading toward the Future with Better Data, Testing Guidelines, and Hardware Implementation*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and AASHTO Technical Committee on Roadside Safety (TCRS), Holiday Inn Inner Harbor Baltimore Hotel, Baltimore, Maryland, June 20 through 23, 2016.
123. *How Should We Evaluate Door Opening in a MASH Crash Test?*, Workshop on *Roadway Departure Safety – Building on the Past and Heading toward the Future with Better Data, Testing Guidelines, and Hardware Implementation*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and AASHTO Technical Committee on Roadside Safety (TCRS), Holiday Inn Inner Harbor Baltimore Hotel, Baltimore, Maryland, June 20 through 23, 2016.
122. *Roadside and Motorsports Safety Research at Nebraska – Trauma Mitigation*, Trauma Grand Rounds Seminar Series, Bryan Medical Center, Bryan West Campus, Lincoln, Nebraska, May 27, 2016.
121. *Safety Research at Nebraska*, Nebraska Department of Roads 3E Planning Workshop, Whittier Research Center, University of Nebraska-Lincoln, Lincoln, Nebraska, April 28, 2016.
120. *Safety Research at Nebraska*, 1-Hour Presentation for University of Nebraska-Omaha Professional Development Course for USSTRATCOM Strategic Leadership Fellows Program, Whittier Research Center, University of Nebraska-Lincoln, Lincoln, Nebraska, March 2, 2016.
119. *Safer Roads and Racetracks through Research at Nebraska*, Presented at UNL’s Engineering Showcase: *Engineering Toward a Better Future*, Sponsored by the College of Engineering, University of Nebraska-Lincoln, Lincoln, Nebraska, Nebraska Union, October 31, 2015.
118. *Roadside Safety and Motorsports Safety Research in Nebraska*, Presented at the Mid-America Transportation Center (MATC) Scholars Program, Sponsored by the Mid-America Transportation Center, Nebraska Transportation Center, and University Transportation Center for Railway Safety, Lincoln, Nebraska, October 30, 2015.
117. *How Do You Use or Apply the RDG*, Panel Discussion at the Workshop on *Making Roadway Departure Safety a Priority*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and AASHTO Technical Committee on Roadside Safety (TCRS), Swissotel Chicago, Chicago, Illinois, July 12 through 15, 2015.

116. *Roadside Safety and Motorsports Safety Research in Nebraska*, Presented at the Midwest Association of Technical Accident Investigators (MATAI) 2015 Annual Conference, Embassy Suites Hotel and Convention Center, Lincoln, Nebraska, May 18-20, 2015.
115. *Motorsports & Roadside Safety Research in Nebraska*, Presentation for Civil Engineering Alumni Visit, Whittier Research Center, University of Nebraska-Lincoln, Lincoln, Nebraska, November 20, 2014.
114. *Motorsports & Roadside Safety Research in Nebraska*, Presentation for ASCE Visit, Whittier Research Center, University of Nebraska-Lincoln, Lincoln, Nebraska, April 10, 2014.
113. *Motorsports & Roadside Safety Research in Nebraska*, Presentation for NSRI-UARC-USSTRATCOM Visit, Whittier Research Center, University of Nebraska-Lincoln, Lincoln, Nebraska, January 29, 2014.
112. *Crash Risks, Location, and Treatment of Roadside Trees*, Presented at the 17th World Meeting and Exhibition of the International Road Federation (IRF), SAFER Roads By Design Session SRD1, Intercontinental Riyadh Hotel and Conference Center, Riyadh, Saudi Arabia, November 12, 2013.
111. *Advances in Corrugated-Beam Guardrail*, Presented at the 17th World Meeting and Exhibition of the International Road Federation (IRF), Safer Roads By Design Session SRD2, Intercontinental Riyadh Hotel and Conference Center, Riyadh, Saudi Arabia, November 11, 2013.
110. *Safety Research at MwRSF-UNL*, Presented to the Lincoln Sunrise Optimist Club Breakfast Meeting, Perkins, Lincoln, Nebraska, October 2, 2013.
109. *Crash Risks, Locations, and Treatments for Roadside Trees*, Presented to the Planning and Public Works/Utilities Departments, City of Lincoln, Lincoln, Nebraska, June 17, 2013.
108. *Motorsports & Roadside Safety Research in Nebraska*, Presented at the 2013 Annual Conference of the National Association of Automobile Museums (NAAM), The Museum of American Speed, Lincoln, Nebraska, March 22, 2013.
107. *Crash Risks, Placement, & Treatment of Roadside Trees*, Presented at the 2013 Annual Meeting of the Transportation Research Board, AFB20(2) Subcommittee on International Research Activities, AFB20 Committee on Roadside Safety Design, Washington, D.C., January 16, 2013.
106. *Innovations and Research in Roadside and Median Barriers*, Presented at the 2012 MINK Local Roads Conference, Stoney Creek Inn, St. Joseph, Missouri, September 26-27, 2012.
105. *Innovative Vehicle Protection Systems for Common and Unique Road Applications*, Seminar Presented to the Civil Engineering Department, University of Nebraska-Lincoln, Lincoln, Nebraska, June 27, 2012.
104. *Aesthetic Barriers*, 1-Hour, Presented at the American Traffic Safety Services Association (ATSSA) Webinar Wednesdays Series, October 19, 2011, 28 registered sites - 27 connected sites - 111 attendees).
103. *Recent Safety Innovations - SAFER Barrier and CYRO Noise Wall*, Presented at the Innovation Connect Meeting, The Museum of American Speed, Lincoln, Nebraska, September 15, 2011.
102. *Test Matrix for Evaluation of Cable Barrier Systems in Median Ditches*, 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.
101. *Non-Blocked, Midwest Guardrail System for Wire-Faced, MSE Walls*, Presented at the 90th Annual Meeting of the Transportation Research Board, Washington D.C., January 25, 2011.
100. *Roadside and Motorsports Research*, Presented to the Lego League Project Team (students and advisors) from Logan, Iowa, Presented at the Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, November 4, 2010.
99. *A New TL-2 Rough Stone Masonry Guardwall*, Presented at the 89th Annual Meeting of the Transportation Research Board, Washington D.C., January 11, 2010.

98. *SAFER Barrier - Development, Testing, In-Service Performance, and Applications*, Presented at the *2009 Professional Motorsport Circuit Owners, Investors, and Suppliers Forum and Conference*, Held in Conjunction with the Professional Motorsport World Expo, Koelnmesse, Cologne, Germany, November 3-5, 2009.
97. *Development and Crash Testing of a New Longitudinal Barrier*, Presented at the 31st Annual Iowa County Engineers' Association (ICEA) Mid-Year Conference, Gateway Hotel and Conference Center, Ames, Iowa, July 9, 2009.
96. *Roadside and Motorsports Safety Research*, Presented at the UNL Professional Development Science and Math Summer Technology Institute, Lincoln, Nebraska, June 17-19, 2009.
95. *Recent Crash 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.
94. *Ongoing Development of a High-Tension Cable Median Barrier for 4:1 Sloped V-Ditches*, 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.
93. *Development and Crash Testing of Longitudinal Barriers*, Presented at the Federal Highway Administration - Central Federal Lands Highway Division All Employees Meeting, Qwest Learning and Conference Center, Lakewood, Colorado, January 21, 2009.
92. *Midwest Guardrail System with Round Timber Posts*, Presented at the 88th Annual Meeting of the Transportation Research Board, Washington D.C., January 13, 2009.
91. *Roadside and Motorsports Safety Research*, Presented at the McMillan Middle School Engineering Field Trip, Nebraska Transportation Center, Lincoln, Nebraska, December 12, 2008.
90. *Bumper Trajectories During High-Speed Impacts with 6-In. Curbs*, Presented at 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.
89. *High Performance Concrete Barriers*, Presented at 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.
88. *Concrete Barriers: What is the Shape of the Future?*, Presented at 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.
87. *Roadside and Motorsports Safety Research*, Presented at the UNL Professional Development Science and Math Summer Technology Institute, Lincoln, Nebraska, June 11-13, 2008.
86. *Roadside Safety Research at MwRSF*, Presented at the AASHTO-AGC-ARTBA Task Force No. 13 Subcommittee Meeting, Hershey, Pennsylvania, May 5-6, 2008.
85. *Roadside and Motorsports Safety Research and Tour*, Presented at the UNL Parent's Weekend 2007, University of Nebraska-Lincoln, Lincoln, Nebraska, October 6, 2007.
84. *NCHRP Report No. 350 Update for Longitudinal Barriers*, Presented at the Workshop on *Cable Barrier Systems*, Subcommittee AFB20(1) International Research Activities, 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.
83. *Selected Guidelines in the Update to NCHRP Report 350*, Presented at the AASHTO-AGC-ARTBA Task Force No. 13 Subcommittee Meeting, Subcommittee No. 7, Jackson, Wyoming, May 21-22, 2007.

82. *Roadside Safety Research at MwRSF*, Presented at the AASHTO-AGC-ARTBA Task Force No. 13 Subcommittee Meeting, Jackson, Wyoming, May 21-22, 2007.
81. *Roadside and Motorsports Safety Research*, Presented at the First Annual Academy Day at Lincoln North Star High School, Lincoln, Nebraska, Two Presentations Given, April 19, 2007.
80. *Roadside and Motorsports Safety Research*, Presented at the 2007 Office of Design Conference, Sponsored by the Iowa Department of Transportation, Gateway Center, Ames, Iowa, February 5, 2007.
79. *Performance of Steel-Post W-Beam Guardrail Systems*, Presented at the 86th Annual Meeting of the Transportation Research Board, Washington D.C., January 24, 2007.
78. *Midwest Guardrail System*, Presented at the 60th Annual Ohio Transportation Engineering Conference (OTEC), Greater Columbus Convention Center, Columbus, Ohio, October 24-25, 2006.
77. *Roadside and Motorsports Safety Research*, Presented at the August Meeting of the National Association of Fleet Administrators, Inc. - Midwest Chapter - Iowa and Nebraska, Husker Auto Group, Lincoln, Nebraska, August 8, 2006.
76. *Guidelines for the Application of Barriers and Channelizing Systems in Work Zones*, Presented at the Workshop on Positive Protection in Work Zones, Sponsored by the Transportation Research Board (TRB) Committees AFB20 on Roadside Safety Design and AHB55 on Work Zone Traffic Control, Jackson Rancheria Casino, Hotel, and Conference Center, Jackson, California, July 23-26, 2006.
75. *Roadside and Motorsports Safety Research*, Presented at the UNL Professional Development Science and Math Summer Technology Institute, Lincoln, Nebraska, July 10-12, 2006.
74. *Recent Crash Testing at MwRSF*, Presented at the AASHTO-AGC-ARTBA Task Force No. 13 Subcommittee Meeting, Sarasota, Florida, May 11-12, 2006.
73. *Roadside Safety Research in Nebraska*, Presented at the March Meeting of the Lincoln Claims Association, Knoll's Country Club, Lincoln, Nebraska, March 2, 2006.
72. *A Test Level 4 Noise Wall for Attachment to Concrete Traffic Barriers*, Presented at the 85nd Annual Meeting of the Transportation Research Board, Washington D.C., January 23, 2006.
71. *Recent Crash Testing at MwRSF*, Presented at the AASHTO-AGC-ARTBA Task Force No. 13 Subcommittee Meeting, Orange Beach, Alabama, September 19-20, 2005.
70. *Recent Testing at MwRSF*, Presented at the AASHTO-AGC-ARTBA Task Force No. 13 Subcommittee Meeting, Columbus, Ohio, April 28-29, 2005.
69. *Innovative Barrier Systems and Other Recent Advances in Roadside Safety*, Presented at the First Annual (2005) ASCE Transportation Conference - Transportation Engineering, Sponsored by the American Society of Civil Engineers (ASCE) - Nebraska Section, Scott Conference Center, Omaha, Nebraska, April 27, 2005.
68. *Performance Evaluation of Transitions from W-Beam Guardrail to Thrie Beam Bridge Approach Sections*, 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.
67. *New Advancements in Roadside Safety*, Presented at the AASHTO-AGC-ARTBA Task Force No. 13 Subcommittee Meeting, Newport Beach, California, October 11-12, 2004.
66. *New Advancements in Roadside Safety*, Presented at the 46th International Highway Engineering Exchange Program (IHEEP) 2004 Annual Conference, Hosted by the Nebraska Department of Roads, Cornhusker Hotel, Lincoln, Nebraska, September 12-16, 2004.

65. *Proposed Truck Box Attachment Criteria*, Presented at 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.
64. *Certification Without Full-Scale Crash Tests*, Presented at 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.
63. *Bridge Railings for Safety*, Presented at the 2004 Bridge Conference and Workshop, Sponsored by the Federal Highway Administration, Nebraska Department of Roads, and the Nebraska LTAP T², Kearney, Nebraska, March 9, 2004.
62. *Midwest Guardrail System for Standard and Special Applications*, Presented at the 83rd Annual Meeting of the Transportation Research Board, Washington D.C., January 13, 2004.
61. *Safety Research for Roadsides and Racetracks*, Presented at the Downtown Sertoma Club Luncheon Meeting, US Bank Building, Lincoln, Nebraska, October 15, 2003.
60. *Development of an Energy-Absorbing Barrier for High-Speed Racetrack Applications*, Presented at the Northeast Sertoma Club Breakfast Meeting, Cotner Center, Lincoln, Nebraska, October 9, 2003.
59. *Recent Crash Testing*, Presented at the AASHTO-AGC-ARTBA Task Force No. 13 Subcommittee Meeting, New Orleans, Louisiana, September 22-23, 2003.
58. *Guardrail Height for Strong-Post W-Beam*, Presented at 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.
57. *Safety Research for Roadsides and Racetracks*, Presented at the 63rd Annual Conference of the New York State Association of Transportation Engineers, Saratoga Springs, New York, May 29, 2003.
56. *Single-Unit Truck Test of Luminaire Pole Attached to Single-Slope Barrier*, Presented at the AASHTO-AGC-ARTBA Task Force No. 13 Subcommittee Meeting, College Station, Texas, May 1-2, 2003.
55. *A New Energy-Absorbing High-Speed Safety Barrier*, Presented at the 82nd Annual Meeting of the Transportation Research Board, Washington D.C., January 13, 2003.
54. *Recent Crash Testing - Summer 2002*, Presented at the AASHTO-AGC-ARTBA Task Force No. 13 Subcommittee Meeting, St. Louis, Missouri, September 23-24, 2002.
53. *Development of an Energy-Absorbing Barrier for High-Speed Racetrack Applications*, Presented at NASCAR's Safety meeting for the Busch Series, Richmond, Virginia, September 6, 2002.
52. *Development of an Energy-Absorbing Barrier for High-Speed Racetrack Applications*, Presented at NASCAR's Safety Meeting for the Craftsman Truck Series, Richmond, Virginia, September 5, 2002.
51. *Laboratory Accreditation*, Presented at the Workshop on Updating Needs for NCHRP Report 350 Guidelines - Revisited, Sponsored by the TRB Committee A2A04 Roadside Safety Features and California Department of Transportation, Asilomar Conference Grounds, Pacific Grove, California, July 21-24, 2002.
50. *An Energy-Absorbing Barrier System for High-Speed Racetrack Applications*, 36th Annual Louis Schwitzer Award Presentation, Presented at the Indiana Section of the Society of Automotive Engineers' May 2002 Meeting, Easley Winery, Indianapolis, Indiana, May 24, 2002.
49. *NCHRP Report No. 350 for Roadside Safety Features*, Presented at the 84th Annual Kansas Transportation Engineering Conference, Kansas State University, Student Union, Manhattan, Kansas, April 16-17, 2002.
48. *Recent Crash Testing*, Presented at the AASHTO-AGC-ARTBA Task Force No. 13 Subcommittee Meeting, Seattle, Washington, April 11-12, 2002.

47. *Current Status of Temporary Barriers*, Presented at 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.
46. *Current Status of Work-Zone Devices*, Presented at 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.
45. *Safety of Work-Zone Devices*, Presented at the 23rd Annual (2002) Concrete Paving Workshop, Sponsored by the Nebraska Concrete Paving Association, Cornhusker Hotel, Lincoln, Nebraska, January 30-31, 2002.
44. *NCHRP Report No. 350 for Roadside Safety Devices*, Presented at the 2002 Nebraska Associated General Contractors (AGC) Annual State Convention, Embassy Suites Hotel, Omaha, Nebraska, January 22-24, 2002.
43. *Crash Testing and Analysis of Work Zone Sign Supports*, Presented at the 81th Annual Meeting of the Transportation Research Board, Washington, D.C., January 14, 2002.
42. *NCHRP 350 for Work-Zone Devices*, Presented at the Traffic Control Video-Conference, Sponsored by the Nebraska Department of Roads, Federal Highway Administration, Associated General Contractors, and American Consulting Engineers Council, Lincoln, Nebraska, November 15, 2001.
41. *Occupant Compartment Deformation and Intrusion Evaluation – MwRSF’s Perspective*, Presented at the Summer Meeting of Committee A2A04 on Roadside Safety Features of the Transportation Research Board (TRB), Reno, Nevada, July, 23, 2001.
40. *NCHRP Report 350 for Work-Zone Devices*, Presented at the International Municipal Sign Association (IMSA) - Kansas Association of Traffic Control (KAUTC) Joint Meeting, Olathe, Kansas, February 7, 2001.
39. *MnDOT Temporary Work-Zone Devices*, Presented at the 80th Annual Meeting of the Transportation Research Board, Washington, D.C., January 10, 2001.
38. *Development of Two TL-2 Bridge Railings and Transitions for Use on Transverse Glue-Laminated Deck Bridges*, Presented at the 80th Annual Meeting of the Transportation Research Board, Washington, D.C., January 10, 2001.
37. *NCHRP 350 for Work-Zone Devices*, Presented at the Heart of America Chapter “How To” Conference, Co-Sponsored by the American Traffic Safety Services Association (ATSSA), Kansas City, Missouri, November 28-30, 2000.
36. *Recent Crash Testing of Guardrail and Barricade Systems*, Presented at the AASHTO-AGC-ARTBA Task Force No. 13 Subcommittee Meeting, Jackson, Wyoming, September 18-19, 2000.
35. *Peer-Review Laboratory Accreditation*, Presented at the Task Force 13, Subcommittee 7 Meeting on Quality Assurance Standards for Full-Scale Crash Testing, Held at the Workshop on Emerging Issues on Roadside Safety, Sponsored by the Transportation Research Board (TRB) Committee A2A04 on Roadside Safety Features, Woods Hole, Massachusetts, August 20-23, 2000.
34. *Recent NCHRP 350 Crash Testing of Bullnose and Guardrail Systems*, Presented at the AASHTO-AGC-ARTBA Task Force No. 13 Subcommittee Meeting, Savannah, Georgia, April 13-14, 2000.
33. *Two Test Level 4 Bridge Railing and Transition Systems for Transverse Timber Deck Bridges*, Presented at the Fifth International Bridge Engineering Conference, Tampa, Florida, April 3-5, 2000.
32. *Roadside Safety Features and NCHRP Report 350 - What Lies Ahead*, Presented at the 2000 Highway Engineers’ Association Conference, 90th Annual Conference, Tan-Tar-A Resort, Osage Beach, Missouri, March 29-30, 2000.
31. *Testing of W-Beam to Thrie Beam Transition Element*, Presented at the 79th Annual Meeting of the Transportation Research Board, Washington, D.C., January 11, 2000.
30. *A Long-Span Guardrail System for Culvert Applications*, Presented at the 79th Annual Meeting of the Transportation Research Board, Washington, D.C., January 10, 2000.

29. *Development of Roadside Hardware - Success and Failures*, Presented at the 1999 AASHTO Region III Research Advisory Committee Conference, Overland Park, Kansas, September 14-16, 1999.
28. *NCHRP 350 Testing of Guardrail and Transition Systems*, Presented at the AASHTO-AGC-ARTBA Task Force No. 13 Subcommittee Meeting, Sarasota, Florida, April 28-30, 1999.
27. *NCHRP 350 Testing of Workzone Devices*, Presented at the AASHTO-AGC-ARTBA Task Force No. 13 Subcommittee Meeting, Sarasota, Florida, April 28-30, 1999.
26. *Railing Systems for Use on Timber Deck Bridges*, Presented at the 78th Annual Meeting of the Transportation Research Board, Washington, D.C., January 13, 1999.
25. *Re-examination of Crash Test Accelerometer Data*, Presented at the 78th Annual Meeting of the Transportation Research Board A2A04(1) Subcommittee on Computational Mechanics, Washington, D.C., January 12, 1999.
24. *Crashworthy Barriers for Timber Deck Bridges*, Presented at the 18th Annual Structural Conference - Engineered Wood Systems, Sponsored by the University of Nebraska-Lincoln and the American Society of Civil Engineers Nebraska Section, Kiewit Conference Center, Omaha, Nebraska, October 2, 1998.
23. *Fiber Reinforced Plastics (FRP) for Use in Highway Safety Hardware*, Presented at the 1998 Region Fiber Reinforced Polymers (FRP) Seminar, St. Joseph, Missouri, September 21-22, 1998.
22. *Recent Crash Testing at the Midwest Roadside Safety Facility*, Presented at the Joint Session between the AASHTO-AGC-ARTBA Task Force No. 13 Subcommittee Meeting and the AASHTO Task Force for Roadside Safety, Lincoln, Nebraska, September 15-18, 1998.
21. *Use of LS-DYNA to Develop a New Bullnose Design*, Presented at the Summer Meeting of the Transportation Research Board A2A04(1) Subcommittee on Computational Mechanics, Seattle, Washington, August 2-5, 1998.
20. *Comparison of Crash Test Accelerometer Data*, Presented at the 77th Annual Meeting of the Transportation Research Board A2A04(1) Subcommittee on Computational Mechanics, Washington, D.C., January 1998.
19. *Approach Guardrail Transition for Concrete Safety Shape Barriers*, Presented at the 77th Annual Meeting of the Transportation Research Board, Washington, D.C., January 1998.
18. *Development of a TL-3 F-Shape Temporary Concrete Median Barrier*, Presentation at the 76th Annual Meeting of the Transportation Research Board, Washington, D.C., January 1997.
17. *Railing Systems for Longitudinal Timber Deck Bridges*, Presented at the National Conference on Wood Transportation Structures, Madison, Wisconsin, October 23-25, 1996.
16. *Development and Evaluation of Roadside Safety Hardware*, Presented at the Student Chapter Meeting of the Institute of Transportation Engineers (ITE), University of Nebraska-Lincoln, October 9, 1996.
15. *Recent Safety Performance Evaluations of Highway Features*, Presented at the 1996 Spring Meeting of the Missouri Valley Section of the Institute of Transportation Engineers (MOVITE), Nebraska City, Nebraska, May 8-10, 1996.
14. *Approach Guardrail Transition for Single Slope Concrete Barriers*, Presented at the 75th Annual Meeting of the Transportation Research Board, Washington, D.C., January 1996.
13. *Design and Evaluation of Two Low-Volume Bridge Railings*, Presented at the Sixth International Conference on Low-Volume Roads, Volume 2, Conference Proceedings 6, University of Minnesota, Minneapolis, Minnesota, June 25-29, 1995, Transportation Research Board, Washington, D.C.
12. *Problems Encountered with NCHRP 350 Pickups*, Presented at the 74rd Annual Meeting of the Transportation Research Board, Washington D.C., January 1995.

11. *PL-2 Bridge Rails for Timber Decks*, Presented at the 73rd Annual Meeting of the Transportation Research Board, Washington D.C., January 1994.
10. *Crash Tests of Roadside Appurtenances*, Presented at the AASHTO-AGC-ARTBA Task Force No. 13 Subcommittee of New Materials: Standardization of Details for Bridge and Road Hardware, San Antonio, Texas, June 17-18, 1993.
9. *Performance Level 1 Bridge Railings for Timber Decks*, Presented at the 72nd Annual Meeting of the Transportation Research Board, Washington, D.C., January 1993.
8. *Recent Safety Performance Evaluations of Highway Features*, Presented at the 1992 Fall Meeting of the Missouri Valley Section of the Institute of Transportation Engineers (MOVITE), Lincoln, Nebraska, October 14-16, 1992.
7. *Crash Tests on Roadside Safety Features*, Presented at the AASHTO-AGC-ARTBA Task Force No. 13 Subcommittee Meeting of New Materials: Standardization of Details for Bridge and Road Hardware, Nashville, Tennessee, April 16-17, 1992.
6. *Performance Evaluation of a Permanent Precast Concrete Median Barrier*, Presented at the 71st Annual Meeting of the Transportation Research Board, Washington D.C., January 1992.
5. *Safety Performance Evaluations: Bridge Rails and an Approach Guardrail Transition*, Presented at the 70th Annual Meeting of the Transportation Research Board, Washington, D.C., January 1991.
4. *Development of Railing Systems for Timber Deck Bridges*, Presented at the First Timber Bridge Conference, "Timber Bridges: An Opportunity for Alaska, Sponsored by the Cooperative Extension Service, Department of Civil Engineering, University of Alaska-Fairbanks and the United States Department of Agriculture, Forest Service, Anchorage, Alaska, December 7, 1990.
3. *Crash Testing of Roadside Safety Hardware*, Presented at the 13th Annual Spring Iowa Traffic Control and Safety Conference, Ames, Iowa, March, 1989.
2. *Full-Scale Vehicle Crash Tests on the Iowa Box-Aluminum Bridge Rail*, Presented at the 68th Annual Meeting of the Transportation Research Board, Washington, D.C., January 1989.
1. *Full-Scale Vehicle Crash Tests on Nebraska Rural Mailbox Designs*, Presented at the 67th Annual Meeting of the Transportation Research Board, Washington, D.C., January 1988.

Section 2.1.9 Other Publications – Research Reports

2022

388. Quintero, R.A., Sim, C., Faller, R.K., and Erbank, E.L., *Crash Testing and Evaluation of the HDOT 42-In. Tall, Solid Concrete Bridge Rail with Aesthetic Recessed Rounded Panels and 6-In. Tall Sidewalk: MASH Test Nos. 3-10 and 3-11*, Final Report to the Hawaii Department of Transportation, Transportation Research Report No. TRP-03-455-22, Project No.: STP-1500(092)R – Phase II, Contract No. 68212, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, December 15, 2022.
387. Yosef, T.Y., Steelman, J.S., Faller, R.K., and Erbank, E.L., *Crash Testing and Evaluation of HDOT's Thrie-Beam Approach Guardrail Transition Attached to 42-In. Tall, Solid Concrete Bridge Rail with Aesthetic, Recessed, Rounded Panels and 6-ft Wide Sidewalk: MASH Test Nos. 3-20 and 3-21*, Final Report to the Hawaii Department of Transportation, Transportation Research Report No. TRP-03-472-22, Project No.: STP-1500(092)R – Phase II, Contract No. 68212, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, December 13, 2022.
386. Rodriguez-Alvizo, L., Bielenberg, R.W., Stolle, C.S., and Faller, R.K., *Development of a MASH TL-3 Compliant Parapet Mounted Fence*, Final Report to the Iowa Department of Transportation, Transportation Research Report No. TRP-03-434-22, Project No.: TPF-5(193) Supplement #130, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, December 1, 2022.
385. Lechtenberg, K.A., Ball, T.R., M., Faller, R.K., and Holloway, J.C., *MASH Test Designation Nos. 3-11 & 3-17 of a Non-Proprietary, High-Tension Cable Median Barrier with Closed-Section Posts*, Final Report to the Midwest Pooled Fund

Program, Transportation Research Report No. TRP-03-431-22, Project No.: TPF-5(193) Supplement #138, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, December 1, 2022.

384. Bickhaus, R.F., Rasmussen, J.D., Bielenberg, R.W., Rosenbaugh, S.K., Faller, R.K., and Reid, J.D., *Evaluation of Flare Rates for Approach Guardrail Transitions – Phase I*, Final Report to the Midwest Pooled Fund Program, Transportation Research Report No. TRP-03-439a-22, Project No.: TPF-5(193) Supplement #141, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, November 22, 2022.
383. Perry, B., Stolle, C.S., Faller, R.K., and Erbank, E.L., *Crash Testing and Evaluation of the HDOT 34-In. Tall, Aesthetic Concrete Bridge Rail with Pedestrian Handrail and Sidewalk: MASH Test Designation Nos. 3-10 and 3-11*, Final Report to the Hawaii Department of Transportation, Transportation Research Report No. TRP-03-456-22, Project No.: STP-1500(092)R – Phase III, Contract No. 68212, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, August 26, 2022.
382. Stolle, C.S., Bielenberg, R.W., Faller, R.K., and Holloway, J.C., *Crash Testing and Evaluation of the HDOT 34-In. Tall Aesthetic Concrete Bridge Rail with Pedestrian Handrail*, Final Report to the Hawaii Department of Transportation, Transportation Research Report No. TRP-03-466-22, Project No.: STP-1500(092)R – Phase IV, Contract No. 68212, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, August 26, 2022.
381. Pajouh, M.A., Habib, Z., Kumar, G.S., Lechtenberg, K.A., Faller, R.K., Urbank, E.L., Rosenbaugh, S.K., and Bielenberg, R.W., *MASH TL-3 Evaluation of Transition to Hawaii Modified Delaware Retrofit Thrie-Beam Bridge Rail: MASH Test Nos. 3-20 and 3-21*, Final Report to the Hawaii Department of Transportation, Transportation Research Report No. TRP-03-449-22, Project No.: STP-1500(092)R – Phase II, Contract No. 68212, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, August 22, 2022.

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380. Storf, C.A., Pajouh, M.A., Lechtenberg, K.A., Faller, R.K., Urbank, E.L., and Revell, J.R., *Crash Testing and Evaluation of the Hawaii Modified Delaware Retrofit Thrie-Beam Bridge Rail on Sidewalk: MASH Test Nos. 3-10 and 3-11*, Final Report to the Hawaii Department of Transportation, Transportation Research Report No. TRP-03-448-21, Project No.: STP-1500(092), Contract No. 68212, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, November 12, 2021.
379. Bielenberg, R.W., Hinojosa, M.A., Faller, R.K., and Bai, F., *Modification and MASH 2016 TL-3 Evaluation of the Asphalt Pin Tie-Down for F-Shape PCB*, Final Report to the Wisconsin Department of Transportation, Transportation Research Report No. TRP-03-428-21, Project No.: TPF-5(193) Supplement #136, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, August 23, 2021.
378. Bickhaus, R.F., Stolle, C.S., Rasmussen, J.D., Faller, R.K., Bielenberg, R.W., Lechtenberg, K.A., and Holloway, J.C., *Phase IB Crash Testing of Single, U-Channel Sign Supports and Surrogate, Reusable, Test Vehicle Development*, Final Report to the Midwest Pooled Fund Program, Transportation Research Report No. TRP-03-445-21, Project No.: TPF-5(193) Supplement #122, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, May 27, 2021.
377. Rosenbaugh, S.K., Rasmussen, J.D., Faller, R.K., Bielenberg, R.W., and Steelman, J.S., *Steel Railing, Type IL-OH: MASH Evaluation and Implementation Guidance*, Final Report to the Illinois Department of Transportation and Ohio Department of Transportation, Transportation Research Report No. TRP-03-438-21, Project No.: TPF-5(193) Supplement #116, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, April 27, 2021.
376. Bielenberg, R.W., Stolle, C.S., Meyer, D.T., Vasquez, E., Faller, R.K., and Reid, J.D., *Alternative Design of Low-Tension Cable Barrier Adjacent to Steep Slopes*, Final Report to the Nebraska Department of Transportation, Transportation Research Report No. TRP-03-334-21, Project No.: TPF-5(193) Supplement #74, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, April 27, 2021.
375. Hinojosa, M., Faller, R.K., Rosenbaugh, S.K., Stolle, C.S., Bielenberg, R.W., Rasmussen, J.D., Steelman, J.S., and Holloway, J.C., *MASH 2016 Evaluation of MNDOT Concrete Parapet with Brush Curb and Upper Beam and Post Rail with New Tapered End Section*, Final Report to the Minnesota Department of Transportation, Transportation Research Report No. TRP-03-403-21, Project No.: TPF-5(193) Supplement #153, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, March 26, 2021.

374. Rosenbaugh, S.K., Faller, R.K., Dixon, J., Loken, A., Rasmussen, J.D., and Flores, J.R., *Development and Testing of an Optimized MASH TL-4 Concrete Bridge Rail*, Final Report to the Midwest Pooled Fund Program, Transportation Research Report No. TRP-03-415-21, Project No.: TPF-5(193) Supplement #104, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, March 26, 2021.
373. Ranjha, S.A., Asadollahi Pajouh, M., Rosenbaugh, S.K., Bielenberg, R.W., and Faller, R.K., *Development of a PCB Steel Cover Plate for Large Open Joints – Phase I*, Final Report to the Midwest Pooled Fund Program, Transportation Research Report No. TRP-03-387a-21, Project No.: TPF-5(193) Supplement #90, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, March 23, 2021.
372. Stolle, C.,S., Ronspies, K.B., Bielenberg, R.W., and Faller, R.K., *Evaluation and Update of MASH Test Vehicles*, National Cooperative Highway Research Program (NCHRP), Transportation Research Board, The National Academies of Sciences, Engineering, and Medicine, Transportation Research Report No. TRP-03-427-20, Project No. 20-07 Task No. 372, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, January 22, 2021.

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371. Rasmussen, J.D., Rosenbaugh, S.K., Faller, R.K., Alvarado, P., Mauricio, P., Bielenberg, R.W., and Steelman, J.S., *Development of a MASH TL-3 Approach Guardrail Transition to a MASH TL-4 Steel Bridge Rail*, Final Report to the Illinois and Ohio Departments of Transportation, Transportation Research Report No. TRP-03-411-20, Project No.: TPF-5(193) Supplement #116, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, December 23, 2020.
370. Bickhaus, R.F., Bielenberg, R.W., Rosenbaugh, S.K., Faller, R.K., and Ranjha, S.A., *Development of a PCB Steel Cover Plate for Large Open Joints – Phase II*, Final Report to the Midwest Pooled Fund Program, Transportation Research Report No. TRP-03-387b-20, Project No.: TPF-5(193) Supplement #119, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, December 17, 2020.
369. Yosef, T.Y., Lechtenberg, K.A., Asadollahi Pajouh, M., Faller, R.K., and Holloway, J.C., *Steel-Post Version of Trailing-End Anchorage System – Phase I*, Final Report to the Midwest Pooled Fund Program, Transportation Research Report No. TRP-03-370a-20, Project No.: TPF-5(193) Supplement #92, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, December 17, 2020.
368. Lechtenberg, K.A., Asadollahi Pajouh, M., Faller, R.K., Lingenfelter, J.L., Noll, P., and Holloway, J.C., *MASH Evaluation of the Steel-Post Trailing-End Anchorage System*, Final Report to the Midwest Pooled Fund Program, Transportation Research Report No. TRP-03-370b-20, Project No.: TPF-5(193) Supplement #120, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, December 17, 2020.
367. Rasmussen, J.D., Faller, R.K., Lechtenberg, K.A., Bielenberg, R.W., Dowler, N., Bayingana, A., and Markvicka, C., *MASH Full-Scale Testing of Single-Post, U-Channel Sign Supports*, Final Report to the Midwest Pooled Fund Program, Transportation Research Report No. TRP-03-440-20, Project No.: TPF-5(193) Supplement #122, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Lincoln, Nebraska, December 17, 2020.
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52. Polivka, K.A., Bielenberg, B.W., Sicking, D.L., Faller, R.K., and Rohde, J.R., *Development of a 7.62-m Long Span Guardrail System*, Final Report to the Midwest State's Regional Pooled Fund Program, Transportation Research Report No. TRP-03-72-99, Project No. SPR-3(017)-Year 7, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, April 6, 1999.
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49. Polivka, K.A., Faller, R.K., Holloway, J.C., Rohde, J.R., and Sicking, D.L., *Crash Tests of Work Zone Traffic Control Devices*, Final Report to Dicke Tool Company, Transportation Research Report No. TRP-03-79-98, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, December 7, 1998.
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39. Pfeifer, B.P., Faller, R.K., and Holloway, J.C., *Guardrail Testing Program II - Final Report*, Report No. FHWA-FLP-96-017, Final Report to the Federal Highway Administration, Eastern Federal Lands Highway Division, Transportation Research Report No. TRP-03-52-95, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, September 1996.
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37. Holloway, J.C., Faller, R.K., Wolford, D.L., and Sicking, D.L., *Performance Level 2 Tests on a 29-in. Open Concrete Bridge Rail*, Final Report to the Nebraska Department of Roads, Project SPR-3(017), Transportation Report No. TRP-03-51-95, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, June 1996.
36. Faller, R.K., Soyland, K., Rosson, B.T., and Stutzman, T.M., *TL-1 Curb-Type Bridge Railing for Longitudinal Glulam Timber Decks Located on Low-Volume Roads*, Draft Report to the United States Department of Agriculture-Forest Service-Forest Products Laboratory, Transportation Report No. TRP-03-54-96, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, April 1996.
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31. Pfeifer, B.P., Whitehead, D.E., and Faller, R.K., *Safety Performance Evaluation of the George Washington Memorial Parkway Bridge Rail*, Draft Report to the Federal Highway Administration, Eastern Federal Lands Highway Division, Transportation Research Report No. TRP-03-45-95, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, June 1995.
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27. Ritter, M.A., Faller, R.K., Holloway, J.C., Pfeifer, B.G., and Rosson, B.T., *Development and Testing of Bridge Railings for Longitudinal Timber Decks by Full-Scale Crash Testing*, Draft Report to the U.S. Department of Agriculture, Forest Service, Forest Products Laboratory, Report No. TRP-03-29-94, Civil Engineering Department, University of Nebraska-Lincoln, estimated completion May 1994.
26. Faller, R.K., Sicking, D.L., Rosson, B.T., Pfeifer, B.G., and Holloway, J.C., *Dynamic Evaluation of Missouri's Modified Bridge Anchor Section*, Final Report to the Missouri Highway and Transportation Department, Project RES1 (0099) P473, Report No. TRP-03-38-93, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, February 1994.
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17. Pfeifer, B.G., Faller, R.K., Holloway, J.C., and Post, E.R., *Full-Scale 1,800-lb Vehicle Crash Tests on a 4-Bolt Breakaway Slipbase Luminaire*, Final Report to the Utah Department of Transportation, Report No. TRP-03-25-91, Project RES1 (0099) P452, Civil Engineering Department, University of Nebraska-Lincoln, August 1991.
16. Holloway, J.C., Faller, R.K., Pfeifer, B.G., and Post, E.R., *Full-Scale 18,000-lb Vehicle Crash Test on the Kansas 32 Inch Corral Rail*, Final Report to the Kansas Department of Transportation, Report No. TRP-03-26-91, Project RES1 (0099) P450, Civil Engineering Department, University of Nebraska-Lincoln, June 1991.
15. Pfeifer, B.G., Faller, R.K., Atallah, S., Holloway, J.C., and Post, E.R., *Full-Scale 4,500-lb Vehicle Crash Test on the Permanent Precast Concrete Median Barrier*, Final Report to the Kansas Department of Transportation, Report No. TRP-03-24-90, Project RES1 (0099) P451, Civil Engineering Department, University of Nebraska-Lincoln, March 1991.
14. Pfeifer, B.G., Faller, R.K., Atallah, S., Holloway, J.C., and Post, E.R., *Full-Scale 1,800-lb Vehicle Crash Test on the Iowa W-Beam Approach Guardrail to the Concrete Safety Shape Bridge Rail*, Final Report to the Iowa Department of Transportation, Report No. TRP-03-23-90, Civil Engineering Department, University of Nebraska-Lincoln, February 1991.

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12. Pfeifer, B.G., Holloway, J.C., Faller, R.K., and Post, E.R., *Full-Scale Vehicle Crash Tests on the Iowa Retrofit Concrete Barrier Rail*, Final Report to the Iowa Department of Transportation, Report No. TRP-03-19-90, Civil Engineering Department, University of Nebraska-Lincoln, January 1990.

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11. Faller, R.K., Post, E.R., Pfeifer, B.G., and Holloway, J.C. *Full-Scale Vehicle Crash Test on the Iowa Steel Temporary Barrier Rail*, Final Report to the Iowa Department of Transportation, Report No. TRP-03-20-89, Civil Engineering Department, University of Nebraska-Lincoln, December 1989.
10. Pfeifer, B.G., Magdaleno, J.A., Faller, R.K., and Post, E.R., *Static Tests on Collapsing Guardrail Designs*, Final Report to the Nebraska Department of Roads, Report No. TRP-03-18-89, Project RES1 (0099) P432, Civil Engineering Department, University of Nebraska-Lincoln, July 1989.
9. Magdaleno, J.A., Faller, R.K., and Post, E.R., *Full-Scale Vehicular Crash Testing of Experimental Signs on Barricade Structures*, Final Report to New Jersey Department of Transportation, Report No. TRP-03-17-89, Civil Engineering Department, University of Nebraska- Lincoln, June 1989.
8. Magdaleno, J.A., Faller, R.K., and Post, E.R., *Full-Scale Vehicle Crash Test on Nebraska Bridge Rail Barrier with a Modified New Jersey Shape*, Final Report to Nebraska Department of Roads, Report No. TRP-03-16-89, Project RES1 (0099) P426, Civil Engineering Department, University of Nebraska-Lincoln, March 1989.

7. Faller, R.K., Magdaleno, J.A., and Post, E.R., *Full-Scale Vehicle Crash Tests on the Iowa Retrofit Concrete Barrier Rail*, Final Report to Iowa Department of Transportation, Report No. TRP-03-15-89, Civil Engineering Department, University of Nebraska-Lincoln, January 1989.

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6. Faller, R.K., Magdaleno, J.A., and Post, E.R., *Full-Scale Vehicle Crash Test on the Iowa Temporary Concrete Barrier Rail Half-Section*, Final Report to Iowa Department of Transportation, Report No. TRP-03-14-88, Civil Engineering Department, University of Nebraska-Lincoln, December 1988.
5. Faller, R.K., Magdaleno, J.A., and Post, E.R., *Full-Scale Vehicle Crash Tests on the Iowa Box-Aluminum Bridge Rail*, Final Report to Iowa Department of Transportation, Report No. TRP-03-13-88, Civil Engineering Department, University of Nebraska-Lincoln, November 1988.
4. Post, E.R., Faller, R.K., and Magdaleno, J.A., *Full-Scale Mini-compact Vehicle Tests on Telespar Sign Supports in Strong and Weak Soils (Addendum)*, Final Report to Unistrut Corporation, Civil Engineering Department, University of Nebraska-Lincoln, September 1988.
3. Magdaleno, J.A., Faller, R.K., Kittrell, K.R., and Post, E.R., *Full-Scale Crash Tests on Plastic Drums with Type III Object Markers*, Final Report to Missouri Highway and Transportation Commission, Report No. 87-2, Civil Engineering Department, University of Nebraska-Lincoln, April 1988.

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2. Post, E.R., Faller, R.K., and Magdaleno, J.A., *Full-Scale Mini-compact Vehicle Tests on Telespar Sign Supports in Strong and Weak Soils*, Final Report to Unistrut Corporation, Civil Engineering Department, University of Nebraska-Lincoln, August 1987.
1. Faller, R.K., Magdaleno, J.A., Warlick, B.A., Wendling, W.H., and Post, E.R., *Full-Scale Vehicle Crash Tests on Nebraska Rural Mailbox Designs*, Final Report to Nebraska Department of Roads, RESI (0099) P415, Civil Engineering Department, University of Nebraska-Lincoln, August 1987.

Section 2.2 Research Funding Record

Section 2.2.1 Internally-Funded Research Grants

Smart Barriers: Connecting Vehicles to Infrastructure for Mid-Accident Control and Improved Roadside Safety, Big Ideas Seed Grant Program, University of Nebraska-Lincoln, [Co-Principal Investigator, Principal Investigator: Mehmet can Vuran, Co-Principal Investigators: Behzad Esmaeli, Hongfeng Yu, Aaron Yoder, Aemal Khattak, Larry Rilett, and Michael Dodd, November 17, 2014 – November 16, 2015, Total Award: \$10,000, Sponsor: \$0, UNL: \$10,000], **WBS No. 21-0511-4035**.

Sections 2.2.2 and 2.2.3 Externally-Funded Research Grants, Including Through UNL OSP – Principal or Co-Principal Investigator

****Funded project list does not yet include numerous Mid-America Transportation Center (MATC) projects that are not contained in NUGRANT.**

2022 (9 for \$5,200,850)

MASH TL-3 Thrie-Beam Bullnose Installation Manual, Awarded by the Minnesota Department of Transportation, [Principal Investigator: Robert Bielenberg, Co-Principal Investigator: Ronald Faller, X, 2022 – X, 2024, Total Award: \$110,761, Sponsor: \$110,761, UNL: \$0], WBS Nos. 26-1113-**XX-XX**, **100% Research Credit**. [NTP given and active but awaiting WBS Nos.].

Dwight D. Eisenhower Transportation Fellowship Program (DDETFP) – Aaron Lechtenberger, Awarded by the U.S. Department of Transportation, Federal Highway Administration, Sponsor Award No. 693JJ32345079, Principal Investigator: Aaron Lechtenberger, Co-Principal Investigator: Ronald Faller (**100% Credit as Faculty Advisor**), Total Award: \$5,000, Sponsor Share: \$5,000, UNL Share: \$0, December 29, 2022 – August 31, 2023, WBS Nos. 26-1113-**X**-001.

Development of Non-Proprietary Pre-Fabricated Solutions for Concrete Barrier Systems for Accelerated Bridge Construction, NCHRP Project No. 22-56, Awarded by National Academy of Sciences – National Cooperative Highway Research Program, Prime: Florida International University (Atorod Azizinamini – Overall Principal Investigator), Subcontract: MwRSF-UNL, **Project No. 22-56**, Sponsor Award No. HR22-56, [UNL Principal Investigator - Ronald Faller (40% credit), Co-Principal Investigators - UNL: Robert Bielenberg, Scott Rosenbaugh, Jiong Hu 20%, and Joshua Steelman 40%, October 6, 2022 – October 5, 2025, Total Award: \$900,000, Sponsor: \$900,00, UNL: \$0], FIU Share - \$175,000 & UNL Share \$725,000; WBS Nos. 26-1113-X-001, **40% Research Credit**, [NTP given and active but awaiting WBS Nos.]

Midwest States Pooled Fund Program for Roadside Safety - Year 2022 (2022-2026), Awarded by States of Florida, North Carolina, Kentucky, Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, Wyoming, Illinois, Indiana, New Jersey, California, Utah, Hawaii, South Carolina, Georgia, and Virginia, TPF-5(430) Supplemental Nos. X through X (9 Projects), [Principal Investigator: Ronald Faller (**25% Research Credit**), Co-Principal Investigators: Robert Bielenberg, Jim Holloway, Karla Lechtenberg, Scott Rosenbaugh, Mojdeh Asadollahi Pajouh 25%, Joshua Steelman 25%, Cody Stolle 25%, and Brandon Perry, X, 2023 - X, 2026, Total Award: \$1,365,000, Sponsor: \$1,365,000, UNL: \$0], **WBS Nos. 26-1113-X-X through 26-1113-X-X**, [NTP given and active but awaiting WBS Nos.]

Traffic Calming Elements for Entry Control Facility Threat Delay and Containment – M50 P2/P3 MMGS Research and Development Phase V, Awarded by DOD – Offutt Air Force Base - USSTRATCOM, Funded under National Strategic Research Institute (NSRI) Contract FA4600-20-D-0003, Sponsor Award No. FA460022F0117, Task Order with University Affiliated Research Center (UARC) Engineering, Research, and Development Services, [Co-Principal Investigator (**25% Research Credit**), Principal Investigator: Cody Stolle 50% credit, Co-Principal Investigator: Joshua Steelman 25% credit, August 31, 2022 – February 25, 2024, Total Award: \$799,958, UNL Share: \$559,411, NSRI Share: \$240,547], **WBS No. 26-1121-0195-001**.

Implementation of MASH Surrogate Test Vehicles for Sign Supports, Breakaway Poles, and Work-Zone Traffic Control Devices, Awarded by National Academy of Sciences – National Cooperative Highway Research Program, Prime: UNL, Subcontract: George Mason University, **Project No. 22-55**, Sponsor Award No. HR22-55, [Principal Investigator: Cody Stolle, Co-Principal Investigators: Ronald Faller, Mojdeh Asadollahi Pajouh, Karla Lechtenberg, and Joshua Steelman, August 19, 2022 – October 19, 2026, Total Award: \$750,000, Sponsor: \$750,000, UNL: \$0], WBS Nos. 26-1113-0194-001, **10% Research Credit**.

Crash Tested Bridge Railings and Transitions for Wood Bridges – Phase IIB (Continued Development, Crash Testing, and Evaluation of MASH Test Level 4 Timber Railing with Curb System Bridge Rail and MASH TL-3 Approach Guardrail Transitions), Awarded by the United States Endowment for Forestry and Communities and Department of Agriculture, Forest Service, Forest Products Laboratory, Contractor Agreement No. 21-00283, [Principal Investigator: Ronald Faller (**40% Research Credit**), Co-Principal Investigators – Tewodros Yosef, Robert Bielenberg, Scott Rosenbaugh, Joshua Steelman, Cody Stolle, and James Wacker, May 1, 2022 – December 31, 2024, Total Award: \$600,000, U.S. Endowment for Forestry and Communities and USDA-FS-FPL: \$500,000, UNL: \$100,000 matched F&A], **WBS No. 26-1113-0182-001**.

Application of MASH Test Criteria to Breakaway Sign and Luminaire Supports and Crashworthy Work-Zone Traffic Control Devices – Continuation, Awarded by the National Cooperative Highway Research Program (NCHRP) and Subaward from George Mason University, **Project No. 03-119 Continuation**, [Principal Investigator (**33.4% Research Credit**), Co-Principal Investigators: Mojdeh Asadollahi Pajouh, Karla Lechtenberg, and Cody Stolle, February 28, 2022 - October 31, 2023, Total Award: \$280,000; NCHRP/GMU Share: \$140,000; MwRSF-UNL Share: \$140,000, **WBS No. 26-1113-0098-001**.

FY22-IND-1-PCB: MASH 2016 TL-3 Design and Evaluation of the Indiana F-Shape PCB in Free-Standing, Asphalt Anchored Configurations, and Transitions, Awarded by Indiana Department of Transportation, [Principal Investigator: Robert Bielenberg, Co-Principal Investigators: Ronald Faller, Mojdeh Pajouh 33%, and Cody Stolle 33%, January 1, 2022 – December 31, 2026, Total Award: \$530,131, Sponsor: \$530,131, UNL: \$0], WBS Nos. 26-1113-XXXX, **34% Research Credit**. [NTP given and active but awaiting WBS Nos.]

2021 (5 for \$4,707,697)

Crash Testing of Various Bridge Guardrails and Transitions, Phase No. III, Awarded by Hawaii Department of Transportation, STP-1500(115), [Principal Investigator: Ronald Faller, Co-Principal Investigators: Jennifer Rasmussen, Cody Stolle, Mojdeh Asadollahi Pajouh, Robert Bielenberg, James Holloway, Karla Lechtenberg, John Reid, Scott Rosenbaugh, Joshua Steelman, Chungwook Sim, Seunghee Kim, and Chung Rak Song, December 13, 2021 – July 7, 2024, Total Award: \$2,369,485, Sponsor: \$2,369,495, UNL: \$0], WBS Nos. 26-1113-0181, **15% Research Credit**.

Year 6 Investigation and Development of a MASH Test Level 6, Cost-Effective, Barrier System for Containing Heavy Tractor Tank-Trailer Vehicles and Mitigating Catastrophic Crash Events – Phase VI, Awarded by the Mid-America Transportation Center

(MATC), [Principal Investigator: Ronald Faller (**50% credit**), Co-Principal Investigators: Cody Stolle and Joshua Steelman, November 1, 2021- February 28, 2023, Total Award: \$241,628, Sponsor: \$120,814, Match: \$120,814], **WBS Nos. 25-1121-0005-045**.

Midwest States Pooled Fund Program for Roadside Safety - Year 2021 (2021-2024), Awarded by States of Florida, North Carolina, Kentucky, Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, Wyoming, Illinois, Indiana, New Jersey, California, Utah, Hawaii, South Carolina, Georgia, and Virginia, TPF-5(430) Supplemental Nos. 15 through 24 (10 Projects), [Principal Investigator: Ronald Faller (**20% credit**), Co-Principal Investigators: John Reid, Robert Bielenberg, Jim Holloway, Karla Lechtenberg, Scott Rosenbaugh, Mojdeh Asadollahi Pajouh, Joshua Steelman, and Cody Stolle, July 1, 2021 - December 31, 2024, Total Award: \$1,365,000, Sponsor: \$1,365,000, UNL: \$0], **WBS Nos. 26-1113-0169-001 through 26-1113-0178-001**.

Crashworthy Perforated Square Steel Tube (PSST) Mailbox Support – Phase II, Awarded by the Nebraska Department of Transportation, SPR-FY22(007), [Principal Investigator: Robert Bielenberg, Co-Principal Investigators – Ronald Faller (**100% credit**) and Scott Rosenbaugh, July 1, 2021 – May 31, 2023, Total Award: \$219,556, Sponsor: \$219,556, UNL: \$0], **WBS No. 26-1113-0168-001**.

Years 4 and 5 Investigation and Development of a MASH Test Level 6, Cost-Effective, Barrier System for Containing Heavy Tractor Tank-Trailer Vehicles and Mitigating Catastrophic Crash Events – Phases IV and V, Awarded by the Mid-America Transportation Center (MATC), [Principal Investigator: Ronald Faller (**50% credit**), Co-Principal Investigators: Cody Stolle and Joshua Steelman, March 2, 2021- December 31, 2021, Total Award: \$256,000, Sponsor: \$256,000, Match: \$512,000], **WBS Nos. 25-1121-0005-045**.

2020 (16 for \$5,843,363)

Phase III - Spokes: Medium: Midwest: Smart Big Data Pipeline for Aging Rural Bridge Transportation Infrastructure (SMARTI), Awarded by the National Science Foundation (NSF), RFP No. NSF 17-546, Project/Subaward No. 45-0811-1013-301, [Co-Principal Investigator (**7% credit**), Principal Investigator: Chungwook Sim, Co-Principal Investigators: Daniel Linzell, Larry Rilett, Hamid Sharif-Kashani, Chung Song, Christine Wittich, Wayne Woldt, Richard Wood, and Jinying Zhu, September 1, 2020 – August 31, 2021, Total Award: \$123,849, Sponsor: \$123,849, UNL: \$0], **WBS No. 26-1120-0097-001**.

Investigation of Crashworthy Bridge Railing Systems Attached to Various Bridge Deck Types, Awarded by the United States Department of Agriculture, Forest Service, Montana Division, Project No. 12318720C0009, [Principal Investigator: Ronald Faller (**40% credit**), Co-Principal Investigators – Robert Bielenberg, Scott Rosenbaugh, Jennifer Rasmussen, and Joshua Steelman, August 21, 2020 – August 22, 2022, Total Award: \$196,311, USDA-FS-MT: \$196,311, UNL: \$0], **WBS No. 25-1113-0012-001**.

Evaluation of Crash Tested Bridge Railings and Transitions for Wood Bridges – Phase II (Development of MASH Test Level 4 Timber Railing with Curb Systems), Awarded by the United States Department of Agriculture, Forest Service, Forest Products Laboratory, Project No. 20-JV-11111133-060, [Principal Investigator: Ronald Faller (**50% credit**), Co-Principal Investigators – Jennifer Schmidt, Scott Rosenbaugh, and Joshua Steelman, August 7, 2020 – September 30, 2021, Total Award: \$66,000, USDA-FS-FPL: \$55,000, UNL: \$11,000], **WBS No. 25-1113-0011-001**.

Crashworthy Perforated Square Steel Tube (PSST) Mailbox Support, Awarded by the Nebraska Department of Transportation, SPR-FY21(010), NTRC No. RHE-06, [Principal Investigator: Robert Bielenberg, Co-Principal Investigators – Ronald Faller (**100% credit**) and Scott Rosenbaugh, July 1, 2020 – May 31, 2022, Total Award: \$164,927, Sponsor: \$164,927, UNL: \$0], **WBS No. 26-1113-0161-001**.

Approach Guardrail Transition Retrofit to Existing Concrete Parapets and Bridges, Awarded by the Nebraska Department of Transportation, SPR-FY21(010), NTRC No. SG-01, [Principal Investigator: Scott Rosenbaugh, Co-Principal Investigators – Ronald Faller (**50% credit**), Jennifer Rasmussen, and Robert Bielenberg, July 1, 2020 – May 31, 2022, Total Award: \$87,978, Sponsor: \$87,978, UNL: \$0], **WBS No. 26-1113-0162-001**.

AASHTO Technical Consulting Services, Awarded by the American Association of State Highway and Transportation Officials (AASHTO), Sponsor Award No. AS-21-0007, [Principal Investigator: Ronald Faller, Co-Principal Investigator: Robert Bielenberg, July 1, 2020 - December 31, 2021, Total Award: \$50,000, Sponsor: \$50,000, UNL: \$0], **WBS No. 26-1113-0167-001 (Task 1 and WBS No. 26-1113-0167-002 (Task 2), 100% Research Credit**.

SAFER Barrier Energy-Absorbing Foam Blocks Constructed Using a Revised Foam Formulation, Awarded by Owens Corning, [Principal Investigator: Robert Bielenberg, Co-Principal Investigator: Ronald Faller, April 4, 2020 - June 30, 2021, Total Award: \$121,301, Sponsor: \$121,301, UNL: \$0], **WBS No. 26-1113-0163-001, 100% Research Credit.**

MASH Railing Load Requirements for Bridge Deck Overhang, Awarded by National Academy of Sciences – National Cooperative Highway Research Program, Prime: UNL, Subcontract: Modjeski and Masters, **Project No. 12-119**, [Principal Investigator: Joshua Steelman, Co-Principal Investigators: Ronald Faller, Robert Bielenberg, Jennifer Rasmussen, and Scott Rosenbaugh, August 17, 2020 – February 17, 2023, Total Award: \$440,000, Sponsor: \$440,000, UNL: \$0], WBS Nos. 26-1107-0165-001, **20% Research Credit.**

AASHTO Guidelines for Implementation of MASH Sign Supports, Breakaway Poles, and Work-Zone Traffic Control Devices, Awarded by National Academy of Sciences – National Cooperative Highway Research Program, Prime: UNL, Subcontract: George Mason University, **Project No. 22-43**, [Principal Investigator: Mojdeh Asadollahi Pajouh, Co-Principal Investigators: Ronald Faller and John Reid, August 13, 2020 – May 13, 2023, Total Award: \$500,000, Sponsor: \$500,000, UNL: \$0], WBS Nos. 26-1113-0166-001, **40% Research Credit Updated.**

Phase II - Iowa-Sloped Ends-2: Crash Safety Evaluation of Concrete Barrier Sloped End Treatments, Awarded by the Iowa Department of Transportation, TPF-5(430) Supplemental No. 13, [Co-Principal Investigator (**0% credit**), Principal Investigator: Cody Stolle, Co-Principal Investigators: Robert Bielenberg and Jennifer Schmidt, March 18, 2020 – July 31, 2020, Total Award: \$14,996, Sponsor: \$14,996, UNL: \$0], **WBS No. 26-1113-0159-001.**

FY20-WY-1-GATE: MASH TL-3 Evaluation of Drop-Arm Road Closure Gate, Awarded by Wyoming Department of Transportation, TPF-5(430) Supplemental No. 12 [Principal Investigator: Robert Bielenberg, Co-Principal Investigator: Ronald Faller, February 26, 2020 – September 30, 2021, Total Award: \$229,957, Sponsor: \$229,957, UNL: \$0], WBS Nos. 26-1113-0146-001, **100% Research Credit.**

Midwest States Pooled Fund Program for Roadside Safety - Year 30 (2019-2021), Awarded by States of Florida, North Carolina, Kentucky, Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, Wyoming, Illinois, Indiana, New Jersey, California, Utah, Hawaii, South Carolina, Georgia, and Virginia, TPF-5(430) Supplemental Nos. **XXX** through **XXX** (9 Projects), [Principal Investigator: John Reid, Co-Principal Investigators: Robert Bielenberg, Ronald Faller (**20% credit**), Jim Holloway, Karla Lechtenberg, Scott Rosenbaugh, Jennifer Schmidt Rasmussen, Joshua Steelman, and Cody Stolle, January 16, 2020 - December 31, 2022, Total Award: \$1,353,957, Sponsor: \$1,353,957, UNL: \$0], **WBS Nos. 26-1113-0151-001 through 26-1113-0158-001 Plus Contingency Fund.**

FY20-WISC-1-MGS-SLOPE-HALF-POST: MASH 2016 TL-3 Evaluation of the MGS with Half Post Spacing and 7-ft Posts Adjacent to Slope, Awarded by Wisconsin Department of Transportation, TPF-5(430) Supplemental No. 10 [Principal Investigator: John Reid, Co-Principal Investigators: Robert Bielenberg and Ronald Faller, January 16, 2020 – December 31, 2021, Total Award: \$220,208, Sponsor: \$220,208, UNL: \$0], WBS Nos. 26-1113-0150-001, **50% Research Credit.**

Phase I Review of Median Barrier Warrants and ISPE of Cable Median Barrier (CMBs) in Kansas, Awarded by the Kansas Department of Transportation, TPF-5(430) Supplement #11, [Principal Investigator: Cody Stolle, Co-Principal Investigators – Robert Bielenberg, Ronald Faller (**5% credit**), Karla Lechtenberg, and Joshua Steelman, January 16, 2020 – July 31, 2020, Total Award: \$32,907, Sponsor: \$32,907, UNL: \$0], **WBS No. 26-1113-0149-001.**

Crash Testing of Various Bridge Guardrails and Transitions, Phase II, Awarded by Hawaii Department of Transportation, STP-1500(092)R, [Principal Investigator: Ronald Faller, Co-Principal Investigators: Mojdeh Asadollahi Pajouh, Jennifer Rasmussen, Cody Stolle, Robert Bielenberg, James Holloway, Karla Lechtenberg, John Reid, Scott Rosenbaugh, Joshua Steelman, Chungwook Sim, and Chung Rak Song, January 2, 2020 - December 31, 2021, Total Award: \$2,100,000, Sponsor: \$2,100,000, UNL: \$0], WBS Nos. 26-1113-0148-001 through 26-1113-0148-006, **18% Research Credit.**

Review of Median Barrier Warrants Based and ISPE of Cable Median Barriers (CMBs) In Kansas, Awarded by Kansas Department of Transportation, [Principal Investigator: Cody Stolle, Co-Principal Investigators: Robert Bielenberg, Ronald Faller, Karla Lechtenberg, and Joshua Steelman, January 16, 2020 – April 30, 2021, Total Award: \$140,972, Sponsor: \$140,972, UNL: \$0], WBS Nos. 26-1113-0149-001 and 26-1113-0160-001, **5% Research Credit.**

2019 (10 for \$4,189,678)

Year 3 Investigation and Development of a MASH Test Level 6, Cost-Effective, Barrier System for Containing Heavy Tractor Tank-Trailer Vehicles and Mitigating Catastrophic Crash Events – Phase III, Awarded by the Mid-America Transportation

Center, [Principal Investigator: Jennifer Rasmussen, Co-Principal Investigators: Ronald Faller and Joshua Steelman, December 13, 2019 – December 31, 2020, Total Award: \$115,429, Sponsor: \$115,429, UNL: \$0], WBS No. 25-1131-0005-045, **30% Research Credit**.

Evaluation of Annual Energy Absorber for Ohio University, Awarded by State of Ohio and Ohio University, [Principal Investigator: Cody Stolle, Co-Principal Investigators: Ronald Faller, November 25, 2019 – April 30, 2020, Total Award: \$64,312, Sponsor: \$64,312, UNL: \$0], WBS Nos. 26-1113-0147-001, **20% Research Credit**.

Phase II - Spokes: Medium: Midwest: Smart Big Data Pipeline for Aging Rural Bridge Transportation Infrastructure (SMARTI), Awarded by the National Science Foundation (NSF), RFP No. NSF 17-546, Project/Subaward No. 45-0811-1013-301, [Co-Principal Investigator (**7% credit**), Principal Investigator: Chungwook Sim, Co-Principal Investigators: Daniel Linzell, Larry Rilett, Hamid Sharif-Kashani, Chung Song, Christine Wittich, Wayne Woldt, Richard Wood, and Jinying Zhu, September 1, 2019 – August 31, 2020, Total Award: \$159,001, Sponsor: \$159,001, UNL: \$0], **WBS No. 26-1120-0097-001**.

Guide Specification for Service Life Design of Highway Bridges, Awarded by National Academy of Sciences – National Cooperative Highway Research Program, Prime: Modjeski and Masters, Subcontract: UNL-MwRSF, **Project No. 22-41**, [Principal Investigator: Joshua Steelman, Co-Principal Investigators: Ronald Faller and Scott Rosenbaugh, August 8, 2019 – June 5, 2021, Total Award: \$230,000, NCHRP/M&M Share: \$161,264, MwRSF-UNL Share: \$78,236], WBS Nos. 26-1107-0186-001, **20% Research Credit**.

MASH Testing of Single Column Sign Supports, Awarded by the Florida Department of Transportation, TPF-5(193), Supplement #154, [Principal Investigator: Joshua Steelman, Co-Principal Investigators: Jennifer Schmidt, Robert Bielenberg, Ronald Faller, Karla Lechtenberg, July 15, 2019 – December 31, 2020, Total Award: \$750,000, Sponsor Award: \$750,000, UNL: \$0], WBS Nos. 26-1107-0183-001 through 26-1107-0183-003, **25% Research Credit**.

Evaluate the JTA Skyway to Determine Crashworthiness for Use of Automated Vehicles, Awarded by Pond & Company, Inc. and Michael Baker International, [Principal Investigator: Joshua Steelman, Co-Principal Investigators: Ronald Faller and Scott Rosenbaugh, June 6, 2019 – June 30, 2020, Total Award: \$57,221, Sponsor: \$57,221, UNL: \$0], WBS Nos. 26-1113-0144-001, **5% Research Credit**.

31-in. Midwest Guardrail System (MGS) and Curb Combination Guidelines for MASH TL-3, Awarded by National Academy of Sciences – National Cooperative Highway Research Program, **Project No. 22-39**, [Principal Investigator: Scott Rosenbaugh, Co-Principal Investigators: Jennifer Schmidt, Robert Bielenberg, Ronald Faller, Karla Lechtenberg, Daniel Linzell, Chung Song, Joshua Steelman, and Cody Stolle, June 3, 2019 – June 3, 2022, Total Award: \$600,000, Sponsor: \$600,000, UNL: \$0], WBS Nos. 26-1113-0145-001 through 26-1113-0145-005, **15% Research Credit**.

Crash Testing of a Precast Concrete Barrier, Awarded by the Iowa Department of Transportation and Iowa Pooled Fund Program, TPF-5(367), [Principal Investigator: Ronald Faller, Co-Principal Investigators: Jennifer Schmidt, Robert Bielenberg, and Scott Rosenbaugh, May 1, 2019 – March 31, 2021, Total Award: \$414,128, Sponsor: \$414,128, UNL: \$0], WBS No. 26-1113-0143-001, **50% Research Credit**.

MNDOT Barriers 157 & 158 MASH 2016 Testing, Level 3 and Level 4 Evaluations, Awarded by the Minnesota Department of Transportation, TPF-5(193), Supplemental No. 153 [Principal Investigator: Ronald Faller, Co-Principal Investigators: Jennifer Schmidt, Robert Bielenberg, Jim Holloway, Scott Rosenbaugh, and Joshua Steelman, April 1, 2019 – March 31, 2021, Total Award: \$560,286, Sponsor: \$560,286, UNL: \$0], WBS No. 26-1113-0142-001, **34% Research Credit**.

NYSDOT-MASH-1: MASH 2016 Safety Hardware Evaluation – Phase 1 System B1a, B1b, C2a, and C2b, Awarded by the New York State Department of Transportation, TPF-5(193) Supplemental No. 152, [Co-Principal Investigator (**20% credit**), Principal Investigator: Karla Lechtenberg, Co-Principal Investigators: James Holloway, Jennifer Schmidt, Chung Song, Joshua Steelman, and Cody Stolle, March 12, 2019 – June 30, 2020, Total Award: \$1,239,301, NYSDOT: \$1,239,301, UNL: \$0], **WBS No. 26-1113-0134-001 and 26-1113-0141-001**.

2018 (20 for \$7,007,974)

Phase II Supplemental Funding - WISC-3-MGS-Culvert: Dynamic Testing and Evaluation of a Culvert-Mounted, Strong-Post MGS to TL-3 Guidelines of MASH 2016, Awarded by the Wisconsin Department of Transportation, Agreement No. 19, State Project I.D.: 0656-22-06, Object Code: 2564, TPF-5(193) Supplement #113, [Co-Principal Investigator (**50% credit**), Principal Investigator: Robert Bielenberg, Co-Principal Investigators: Scott Rosenbaugh and John Reid, November 13, 2018 – October 32, 2020, Total Award: \$42,050, WsDOT: \$42,050, UNL: \$0], **WBS No. 26-1130-0103-001**.

Research at the Midwest Roadside Safety Facility at the University of Nebraska-Lincoln, Awarded by the Nebraska Department of Transportation, Project No. DPS-STWD-118(A), Control No. 00873, [Co-Principal Investigator (**50% credit**), Principal Investigator – Larry Rilett, December 13, 2018 – December 31, 2020, Total Award: \$420,680, NDOT: \$336,544, MwRSF-UNL: \$84,136], **WBS No. 26-1121-0034-001**.

Development of an Optimized MASH TL-4 Kansas Corral Rail (Kansas, Iowa, South Dakota, and Virginia), Awarded by the Kansas, Iowa, South Dakota, Nebraska, and Virginia Department of Transportations, TPF-5(193) Supplemental No. 151, [Co-Principal Investigator (**100% credit**), Principal Investigator: Robert Bielenberg, Co-Principal Investigators: Jim Holloway, Karla Lechtenberg, and Scott Rosenbaugh, November 13, 2018 – December 31, 2020, Total Award: \$401,400, Sponsor: \$401,400, UNL: \$0], **WBS No. 26-1113-0139-001**.

Project No. 1: Crash Testing of Various Guardrails and Transitions, Awarded by the Hawaii Department of Transportation, Sponsor Award No. 67176, 151, [Principal Investigator (**20% credit**), Co-Principal Investigators: Mojdeh Asadollahi Pajouh, Jim Holloway, Karla Lechtenberg, Robert Bielenberg, Scott Rosenbaugh, Sagheer Ranjha, John Reid, Jennifer Schmidt, Cody Stolle, Joshua Steelman, and Chung Song, October 22, 2018 – April 24, 2020, Total Award: \$799,563, Sponsor: \$799,563, UNL: \$0], **WBS No. 26-1113-0128-001**.

Midwest States Pooled Fund Program for Roadside Safety - Year 29 (2018-2021), Awarded by States of Florida, South Carolina, North Carolina, Kentucky, Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, Wyoming, Illinois, Indiana, New Jersey, California, Utah, and Virginia, TPF-5(193) Supplemental Nos. 138 through 150 (13 Projects), [Principal Investigator (**30% credit**), Co-Principal Investigators: Robert Bielenberg, Karla Lechtenberg, Scott Rosenbaugh, Cody Stolle, and Jennifer Schmidt, October 1, 2018 - December 31, 2021, Total Award: \$1,235,000, Sponsor: \$1,235,000, UNL: \$0], **WBS Nos. 26-1113-0139-001 through 26-1113-0151-001**.

NeTS: Small: Connected Barriers: Vehicle to Barrier Communication and Networking for Single-vehicle Crash Safety, Awarded by the National Science Foundation (NSF), Project/Subaward No. CNS-1816938, [Co-Principal Investigator (**25% credit**), Principal Investigator: Mehmet Can Vuran, Co-Principal Investigator: Cody Stolle, October 1, 2018 – September 30, 2021, Total Award: \$319,513, Sponsor: \$319,513, UNL: \$0], **WBS No. 25-0511-0185-001**.

Evaluation of MASH Test Vehicles, Awarded by the National Academy of Sciences, National Cooperative Highway Research Program (NCHRP), **Project/Subaward No. HR 20-07(372)**, Unit No. 905, [Co-Principal Investigator (**10% credit**), Principal Investigator: Code Stolle, Co-Principal Investigators: Robert Bielenberg, September 27, 2018 – December 26, 2019, Total Award: \$90,000, Sponsor: \$90,000, UNL: \$0], **WBS No. 26-1113-0138-001**.

Spokes: Medium: Midwest: Smart Big Data Pipeline for Aging Rural Bridge Transportation Infrastructure (SMARTI), Awarded by the National Science Foundation (NSF), RFP No. NSF 17-546, Project/Subaward No. 45-0811-1013-301, [Co-Principal Investigator (**7% credit**), Principal Investigator: Chungwook Sim, Co-Principal Investigators: Daniel Linzell, Larry Rilett, Hamid Sharif-Kashani, Chung Song, Christine Wittich, Wayne Woldt, Richard Wood, and Jinying Zhu, September 1, 2018 – August 31, 2019, Total Award: \$194,083, Sponsor: \$194,083, UNL: \$0], **WBS No. 26-1120-0097-001**.

Year 2 Investigation and Development of a MASH Test Level 6, Cost-Effective, Barrier System for Containing Heavy Tractor Tank-Trailer Vehicles and Mitigating Catastrophic Crash Events – Phase II, Awarded by the Mid-America Transportation Center, [Principal Investigator: Jennifer Schmidt, Co-Principal Investigators: Ronald Faller and Joshua Steelman, August 1, 2018 – January 31, 2020, Total Award: \$124,160, Sponsor: \$124,160, UNL: \$0], **WBS No. 25-1131-0005-043 or -041**, 30% Research Credit.

WISC-1-PCB-TIE-DOWN-MOD: Modification and MASH 2016 TL-3 Evaluation of the Asphalt Pin Tie-Down for F-Shape PCB, Awarded by the Wisconsin Department of Transportation, TPF-5(193) Supplemental No. 136, [Co-Principal Investigator (**20% credit**), Principal Investigator: Robert Bielenberg, Co-Principal Investigators: Cody Stolle and Jennifer Schmidt, August 7, 2018 – December 31, 2020, Total Award: \$160,984, Sponsor: \$160,984, UNL: \$0], **WBS No. 26-1113-0136-001**.

WISC-2-MASH-PORTABLE-BARRIER: Development of a New MASH 2016 TL-3 Portable Barrier System, Awarded by the Wisconsin Department of Transportation, TPF-5(193) Supplemental No. 137, [Co-Principal Investigator (**20% credit**), Principal Investigator: Robert Bielenberg, Co-Principal Investigators: Cody Stolle and Jennifer Schmidt, August 7, 2018 – December 31, 2020, Total Award: \$89,017, Sponsor: \$89,017, UNL: \$0], **WBS No. 26-1113-0137-001**.

NYSDOT-MASH-1: MASH 2016 Safety Hardware Evaluation – Phase 1 System B2a and B2b, Awarded by the New York State Department of Transportation, TPF-5(193) Supplemental No. 134, [Co-Principal Investigator (**20% credit**), Principal Investigator:

Karla Lechtenberg, Co-Principal Investigators: James Holloway, Jennifer Schmidt, Chung Song, Joshua Steelman, and Cody Stolle, August 1, 2018 - December 31, 2019, Total Award: \$955,951, NYSDOT: \$955,951, UNL: \$0], **WBS No. 26-1113-0135-001a.**

NYSDOT-MASH-1: MASH 2016 Safety Hardware Evaluation – Phase 1 System C1 and C3, Awarded by the New York State Department of Transportation, TPF-5(193) Supplemental No. 135, [Co-Principal Investigator (**20% credit**), Principal Investigator: Karla Lechtenberg, Co-Principal Investigators: James Holloway, Jennifer Schmidt, Chung Song, Joshua Steelman, and Cody Stolle, August 1, 2018 - December 31, 2019, Total Award: \$1,033,463, NYSDOT: \$1,033,463, UNL: \$0], **WBS No. 26-1113-0135-001b.**

Dynamic Evaluation of NCDOT's Combination Bridge Railing Under AASHTO MASH 2016 Test Level 3 Guidelines, Awarded by the North Carolina Department of Transportation and University of North Carolina-Charlotte, Sponsor Award No. 20180380-01-NEB, [Co-Principal Investigator (**10% credit**), Principal Investigator: Cody Stolle, Co-Principal Investigator: Robert Bielenberg, August 1, 2018 - December 31, 2019, Total Award: \$271,987, NYSDOT: \$271,987, UNL: \$0], **WBS No. 26-1113-0129-001.**

Evaluation of Crash Tested Bridge Railing for Wood Bridges, Awarded by the United States Department of Agriculture, Forest Service, Forest Products Laboratory, Project No. 18-JV-11111107-037, [Principal Investigator: Ronald Faller (**50% credit**), Co-Principal Investigators – Jennifer Schmidt and Scott Rosenbaugh, June 29, 2018 – June 30, 2019, Total Award: \$63,000, USDA-FS-FPL: \$50,000, UNL: \$13,000], **WBS No. 25-1113-0002-001.**

Evaluation of Modified Thrie Beam Guardrail Under MASH TL-3, Awarded by the New Jersey and California Departments of Transportation, TPF-5(193) Supplemental No. 132, [Co-Principal Investigator (**50% credit**), Principal Investigator: Robert Bielenberg, Co-Principal Investigator: John Reid, June 27, 2018 – December 31, 2019, Total Award: \$157,217, Sponsor: \$157,217, UNL: \$0], **WBS No. 26-1113-0132-001.**

Iowa-Sloped Ends-2: Crash Safety Evaluation of Concrete Barrier Sloped End Treatments, Awarded by the Iowa Department of Transportation, TPF-5(193) Supplemental No. 131, [Co-Principal Investigator (**40% credit**), Principal Investigator: Cody Stolle, Co-Principal Investigators: Robert Bielenberg and Jennifer Schmidt, June 27, 2018 – December 31, 2019, Total Award: \$75,000, Sponsor: \$75,000, UNL: \$0], **WBS No. 26-1113-0131-001.**

Iowa-Fence-1: Development and Evaluation of a MASH TL-3 Compliant, Parapet-Mounted, Fence, Awarded by the Iowa Department of Transportation, TPF-5(193) Supplemental No. 130, [Co-Principal Investigator (**40% credit**), Principal Investigator: Robert Bielenberg, Co-Principal Investigators: Cody Stolle and Jennifer Schmidt, June 27, 2018 – December 31, 2020, Total Award: \$120,088, Sponsor: \$120,088, UNL: \$0], **WBS No. 26-1113-0130-001.**

Determination of Zone of Intrusion Envelopes Under MASH Impact Conditions for Rigid Barrier, Awarded by the National Academy of Sciences, National Cooperative Highway Research Program (NCHRP), **Project/Subaward No. HR 22-34**, Unit No. 905, [Co-Principal Investigator (**20% credit**), Principal Investigator: Jennifer Schmidt, Co-Principal Investigators: Robert Bielenberg, Cody Stolle, and Mojdeh Asadollahi Pajouh, June 20, 2018 – June 19, 2021, Total Award: \$400,000, Sponsor: \$400,000, UNL: \$0], **WBS No. 26-1113-0116-001.**

Computer Simulation of a MASH TL-4 Soundwall, Awarded by Armttec, Research Agreement No. 123688, [Co-Principal Investigator (**30% credit**), Principal Investigator: Jennifer Schmidt, Co-Principal Investigator: Robert Bielenberg, May 2, 2018 – November 19, 2018, Total Award: \$54,818, Sponsor: \$54,818, UNL: \$0], **WBS No. 26-1113-0127-001.**

2017 (13 for \$4,998,709)

Crash Testing of MoDOT Devices, Awarded by the Missouri Department of Transportation, RFO 60170208LK, TPF-5(193) Supplemental No. 129, [Co-Principal Investigator (**50% credit**), Principal Investigator: Karla Lechtenberg, Co-Principal Investigators: James Holloway and Jennifer Schmidt, December 27, 2017 – February 28, 2020, Total Award: \$376,367, Sponsor: \$376,367, UNL: \$0], **WBS No. 26-1113-0114-001.**

New York State DOT Transition Between Box-Beam & Corrugated Beam (W-beam) Guide Rail Under AASHTO MASH 2016 TL-3 Guidelines, Awarded by the New York State Department of Transportation, TPF-5(193) Supplemental No. 128, [Principal Investigator (**100% credit**), Co-Principal Investigators: James Holloway, Karla Lechtenberg, Mojdeh Asadollahipajouh, and Sagheer Ranjha, October 18, 2017 - October 17, 2018, Total Award: \$236,626, NYSDOT: \$236,626, UNL: \$0], **WBS No. 26-1113-0110-001.**

Midwest States Pooled Fund Program for Roadside Safety - Year 28 (2017-2020), Awarded by States of Florida, South Carolina, North Carolina, Kentucky, Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, Wyoming, Illinois, Indiana, New Jersey, California, Utah, and Virginia, TPF-5(193) Supplemental Nos. 118 through 127 (10 Projects), [Co-Principal Investigator (**30% credit**), Principal Investigator: John Reid, Co-Principal Investigators: Robert Bielenberg, Karla Lechtenberg, Scott Rosenbaugh, and Jennifer Schmidt, September 15, 2017 - December 31, 2020, Total Award: \$1,154,970, Sponsor: \$1,154,970, UNL: \$0], **WBS Nos. 26-1113-0117-001 through 26-1113-0126-001**.

MASH TL-3 Evaluation of the Ohio Single-Slope Concrete Barrier, Awarded by the Ohio Department of Transportation, TPF-5(193) Supplemental No. 117, [Principal Investigator (**100% credit**), Co-Principal Investigator: Robert Bielenberg, August 3, 2017 – July 31, 2018, Total Award: \$135,414, Sponsor: \$135,414, UNL: \$0], **WBS No. 26-1113-0112-001**.

900-kg Car Simulation of the Restore Barrier, Awarded by Arbus Ltd., Award No. 110433, [Co-Principal Investigator (**50% credit**), Principal Investigator – Jennifer Schmidt, August 1, 2017 – October 30, 2017, Total Award: \$9,216, Sponsor: \$9,216, UNL: \$0], **WBS No. 26-1113-0113-001**.

Low-Cost, Sacrificial, Energy-Absorbing, Crash Cushion – Six Funding Phases, Awarded by TraFFix Devices Inc., Sponsor Award Nos. 109929, 124978, 127531, 129370, 132835, and 136372, [Principal Investigator (**33.4% credit**), Co-Principal Investigator: Robert Bielenberg, Karla Lechtenberg, James Holloway, Scott Rosenbaugh, Jennifer Schmidt, and Cody Stolle, July 1, 2017 – April 30, 2021, Total Award: \$1,218,785, Sponsor: \$1,218,785, UNL: \$0], **WBS No. 26-1113-0111-001**.

Technical Assistance Agreement, Awarded by the Central Federal Lands Highway Division, Federal Highway Administration, U.S. Department of Transportation, Reimbursable Agreement No. DTFH68-17-E-000042, [Principal Investigator (**100% credit**), June 21, 2017 – December 31, 2019, Total Award: \$30,000 maximum, Sponsor: \$30,000 maximum, UNL: \$0].

Testing Non-Proprietary Devices to MASH 2016 Criteria, Awarded by the Iowa Department of Transportation and the Smart Work-Zone Deployment Initiative (SWZDI) at Iowa State University, SWZDI Agreement No. TPF(295) and Contract No. 19023, [Co-Principal Investigator (**50% Credit**), Principal Investigator: Jennifer Schmidt, Co-Principal Investigator: Mojdeh Asadollahi Pajouh, May 1, 2017 - April 30, 2018, Total Award: \$63,811, SWZDI: \$63,811, UNL: \$0], **WBS Nos. 26-1113-0106-001**.

MN-1-NOISE: TL-3 Dynamic Testing and Evaluation of MnDOT's Noise Wall System Under AASHTO MASH 2016, Awarded by the Minnesota Department of Transportation, TPF-5(193) Supplemental No. 115, [Principal Investigator (**50% credit**), Co-Principal Investigators: James Holloway, Jennifer Schmidt, Karla Lechtenberg, and Scott Rosenbaugh, April 6, 2017 – March 31, 2018, Total Award: \$305,115, Sponsor: \$305,115, UNL: \$0], **WBS No. 26-1130-0108-001**.

Cost-Efficient, TL-2 Bridge Rail for Low-Volume Roads, Awarded by the Nebraska Department of Roads, Proposal No. SG-05, SPR-1(17) M068 with Supplement No. 1, [Co-Principal Investigator (**100% credit**), Principal Investigator: Scott Rosenbaugh and Co-Principal Investigators: Robert Bielenberg, February 9, 2017 – August 31, 2018, Total Award: \$309,141, NDOR: \$309,141, UNL: \$0], **WBS No. 26-1130-0107-001**.

RPFP-16-STBR-1: MASH TL-4 Steel Tube Bridge Rail and TL-3 Approach Guardrail Transition, Awarded by the Illinois and Ohio Departments of Transportation, TPF-5(193) Supplemental No. 116, [Principal Investigator (**50% credit**), Co-Principal Investigators: Jennifer Schmidt, Robert Bielenberg, and Scott Rosenbaugh, May 4, 2017 – September 30, 2019, Total Award: \$926,851, Sponsor: \$926,851, UNL: \$0], **WBS No. 26-1130-0109-001**.

Year 1 Investigation and Development of a MASH Test Level 6, Cost-Effective, Barrier System for Containing Heavy Tractor Tank-Trailer Vehicles and Mitigating Catastrophic Crash Events – Phase I, Awarded by the Mid-America Transportation Center, [Principal Investigator: Ronald Faller, Co-Principal Investigators: Jennifer Schmidt and Joshua Steelman, January 1, 2017 – September 30, 2018, Total Award: \$105,443, Sponsor: \$105,443, UNL: \$0], **WBS No. 25-1131-0005-041, 30% Research Credit**.

Enhancement of Research Infrastructure at the Midwest Roadside Safety Facility, Awarded by the Nebraska Department of Roads and U.S. DOT Federal Highway Administration, DPU-STWD(144), Project No. NE064, [Principal Investigator (**100% credit**), January 1, 2017 – December 31, 2017, Total Award: \$126,970, NDOR-FHWA: \$101,576, MwRSF-UNL: \$25,394], **WBS No. 26-1113-0105-001**.

2016

Heavy Truck and Bus Traversability at Highway-Rail Grade Crossings, Awarded by the University Transportation Center for Railway Safety [Co-Principal Investigator, Principal Investigator: Jennifer Schmidt, Co-Principal Investigators: Cody Stolle and

Mojdeh Asadollahipajouh, October 17, 2016 – June 30, 2018, Total Award: \$100,000, Sponsor: \$100,000, UNL: \$0], **WBS No. 26-1121-0018-011**.

Traffic Calming Elements for Entry Control Facility Threat Delay and Containment – Phase IV, Awarded by USSTRATCOM, Funded under National Strategic Research Institute (NSRI) Contract FA4600-12-D-9000-0062, Task Order with University Affiliated Research Center (UARC) Engineering, Research, and Development Services, [Co-Principal Investigator (**22.5% credit**), Principal Investigator: Larry Rilett, Co-Principal Investigators: Cody Stolle, John Reid, Jennifer Schmidt, and Elizabeth Jones, September 12, 2016 – September 11, 2017, Total Award: \$1,000,000, UNL Share: \$934,134, NSRI Share: \$65,866], **WBS No. 26-1121-0031-001**.

34-In. Tall Thrie-Beam Approach Guardrail Transition, Awarded by the Nebraska Department of Roads, TPF-5(193) Supplemental No. 103, [Principal Investigator (**50% credit**), Co-Principal Investigators: Robert Bielenberg, Scott Rosenbaugh, and John Reid, September 7, 2016 – March 31, 2018, Total Award: \$179,936, NDOR: \$179,936, UNL: \$0], **WBS No. 26-1130-0101-001**.

Dynamic Testing and Evaluation of MGS Installed in Asphalt Mow Strip with Nearby Asphalt Curb Under TL-3 Guidelines of AASHTO MASH 2016, Awarded by the Georgia Institute of Technology and Georgia Department of Transportation, Subcontract No. RH099-1, [Principal Investigator (**50% credit**), Co-Principal Investigators: Karla Lechtenberg, and John Reid, July 14, 2016 - July 14, 2017, Total Award: \$175,702, GIT and GDOT: \$175,702, UNL: \$0], **WBS No. 26-1130-0102-001**.

Dynamic Testing and Evaluation of a New York DOT Prototype Box Beam Guardrail End Terminal, Awarded by the New York State Department of Transportation, TPF-5(193) Supplemental No. 102, [Principal Investigator (**40% credit**), Co-Principal Investigators: Jennifer Schmidt, Karla Lechtenberg, and John Reid, August 15, 2016 - October 31, 2017, Total Award: \$265,250, NYSDOT: \$265,250, UNL: \$0], **WBS No. 26-1130-0100-001**.

WISC-2-PCB-Tie-Downs: Evaluation of Anchored Temporary Concrete Barrier to MASH 2016 TL-3, Awarded by the Wisconsin Department of Transportation, Agreement No. 18, State Project I.D.: 0656-22-06, Object Code: 2564, [Principal Investigator (**70% credit**), Co-Principal Investigators: Robert Bielenberg and John Reid, October 1, 2016 - May 31, 2018, Total Award: \$190,745, WsDOT: \$190,745, UNL: \$0], **WBS No. 26-1130-0104-001**.

WISC-3-MGS-Culvert: Dynamic Testing and Evaluation of a Culvert-Mounted, Strong-Post MGS to TL-3 Guidelines of MASH 2016, Awarded by the Wisconsin Department of Transportation, Agreement No. 19, State Project I.D.: 0656-22-06, Object Code: 2564, [Co-Principal Investigator (**50% credit**), Principal Investigator: Robert Bielenberg, Co-Principal Investigators: Scott Rosenbaugh and John Reid, October 1, 2016 - March 31, 2018, Total Award: \$233,945, WsDOT: \$233,945, UNL: \$0], **WBS No. 26-1130-0103-001**.

Midwest States Pooled Fund Program for Roadside Safety - Year 27 (2016-2019), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, Wyoming, Illinois, Indiana, New Jersey, California, Utah, and Virginia, TPF-5(193) Supplemental Nos. 104 through 112 (9 Projects), [Co-Principal Investigator (**40% credit**), Principal Investigator: John Reid, Co-Principal Investigators: Robert Bielenberg, Karla Lechtenberg, Scott Rosenbaugh, and Jennifer Schmidt, October 1, 2016 - September 30, 2019, Total Award: \$1,095,000, Sponsor: \$1,095,000, UNL: \$0], **WBS Nos. 26-1121-1130-001 through 26-1121-1138-001**.

Iowa DOT Combination Bridge Separation Barrier with Bicycle Railing, Awarded by the Iowa Department of Transportation, Agreement No. TPF-5(193) Supplement #101, [Principal Investigator (**50% credit**), Co-Principal Investigators – Robert Bielenberg, John Reid, and Scott Rosenbaugh, July 1, 2016 - December 31, 2018, Total Award: \$254,445, NDOR: \$254,445; UNL: \$0], **WBS Nos. 26-1113-0099-001**.

2015

Traffic Calming Elements for Entry Control Facility Threat Delay and Containment – Phase III, Awarded by USSTRATCOM, Funded under National Strategic Research Institute (NSRI) Contract FA4600-12-D-9000-0055, Task Order with University Affiliated Research Center (UARC) Engineering, Research, and Development Services, [Co-Principal Investigator (**20% credit**), Principal Investigator: Larry Rilett, Co-Principal Investigators: Cody Stolle, John Reid, and Elizabeth Jones, December 15, 2015 – August 14, 2017, Total Award: \$1,500,000, UNL Share: \$1,344,642, NSRI Share: \$155,358], **WBS No. 26-1121-0029-001**.

Samuel G. Maurer Memorial Roadside Safety Donation, Awarded by Samuel G. Maurer, [Principal Investigator (**100% credit**), January 7, 2016 - June 30, 2016, Total Award: \$1,200, Sponsor: \$1,200, UNL: \$0], **WBS Nos. 27-1121-1002-001**.

Attachment of Combination Rails to Concrete Parapets Utilizing Epoxy Adhesive Anchors – Phase II, Awarded by the Iowa Department of Transportation, Agreement No. TPF-5(193) Supplement #100, [Co-Principal Investigator (**50% credit**), Principal Investigator – Robert Bielenberg, Co-Principal Investigator: John Reid and Scott Rosenbaugh, September 23, 2015 - November 30, 2015, Total Award: \$33,488, NDOR: \$33,488; UNL: \$0], **WBS Nos. 26-1113-0097-001**.

Midwest States Pooled Fund Program for Roadside Safety - Year 26 (2015-2018), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, Ohio, Wyoming, Illinois, Indiana, and New Jersey, TPF-5(193) Supplemental Nos. 89 through 99 (11 Projects), [Co-Principal Investigator (**40% credit**), Principal Investigator: John Reid, Co-Principal Investigators: Robert Bielenberg, Karla Lechtenberg, Scott Rosenbaugh, and Jennifer Schmidt, October 1, 2015 - September 30, 2018, Total Award: \$780,000, Sponsor: \$780,000, UNL: \$0], **WBS Nos. 26-1121-1119-001 through 26-1121-1129-001**.

Traffic Calming Elements for Entry Control Facility Threat Delay and Containment – Phase II, Awarded by USSTRATCOM, Funded under National Strategic Research Institute (NSRI) Contract FA4600-12-D-9000-0051, Task Order with University Affiliated Research Center (UARC) Engineering, Research, and Development Services, [Co-Principal Investigator (**20% credit**), Principal Investigator: Larry Rilett, Co-Principal Investigators: Cody Stolle, John Reid, and Elizabeth Jones, September 30, 2015 – October 3, 2016, Total Award: \$1,000,000, UNL Share: \$953,654, NSRI Share: \$46,346], **WBS No. 26-1121-0027-001**.

Phase I Pavement Friction and Vehicle Performance Limits Evaluation, Awarded by Department of Defense – Offutt Air Force Base - USSTRATCOM, Funded under National Strategic Research Institute (NSRI) Contract FA4600-12-D-9000-0054, Support for U.S. Army Corps of Engineers, Task Order with University Affiliated Research Center (UARC) Engineering, Research, and Development Services, [Co-Principal Investigator (**20% credit**), Principal Investigator: Larry Rilett, Co-Principal Investigators: Cody Stolle, John Reid, and Elizabeth Jones, October 15, 2015 – October 14, 2016, Total Award: \$150,000, UNL Share: \$143,600, NSRI Share: \$6,400], **WBS No. 26-1121-0028-001**.

Application of MASH Test Criteria to Breakaway Sign and Luminaire Supports and Crashworthy Work-Zone Traffic Control Devices – Phase I Funding, Awarded by the National Cooperative Highway Research Program (NCHRP) and Subaward from George Mason University, NCHRP Project No. 03-119, [Principal Investigator (**25% credit**), Co-Principal Investigators: John Reid, Karla Lechtenberg, Jennifer Schmidt, and Cody Stolle, September 28, 2015 - October 31, 2021, Total Award: \$600,000; NCHRP/GMU Share: \$325,000; MwRSF-UNL Share: \$275,000], **WBS No. 26-1113-0098-001**.

Attachment of Combination Rails to Concrete Parapets Utilizing Epoxy Adhesive Anchors – Phase IB, Awarded by the Iowa Department of Transportation, Agreement No. TPF-5(193) Supplement #100, [Co-Principal Investigator (**50% credit**), Principal Investigator – Robert Bielenberg, Co-Principal Investigator: John Reid and Scott Rosenbaugh, September 23, 2015 – November 30, 2015, Total Award: \$33,488, IADOT: \$33,488; UNL: \$0], **WBS Nos. 26-1113-0097-001**.

Phase III Demonstration of PP Round Posts as Alternative to U.S. and AzDOT Standard 6"x8" SYP Rectangular Posts in G4(2w) Guardrail Systems, Awarded by the Forest Products Laboratory, Forest Service, U.S. Department of Agriculture (Primary) and Arizona State Forestry Division, Subaward Agreement No. 15DG11031600-018, Award No. WIN 15-901, [Principal Investigator (**50% credit**), Co-Principal Investigators: John Reid, Karla Lechtenberg, and Scott Rosenbaugh, September 21, 2015 - June 30, 2017, Total Award: \$102,864; USDA-FS-FPL: \$102,864; UNL: \$0], **WBS No. 26-1113-0096-001**.

Evaluation of New Jersey TCB Performance under MASH TL-3, Awarded by the New Jersey Department of Transportation, Agreement No. TPF-5(193) Supplement #88, Project No. TBD, [Principal Investigator (**50% credit**), Co-Principal Investigators – Karla Lechtenberg, Robert Bielenberg, Scott Rosenbaugh, and John Reid, April 1, 2015 - September 30, 2016, Total Award: \$702,369, New Jersey DOT: \$702,369; UNL: \$0], **WBS Nos. 26-1113-0095-001**.

Guidelines for Placement of Breakaway Light Poles Behind Midwest Guardrail System, Awarded by the Illinois Tollway, Agreement No. TPF-5(193) Supplement #87, Project No. RR-15-9177, [Principal Investigator (**50% credit**), Co-Principal Investigators – Robert Bielenberg and John Reid, June 23, 2015 - June 30, 2017, Total Award: \$262,603, Illinois Tollway: \$262,603; UNL: \$0], **WBS Nos. 26-1113-0094-001**.

Development of Concrete Bridge Rails, Median Barriers, and Roadside Barriers for Test Level 5 of AASHTO MASH in Manitoba, Canada, Awarded by the Government of Manitoba Infrastructure and Transportation, ESAIAF No. 2015-17-TE, [Principal Investigator (**70% credit**), Co-Principal Investigators – Scott Rosenbaugh and Jennifer Schmidt, February 16, 2015 - June 30, 2016, Total Award: \$297,890, Manitoba Infrastructure & Transportation: \$297,890; UNL: \$0], **WBS Nos. 26-1113-0093-001**.

Phase II Conceptual Development of an Impact Attenuation System for Intersecting Roadways, Awarded by the Nebraska Department of Roads, NDOR Agreement No. TPF-5(193) Supplement #86, NDOR Project Designation TSPTI-02, [Principal

Investigator (**50% credit**), Co-Principal Investigators: Robert Bielenberg and John Reid, July 1, 2015 - December 31, 2016, Total Award: \$256,184, NDOR: \$256,184, UNL: \$0], **WBS No. 26-1121-1118-001**.

2014

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, [Co-Principal Investigator, Principal Investigator – Robert Bielenberg, Co-Principal Investigator: 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, [Co-Principal Investigator, Principal Investigator – Robert Bielenberg, Co-Principal Investigator: 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, [Co-Principal Investigator, Principal Investigator – Robert Bielenberg, Co-Principal Investigator: 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**.

Vehicle Threat Delay Calculator, Awarded by Department of Defense – Offutt Air Force Base - USSTRATCOM, Funded under National Strategic Research Institute (NSRI) Contract FA4600-12-D-9000-0041, Support for U.S. Army Corps of Engineers, Task Order with University Affiliated Research Center (UARC) Engineering, Research, and Development Services, [Co-Principal Investigator (**25% credit**), Principal Investigator: Larry Rilett, Co-Principal Investigators: Elizabeth Jones and Cody Stolle, September 29, 2014 – September 29, 2015, Total Award: \$100,000, UNL Share: \$95,534, NSRI Share: \$4,466], **WBS No. 26-1121-0022-001**.

Dynamic Bogie Testing Services, Awarded by Road Systems Inc., [Co-Principal Investigator, Principal Investigator: James Holloway, 2014, Total Award: \$27,745.54, Sponsor: \$27,745.54, UNL: \$0].

Manufacturing Extension Partnership Center for Nebraska, Awarded by Department of Commerce – National Institute of Standards and Technology (NIST), [Co-Principal Investigator, Principal Investigator: Curtis Weller, Co-Principal Investigators: Timothy Wei, January 1, 2014 – December 31, 2014, Total Award: \$1,200,000, Sponsor: \$600,000, UNL: \$600,000], **WBS No. 25-6309-0050-001 (Year 1)**.

2013

Traffic Calming Elements for Entry Control Facility Threat Delay and Containment TO 0025, Awarded by USSTRATCOM, Funded under National Strategic Research Institute (NSRI) Contract FA4600-12-D-9000, Task Order with University Affiliated Research Center (UARC) Engineering, Research, and Development Services, [Co-Principal Investigator, Principal Investigator: Larry Rilett, Co-Principal Investigators: Elizabeth Jones and John Reid, October 10, 2013 – October 9, 2014, Total Award: \$499,933, Sponsor: \$499,933, UNL: \$0], **WBS No. 26-1121-0017-001**.

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**.

Testing of Cable Median Barrier in a Narrow Ditch, Awarded by Texas A&M University and Texas A&M Transportation Institute, [Principal Investigator, June 1, 2013 - December 31, 2013, Total Award: \$15,000, Sponsor: \$15,000, UNL: \$0], **WBS No. 26-1121-1092-001**.

Black Spot Cross-Median Crash Study to Evaluate Statewide Cable Median Barrier Policy, Awarded by the Kansas Department of Transportation, TPF-5(193) Supplemental No. 71, [Principal Investigator, Co-Principal Investigators: Dean Sicking, August 1, 2011 - August 31, 2013, Total Award: \$32,045, Sponsor: \$32,045, UNL: \$0], **WBS No. 26-1121-1104-001**.

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**.

Determination of PP Round Posts for Use as Alternative to U.S. Standard 6"x8" SYP Rectangular Posts, Awarded by the Forest Products Laboratory, Forest Service, U.S. Department of Agriculture, Agreement No. 13-JV-11111133-035, [Principal Investigator, Co-Principal Investigators: John Reid, Dean Sicking and Scott Rosenbaugh, April 1, 2013 - March 31, 2014, Total Award: \$89,746; FPL: \$71,227; UNL: \$18,519], **WBS No. 25-1121-1005-001**.

Ponderosa Pine Round Post Equivalency Study, Awarded by Arizona Log & TimberWorks, [Principal Investigator, Co-Principal Investigator: John Reid and Scott Rosenbaugh, March 1, 2013 - August 31, 2013, Total Award: \$20,000, Sponsor: \$20,000, UNL: \$0], **WBS No. 26-1121-1091-001**.

Evaluation of As-Built SKT Hinged-Post Guardrail Terminals, Awarded by Mountain West Holding Company, [Co-Principal Investigator, Co-Principal Investigator: John Reid, Co-Principal Investigators: John Rohde and Karla Lechtenberg, April 1, 2013 - March 31, 2014, Total Award: \$75,679, Sponsor: \$75,679, UNL: \$0], **WBS No. 26-1121-1093-001**.

Dynamic Testing and Evaluation of Mondo Polymer Technologies 12" Deep Blockout, Awarded by Mondo Polymer Technologies, [Co-Principal Investigator, Principal Investigator: Karla Lechtenberg, January 1, 2013 - August 31, 2013, Total Award: \$24,360, Sponsor: \$24,360, UNL: \$0], **WBS No. 26-1121-1089-001**.

2012

Roadside Safety Research, Phase III Funding, Awarded by Miscellaneous Sources, [Co-Principal Investigator, Principal Investigator: Dean Sicking, Co-Principal Investigators: John Reid, December 17, 2012 - March 17, 2014, Total Award: \$1,013,738, Sponsor: \$1,013,738, UNL: \$0], **WBS No. 26-1121-1086-001**.

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**.

Enhancement of Research Infrastructure at the Midwest Roadside Safety Facility, Awarded by the Nebraska Department of Roads, [Co-Principal Investigator, Principal Investigator: Dean Sicking, July 5, 2012 - June 30, 2013, Total Award: \$43,625; NDOR: \$34,900; MwRSF: \$8,725; UNL: \$0], **WBS No. 26-1121-1088-001**.

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], **WBS Nos. 26-1121-1075-001 and 26-1121-1077-001**.

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], **WBS No. 26-1121-1076-001**.

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. 12-DG-1111169-033, [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], **WBS No. 25-1121-1003-001**.

Dynamic Testing and Evaluation of Temporary Concrete Barrier Under MASH, Awarded by Powell Contracting Ltd., [Principal Investigator, Co-Principal Investigators: Dean Sicking, John Reid, Karla Lechtenberg, and Robert Bielenberg, February 1, 2012 - December 31, 2012, Total Award: \$58,997, Sponsor: \$58,997, UNL: \$0], **WBS No. 26-1121-1073-001**.

2011

Dynamic Evaluation of Curved Run of Cable Guide Rail Under MASH TL-3 Impact, Awarded by the New York State Department of Transportation and the Nebraska Department of Roads, TPF-5(193) Supplemental No. 52, [Principal Investigator, Co-Principal Investigators: Dean Sicking, John Reid, Karla Lechtenberg, and Robert Bielenberg, December 15, 2011 - December 31, 2012, Total Award: \$58,350, Sponsor: \$58,350, UNL: \$0], **WBS No. 26-1121-1074-001**.

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**.

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].

FY 2012 Wisconsin DOT Roadside Safety Research Program (2011-2014), Roadside Grading Guidance - Phase II - TPF-5(193) Supplemental No. 43, Awarded by Wisconsin Department of Transportation, [Co-Principal Investigator, Principal Investigator: John Reid, Co-Principal Investigator: Dean Sicking, 2011-2014, Total Award: \$199,502, Sponsor: \$199,502, UNL: \$0].

FY 2012 Wisconsin DOT Roadside Safety Research Program (2011-2014), Zone of Intrusion for 36", 42", and 56" Single-Slope Concrete Barriers - TPF-5(193) Supplemental No. 42, Awarded by Wisconsin Department of Transportation, [Co-Principal Investigator, Principal Investigator: John Reid, Co-Principal Investigator: Dean Sicking, 2011-2014, Total Award: \$58,942, Sponsor: \$58,942, UNL: \$0].

FY 2012 Wisconsin DOT Roadside Safety Research Program (2011-2014), Crashworthy Pedestrian Rail - TPF-5(193) Supplemental No. 41, Awarded by Wisconsin Department of Transportation, [Co-Principal Investigator, Principal Investigator: John Reid, Co-Principal Investigator: Dean Sicking, 2011-2014, Total Award: \$234,629, Sponsor: \$234,629, UNL: \$0].

FY 2012 Wisconsin DOT Roadside Safety Research Program (2011-2014), Length of Need - B/C Analysis - TPF-5(193) Supplemental No. 40, Awarded by Wisconsin Department of Transportation, [Co-Principal Investigator, Principal Investigator: John Reid, Co-Principal Investigator: Dean Sicking, 2011-2014, Total Award: \$113,499, Sponsor: \$113,499, UNL: \$0].

Dynamic Testing and Evaluation of a New Guardrail Post for the Midwest Guardrail System in Blocked and Non-Blocked Applications, Awarded by Roll Form Group, [Co-Principal Investigator, Principal Investigator: John Reid, 2011-2012, Total Award: \$237,901, Sponsor: \$237,901, 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].

2010

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].

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].

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, [Co-Principal Investigator, 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, [Co-Principal Investigator, 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, [Co-Principal Investigator, Principal Investigator: John Reid, Co-Principal Investigator: Dean Sicking, 2010-2013, Total Award: \$57,929, Sponsor: \$57,929, UNL: \$0].

Evaluation of Valmont Industries' Decorative Clamshell Bases on Luminaire Poles, Awarded by Valmont Industries, Inc., [Co-Principal Investigator, Co-Principal Investigators: Karla Lechtenberg and Scott Rosenbaugh, 2010, Total Award: \$12,674, Sponsor: \$12,674, 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, 2010-2011, Project and Budget Include Contract Modification No. 1, Total Award: \$153,001, Sponsor: \$153,001, UNL: \$0].

Safety Investigation and Guidance for Retrofitting Existing Approach Guardrail Transitions, Awarded by Wisconsin Department of Transportation, TPF-5(193) Supplemental No. 26, [Co-Principal Investigator, Principal Investigator: John Reid, Co-Principal Investigators: Dean Sicking and Scott Rosenbaugh, 2010-2011, Total Award: \$100,251, Sponsor: \$100,251, UNL: \$0].

Evaluation of Valmont Industries' Decorative Clamshell Bases on Luminaire Poles, Awarded by Valmont Industries, Inc., [Co-Principal Investigator, Co-Principal Investigators: Karla Lechtenberg and Scott Rosenbaugh, 2009-2010, Total Award: \$33,736, Sponsor: \$33,736, UNL: \$0].

Adaptation of the SAFER Barrier for Roadside and Median Barrier Applications, Awarded by the Nebraska Department of Roads and Federal Highway Administration, U.S. Department of Transportation, Contract No. DPU-STWD(94), [Principal Investigator, Co-Principal Investigators: Dean Sicking and John Reid, 2009-2014, Total Award: \$990,000, Sponsor: \$990,000, UNL: \$0], **WBS No. 26-1121-1036-001 through WBS No. 26-1121-1036-005**.

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].

Technical Services Contract with FLHD-FHWA (2009-2011), Awarded by the Central Federal Lands Highway Division, Federal Highway Administration, U.S. Department of Transportation, Agreement No. DTFH68-09-E-00120, [Principal Investigator, Co-Principal Investigator: John Reid, 2009-2011, Total Award: \$30,000, Sponsor: \$30,000, UNL: \$0].

Safety Investigation and Guidance for Work-Zone Devices Subjected to Passenger Car and Truck Impacts with New Crash Standards, Awarded by Smart Work Zone Deployment Initiative (SWZDI) Pooled Fund Study with the States of Iowa, Kansas, Missouri, Nebraska, and Wisconsin, [Principal Investigator, Co-Principal Investigators: Karla Lechtenberg, James Holloway, and Dean Sicking, 2009-2010, Total Award: \$50,000, Sponsor: \$50,000, 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].

Research, Development, Testing, and Evaluation of Foam Block Energy Absorbers for Use in SAFER Barrier, Awarded by Owens Corning - Foam Engineered Products, [Co-Principal Investigator, 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, [Co-Principal Investigator, Principal Investigator: John Reid, Co-Principal Investigator: Dean Sicking, 2009-2012, Total Award: \$600,000, Sponsor: \$600,000, UNL: \$0].

Dynamic Evaluation of New York State's Pinned Temporary Concrete Barrier, Awarded by the New York State Department of Transportation and the Nebraska Department of Roads, TPF-5(193) Supplemental No. 11, [Principal Investigator, Co-Principal Investigators: Dean Sicking and John Reid, 2009, Total Award: \$57,734, Sponsor: \$57,734, 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].

Roadside Safety Training and PowerPoint Presentation, Awarded by the Central Federal Lands Highway Division, Federal Highway Administration, [Principal Investigator: 2009, Total Award: \$753.49, Sponsor: \$753.49, 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].

Dynamic Evaluation of a Modified Type IIA Box Beam Terminal Using the MASH 2008 Guidelines, Awarded by the New York State Department of Transportation and the Nebraska Department of Roads, TPF-5(193) Supplemental No. 9, [Principal Investigator, Co-Principal Investigators: Dean Sicking, John Reid, and Karla Lechtenberg, 2009, Total Award: \$112,626, Sponsor: \$112,626, UNL: \$0].

Dynamic Evaluation of a 20-In. Tall, TL-2 Stone Masonry Barrier Using the MASH 2008 Guidelines, Awarded by the Central Federal Lands Highway Division, Federal Highway Administration, U.S. Department of Transportation, Agreement No. DTFH68-07-E-00010 Mod 4, [Principal Investigator, Co-Principal Investigator: John Reid, 2008-2009, Total Award: \$50,000, Sponsor: \$50,000, UNL: \$0].

Dynamic Evaluation of New York State's Pinned Temporary Concrete Barrier, Awarded by the New York State Department of Transportation and the Nebraska Department of Roads, TPF-5(193) Supplemental No. 8, [Principal Investigator, Co-Principal Investigators: Dean Sicking and John Reid, 2008-2009, Total Award: \$50,766, Sponsor: \$50,766, UNL: \$0].

RSAP Data Analysis, Awarded by the Kansas Department of Transportation and the Nebraska Department of Roads, SPR-3(017) Supplemental No. 56, [Co-Principal Investigator, Principal Investigator: Dean Sicking, 2008-2009, Total Award: \$10,078, Sponsor: \$10,078, 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, [Co-Principal Investigator, 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, [Co-Principal Investigator, 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, [Co-Principal Investigator, Principal Investigator: John Rohde, 2008-2009, Total Award: \$12,350, Sponsor: \$12,350, UNL: \$0].

Safety Investigation and Guidance for Work-Zone Devices in Freight Transportation Systems Subjected to Passenger Car and Pickup truck Impacts with New Crash Standards, Awarded by the Dicke Tool Company and the Mid-America Transportation Center (MATC), [Principal Investigator, Co-Principal Investigators: Karla Polivka, Jim Holloway, and Dean Sicking, 2008-2009, Total Award: 120,000, Sponsor: \$120,000 (Dicke Tool Company - \$60,000 and MATC - \$60,000), UNL: \$0].

Dynamic Testing and Evaluation of a New TCB for FRP Bridge Deck Applications, Awarded by the Kansas Department of Transportation, [Principal Investigator, Co-Principal Investigators: Dean Sicking and John Reid, 2008-2009, Total Award: \$56,152, Sponsor: \$56,152, UNL: \$0].

Dynamic Evaluation of Box Beam End Terminal Using the MASH 2008 Guidelines, Awarded by the New York State Department of Transportation and the Nebraska Department of Roads, SPR-3(017) Supplemental No. 56, [Co-Principal Investigator, Principal Investigator: Dean Sicking, Co-Principal Investigators: John Reid, 2008, Total Award: \$204,533, Sponsor: \$204,533, UNL: \$0].

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

Analysis, Design, and Dynamic Evaluation of a TL-2 Stone Masonry Barrier Using the MASH 2008 Guidelines, Awarded by the Central Federal Lands Highway Division, Federal Highway Administration, U.S. Department of Transportation, Agreement No. DTFH68-08-E-00033, [Principal Investigator, Co-Principal Investigators: John Reid, 2008-2009, Total Award: \$141,545, Sponsor: \$141,545, 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].

Continued Evaluation of SAFER Applications, Awarded by Motorsports Safety Technology, [Principal Investigator, 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].

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].

Dynamic Evaluation of Temporary Work Zone Devices, Awarded by Skrips Marketing, Inc. of Fishers, Indiana, [Principal Investigator, Co-Principal Investigators: James Holloway and Karla Polivka, April 2007, Total Award: \$2,454.50, Sponsor: \$2,454.50, UNL: \$0].

Development of an Economical Guardrail System for Use on Gabion Walls, Contract Modification No. 2, Awarded by the Central Federal Lands Highway Division, Federal Highway Administration, U.S. Department of Transportation, Agreement No. DTFH68-07-E-00010 Mod 2, [Principal Investigator, Co-Principal Investigators: John Rohde, Dean Sicking, and John Reid, 2007-2008, Total Award: \$150,000].

Development of an Economical Guardrail System for Use on Gabion Walls, Contract Modification No. 1, Awarded by the Central Federal Lands Highway Division, Federal Highway Administration, U.S. Department of Transportation, Agreement No. DTFH68-07-E-00010 Mod 1, [Principal Investigator, Co-Principal Investigators: John Rohde, Dean Sicking, and John Reid, 2007-2008, Total Award: \$150,000].

Development of an Economical Guardrail System for Use on Gabion Walls, Awarded by the Central Federal Lands Highway Division, Federal Highway Administration, U.S. Department of Transportation, Agreement No. DTFH68-07-E-00010, [Principal Investigator, Co-Principal Investigators: John Rohde, Dean Sicking, and John Reid, 2007-2008, Total Award: \$100,000].

Phase II Re-Evaluation of the Type I-TR End Terminal for Box Beam, 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: John Reid, 2007-2008, Total Award: \$41,753].

Phase II 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: John Reid, 2007-2008, Total Award: \$53,109].

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].

Midwest States Pooled Fund Program for Roadside Safety - Year 17 (2006-2008), 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, 2006-2008, Total Award: \$545,000, Sponsor: \$545,000, UNL: \$0].

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].

Project No. 14 - 2007 SAFER Barrier Training and Maintenance, Awarded by Indy Racing League, [Co-Principal Investigator, Principal Investigator - Dean Sicking, Co-Principal Investigators: John Rohde, 2006-2007, Total Award: \$16,300].

Dynamic Testing and Evaluation of the Car of Tomorrow, Awarded by NASCAR R&D Center, [Co-Principal Investigator, Principal Investigator - John Reid, Co-Principal Investigators: John Rohde and Dean Sicking, and James Holloway, 2006-2007, Total Award: \$109,374, Sponsor: \$109,374, UNL: \$0].

Development of a New, Precast Concrete Bridge Railing System, Awarded by the Nebraska Department of Roads, NDOR Project No. SPR-P1(07) P596, [Principal Investigator, Co-Principal Investigators: John Reid, Maher Tadros, and Robert Bielenberg, 2006-2008, Total Award: \$229,726, Sponsor: \$229,726, UNL: \$0].

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].

TL-4 Single-Unit Truck Test into Tensioned Cable Barrier on a 4:1 Slope (Modification of the Midwest States Pooled Fund Program for Roadside Safety - Year 16 (2005-2006)), Awarded by State of Wyoming, [Co-Principal Investigator, Principal Investigator: John Rohde, Co-Principal Investigators: John Reid and Dean Sicking, 2005-2006, Total Award: \$55,000, Sponsor: \$55,000, UNL: \$0].

Dynamic Evaluation of Temporary Work Zone Devices, Awarded by Traffic Control West, Inc., [Co-Principal Investigator, Co-Principal Investigator: Karla Polivka and James Holloway, 2006, Total Award: \$1,425, Sponsor: \$1,425, 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, [Co-Principal Investigator, Principal Investigator: Dean Sicking, Co-Principal Investigators: John Rohde and John Reid, Study: 2005-2006, Total Award: \$54,269].

Dynamic Evaluation of Temporary Work Zone Devices, Awarded by Geyer Signal of St. Cloud MN, [Principal Investigator, Co-Principal Investigators: James Holloway and Karla Polivka, January 2006, Total Award: \$9,200, Sponsor: \$9,200, UNL: \$0].

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 [Co-Principal Investigator, Principal Investigator: Dean Sicking, Co-Principal Investigators: John Rohde and John Reid, Study: 2005-2006, Total Award: \$118,259].

Dynamic Evaluation of Temporary Work Zone Devices, Awarded by Dicke Tool Company, [Principal Investigator, Co-Principal Investigator: James Holloway, 2005, Total Award: \$18,290, Sponsor: \$18,290, UNL: \$0].

Dynamic Evaluation of Temporary Work Zone Devices, Awarded by Dicke Tool Company, [Principal Investigator, Co-Principal Investigator: James Holloway and Karla Polivka, 2005, Total Award: \$8,750, Sponsor: \$8,750, UNL: \$0].

Engineering and Review Services for Noise Barriers, Awarded by HDR Engineering, Inc., [Principal Investigator, 2005, Total Award: \$738.09].

Dynamic Evaluation of Temporary Work Zone Devices, Awarded by CC Enterprises - Traffic Control Specialists, Inc., [Principal Investigator, Co-Principal Investigator: James Holloway and Karla Polivka, 2005, Total Award: \$1,400, Sponsor: \$1,400, UNL: \$0].

Retest of the Steel Post Bullnose with a 2000P Vehicle, Awarded by the Minnesota Department of Transportation, [Co-Principal Investigator, 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, [Co-Principal Investigator, Principal Investigator: John Rohde, Co-Principal Investigators: John Reid and Dean Sicking, 2005-2006, Total Award: \$535,000, Sponsor: \$535,000, UNL: \$0].

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

Additional Engineering and Review Services for TL-4 and TL-3 Design Variations, Awarded by CYRO Industries, [Principal Investigator, 2005, Total Award: \$3,354.94].

Data/Film Analysis for Drop testing, Awarded by Intellistrobe Safety Systems, Inc., [Co-Principal Investigator: James Holloway, 2004, Total Award: \$600].

Improving Race Track Containment Fences, Awarded by Indy Racing League and NASCAR, [Principal Investigator, 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, [Principal Investigator, 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, [Principal Investigator, 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, [Principal Investigator, 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, [Principal Investigator, 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, [Principal Investigator, 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, [Principal Investigator, 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, [Principal Investigator, 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, Connecticut, and Illinois [Co-Principal Investigator, Principal Investigator: John Rohde, Co-Principal Investigators: John Reid and Dean Sicking, 2004-2005, Total Award: \$545,000, Sponsor: \$545,000, UNL: \$0].

Dynamic Bogie Testing of Douglas Fir Posts Under Shear Loading, Awarded by Champion Rodolff LLP, [Principal Investigator, September 2004, Total Award: \$3,850, Sponsor: \$3,850, UNL: \$0].

Dynamic Evaluation of a New Noise Wall System Using an 2000P Vehicle, Awarded by CYRO Industries, [Principal Investigator, Co-Principal Investigators: John Rohde, Dean Sicking, and John Reid, 2004-2005, Total Award: \$44,445].

Bogie Testing of Workzone Devices, Awarded by Dicke Tool Company, [Co-Principal Investigator: James Holloway, August through September 2004, Total Award: \$13,460].

Project Consulting and Additional Construction Materials, Awarded by CYRO Industries, [Principal Investigator, 2004, Total Award: \$858.89].

Dynamic Bogie Testing of Douglas Fir Posts Under Cantilevered Loading, Awarded by Champion Rodolff LLP, [Principal Investigator, June 2004, Total Award: \$9,850, Sponsor: \$9,850, UNL: \$0].

Bogie Testing of Workzone Devices, Awarded by Remcon Plastics, Inc., [Co-Principal Investigator: James Holloway, July 20-22, 2004, Total Award: \$4,350].

Bogie Testing of Workzone Devices, Awarded by Three D Traffic Works, [Co-Principal Investigator: James Holloway, July 9, 2004, Total Award: \$2,187.50].

Bogie Testing of Workzone Devices, Awarded by Intellistrobe Safety Systems, Inc., [Co-Principal Investigator: James Holloway, June-July 2004, Total Award: \$1,400].

Bogie Testing of Small Sign Supports, Awarded by Allied Tube and Conduit, [Co-Principal Investigator: James Holloway, June 2-4, 2004, Total Award: \$4,100].

Bogie Testing of Workzone Devices, Awarded by Intellistrobe Safety Systems, Inc., [Co-Principal Investigator: James Holloway, May 27, 2004, Total Award: \$2,450].

Crash Testing of Minnesota Department of Transportation Work-Zone Devices - 2004 Add-On, Awarded by the Minnesota Department of Transportation, [Co-Principal Investigator, Co-Principal Investigators: John Rohde and Jim Holloway, 2004-2005, Total Award: \$19,321, Sponsor: \$19,321, UNL: \$0].

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

Static Test Evaluation to Optimize Barrier Anchorage, Awarded by the Kansas Department of Transportation, [Principal Investigator, Co-Principal Investigators: John Rohde and Dean Sicking, 2002-2004, Total Award: \$5,889].

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

Bogie Testing of Workzone Devices, Awarded by Three D Traffic Works, [Co-Principal Investigator: James Holloway, March 23, 2004, Total Award: \$1,400].

Bogie Testing of Workzone Devices, Awarded by Intellistrobe Safety Systems, Inc., [Co-Principal Investigator: James Holloway, March 18, 2004, Total Award: \$1,000].

Guidelines for Safety Treatment of Roadside Culverts, Awarded by Iowa Department of Transportation, [Co-Principal Investigator, Principal Investigator: Dean Sicking., 2004-2005, Total Award: \$24,995].

Bogie Testing of Paraglass Panels, Awarded by CYRO Industries, [Principal Investigator, Co-Principal Investigators: John Rohde, November 13, 2003, Total Award: \$7,500].

Bogie Testing of Breakaway Sign Supports, Awarded by Designovations, Inc., [Principal Investigator, Co-Principal Investigator: James Holloway, August through October 2003, Total Award: \$8,000].

Bogie Testing of Workzone Devices, Awarded by Dicke Tool Company, [Co-Principal Investigator: James Holloway, September through October 2003, Total Award: \$14,750].

Investigating the Use of Small-Diameter Softwood as Guardrail Posts, Awarded by the U.S.D.A. Forest Service, Forest Products Laboratory, [Co-Principal Investigator, Principal Investigator: John Reid, 2003-2006, Total Award: \$351,014, Sponsor: \$280,000, UNL: \$71,014].

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

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 Investigator, Principal Investigator: John Rohde, Co-Principal Investigators: John Reid and Dean Sicking, 2003-2004, Total Award: \$545,000, Sponsor: \$545,000, UNL: \$0].

TL-2 Small Car Test Evaluation of a Longitudinal Channelizer Device - Additional Funds for Re-Test, Awarded by ROO GUARDS, INC., [Principal Investigator, Co-Principal Investigators: John Rohde and James Holloway, 2003, Total Award: \$18,498].

Compliant Bogie Testing of Workzone Devices, Awarded by Dicke Tool Company, [Co-Principal Investigator: James Holloway, July 8, 2003, Total Award: \$24,850].

TL-2 Small Car Test Evaluation of a Longitudinal Channelizer Device, Awarded by ROO GUARDS, INC., [Principal Investigator, Co-Principal Investigators: John Rohde and James Holloway, 2003, Total Award: \$28,924].

Design, Analysis, and Testing of a New Noise Wall System, Awarded by CYRO Industries, [Principal Investigator, Co-Principal Investigators: John Rohde, Dean Sicking, and John Reid, 2003, Total Award: \$69,872].

Analysis, Design, and Dynamic Evaluation of a New, TL-5 Aesthetic Concrete Median Barrier and Bridge Railing System - Phase II, Awarded by the Nebraska Department of Roads, [Principal Investigator, Co-Principal Investigators: Dean Sicking and John Rohde, 2002-2003, Total Award: \$42,961].

TL-2 Small Car Test, Awarded by Roo Guards, Inc., [Principal Investigator, Co-Principal Investigators: John Rohde and James Holloway, 2003, Total Award: \$28,925].

Bogie Testing of Workzone Devices, Awarded by Three D Traffic Works, [Co-Principal Investigator: James Holloway, May 15, 2003, Total Award: \$1,400].

Bogie Testing of Workzone Devices, Awarded by Three D Traffic Works, [Co-Principal Investigator: James Holloway, April 28, 2003, Total Award: \$1,400].

Bogie Testing of Workzone Devices, Awarded by ROO GUARDS INC., [Co-Principal Investigator: James Holloway, April 28, 2003, Total Award: \$1,400].

Timber Rub-Rail for Noise Walls, Awarded by the Minnesota Department of Transportation, [Co-Principal Investigator, Principal Investigator: John Rohde, Co-Principal Investigator: Dean Sicking, 2003-2004, Total Award: \$84,995].

Bogie Testing of Workzone Devices, Awarded by Services and Materials Company, [Co-Principal Investigator: James Holloway, April 17, 2003, Total Award: \$4,550].

Bogie Testing of Small, State Patrol Vehicle Sign Support Systems, Awarded by Gleason & Son Signs, Inc., [Co-Principal Investigator: James Holloway, January 30, 2003, Total Award: \$2,450].

Bogie Testing of Workzone Devices, Awarded by Services and Materials Company, [Co-Principal Investigator: James Holloway, January 29, 2003, Total Award: \$2,450].

Bogie Testing of Workzone Devices, Awarded by Services and Materials Company, [Co-Principal Investigator: James Holloway, January 8, 2003, Total Award: \$2,450].

Bogie Testing of Workzone Devices, Awarded by ROO GUARDS INC., [Co-Principal Investigator: James Holloway, January 8, 2003, Total Award: \$2,450].

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 Robert Bielenberg, 2003, Total Award: \$6,832].

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, [Co-Principal Investigator, 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, [Co-Principal Investigator, Principal Investigator: John Rohde, Co-Principal Investigator: Jim Holloway, 2002-2004, Total Award: \$34,994].

Analysis, Design, and Dynamic Evaluation of a New, TL-5 Aesthetic Concrete Median Barrier and Bridge Railing System, Awarded by the Nebraska Department of Roads, [Principal Investigator, Co-Principal Investigators: Dean Sicking and John Rohde, 2002-2003, Total Award: \$117,754].

Dynamic Evaluation of a Safety Shape Concrete Barrier for Use on Prefabricated Composite Bridge Deck Panels, Awarded by the Kansas Department of Transportation, [Principal Investigator, Co-Principal Investigators: Dean Sicking, 2002-2003, Total Award: \$42,911].

Bogie Testing of Steel Posts on Composite Bridge Deck, Awarded by the Kansas Department of Transportation, [Principal Investigator, Co-Principal Investigators: Dean Sicking, 2002-2003, Total Award: \$28,602].

Development of Steel Tube and Foam Energy Reduction (SAFER) Barrier for Small Radius Racetrack Applications, Awarded by Indy Racing League, [Principal Investigator, 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, [Principal Investigator, 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].

Bogie Testing of Small Sign Supports, Awarded by Allied Tube and Conduit, [Co-Principal Investigator: James Holloway, August 30, 2002, Total Award: \$3,750].

Bogie Testing of Small Sign Supports, Awarded by Allied Tube and Conduit, [Co-Principal Investigator: James Holloway, August 27, 2002, Total Award: \$5,450].

Bogie Testing of Small Sign Supports, Awarded by Allied Tube and Conduit, [Co-Principal Investigator: James Holloway, July 10, 2002, Total Award: \$2,050].

Bogie Testing of Small, State Patrol Vehicle Sign Support Systems, Awarded by Gleason & Son Signs, Inc., [Co-Principal Investigator: James Holloway, July 19, 2002, Total Award: \$1,650].

Bogie Testing of Small Sign Supports, Awarded by Allied Tube and Conduit, [Co-Principal Investigator: James Holloway, June 25, 2002, Total Award: \$4,600].

Bogie Testing of Workzone Devices, Awarded by Dicke Tool Company, [Principal Investigator, Co-Principal Investigator: James Holloway, May 28, 2002, Total Award: \$5,850].

Minnesota Roadside Safety Workshop - 2002, Awarded by Minnesota Department of Transportation, [Co-Principal Investigator, Principal Investigator: Dean Sicking, Co-Principal Investigator: John Rohde, April 2002, Total Award: \$14,974].

Bogie Testing of Small Sign Supports, Awarded by Allied Tube and Conduit, [Co-Principal Investigator: James Holloway, March - April 2002, Total Award: \$5,100].

Bogie Testing of Workzone Devices, Awarded by D.P. Sawyer, Inc., [Principal Investigator, Co-Principal Investigator: James Holloway, February 28, 2002, Total Award: \$3,250].

Full-Scale Crash Test on Iowa's Temporary Steel Barrier (Re-Test), Awarded by the Iowa Department of Transportation, [Principal Investigator, Co-Principal Investigators: Dean Sicking, John Rohde, and John Reid, 2002, Total Award: \$35,336, Sponsor: \$29,069, UNL: \$6,267].

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

Review of Arizona Compliance Plan with NCHRP 350 for Temporary Concrete Barriers, Awarded by the Arizona Department of Transportation, [Co-Principal Investigator, Principal Investigator: Dean Sicking, Co-Principal Investigator: John Rohde, 2001-2002, Total Award: \$13,927, Sponsor: \$9,638, UNL: \$4,289].

Bogie Testing of Workzone Devices, Awarded by D.P. Sawyer, Inc., [Principal Investigator, Co-Principal Investigator: James Holloway, December 17, 2001, Total Award: \$2,600].

Full-Scale Crash Testing of Steel Tube and Foam Combination Barrier Prototypes (October 2001 Continuation), Awarded by Indy Racing League, [Principal Investigator, 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, [Principal Investigator, Co-Principal Investigators: Dean Sicking, John Rohde, John Reid, and James Holloway, 2000-2002, Total Award: \$201,698, Sponsor: \$181,358, UNL: \$20,340].

Dynamic Evaluation of Michigan's Work-Zone Devices, Awarded by the Michigan Department of Transportation, [Principal Investigator, Co-Principal Investigator: James Holloway, 2001, Total Budget Including Remaining Funds From Michigan DOT Guardrail Project: \$78,741, Total New Award: \$24,653, Sponsor: \$20,215, UNL: \$4,438].

Bogie Testing of Workzone Devices - Phase VI, Awarded by Dicke Tool Company, [Principal Investigator, Co-Principal Investigator: James Holloway, September 11, 2001, Total Award: \$2,600].

Bogie Testing of Composite Stop-Sign Supports, Awarded by Designovations, Inc., [Principal Investigator, Co-Principal Investigator: James Holloway, June 15, 2001, Total Award: \$2,600].

Bogie Testing of Plastic Barricade Devices, Awarded by Plastic Safety Systems, Inc., [Principal Investigator, Co-Principal Investigator: James Holloway, June 5, 2001, Total Award: \$2,600].

Development of an Energy-Absorbing Cushion Wall - Phase II (Continuation 2), Awarded by Indy Racing League, [Principal Investigator, Co-Principal Investigators: Dean Sicking, John Rohde, John Reid, and James Holloway, 2000-2001, Total Award: \$102,484, Sponsor: \$94,192, UNL: \$8,292].

Development of Rigid Panel, Temporary Sign Support Systems, Awarded by the Minnesota Department of Transportation and the Nebraska Department of Roads, [Principal Investigator, Co-Principal Investigator: James Holloway, 2001, Total Award: \$20,004, Sponsor: \$15,931, UNL: \$4,073].

Bogie Testing of Plastic Barricade Devices - Phase I, Awarded by Cortina Tool and Molding Company, [Principal Investigator, Co-Principal Investigator: James Holloway, March 22, 2001, Total Award: \$3,900].

Bogie Testing of Workzone Devices - Phase V, Awarded by Dicke Tool Company, [Principal Investigator, Co-Principal Investigator: James Holloway, April 10, 2001, Total Award: \$9,100].

Bogie Testing of Workzone Devices - Phase IV, Awarded by Dicke Tool Company, [Principal Investigator, Co-Principal Investigator: James Holloway, February 20, 2001, Total Award: \$4,550].

Dynamic Evaluation of Temporary Work Zone Devices, Awarded by Plastic Safety Systems, Inc., [Principal Investigator, Co-Principal Investigator: James Holloway, 2001, Total Award: \$30,865, Sponsor: \$28,408, UNL: \$2,457].

- Dynamic Evaluation of Temporary Work Zone Devices*, Awarded by Dicke Tool Company, [Principal Investigator, Co-Principal Investigator: James Holloway, 2001, Total Award: \$80,920, Sponsor: \$74,584, UNL: \$6,336].
- Development of a Breakaway, Single-Sign Support System for Temporary Work-Zones in Off-Road Applications*, Awarded by the Missouri Department of Transportation, [Principal Investigator, Co-Principal Investigator: James Holloway, 2000-2001, Total Award: \$85,522, Sponsor: \$66,580, UNL: \$18,942].
- Bogie Testing of Workzone Devices - Phase III*, Awarded by Dicke Tool Company, [Principal Investigator, Co-Principal Investigator: James Holloway, December 7-8, 2000, Total Award: \$10,400].
- Bogie Testing of Workzone Devices - Phase II*, Awarded by Dicke Tool Company, [Principal Investigator, Co-Principal Investigator: James Holloway, 2000, Total Award: \$10,650].
- Crash Testing of Minnesota's Sign-Support Systems for Temporary Work Zones*, Awarded by the Minnesota Department of Transportation and the Nebraska Department of Roads, [Principal Investigator, Co-Principal Investigator: James Holloway, 2000, Total Award: \$30,506, Sponsor: \$24,412, UNL: \$6,094].
- Development of an Energy-Absorbing Cushion Wall - Phase II (Continuation)*, Awarded by Indy Racing League, [Principal Investigator, Co-Principal Investigators: Dean Sicking, John Rohde, and John Reid, 2000-2001, Total Award: \$281,907, Sponsor: \$253,454, UNL: \$28,453].
- Bogie Testing of Workzone Devices*, Awarded by Dicke Tool Company, [Principal Investigator, Co-Principal Investigator: James Holloway, 2000, Total Award: \$10,000].
- Plastic Safety Systems Inc. Crash Tests - Year 2000 - Phase I*, Awarded by Plastic Safety Systems, Inc., [Principal Investigator, Co-Principal Investigators: John Rohde and James Holloway, 2000, Total Award: \$14,934, Sponsor: \$14,229, UNL: \$705].
- Minnesota DOT Type III Barricade Crash Tests - Year 2000*, Awarded by the Minnesota Department of Transportation and the Nebraska Department of Roads, [Principal Investigator, Co-Principal Investigators: John Rohde and James Holloway, 2000, Total Award: \$25,946, Sponsor: \$22,291, UNL: \$3,655].
- Development of an Energy-Absorbing Cushion Wall - Phase II*, Awarded by Indy Racing League, [Principal Investigator, Co-Principal Investigators: Dean Sicking, John Rohde, and John Reid, 1999-2000, Total Award: \$267,616].
- Crash Testing of Portable Workzone Signs - 1999 - Phase IV*, Awarded by Dicke Tool Company, [Principal Investigator, Co-Principal Investigator: James Holloway, 1999, Total Award: \$11,197, Sponsor: \$10,704, UNL: \$493].
- Crash Testing of Portable Workzone Signs - 1999 - Phase III*, Awarded by Dicke Tool Company, [Principal Investigator, Co-Principal Investigator: James Holloway, 1999, Total Award: \$42,934].
- Crash Testing of Temporary Sign Stands*, Awarded by the Missouri Department of Transportation, [Principal Investigator, Co-Principal Investigators: John Rohde and James Holloway, 1999, Total Award: \$69,206, Sponsor: \$55,811, UNL: \$13,395].
- Crash Testing of Portable Workzone Stands with Semi-Rigid Sign Panels - 1999 - Phase I*, Awarded by Reflexite Corporation and GE Structured Products, [Principal Investigator, Co-Principal Investigator: James Holloway, 1999, Total Award: \$19,547].
- Crash Testing of Portable Workzone Signs - 1999 - Phase II*, Awarded by Dicke Tool Company, [Principal Investigator, Co-Principal Investigator: James Holloway, 1999, Total Award: \$28,345].
- Crash Testing of Portable Workzone Signs - 1999 - Phase I*, Awarded by Marketing Displays, Inc., [Principal Investigator, Co-Principal Investigator: James Holloway, 1999, Total Award: \$19,225].
- Crash Testing of Portable Workzone Signs - 1999 - Phase I*, Awarded by Dicke Tool Company, [Principal Investigator, Co-Principal Investigator: James Holloway, 1999, Total Award: \$27,924].
- Crash Testing of Michigan's Type B and Type T Guardrail Systems*, Awarded by the Michigan Department of Transportation, [Principal Investigator, Co-Principal Investigators: Dean Sicking, John Rohde, and James Holloway, 1999, Total Award: \$123,444].

Compliance Testing of Iowa's Skid-Mounted Sign Device, Awarded by the Iowa Department of Transportation, [Principal Investigator, Co-Principal Investigators: John Rohde and James Holloway, 1999, Total Award: \$43,737, Sponsor: \$31,841, UNL: \$11,896].

Evaluation of Portable Workzone Signs - Phase I, Awarded by Lang Products International, Inc., [Principal Investigator, Co-Principal Investigator: James Holloway, 1999, Total Award: \$17,773].

Development and Testing of a Crash Barrier - Phase I, Awarded by Indy Racing League, [Principal Investigator, Co-Principal Investigators: Dean Sicking, John Rohde, and John Reid, 1998, Total Award: \$97,970].

Crash Testing of Portable Workzone Signs - Phase IV, Awarded by Dicke Tool Company, [Principal Investigator, Co-Principal Investigator: James Holloway, 1998, Total Award: \$6,697].

Design and Compliance Testing of Missouri's Thrie Beam and Channel Bridge Rail to W-Beam Transition, Awarded by the Missouri Department of Transportation, [Principal Investigator, Co-Principal Investigators: Dean Sicking, John Rohde, John Reid, and James Holloway, 1998, Total Award: \$53,640, Sponsor: \$42,579, UNL: \$11,061].

Crash Testing of South Dakota's Cable Guardrail to W-Beam Transition, Awarded by South Dakota Department of Transportation, [Principal Investigator, Co-Principal Investigators: Dean Sicking, John Rohde, James Holloway, and John Reid, 1998, Total Award: \$114,904, Sponsor: \$92,329, UNL: \$22,575].

Critical Impact Points for Crash Testing Transitions, Awarded by Federal Highway Administration, [Principal Investigator, 1998, Total Award: \$9,459].

Crash Testing of Portable Workzone Signs - Phase III, Awarded by Dicke Tool Company, [Principal Investigator, Co-Principal Investigator: James Holloway, 1998, Total Award: \$33,392].

Crash Testing of Portable Workzone Signs - Phase II, Awarded by Dicke Tool Company, [Principal Investigator, Co-Principal Investigator: James Holloway, 1998, Total Award: \$43,606].

Crash Testing of Portable Workzone Signs, Awarded by Dicke Tool Company, [Principal Investigator, Co-Principal Investigator: James Holloway, 1998, Total Award: \$39,995].

Development of a New Guardrail System for the Milford Proving Ground Circular Track - Supplemental Agreement, Awarded by General Motors, [Principal Investigator: John Reid, Co-Principal Investigators: Ronald Faller and Dean Sicking, 1998, Total Award: \$5,000].

Development of a New Guardrail System for the General Motors Desert Proving Ground Circular Track, Awarded by General Motors, [Principal Investigator: John Reid, Co-Principal Investigators: Ronald Faller and Dean Sicking, 1998, Total Award: \$33,300].

Development of a New Guardrail System for the Milford Proving Ground Circular Test Track, Awarded by General Motors, [Principal Investigator: John Reid, Co-Principal Investigators: Ronald Faller and Dean Sicking, 1997, Total Award: \$57,079].

Development and Evaluation of Two TL-2 Bridge Rails and Transitions for Transverse Timber Decks, Awarded by U.S. Department of Agriculture-Forest Service-Forest Products Laboratory, [Co-Principal Investigator with Barry Rosson, 1997, Total Award: \$227,094, Sponsor: \$162,744, UNL: \$39,938, CIR: \$24,412].

Development and Evaluation of Two TL-4 Bridge Rails and Transitions for Transverse Timber Decks, Awarded by U.S. Department of Agriculture-Forest Service-Forest Products Laboratory, [Co-Principal Investigator with Barry Rosson, 1995, Total Award: \$377,378, Sponsor: \$267,059, UNL: \$71,519, CIR: \$38,800].

Design of Breakaway Cluster Box Units, Awarded by U.S. Postal Service - Engineering, [Co-Principal Investigator with John Reid, 1995, Total Award: \$44,188, Sponsor: \$39,769, CIR: \$4,419].

Development of Timber Bridge Rails for Low-Volume Roads - Supplemental Agreement, Awarded by U.S. Department of Agriculture-Forest Service-Forest Products Laboratory, [Principal Investigator, 1994, Total Award: \$18,223, Sponsor: \$14,648, UNL: \$3,575].

Development of Timber Bridge Rails for Low-Volume Roads: Phase III, Awarded by U.S. Department of Agriculture-Forest Service-Forest Products Laboratory, [Principal Investigator, 1994, Total Award: \$18,654, Sponsor: \$14,855, UNL: \$3,799].

Analysis and Design Procedure for Timber Bridge Railings, Awarded by U.S. Department of Agriculture-Forest Service-Forest Products Laboratory, [Principal Investigator: Barry Rosson, Co-Principal Investigator: Ronald Faller, 1993, Total Award: \$42,150, Sponsor: \$30,000, UNL: \$12,150].

Development of a Energy Absorbing Safety Barrier, Awarded by Ultra Barrier Inc., [Co-Principal Investigator with Dean Sicking, 1993, Total Award: \$15,422].

Development of Timber Bridge Rails for Low-Volume Roads: Phase II, Awarded by U.S. Department of Agriculture-Forest Service-Forest Products Laboratory, [Principal Investigator, 1992, Total Award: \$80,254, Sponsor: \$65,000, UNL: \$15,254].

Development of Low-Volume Bridge Rails by Full-Scale Crash Testing: Phase I, Awarded by U.S. Department of Agriculture-Forest Service-Forest Products Laboratory, [Principal Investigator, 1992, Total Award: \$37,951, Sponsor: \$28,801, UNL: \$9,150].

Development of Timber Bridge Rails for AASHTO PL-2, Awarded by U.S. Department of Agriculture-Forest Service-Forest Products Laboratory, [Principal Investigator, 1992, Total Award: \$65,186, Sponsor: \$54,000, UNL: \$11,186].

Midwest States Regional Pooled Fund Program - Year 2 (1991-1992), Awarded by States of Nebraska, Kansas, and Missouri, [Co-Principal Investigator with Edward Post, 1991-1992, Total Award: \$322,663, Sponsor: \$242,548, UNL: \$44,447, CIR: \$35,668].

Analysis, Design, and Computer Simulation of an Open Concrete Bridge Railing, Awarded by Nebraska Department of Roads, [Co-Principal Investigator with Edward Post, 1991, Total Award: \$15,696].

Guardrail Testing II Program, Awarded by Federal Highway Administration, [Co-Principal Investigator with Edward Post and Brian Pfeifer, 1990, Total Award: \$ 329,957, Sponsor: \$304,957, UNL: \$10,000, CIR: \$15,000].

Dynamic Testing of Impact Attenuators with Prow Covers for Use at the Holland Tunnel Toll Plaza, Awarded by Port Authority of New York and New Jersey, [Co-Principal Investigator with Edward Post, 1990, Total Award: \$39,601].

Midwest States Regional Pooled Fund Program - Supplemental Agreement - Year 1 (1990-1991),” Awarded by States of Nebraska, Kansas, and Missouri, [Co-Principal Investigator with Edward Post, 1990-1991, Total Award: \$19,411, Sponsor: \$14,800, UNL: \$4,641].

Midwest States Regional Pooled Fund Program - Year 1 (1990-1991), Awarded by States of Nebraska, Kansas, and Missouri, [Co-Principal Investigator with Edward Post, 1990-1991, Total Award: \$168,519].

Development of Crashworthy Vehicular Railing Systems for Timber Bridges, Awarded by U.S. Department of Agriculture-Forest Service-Forest Products Laboratory, [Co-Principal Investigator with Edward Post, 1989, Total Award: \$300,695, Sponsor: \$210,661, UNL: \$84,904, CIR: \$5,130].

Sections 2.2.2 and 2.2.3 Externally-Funded Research Grants, Including Through UNL OSP – Proposal Author and/or Key Researcher

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: 2002-2005, Total Award: \$299,987; Testing: 2004-2006, Total Award: \$361,425; Testing: 2005-2006].

Flare Rates for W-Beam Guardrail, NCHRP Project Number 17-20(3), Awarded by the National Cooperative Highway Research Program [Researcher, Study: 2003-2005, Total Award: \$50,000].

Bogie Testing of a New Steel Post Option, Awarded by Gregory Highway Products, [Principal Investigator: Dean Sicking, Co-Principal Investigator: James Holloway, November - December 2002, Total Award: \$7,600].

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 [Co-Author of Proposal and Principal Researcher, 2002-2003, Total Award: \$505,000, Sponsor: \$505,000, UNL: \$0].

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 [Co-Author of Proposal and 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, [Co-Author of Proposal and 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, [Co-Author of Proposal and 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, [Co-Author of Proposal and Principal Researcher, 1998-1999, Total Award: \$520,903, Sponsor: \$430,618, UNL: \$90,285].

Development of a New Approach Guardrail Transition, Awarded by Nebraska Department of Roads, [Co-Author of Proposal and Principal Researcher, 1996, Total Award: \$52,161, Sponsor: \$40,282, UNL: \$11,879].

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

Midwest States Regional Pooled Fund Program - Year 7 (1996-1997), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, Minnesota, and Ohio, [Co-Author of Proposal and Principal Researcher, 1996-1997, Total Award: \$630,327, Sponsor: \$420,864, UNL: \$140,463, CIR: \$69,000].

Development of a BEST Terminal to Comply with NCHRP 350 Requirements, Awarded by Interstate Steel Company, [Co-Author of Proposal and Principal Researcher, 1996, Total Award: \$332,213, Sponsor: \$258,213, MATC: \$75,000].

Development of a New Vehicle Guardrail System, Awarded by Buffalo Specialty Products Inc., [Co-Author of Proposal and Principal Researcher, 1995, Total Award: \$358,982, Sponsor: \$208,982, MATC: \$150,000].

Midwest States Regional Pooled Fund Program - Year 6 (1995-1996), Awarded by States of Nebraska, Kansas, Missouri, Iowa, South Dakota, Wisconsin, and Minnesota, [Co-Author of Proposal and Principal Researcher, 1995-1996, Total Award: \$420,847, Sponsor: \$304,818, UNL - \$92,029, CIR - \$24,000].

Evaluation of the Effect of Wood Quality on the Performance of W-Beam Guardrail Systems, Awarded by Nebraska Department of Roads, [Co-Author of Proposal and Principal Researcher, 1995, Total Award: \$???, Sponsor: \$79,136, UNL: \$???.

Mid-America Transportation Center, Awarded by U.S. Department of Transportation, Research and Special Programs Administration, [Co-Author of Proposal, 1995, Total Award: \$1,000,000 (Annually Renewable for Three Years)].

Midwest States Regional Pooled Fund Program - Year 5 (1994-1995), Awarded by States of Nebraska, Kansas, Missouri, Iowa, and Minnesota, [Co-Author of Proposal and Principal Researcher, 1994-1995, Total Award: \$352,298, Sponsor: \$250,756, UNL: \$76,042, CIR: \$25,500].

W-Beam Guardrail End Treatment, Awarded by Interstate Steel Company, [Co-Author of Proposal and Principal Researcher, 1993, Total Award: \$117,252].

Lighted Guidance Tube Hazard Mitigation, Awarded by 3M Corporation, [Co-Author of Proposal and Principal Researcher, 1993, Total Award: \$8,398].

Midwest States Regional Pooled Fund Program - Supplemental Agreement No. 2 - Year 4 (1993-1994), Awarded by States of Nebraska, Kansas, Missouri, Iowa, and Minnesota. [Co-Author of Proposal and Principal Researcher, 1993-1994, Total Award: \$???, Sponsor: \$22,572, UNL: \$???.

Midwest States Regional Pooled Fund Program - Supplemental Agreement No. 1 - Year 4 (1993-1994), Awarded by States of Nebraska, Kansas, Missouri, Iowa, and Minnesota. [Co-Author of Proposal and Principal Researcher, 1993-1994, Total Award: \$26,908, Sponsor: \$20,944, UNL: \$5,964].

Midwest States Regional Pooled Fund Program - Year 4 (1993-1994), Awarded by States of Nebraska, Kansas, Missouri, Iowa, and Minnesota. [Co-Author of Proposal and Principal Researcher, 1993-1994, Total Award: \$394,309, Sponsor: \$287,667, UNL: \$78,142, CIR: \$28,500].

Midwest States Regional Pooled Fund Program - Year 3 (1992-1993), Awarded by States of Nebraska, Kansas, and Missouri, [Co-Author of Proposal and Principal researcher, 1992-1993, Total Award: \$331,194, Sponsor: \$253,415, UNL: \$47,687, CIR: \$30,092].

Section 2.2.4 External Research Grants – Submitted Through Other Institutions

None

Section 2.2.5 External Research Grants – Submitted Through UNL OSP But Unfunded

Records have not been maintained for research proposals prepared, submitted, but unfunded.

Section 2.2.6 External Research Grants – Submitted Through Other Entities But Unfunded

None

Section 2.3 Other (Non-Research) Funding Record

Section 2.3.1 Internally-Funded Non-Research Grants

None

Section 2.3.2 Externally-Funded Non-Research Grants

None

Section 2.3.3 External Non-Research Grants Submitted Through UNL OSP

None

Section 2.3.4 External Non-Research Grants Submitted Through Other Institutions

None

Section 2.3.5 External Non-Research Grants Submitted Through UNL OSP But Unfunded

None

Section 2.3.6 External Non-Research Grants Submitted Through Other Institutions But Unfunded

None

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

Section 2.4 Research Patents, Recent Patent Applications, Recent Disclosures, I.P. Licenses, and Awards

Section 2.4.1 Patents

1. Faller, R.K., Reid, J.D., Krenk, K.L., and Paulsen, G.W., *Breakaway Connection System for Roadside Use*, U.S. Patent No. 5,855,443, January 5, 1999.

2. Sicking, D.L., Reid, J.D., Faller, R.K., Pfeifer, B.G., Rosson, B.T., and Rohde, J.R., **Guardrail System**, U.S. Patent No. 6,260,827, July 17, 2001.
3. Sicking, D.L., Reid, J.D., Faller, R.K., Pfeifer, B.G., Rosson, B.T., and Rohde, J.R., **Guardrail System**, U.S. Patent No. 6,416,041, July 9, 2002.
4. 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.
5. Humphries, E., Barratt, S., Faller, R.K., Kurz, K.J., and Sicking, D.L., **Traffic Noise Barrier System**, U.S. Patent No. 7,220,077 B2, May 22, 2007.
6. 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.
7. Humphries, E., Barratt, S., Faller, R.K., Kurz, K.J., and Sicking, D.L., **Traffic Noise Barrier System**, Mexican Patent No. MX268360, July 15, 2009 (Corresponding to U.S. Patent No. 7,220,077 B2, May 22, 2007).
8. 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.
9. Humphries, E.C., Barratt, S.D., Faller, R.K., Kurz, K.J., and Sicking, D.L., **Traffic Noise Barrier System**, Canadian Patent No. CA 2,562,204 A1, November 27, 2012 (Corresponding to U.S. Patent No. 7,220,077 B2, May 22, 2007).
10. Rosenbaugh, S.K., Schmidt, J.D., Bielenberg, R.W., Faller, R.K., Lechtenberg, K.A., Reid, J.D., and Holloway, J.C., **System Including Adjustable Continuity Joints and/or Rotation Mitigation Sliding Posts for Rail Elements**, U.S. Patent No. 9,976,266 B1, May 22, 2018.
11. Rosenbaugh, S.K., Rasmussen, J.D., Faller, R.K., Bielenberg, R.W., Holloway, J.C., Lechtenberg, K.A., and Reid, J.D., **Barrier System**, UK Patent No. GB2579509B, Published March 16, 2022.

Section 2.4.2 Recent Patent Applications

Rosenbaugh, S.K., Schmidt, J.D., Bielenberg, R.W., and Faller, R.K., **Barrier System**, U.S. Patent Application No. PCT/US2018/047866, Non-Provisional Patent Application Submitted on August 24, 2018.

Rosenbaugh, S.K., Schmidt, J.D., Faller, R.K., Bielenberg, R.W., Holloway, J.C., Lechtenberg, K.A., and Reid, J.A., **Barrier System**, International Application, World Intellectual Property Organization, WO 2019/040821 A1, February 28, 2019.

Rosenbaugh, S.K., Schmidt, J.D., Faller, R.K., Bielenberg, R.W., Holloway, J.C., Lechtenberg, K.A., and Reid, J.A., **Barrier System**, U.S. Patent Application, US 2020/0217028 A1, July 9, 2020.

Maus, G.B., Almanza, F., Rosenbaugh, S.K., Faller, R.K., Bielenberg, R.W., Rasmussen, J.D., Stolle, C., Holloway, J.C., Lechtenberg, K.A., Schroder, B.D., and Fallet, W.G., **Crash Impact Attenuator Systems and Methods**, International Application No. PCT/US21/37116, U.S. Serial/Application No. 17/346,076, June 11, 2021.

Maus, G.B., Almanza, F., Rosenbaugh, S.K., Faller, R.K., Bielenberg, R.W., Rasmussen, J.D., Stolle, C., Holloway, J.C., Lechtenberg, K.A., Schroder, B.D., and Fallet, W.G., **Crash Impact Attenuator Systems and Methods**, International Application No. PCT/US2021/037116, U.S. Serial/Application No. 17/346,076, International Filing Date June 11, 2021, International Publication Number WO 2021/257410 A1, International Publication Date December 23, 2021.

Maus, G.B., Almanza, F., Ramirez, R., Faller, R.K., Bielenberg, R.W., and Rosenbaugh, S.K., **Transitions for Joining Crash Impact Attenuator Systems to Fixed Structures**, International Application No. PCT/US2022/011483, International Filing Date January 6, 2022, International Publication Number WO 2022/150505 A1, International Publication Date July 14, 2022.

Section 2.4.3 Recent IP Disclosures

Rosenbaugh, S.K., Faller, R.K., Bielenberg, R.W., Rasmussen, J.D., Stolle, C.S., Holloway, J.C., Lechtenberg, K.A., Schroder, B.D., and Fallet, W.G., *Vehicle Impact Attenuator with Energy-Absorbing Side Panels*, Submitted to NUtech Ventures, University of Nebraska-Lincoln, January 31, 2020 and Revised February 10, 2020.

Bielenberg, R.W., Faller, R.K., Pajouh, M.A., Stolle, C.S., and Ruskamp, R., *Interlocking, Segmented, Concrete Barrier System for Portable and Permanent Applications*, Submitted to NUtech Ventures, University of Nebraska-Lincoln, November 4, 2021.

Faller, R.K., Rosenbaugh, S.K., Bielenberg, R.W., Almanza, F., and Maus, G.B., *Snag Mitigating Connector for Corrugated Beam Guardrail*, Submitted to NUtech Ventures, University of Nebraska-Lincoln, December 1, 2021.

Section 2.4.4 I.P. Licenses (Active)

Delta Crash Cushion, Traffix Devices Inc., NUtech Ventures, University of Nebraska-Lincoln, <https://www.traffixdevices.com/products/attenuators/delta>.

Restore Barrier, Arbus, NUtech Ventures, University of Nebraska-Lincoln, <https://arbus.co.uk/products-services/restore/>.

Crashworthy Noise Wall, Roehm America – Acrylite, NUtech Ventures, University of Nebraska-Lincoln, <https://www.acrylite.co/products/our-brands/acrylite-soundstop/tl-4-system-mash>.

Section 2.4.4 National and International Research Awards, Nominations, and Recognition

2022 National Academy of Inventors (NAI) Fellow, Class of 2022, November 28, 2022.

2021 Breakthrough Innovation of the Year, *Delta Crash Cushion*, Awarded by NUtech Ventures to Midwest Roadside Safety Facility and Traffix Devices Inc., University of Nebraska-Lincoln, November 1, 2021.

2021 Prem S. Paul Innovator of the Year, Awarded by NUtech Ventures, University of Nebraska-Lincoln, November 1, 2021.

Research Excellence Award at College of Engineering Research Celebration 2021 – Honoree for Civil Engineering, University of Nebraska-Lincoln College of Engineering, Van Brunt Visitors Center, Lincoln, Nebraska, October 27, 2021.

2021 Recognition of Grit and Glory, Presented to Midwest Roadside Safety Facility for (1) rising to the challenge during the pandemic, (2) showing innovation and persistence, and (3) providing superior services, Presented at College of Engineering Faculty and Staff Awards Recognition Celebration, University of Nebraska-Lincoln, Notice on March 29, 2021, Presented on April 9, 2021.

2021 Best Paper Award - TRB AKD20 Committee on Roadside Safety Design - *Development, Crash Testing, and Evaluation of Steel-Post, Trailing-End, Guardrail Anchorage System*, Asadollahi Pajouh, M., Lechtenberg, K.A., Faller, R.K., Yosef, T., Presented at the 2021 100th Annual TRB Meeting.

2020 Kenneth A. Stonex Roadside Safety Award, TRB AFB20 Committee on Roadside Safety Design, Transportation research Board (TRB), Presented at the 2020 (99th) Annual TRB Meeting, Washington, D.C., Sponsored by Energy Absorption Inc., Lindsay Transportation Solutions, Transpo Industries, and Trinity Highway Products, January 2020.

2020 Best Paper Award - TRB AFB20 Committee on Roadside Safety Design - *Development of a Test Level 4, Side-Mounted, Steel-Tube Bridge Rail*, Rasmussen, J.D., Rosenbaugh, S.K., Faller, R.K., Bielenberg, R.W., Steelman, J., Pena, O., and Mauricio, P., Presented at the 2020 (99th) Annual TRB Meeting.

2019 Best Paper Award - TRB AFB20 Committee on Roadside Safety Design - *Development of a 34-In. Tall Thrie Beam Guardrail Transition to Accommodate Future Roadway Overlays*, Rosenbaugh, S.K., Faller, R.K., Schmidt, J.D., and Bielenberg, R.W., Presented at the 2019 (98th) Annual TRB Meeting.

2017 SAE John Melvin Motorsport Safety Award, Presented on April 10, 2018 by the Society of Automotive Engineers at the SAE 2018 World Congress (WCX18) in COBO Center, Detroit, Michigan, Award Sponsored and Funded by NASCAR, Notice: January 18, 2018.

2018 Best Paper Award - TRB AFB20 Committee on Roadside Safety Design - *Development of a Standardized Buttress for Approach Guardrail Transitions*, Rosenbaugh, S.K., Schmidt, J.D., and Faller, R.K., Presented at the 2018 (97th) Annual TRB Meeting.

Certificate of Appreciation, Chair and Conference Planning Team, *First International Roadside Safety Conference – Safer Roads, Saving Lives, Saving Money*, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Holiday Inn – Golden Gateway Hotel and Conference Center, San Francisco, California, June 12-15, 2017.

2017 TRB IRSC Best Overall Paper Award, *Initial Developments Supporting a Roadside Tree Removal Marketing Campaign*, Stolle, C.S., Faller, R.K., Lechtenberg, K.A., and Yim, T., Transportation Research Circular Number E-C220 – June 2017, First International Roadside Safety Conference – Safer Roads, Saving Lives, Saving Money, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, San Francisco, California, June 12-15, 2017, ISSN 0097-8515.

2017 TRB IRSC Practical Paper Award, *A Synthesis of MASH-Tested, 31-In. Tall, Non-Proprietary, W-Beam Guardrail System*, Rosenbaugh, S.K., Faller, R.K., Bielenberg, R.W., Transportation Research Circular Number E-C220 – June 2017, First International Roadside Safety Conference – Safer Roads, Saving Lives, Saving Money, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, San Francisco, California, June 12-15, 2017, ISSN 0097-8515.

2017 TRB IRSC Best New Innovation Paper Award, *Development of a MASH TL-2 Crashworthy Pedestrian Railing System*, Faller, R.K., Lechtenberg, K.A., Schmidt, J.D., Guajardo, A., Bielenberg, R.W., Reid, J.D., and Emerson E., Transportation Research Circular Number E-C220 – June 2017, First International Roadside Safety Conference – Safer Roads, Saving Lives, Saving Money, , TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, San Francisco, California, June 12-15, 2017, ISSN 0097-8515.

2017 Best Paper Award - TRB AFB20 Committee on Roadside Safety Design - *Standard Midwest Guardrail System Placed at IV:2H Slope Break Point or with Omitted Post*, Lechtenberg, K.A., Bielenberg, R.W., Rosenbaugh, S.K., Faller, R.K., and Reid, J.D., Presented at the 2017 (96th) Annual TRB Meeting.

2016 Excellence in Hot-Dip Galvanizing Awards, NASCAR SAFER Barrier™, Original Equipment Manufacturing Category and Featured Case Study, American Galvanizers Association (AGA - Zn), Partners: Galvanizer - Valmont Coatings - Birmingham Galvanizing and Valmont Coatings - Columbia Galvanizing; Fabricator - Browning Enterprise Inc. and North Industrial Machine LLC; Engineer: Midwest Roadside Safety Facility, University of Nebraska; and Contractor: Smith Fence Company.

2016 Best Paper Award - TRB AFB20 Committee on Roadside Safety Design - *MASH TL-4 Design and Evaluation of a Restorable Energy-Absorbing Concrete Barrier*, Schmidt, J.D., Rosenbaugh, S.K., Bielenberg, R.W., Faller, R.K., Reid, J.D., and Schmidt, T.L., Presented at the 2016 (95th) Annual TRB Meeting.

2014 Best Paper Award - TRB AFB20 Committee on Roadside Safety Design - *Safety Investigation and Guidance for Retrofitting Existing Approach Guardrail Transitions*, Schmidt, J.D., Jowza, E.R., Faller, R.K., Rosenbaugh, S.K., and Reid, J.D., Presented at the 2014 Annual TRB Meeting.

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. **[Paper was nominated for the 2012 Practice-Ready Paper Award which is given by the Transportation Research Board of The National Academies]**

2011 Practice-Ready Paper Award - TRB Design and Construction Group - *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 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.

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 Herb Porter Indianapolis Memorial Motor Speedway Award, Development and Implementation of the SAFER Barrier, Presented to Brian Barnhart, Dr. Henry Bock, Phil Casey, Dr. Ron Faller, Leo Mehl, John Pierce, and Dr. Dean Sicking, Presented at the 2004 Indianapolis Motor Speedway Hall of Fame Museum AUTO RACING HALL OF FAME INDUCTION CEREMONY and the Indianapolis 500 Oldtimers SPECIAL RECOGNITION DINNER at the Indianapolis Downtown Marriott Hotel, Indianapolis, Indiana, Total Award of \$2,000, May 21, 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.

2003 R&D Top 100 Award, The Steel and Foam Energy Reduction Barrier System (SAFER Barrier), Presented to Faller, R.K., Sicking, D.L., Rohde, J.R., Reid, J.D., Holloway, J.C., and Polivka, K.A., of the Midwest Roadside Safety Facility, University of Nebraska-Lincoln, Presented by R&D Magazine at the Awards Banquet at Chicago's Navy Pier, Chicago, Illinois, October 16, 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.

36th Annual Louis Schwitzer Award, Development of the SAFER (Steel and Foam Energy Reduction) Barrier - Sicking, D.L., Rohde, J.R., Reid, J.D., Faller, R.K., and Holloway, J.C., Presented by the Indiana Section of the Society of Automotive Engineers (SAE) and BorgWarner, BorgWarner provided \$5,000, May 2002.

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.

Federal Highway Administration Safety Award (1996), the Midwest Roadside Safety Facility (MwRSF) was nominated by the Kansas DOT and FHWA - Region 7 for the FHWA's annual safety award for developing the *Light Truck Guardrail System*.

1993 Best Paper Award - TRB Committee A2A04 - Roadside Safety Appurtenances *Performance Level 1 Bridge Railings for Timber Decks* - Faller, R.K., Ritter, M.A., Holloway, J.C., Pfeifer, B.G., and Rosson, B.T., Presented at the 1994 Annual TRB Meeting.

Section 2.4.3 Regional and Local Research Awards, Nominations, and Recognition

2022 Willa Cather Research Professorship, University of Nebraska-Lincoln, Effective July 1, 2022 and Renewable for 5 Years at \$5,000/year, Professorship notice on March 3, 2022.

2021 Breakthrough Innovation of the Year, *Delta Crash Cushion*, Awarded by NUtech Ventures to Midwest Roadside Safety Facility and Traffix Devices Inc., University of Nebraska-Lincoln, November 1, 2021.

2021 Prem S. Paul Innovator of the Year, Awarded by NUtech Ventures, University of Nebraska-Lincoln, November 1, 2021.

Research Excellence Award at College of Engineering Research Celebration 2021 – Honoree for Civil Engineering, University of Nebraska-Lincoln College of Engineering, Van Brunt Visitors Center, Lincoln, Nebraska, October 27, 2021.

2021 Recognition of Grit and Glory, Presented to Midwest Roadside Safety Facility for (1) rising to the challenge during the pandemic, (2) showing innovation and persistence, and (3) providing superior services, Presented at College of Engineering Faculty and Staff Awards Recognition Celebration, University of Nebraska-Lincoln, Notice on March 29, 2021, Presented on April 9, 2021.

College of Engineering Research Celebration 2018 – Honoree for Civil Engineering, University of Nebraska-Lincoln College of Engineering, Van Brunt Visitors Center, Lincoln, Nebraska, November 1, 2018.

College of Engineering Research Celebration 2017 – Honoree for Civil Engineering, University of Nebraska-Lincoln College of Engineering, Van Brunt Visitors Center, Lincoln, Nebraska, November 9, 2017.

College Faculty Research and Creative Activity Award, \$2,500 Award, University of Nebraska-Lincoln College of Engineering, Faculty and Staff Recognition Ceremony, Wick Alumni Center, Lincoln, Nebraska, April 7, 2016.

Certificate of Appreciation, The Midwest Association of Technical Accident Investigators (MATAI), Contributions for serving as a presenter at 2015 MATAI Annual Conference, Embassy Suites Hotel and Convention Center, Lincoln, Nebraska, May 18-20, 2015.

Section 2.5 Other Research Accomplishments

Section 2.5.1 Workshops, Conferences, Advanced Training, Retreats, and Review Panels

Attended and Participated in the Annual Meetings of the Transportation Research Board and Affiliated Workshops in Washington, D.C. from *January 1988 to January 2023, Except 1996*.

Export Compliance Certificate (Curriculum Group), Research Personnel (Course Learner Group), 1 – Stage 1, University of Nebraska-Lincoln, Collaborative Institutional Training Initiative (CITI) Program Course, Completion December 14, 2022, Expiration December 14, 2025, Record I.D. 52995399.

Participated in the *2022 International Road Federation (IRF) Global R2T Conference & Exhibition*, Sponsored by the International Road Federation, The Mayflower Autograph Hotel, Washington, D.C., October 31 through November 3, 2022, [Moderator for Executive Session ES13 – Advances in Roadside Safety].

Participated in the Joint Meeting, Sponsored by the Transportation Research Board (TRB) AKD20 Committee on Roadside Safety Design, AASHTO Technical Committee on Roadside Safety (TCRS), AASHTO Committee on Design (COD), and AASHTO

Committee on Performance Effects of Geometric Design, Sheraton Kansas City Hotel and Conference Center at Crown Center, Kansas City, Missouri, August 7 through 11, 2022, [Lead Planner & Moderator for Session 1 – Fatalities Are Increasing? What Can We Do About It?, Group Leader for Breakout Session, Presenter for Breakout Group Summary].

Participated in the *Agricultural and Rural Connectivity (ARC) Engineering Research Center Planning Retreat*, Willa Cather Dining Complex, University of Nebraska-Lincoln, March 31, 2022.

Participated in the *Joint Virtual/Zoom Summer Webinar, Workshop, and Committee Meeting* – July 12, 14, 16, 19, & 21, 2021, Sponsored by the Transportation Research Board (TRB) Committee AKD20 on Roadside Safety Design and AASHTO Technical Committee on Roadside Safety (TCRS), July 2021.

Participated in the *2020 IRF Global R2T Virtual Conference & Expo – Building the Transportation Infrastructure of Tomorrow*, November 17-20, 2020.

Participated in the *Joint Virtual/Zoom Summer Webinar, Workshop, and Committee Meeting* – August 3, 5, 7, 11, & 13, 2020, Sponsored by the Transportation Research Board (TRB) Committee AKD20 on Roadside Safety Design and AASHTO Technical Committee on Roadside Safety (TCRS), August 2020.

Participated in the *2019 IRF Global R2T Conference & Expo – Building the Transportation Infrastructure of Tomorrow*, Tropicana Las Vegas Hotel & Conference Center, Las Vegas, Nevada, November 19-22, 2019.

Participated in the 2019 Ohio Transportation Engineering Conference (OTEC) – *Fueling Transportation Transformation*, Sponsored by the Ohio Department of Transportation and Ohio State University, Session 66: Structures MASH-Up, Columbus Convention Center, Columbus, Ohio, October 29-30, 2019.

Participated in the *Bridging Big Data 2019 Workshop (BBD 2019)*, Sponsored by University of Nebraska Lincoln and University of Nebraska-Omaha, Nebraska Innovation Campus, University of Nebraska-Lincoln, Lincoln, Nebraska, October 14, 2019.

Participated in the PACTRANS and CSET Regional Transportation Conference – *Bridging Innovations and Practice for Enhanced Mobility and Safety*, Sponsored by Pacific Northwest Transportation Consortium (Region 10 University Transportation Center) and Center for Safety Equity in Transportation (Tier 1 University Transportation Center), Intellectual House, University of Washington, Seattle, Washington, October 11, 2019.

Participated in the Workshop on *Partnering for SAFER Roadsides* and Joint Meeting, Sponsored by the Transportation Research Board (TRB) AFB20 Committee on Roadside Safety Design, AASHTO Technical Committee on Roadside Safety (TCRS), AASHTO Committee on Design (COD), and AASHTO Council on Active Transportation (CAT), Peppermill Reno Hotel and Conference Center, Reno, Nevada, July 21 through 24, 2019, [Planned Session 1 – MASH Implementation and Moderator for Panel on State DOT Perspectives on Unavailability of MASH Systems].

Participated in the *2018 IRF Global R2T Conference & Expo – Building the Transportation Infrastructure of Tomorrow*, Tropicana Las Vegas Hotel & Conference Center, Las Vegas, Nevada, November 7-9, 2018.

Chaired, Planned, and Participated in the *First International Roadside Safety Conference – Safer Roads, Saving Lives, Saving Money*, TRB AFB20 Committee on Roadside Safety Design, Transportation Research Board, Holiday Inn – Golden Gateway Hotel and Conference Center, San Francisco, California, June 12-15, 2017, [Moderator – Session 2A: Safety Considerations for Narrow Hazards – Utility Poles and Sign Supports; Moderator – Session 8C: International Perspectives in Roadside Safety Research; and Breakout Session I: 2nd International Roadside Safety Conference]

Participated in the Workshop on *Roadway Departure Safety – Building on the Past and Heading Toward the Future with Better Data, Testing Guidelines, and Hardware Implementation*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and AASHTO Technical Committee on Roadside Safety (TCRS), Holiday Inn Inner Harbor Baltimore Hotel, Baltimore, Maryland, June 20 through 23, 2016, [Breakout Group B Session Leader – First International Roadside Safety Conference].

Participated in the Workshop on *Making Roadway Departure Safety a Priority*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and AASHTO Technical Committee on Roadside Safety (TCRS), Swissotel Chicago, Chicago, Illinois, July 12 through 15, 2015, [Breakout Group E Session Leader – International Roadside Safety Conference and Peer Exchange].

Participated in the *Midwest Association of Technical Accident Investigators (MATAI) 2015 Annual Conference*, Sponsored by the Lancaster County Sheriff's Office, Co-Sponsored by the Midwest Roadside Safety Facility, Embassy Suites Hotel and Convention Center, Lincoln, Nebraska, May 18 through 20, 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 Group G Session Leader – Research Needs for Low-Cost Safety Treatments for Rural Low-Volume Roads].

Participated in the *17th World Meeting and Exhibition*, International Road Federation (IRF), Intercontinental Riyadh Hotel and Conference Center, Riyadh, Saudi Arabia, November 10 through 12, 2013 [Chair – Road Safety Committee Meeting].

Participated in the *Building The 22nd Century Conference*, CenturyLink Center, Omaha, Nebraska, October 14-16, 2013.

Participated in the Workshop on *Safe Systems Approach to Roadway Departure Crashes*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and AASHTO Technical Committee on Roadside Safety (TCRS), Hotel Monteleone, New Orleans, Louisiana, July 7 through 12, 2013, [Breakout Group E Session Leader – International Roadside Safety Conference (IRSC) Planning Session].

Participated in the Workshop on *Strategic Directions on Roadway Departure Crashes: Supporting the Decade of Action and Joint Meeting with AASHTO TCRS*, Sponsored by the Transportation Research Board (TRB) Committee AFB20 on Roadside Safety Design and AASHTO Technical Committee on Roadside Safety (TCRS), Beckman Center and Hyatt Regency Irvine Hotel, Irvine, California, Ohio, July 29 through August 2, 2012, [Breakout Group C Session Leader - SHSP - How Can AFB20 and TCRS Help States Meet Their Goals].

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 I Session Leader - International Roadside Safety Conference (IRSC)].

Participated in the *2009 Professional Motorsport Circuit Owners, Investors, and Suppliers Forum and Conference*, Held in Conjunction with the Professional Motorsport World Expo, Koelnmesse, Cologne, Germany, November 3-5, 2009.

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 *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 60th Annual Ohio Transportation Engineering Conference (OTEC), Greater Columbus Convention Center, Columbus, Ohio, October 24-25, 2006.

Participated in the Workshop on *Positive Protection in Work Zones*, Sponsored by the Transportation Research Board (TRB) Committees AFB20 on Roadside Safety Design and AHB55 on Work Zone Traffic Control, Jackson Rancheria Casino, Hotel, and Conference Center, Jackson, California, July 23-26, 2006, [Breakout Group Session Leader - Roadside Safety Research Needs].

Participated in the Workshop on the *Review of NCHRP Report 350 Update and Current Roadside Safety Issues*, Sponsored by the Transportation Research Board (TRB) Committees AFB20 on Roadside Safety Design and the Utah Department of Transportation, St. George, Utah, July 10-13, 2005, [Breakout Group Session Leader - Roadside Safety Research Needs].

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 2004 Bridge Conference and Workshop, Sponsored by the Federal Highway Administration, Nebraska Department of Roads, and the Nebraska LTAP T², Kearney, Nebraska, March 9, 2003.

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, [Breakout Group Session Leader - FHWA Hardware Acceptance Policy - Group II].

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, [Breakout Group Session Leader - Laboratory Accreditation].

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 23rd Annual (2002) Concrete Paving Workshop, Sponsored by the Nebraska Concrete Paving Association, Cornhusker Hotel, Lincoln, Nebraska, January 30-31, 2002.

Participated in the Workshop on *Future R&D Needs on Roadside Safety Features*, Sponsored by the Transportation Research Board (TRB) Committee A2A04 on Roadside Safety Features and Committee A2A07 on Utilities, Reno, Nevada, July 22-26, 2001.

Participated in the Heart of America Chapter "How To" Conference, Co-Sponsored by the American Traffic Safety Services Association (ATSSA), Kansas City, Missouri, November 28-30, 2000.

Participated in the Nebraska Cooperative Research Conference, Hosted by the Nebraska Department of Roads, Co-Sponsored by the Associated General Contractors of America, the Mid-America Transportation Center, the Federal Highway Administration, the Midwest Roadside Safety Facility, and the National Bridge Research Organization, Embassy Suites, Lincoln, Nebraska, October 12, 2000.

Participated in the Workshop on *Emerging Issues on Roadside Safety*, Sponsored by the Transportation Research Board (TRB) Committee A2A04 on Roadside Safety Features, Woods Hole, Massachusetts, August 20-23, 2000.

Participated in the *Wood In Transportation* National Conference, Sponsored by the National Arbor Day Foundation, Co-sponsored by the USDA Forest Service, Wood In Transportation Program and the Forest Products Laboratory, In cooperation with the U.S. Federal Highway Administration and the National Association of County Engineers, Arbor Day Farm, Lied Conference Center, Nebraska City, Nebraska, November 4-5, 1999.

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 the *Crashworthiness in the 21st Century*, Sponsored by the Transportation Research Board (TRB) Committee A2A04 on Roadside Safety Features and the Federal Highway Administration, Seattle, Washington, August 2-5, 1998.

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.

Supplied materials for and participated in the review process for the new document titled, *A Guide to Standardized Highway Barrier Hardware*, AASHTO-AGC-ARTBA Joint Committee, Subcommittee on New Highway Materials, Task Force 13 Report, 1995.

Participated in the *International Harmonization of Testing and Evaluation Procedures for Roadside Safety Features*, Sponsored by the Transportation Research Board (TRB) Committee A2A04 on Roadside Safety Features and the Federal Highway Administration, Washington, D.C., January 13-14, 1991, Proceedings published in Transportation Research Circular No. 396, May 1992.

Section 2.5.2 National and International – Practical & Practice-Ready Papers – Transportation Research Board (Personal Listing)

2018 Practical-Ready Paper - Paper No. 18-05386, *Development of a Standardized Buttress for Approach Guardrail Transitions*, Rosenbaugh, S.K., Schmidt, J.D., and Faller, R.K., Design and Construction Practice - Ready Papers – Design, Transportation Research Board, Washington D.C., January 2018.

2017 Practice-Ready Paper - Paper No. 17-01712, *Development of a MASH TL-3 Transition Between Guardrail and Portable Concrete Barriers*, Bielenberg, R.W., Gutierrez, D., Faller, R.K., Reid, J.D., and TenHulzen, P., Design and Construction Practice - Ready Papers – Design, Transportation Research Board, Washington D.C., January 2017.

2017 Practice-Ready Paper - Paper No. 17-04592, *Development and Testing of the Manitoba Constrained-Width Tall Wall Barrier*, Rosenbaugh, S.K., Schmidt, J.D., Faller, R.K., Larsen, H., and Pankratz, A., Design and Construction Practice - Ready Papers – Design, Transportation Research Board, Washington D.C., January 2017.

2016 Practice-Ready Paper, Paper No. 16-1596, *Development of a Retrofit, Low-Deflection Temporary Concrete Barrier*, Bielenberg, R.W., Schmidt, J.D., Faller, R.K., Reid, J.D., and Emerson, E., Design and Construction Practice - Ready Papers – Design, Transportation Research Board, Washington D.C., January 2016.

2016 Practice-Ready Paper, Paper No. 16-0650, *MASH TL-4 Design and Evaluation of a Restorable, Energy-Absorbing Concrete Barrier*, Schmidt, J.D., Rosenbaugh, S.K., Bielenberg, R.W., Faller, R.K., Reid, J.D., and Schmidt, T.L., Design and Construction Practice - Ready Papers – Design, Transportation Research Board, Washington D.C., January 2016.

2015 Practice-Ready Paper, Paper No. 15-0484, *Minimum Effective Length for the Midwest Guardrail System*, Schmidt, J.D., Weiland, N.A., Reid, J.D., and Faller, R.K., Design and Construction Practice - Ready Papers – Design, Transportation Research Board, Washington D.C., January 2015.

2015 Practice-Ready Paper, Paper No. 15-4518, *Development of Socketed Foundations for Cable Guardrail Posts*, Rosenbaugh, S.K., Schmidt, J.D., and Faller, R.K., Design and Construction Practice - Ready Papers – Design, Transportation Research Board, Washington D.C., January 2015.

2015 Practice-Ready Paper, Paper No. 15-4502, *Evaluation of the Midwest Guardrail System Stiffness Transition with Curb*, Rosenbaugh, S.K., Schmidt, J.D., and Faller, R.K., Design and Construction Practice - Ready Papers – Design, Transportation Research Board, Washington D.C., January 2015.

2015 Practice-Ready Paper, Paper No. 15-3366, *Optimizing Guardrail Length-of-Need*, Albuquerque, F.D.B., Stolle, C.S., Sicking, D.L., Faller, R.K., Lechtenberg, K.A., and Emerson, E., Design and Construction Practice - Ready Papers – Design, Transportation Research Board, Washington D.C., January 2015.

2015 Practice-Ready Paper, Paper No. 15-0802, *Objective Functional Classification for Use in Benefit-Cost Analysis*, Schrum, K.D., Sicking, D.L., Faller, R.K., Stolle, C.S., Lechtenberg, K.A., and Emerson, E., Design and Construction Practice - Ready Papers – Design, Transportation Research Board, Washington D.C., January 2015.

2014 Practice-Ready Paper – Paper No. 14-4613, *Safety Investigation and Guidance for Retrofitting Existing Approach Guardrail Transitions*, Schmidt, J.D., Jowza, E.R., Faller, R.K., Rosenbaugh, S.K., and Reid, J.D., Design and Construction Practice - Ready Papers – Design, Transportation Research Board, Washington D.C., January 2014.

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.

2011 Practice-Ready Paper, Paper No. 11-2684, *Non-Blocked, Midwest Guardrail System for Wire-Faced, MSE Walls*, Lechtenberg, K.A., Faller, R.K., Sicking, D.L., Rohde, J.R., and Reid, J.D., Design and Construction Practice - Ready Papers - Design, Transportation Research Board, Washington D.C., 2011.

2010 Practice-Ready Paper, Paper No. 10-0087, *A New TL-2 Rough Stone Masonry Guardwall*, Reid, J.D. and Faller, R.K., Design and Construction Practice - Ready Papers - Design, Transportation Research Board, Washington D.C., January 2010.

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. 06-1784, *A Test Level 4 Noise Wall for Attachment to Concrete Traffic Barriers*, by Faller, R.K., Kurz, K., Polivka, K.A., Sicking, D.L., Humphries, E., and Hascall J., Design and Construction Practice - Ready Papers - Design, Transportation Research Board, Washington D.C., 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 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. 03-4421, *A Guardrail Connection for Low-Fill Culverts*, by Polivka, K.A., 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.

2003 Catalog of Practical Papers, Paper No. 03-3146, *Design and Testing of Tie-Down Systems for Temporary Barriers*, by Bielenberg, R.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 Catalog of Practical Papers, Paper No. 02-3675, *Crash Testing and Analysis of Work Zone Sign Supports*, by Polivka, K.A., Rohde, J.R., Faller, R.K., and Sicking, D.L., Section 8 - Safety, Division A - Technical Activities, Group 2 Standing Committees and Task Forces, Design and Construction of Transportation Facilities, Transportation Research Board, Washington D.C., 2002.

2001 Catalog of Practical Papers, Paper No. 01-0378, *Development of Two TL-2 Bridge Railings and Transitions for Use on Transverse Glue-Laminated Deck Bridges*, by Faller, R.K., Ritter, M.A., Rosson, B.T., Keller, E.A., and Duwadi, S.R., Section 1 - Bridge, Culvert and Tunnel Design and Performance, Division A - Technical Activities, Group 2 Standing Committees and Task Forces, Design and Construction of Transportation Facilities, Transportation Research Board, Washington D.C., 2001.

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.

2001 Catalog of Practical Papers, Paper No. 01-0343, *A W-Beam Guardrail Adjacent to a Slope*, by Polivka, K.A., Sicking, D.L., 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.

1999 Catalog of Practical Papers, Paper No. 991027, *Railing Systems for Use on Timber Deck Bridges*, by Faller, R.K., Rosson, B.T., Ritter, M.A., and Duwadi, S.R., Section I - Bridge Design and Performance, Division A - Technical Activities, Group 2 Standing Committees and Task Forces, Design and Construction of Transportation Facilities, Transportation Research Board, Washington D.C., 1999.

1998 Catalog of Practical Papers, Paper No. 980824, *Approach Guardrail Transition for Concrete Safety Shape Barriers*, by Faller, R.K., Reid, J.D., and Rohde, J.R., Section X - Roadside Safety, A Pilot Program by Division A - Technical Activities, Group 2 Standing Committees and Task Forces, Design and Construction of Transportation Facilities, Transportation Research Board, Washington D.C., 1998.

Section 3 Teaching/Mentoring Accomplishments

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

Section 3.1 Post-Doctoral Researchers

Section 3.1.1 Post-Doctoral Researchers Supervised and/or Supported

Tewodros Yosef, Ph.D. November 2021 – Present (100% Funding)
 Chen Fang, Ph.D. – August 2020 – Present (100% Funding)
 Hua Jiang, Ph.D. – November 2018 – December 2019 (100% Funding)
 Fengtao Bai, Ph.D. – June 2018 – June 2019 (100% Funding)
 Sagheer Ranjha, Ph.D. – September 2016 – July 2018 (100% Funding)
 Mojdeh Asadollahi Pajouh, Ph.D. – December 2015 – August 2018 (100% Funding)
 Cody Stolle, Ph.D. – December 2012 to February 2015 (100% Funding)
 Jennifer Schmidt, Ph.D. – December 2012 to February 2015 (100% Funding)
 Francisco Daniel Benicio De Albuquerque, Ph.D. – August 2011 to May 2013 (100% Funding)
 Mario Mongiardini, Ph.D. – May 2010 to October 2012 (100% Funding)

Section 3.1.2 Post-Doctoral Researchers Currently in Progress

Tewodros Yosef, Ph.D. November 2021 – Present (100% Funding)
 Chen Fang, Ph.D. – August 2020 – Present (100% Funding)

Section 3.2 Ph.D. Students

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.

Section 3.2.1 Civil Engineering Ph.D. Students – Committee, Supervised, Co-Supervised, and/or Supported

Muhammad Umer Farooq (2023 expected) – TBD (**Committee Member**)

Steven C. Douglas (2023 expected) – TBD (**Committee Chair**)

Qusai A. Alomari (Summer 2023 expected) – Structural Performance and Resiliency of Reinforced Concrete Bridge Pier Columns, Multi-Column Piers, and Bridge Systems Subjected to Multiple Hazards – Fire, Collision, and Air Blast (**Committee Member**)

Andrew Loken (2023 expected) – TBD (**Committee Member**)

Tewodros Yimer Yosef (2021) – Development of Advanced Computational Methodologies and Guidelines for Modeling Impact Dynamics of Pile-Granular Soil Systems (**Committee Co-Chair w/ Dr. Chung Rak Song (1st) and Dr. Seunghee Kim (2nd)**)

Antonio Hurtado-Beltran (2021) – A Methodology for Estimating Capacity and Passenger Car Equivalents for Connected and Autonomous Vehicles Traveling on Freeways (**Committee Member**)

Seok Hwan Yoo (Started with MwRSF January 2019) – Research Funding Provided

John F. Hartwell (2015) – Methodology for Assessing Municipal Solid Waste Using a Large-Diameter Borehole (**Committee Member**)

Kevin D. Schrum (2014) – Predicting the Dynamic Fracture of Steel Via a Non-Local Strain-Energy Density Failure Criteria (**Committee Member**)

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

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

Francisco Daniel Benicio De Albuquerque (2011) - Evaluation of the In-Service Safety Performance of Safety-Shape and Vertical Concrete Barriers (**Committee Member**)

Section 3.2.2 Mechanical Engineering Ph.D. Students – Committee, Supervised, Co-Supervised, and/or Supported

Ricardo Jacome (2021) – On Road Coordinates for Autonomous Vehicle Guidance (**Committee Member**)

Zesheng Zhang (2019) – Research Funding Provided

Wenlong Li (2018) – Research Funding Provided

Cale J. Stolle (2016) – Design and Evaluation of Scalable Pediatric Gait Rehabilitation Robots (**Committee Member**)

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

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

Section 3.3.3 Computer Science and Engineering Ph.D. Students – Committee, Supervised, Co-Supervised, and/or Supported

Mohammad Mosiur Rahman Lunar (2023 expected) - Empirical Channel Modelling and Experimentation with Deep Spectrum Prediction for Safety-Critical Connected Roadside Barrier Systems (**Committee Member**)

Section 3.2.4 International Ph.D. Students – External Review & Evaluation (Research Study, Journal Article, and/or Dissertation)

Andrew Burbridge (2019) – An Explanatory Model for Quantification of Road Safety Barrier Impact Risk - Queensland University of Technology (Australia)

Mehrtash Soltani (2016) – Evaluating the Performance of W-Beam Guardrail Roadside Safety Barrier Systems - University of Malaya (Malaysia)

Section 3.3 M.S. Students

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.

Section 3.3.1 Civil Engineering M.S. Students – Committee, Supervised, Co-Supervised, and/or Supported

Aaron Lechtenberger (target May 2024) – TBD (**Committee Chair**)

Rodrigo Quintero-Paez (2023 expected) – research funding provided

Russell Masterson (May 2023 expected) – TBD (**Committee Member**)

Yayjoo Shrestha (started MS but left UNL) – research funding provided

Riley J. Ruskamp (2022) – Development of a Next-Generation, Non-Proprietary, Portable Concrete Barrier (**Committee Member**)

Sam Hovde (2021) – Evaluation of Permanent Concrete Barriers to MASH 2016 (**Committee Member**)

Andrew Loken (2021) – Establishing Safe Operating Speeds for Autonomous Vehicles on the Automated Skyway Express in Jacksonville, Florida (**Committee Member**)

Jared Duren (2021) Prioritization of Research on Bridge Railing Systems for Use on Timber Deck Bridges and Development of Two Glulam Bridge Railing Systems (**Committee Chair**)

Jacob DeLone (2020) – Development of a MASH Test Level 4 Open Concrete Bridge Rail (**Committee Member**)

Santos Ramos (2019) - Development of Traffic Simulation Templates for Entry Control Facilities (**Committee Member**)

Oscar Pena (2019) - Development of a MASH TL-4 Steel, Side-Mounted, Beam-and-Post, Bridge Rail (**Committee Chair**)

Wyatt Fallet (2019) – Development of Structural Components for a New Roadside Safety End Treatment Option (**Committee Member**)

Jeremiah Dixon (Started January 2017, Target Graduation December 2018) (**Committee Chair**)

Dean Whitfield (2018) – Investigation of a Tractor-Tank Trailer Roadside Containment Barrier (**Committee Member**)

Gulpiye Abudukadier (2017) – Completed Non-Thesis Option II (**Advisor**)

Jordan T. Wipf (2017) – Development of a Generic Energy-Absorbing Approach End Terminal for the Midwest Guardrail System (**Committee Member**)

Francys Lopez Mosquera (2017) – Hyperelastic Structural Fuses for Improved Earthquake Resilience of Steel Concentrically Braced Buildings (**Committee Member**)

Gabriela Perales (2017) – An Empirical Analysis on Longitudinal and Lateral Tire-Pavement Friction (**Committee Member**)

Tyler L. Schmidt (2016) – Development of a Transition Between an Energy-Absorbing Concrete Barrier and a Rigid Concrete Buttress (**Committee Chair**)

Brandt M. Humphrey (2016) – Improved Methodologies in Modeling and Predicting Failure in AASHTO M-180 Guardrail Steel Using Finite Element Analysis – Phase I (**Committee Chair**) [2016-2017 Lowe R. and Mavis M. Folsom Distinguished Master’s Thesis Award – Honorable Mention; 2016 Department of Civil Engineering Outstanding Thesis Award]

Bradley J. Winkelbauer (2015) – Phase I Evaluation of Selected Concrete Material Models in LS-DYNA (**Committee Chair**)

Leah Kampschneider (2015) – Completed Non-Thesis Option II Program (**Advisor**)

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

Ali Alhajami (2013) – Reliability Analysis of Shallow Foundations Bearing Capacity on Sand (**Committee Member**)

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

Mitchell J. Wiebelhaus (2012) – Cost-Effective Treatment of Existing Guardrail Systems (**Committee Member**)

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

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

Kevin D. Schrum (2011) - Roadside Grading Guidance (**Committee Member**)

Jennifer D. Schmidt (2009) - Analysis of Existing Work-Zone Devices with MASH Safety Performance Criteria (**Committee Member**)

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

Scott M. Peterson (2009) - Guidelines for Guardrail Implementation (**Committee Member**)

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

Francisco Daniel Benicio De Albuquerque (2007) - Evaluation of Safety Treatments for Roadside Culverts (**Committee Member**)

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

Paulo Marchon (2007) - Nonlinear Finite Element Analysis of Composite Bridges at Ultimate Load (**Committee Member**)

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

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

Jason Herr (2002) - Development of Standards for Placement of Steel Guardrail Posts in Rock (**Committee Member**)

Nick J. Lampe (2001) - Steel Girder Bridges Enhancing the Economy (**Committee Member**)

Matthew D. Goeller (2000) - Soil Behavior During a Guardrail Post Impact

Brian A. Coon (1999) - Dynamic Impact Testing and Simulation of Guardrail Posts Embedded in Soil

Richard P. Smith (1997) - Quantification of Guardrail Post-Soil Interaction

Michael D. Fowler (1997) - Design and Testing of a Test Level 4 Bridge Railing for Transverse Glulam Timber Deck Bridges

Mark G. Bierman (1995) - Behavior of Guardrail Posts to Lateral Impact Loads
 James C. Holloway (1993) - Safety Performance Evaluation of Vehicular Impacts on Mountable Curbs
 James K. Luedke (1993) - Development of Equivalent Dynamic Forcing Functions of Vehicle Impacts on Bridge Rails
 Nathaniel W. Beezley (1990) - Economic Analysis to Compare the Results of the UPACE and ROADSIDE Computer Software Programs

Section 3.3.2 Mechanical Engineering M.S. Students – Committee, Supervised, Co-Supervised, and/or Supported

Luis Rodriguez Alvizo (2021) – Development of a MASH TL-3 Compliant Parapet-Mounted Fence (**Committee Member**)
 Miguel A. Hinojosa (2021) – MASH 2016 Test Level 3 and Test Level 4 Evaluation of Roadside Safety Barrier with Pedestrian Features (**Committee Member**)
 Ryan Bickhaus (2021) – Research Funding Provided
 Kellon Ronspies (2020) – Evaluation and Update of MASH Test Vehicles (**Committee Member**)
 Jessica Lingenfelter (2020) – In-Service Performance Evaluation of Concrete Sloped End Treatments in Iowa (**Committee Member**)
 Michael Sweigard (2020) – Development of a Novel Vehicle Guidance System: Vehicle Risk Mitigation and Control (**Committee Member**)
 Brock Schroder (2019) – Development of an Energy Absorber for a New Roadside Safety End Treatment Option (**Committee Member**) [Two Volumes]
 Thomas J. Ammon (2018) – Evaluation of Deformable Posts in the ZOI and Rigid Posts in Stiff Soil (**Committee Member**)
 Tiffany Trevino-Medina (2018) – Evaluation of Speed Tables on Roadway Curves (**Committee Member**)
 Chaz Ginger (2018) – Development of Iowa DOT Combination Bridge Separation Barrier with Bicycle Railing (**Committee Member**)
 Ana L. Guajardo (2017) – Evaluation of Chicane and Speed Table Designs Using Computer Simulations (**Committee Member**)
 Joseph G. Putjenter (2015) – Conceptual Development of an Impact-Attenuation System for Intersecting Roadways (**Committee Member**)
 Nicholas A. Weiland (2014) – Increased Span Length for the MGS Long-Span Guardrail System (**Committee Member**)
 Cale Stolle (2013) – Zone of Intrusion for Permanent 9.1-Degree Single-Slope Concrete Barriers (**Committee Member**)
 Brett Schlueter (2012) – Predicting Vehicle Dynamic for Roadside Safety Using Multibody Systems Simulations (**Committee Member**)
 Ramen D. Julin (2012) – Identification of a Maximum Guardrail Height for the Midwest Guardrail System Using Computer Simulation (**Committee Member**)
 Ryan J. Terpsma (2012) - Development and Recommendations for a Non-Proprietary, High-Tension, Cable End Terminal System (**Committee Member**)
 Curt L. Meyer (2011) - Feasibility Analysis and Concept Development of a Crash Cushion Diaphragm Structure for High-Speed Race Tracks (**Committee Member**)
 Cody S. Stolle (2010) - A Concise Model of 3x7 Wire Rope Used in Cable Guardrail Systems (**Committee Member**)
 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 (**Committee Member**)
 Beau D. Kuipers (2004) - Identification of a Critical Flare Rate for W-Beam Guardrail in High-Speed Facilities Using Computer Simulation (**Committee Member**)
 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 (**Committee Member**)
 Tony J. Paulsen (2003) - Improvements to the Suspension and Modularization of the C2500 Pickup Truck Finite Element Model
 Ritesh Fating (2002) - Dynamic Impact Testing and Simulation of Cable Barrier Posts
 Karla A. Polivka (2001) - Crash Testing and Analysis of Work Zone Sign Supports (**Committee Member**)
 Sridhar Ravikoti (2001) - Finite Element Simulation of Indy Racetracks HDPE Crash Barriers Using LS-DYNA
 Robert W. Bielenberg (1999) - Finite Element Simulation of a Bullnose Median Barrier System
 Gene W. Paulsen (1996) - Design and Testing of a Dual Support Breakaway Sign Using Nonlinear Finite Element Analysis
 Bavneet S. Brar (1995) - Component Testing and Simulation of Guardrail End Terminal

Section 3.4 Undergraduate Students

Section 3.4.1 Undergraduate Creative Activities & Research Experiences (UCARE) program (Pepsi Endowment Program)

Jesse Kuhlen (Civil Engineering: 2001-2002) - *Analysis of a Cable Guardrail's Spring Compensator*
 Rachel Martin (Civil Engineering: 2000-2001) - *Design of a Breakaway Work Zone Sign*

Section 3.4.2 Undergraduate Students

I have provided employment opportunities to hundreds of UNL undergraduate students during summer and academic terms using research grant funding.

Section 3.5 Teaching Awards and Recognition

Section 3.5.1 International and National Teaching Awards and Recognition

None

Section 3.5.2 Regional, Local, and University Teaching Awards and Recognition

None

Section 3.6 Other Teaching Accomplishments (Volunteer)

Section 3.6.1 UNL Undergraduate Courses

Fall 2005 - Civil Engineering 341 - Introduction to Structural Engineering (37 Students)

Spring 2017 – Project Advisor – Mechanical & Materials Engineering 447 – Senior Design Project (3 Students)

Section 3.6.2 UNL Graduate Courses

Spring 2003 - Civil Engineering 867 - Transportation Safety Engineering (10 Students - 1 Guest) - TV Class

Spring 2004 - Civil Engineering 842 - Structural Dynamics (13 Students) - TV Class

Fall 2004 - Civil Engineering 867 - Transportation Safety Engineering (6 Students)

Spring 2006 - Civil Engineering 867 - Transportation Safety Engineering (8 Students)

Spring 2009 - Civil Engineering 867 - Transportation Safety Engineering (7 Students)

Spring 2011 - Civil Engineering 867 - Transportation Safety Engineering (6 Students)**

Spring 2012 - Civil Engineering 998 - Special Topics in Transportation Safety Engineering (1 Student)

Spring 2014 - Civil Engineering 867 - Transportation Safety Engineering (8 Students)**

Fall 2014 – Civil Engineering 899 – Special Topics in Transportation Engineering (1 Student)

Section 3.7 Other Academic Mentoring

Section 3.7.1 Fulbright Mentoring

Along with Drs. Dean Sicking and John Rohde, provided letters of recommendation as well as application review and editing for Mr. Brian Coon's Fulbright Scholar Award. In 2000, Mr. Coon (a doctoral candidate) received the prestigious Fulbright Award to study and perform roadside safety research at a laboratory in Sweden.

Section 3.7.2 International Essay Competition Mentoring

Section 3.8 Dwight David Eisenhower Transportation Fellowship Program, U.S. DOT

December 2022 – Aaron Lechtenberger, CEE MS Student - Year 1 Funding and TRB Travel Scholarship - \$5,000

Section 3.9 Student Essay Competitions

2014 International Road Federation (IRF) Student Essay Competition

\$500 First Place Prize Winner in Road Safety Category, Bradley Winkelbauer, The Killer Tree Problem, Awarded by the International Road Federation, Washington, D.C., February 2015, Sponsoring Professor - Dr. Faller].

2009 International Road Federation (IRF) Student Essay Competition

\$1,000 First Place Prize Winner in Innovative Financing Category, Jeffrey Charles Thiele, *Road Pricing to Reduce Congestion, Pollution, and Injury Accidents*, Awarded by the International Road Federation, Washington, D.C., August 2009, Sponsoring Professor - Dr. Faller].

2006 Philip E. Rollhaus Jr. Essay Competition

\$1,000 Second Place Prize Winner, Khaled Alkhaledi, *Improving Design for Roundabouts - Reducing Cars and Pedestrians Conflicts*, Awarded by Quixote Transportation Safety and Energy Absorption Systems, Inc., Chicago, Illinois, July 2006, Sponsoring Professor - Dr. Faller].

2005 Philip E. Rollhaus Jr. Essay Competition

\$1,000 Second Place Prize Winner, Jason Hascall, *Computer Chips and Magnetic Strips: Limiting Speeds So You Don't Have To*, Awarded by Quixote Transportation Safety and Energy Absorption Systems, Inc., Chicago, Illinois, August 2005, Sponsoring Professor - Dr. Faller].

2003 Philip E. Rollhaus Jr. Essay Competition

\$1,000 Second Place Prize Winner, Robert Bielenberg, *The "Smart" Work Zone: Increased Work Zone Safety Through the Use of New Technologies*, Awarded by Quixote Transportation Safety and Energy Absorption Systems, Inc., Chicago, Illinois, August 2003, Sponsoring Professor - Dr. Faller].

2002 Philip E. Rollhaus Jr. Essay Competition

\$3,000 Grand Prize Winner, Dustin Boesch, *Sliding Safety Walls for Railway Crossings*, Awarded by Quixote Transportation Safety and Energy Absorption Systems, Inc., Chicago, Illinois, August 2002, [\$1,000 Award to Sponsoring Professor - Dr. Faller].

Section 4 Service Accomplishments

Section 4.1 Professional Service

Section 4.1.1 Journal Editorships

None

Section 4.1.2 Journal Reviewer (Note that only recent publication years and review quantities have been added below.)

Strojnicki vestnik – Journal of Mechanical Engineering – 2018 (1)
 International Journal of Impact Engineering – Elsevier - 2018 (1), 2022 (3), 2023 (1)
 Journal of Traffic and Transportation Engineering (English Edition) – Elsevier – 2017 (1), 2018 (1), 2020 (3), 2021 (1), 2022 (3)
 Transportation Letters – Taylor & Francis – 2018 (1)
 Australian Road and Transport Research – 2017 (1)
 Journal of Transportation Engineering – American Society of Civil Engineers – 2017 (1), 2021 (2)
 Journal of Structural Engineering – American Society of Civil Engineers
 Journal of Bridge Engineering – American Society of Civil Engineers – 2009 (1), 2012 (1), 2018 (1), 2019 (2), 2020 (3), 2021 (4)
 Journal of the Transportation Research Board - Transportation Research Record – 2018 (13), 2019 (4), 2020 (3), 2021 (3), 2022 (5), 2023 (12)
 Journal of Engineering – Hindawi Publishing Corporation
 Journal of Transportation Safety and Security – Taylor & Francis – 2021 (2)
 2009 ASME Conference - Rail Transportation Division – American Society of Mechanical Engineers
 2009 ASME International Mechanical Engineering Congress & Exhibition (IMECE) – American Society of Mechanical Engineers
 2013 17th World Meeting and Exhibition of the International Road Federation (IRF) – reviewed 31 papers
 2014 1st IRF Asia Regional Congress and Exhibition – reviewed 18 papers
 2015 1st IRF Europe & Central Asia Regional Congress and Exhibition – reviewed 10 papers
 2017 TRB 1st International Roadside Safety Conference and Peer Exchange – reviewed 6 papers
 2018 IRF Global R2T Conference – reviewed 6 papers
 2019 TRB International Conference on Low-Volume Roads – reviewed 3 papers
 2023 TRB International Conference on Low-Volume Roads – reviewed 7 extended abstracts in 2022
 2021 IRF 18th World Meeting and Exhibition – reviewed 4 papers
 Mathematical Problems in Engineering – 2020 (1)
 Modelling and Simulation in Engineering (Hindawi) – 2023 (1)
 Robotica

Traffic Injury Prevention – 2019 (1)
 Advances in Civil Engineering, Hindawi Publishing Corporation
 Engineering Structures, Elsevier Publishing
 IRF Examiner – Volume 5 – Spring 2015 – Road Safety Analysis – Review Board
 IRF Examiner – Volume 1 – Spring 2014 – Road Safety Applications – Review Board
 Transactions of the Canadian Society for Mechanical Engineers – 2019 (1)
 IEEE Access – 2021 (1), 2022 (1)
 Materials, MDPI – 2022 (1)
 International Journal of Environmental Research and Public Health, MDPI – 2022 (1)
 Road Materials and Pavement Design – Taylor & Francis – 2023 (1)

Section 4.1.3 Leadership Positions in International and National Organizations

Section 4.1.3.1 Transportation Research Board (TRB)

Conference Planning Team and Chair – *First International Roadside Safety Conference and Peer Exchange – Safer Roads, Saving Lives, Saving Money, Transportation Research Circular Number E-C220 – June 2017*, TRB AFB20 Roadside Safety Design Committee, San Francisco, California, June 12-15, 2017, 2015–2017, [Pre-Event Planning and White Paper Development, 2009-2015].

Executive Committee/Planning Committee - *Second International Roadside Safety Conference and Peer Exchange – June 2024*, TRB AFB20 & AKD20 Roadside Safety Design Committee, (1) Toronto, Ontario, Canada and (2) Orlando, Florida, 2018–Present.

Moderator – Session 2A: Safety Considerations for Narrow Hazards – Utility Poles and Sign Supports, *First International Roadside Safety Conference – Safer Roads, Saving Lives, Saving Money*, TRB AFB20 Roadside Safety Design Committee, San Francisco, California, June 12-15, 2017.

Moderator – Session 8C: International Perspectives in Roadside Safety Research, *First International Roadside Safety Conference – Safer Roads, Saving Lives, Saving Money*, TRB AFB20 Roadside Safety Design Committee, San Francisco, California, June 12-15, 2017.

Moderator - Session No. 664, Roadside Safety Design: Bridge Rails and Concrete Barriers, 93rd Annual Meeting of the Transportation Research Board, Washington, D.C., January 13, 2014.

Moderator - Session No. 659, Barrier Performance and Crash Costs, 91st Annual Meeting of the Transportation Research Board, Washington, D.C., January 24, 2012.

Moderator - Session No. 151, Roadside Safety Features - Part 2, 81st Annual Meeting of the Transportation Research Board, Washington, D.C., January 14, 2002.

Committee Member - National Academy of Sciences, Transportation Research Board (TRB), AKD20 Committee on Roadside Safety Design, **Term 1** – April 2022 to April 2025.

Committee Member - National Academy of Sciences, Transportation Research Board (TRB), AFB20 Committee on Roadside Safety Design, **Term 1** – April 2010 to April 2013, **Term 2** – April 2013 to April 2016, **Term 3** – April 2016 to April 2019.

Committee Member - National Academy of Sciences, Transportation Research Board (TRB), A2A04 Committee on Roadside Safety Appurtenances, 1992.

Friend - National Academy of Sciences, Transportation Research Board (TRB), A2A04(1), AFB20(1), and AKD20 Committee on Roadside Safety Design, 1988-2010 and 2019-Present.

Subcommittee Member - National Academy of Sciences, Transportation Research Board (TRB), A2A04(1), AFB20(1), and AKD20 Subcommittee on Computational Mechanics, 1992-Present.

Subcommittee Member - National Academy of Sciences, Transportation Research Board (TRB), A2A04(2), AFB20(2), and AKD20 Subcommittee on International Activities, 2000-Present.

Section 4.1.3.2 International Road Federation (IRF) - Washington

Board of Directors (Sixth Term 2021 - 2023)
 Board of Directors (Fifth Term 2019 - 2021)
 Board of Directors (Fourth Term 2017 - 2019)
 Board of Directors (Third Term 2015 - 2017)
 Board of Directors (Second Term 2013 - 2015)
 Board of Directors (First Term 2011 - 2013)
 Chair - Road Safety Committee (RSC) (2012 - 2015)
 Co-Chair - Road Safety Committee (RSC) (2009 - 2012)
 Member – Road Safety Committee (RSC) (2015 – Present)
 Co-Chair - Task Force on Performance Standards for Roadside Safety Hardware and Features, IRF Road Safety Committee (2022 – Present)

Moderator – Executive Session ES13 – Advances in Roadside Safety, 2022 International Road Federation (IRF) Global R2T Conference & Exhibition, Sponsored by the International Road Federation, The Mayflower Autograph Hotel, Washington, D.C., October 31 through November 3, 2022.

Scientific Committee – 2021 18th IRF World Meeting & Exhibition, Dubai, United Arab Emirates, November 7-10, 2021.

Technical & Scientific Committee – 1st IRF Europe & Asia Regional Congress & Exhibition, Istanbul, Turkey, September 15 – 18, 2015.

Technical & Scientific Committee – 1st IRF Asia Regional Congress & Exhibition, Bali, Indonesia, November 17 – 19, 2014.

Technical & Scientific Committee – Technical Track Theme Chairman – Road Safety – 17th World Meeting & Exhibition, Riyadh, Saudi Arabia, November 10 – 14, 2013.

Moderator – Safer Roads By Design Session SRD4, End Treatment Applications, 17th World Meeting & Exhibition, Riyadh, Saudi Arabia, November 11, 2013.

Section 4.1.3.3 National Cooperative Highway Research Program (NCHRP)

Panel Member - National Cooperative Highway Research Program (NCHRP) Project Panel C20-05 49-08, FY 2017 – Pedestrian Safety Relative to Traffic Speed Management, 2017 to 2018, [*Synthesis No. 535: Pedestrian Safety Relative to Traffic-Speed Management - A Synthesis of Highway Practice*].

Panel Member - National Cooperative Highway Research Program (NCHRP) Project Panel C20-05 48-01, FY 2016 – Practicing for Preventing Roadway Departure Crashes, 2016 to 2017, [*Synthesis No. 515: Practices for Preventing Roadway Departures Crashes*].

Panel Member - National Cooperative Highway Research Program (NCHRP) Project Panel C22-31, FY 2015 – Development of Guidelines for the Selection and Placement of Test Levels 2 through 5 Median Barriers, 2014 to 2022 [*NCHRP Report No. 996 - Selection and Placement Guidelines for Test Level 2 through Test Level 5 Median Barriers*].

Panel Member - National Cooperative Highway Research Program (NCHRP) Project Panel C22-20 (02), FY 2010 - Design Methodology for Roadside Barriers Mounted on MSE Walls, 2009 to 2017, [*NCHRP Web-Only Document No. 326 - Design Guidelines for Test Level 3 through Test Level 5 Roadside Barrier Systems Placed on Mechanically-Stabilized Earth Retaining Walls*].

Panel Member - National Cooperative Highway Research Program (NCHRP) Project Panel C22-20, FY 2004 - Design Methodology for Roadside Barriers Mounted on MSE Walls, 2003 to 2009, [*NCHRP Report No. 663 - Design of Roadside Barrier Systems Placed on MSE Retaining Walls*].

Panel Member - National Cooperative Highway Research Program (NCHRP) Project Panel C16-04, FY 2003 - Design Guidelines for Safe and Aesthetic Roadside Treatments in Urban Areas, 2002 to 2008, [*NCHRP Report No. 612 - Safe and Aesthetic Design of Urban Roadside Treatments*].

Section 4.1.3.4 American Association of State Highway and Transportation Officials (AASHTO) and Task Force 13

Task Force 13 - Standardization of Details for Bridge and Road Hardware, AASHTO-AGC-ARTBA Subcommittee on New Highway Materials

- Executive Committee Member (April 1999 - May 2006)
- Co-Chair, Subcommittee No. 3 - Bridge Railing and Transition Hardware (April 1999 - January 2003)
- Co-Chair, Subcommittee No. 7 - Quality Assurance Standards for Full-Scale Crash Testing (March 2000 - May 2006)
- Group Leader - Subcommittee No. 3 on Bridge Railings and Transitions (2008 – 2014)
- Hosted AASHTO Task Force (TF 13) Spring Meeting in Lincoln, Nebraska (2012-2019, 2022)
- Planned, Hosted, and Moderated Joint Meeting Between AASHTO TF13 and Midwest Pooled Fund Program in Lincoln, Nebraska (2012-2019, 2022)

Technical Committee for Roadside Safety (TCRS)

- Roadside Safety Expert - Updates & FAQs for Manual for Assessing Safety Hardware (2012 – present)

Section 4.1.4 Leadership Positions in Regional and Local Organizations

Organizing Committee Member - National Conference on Wood Transportation Structures, October 23-25, 1996, Madison, Wisconsin.

Section 4.1.5 Memberships in Professional Organizations

- Member - Transportation Research Board AKD20 Committee on Roadside Safety Design (Three Subcommittees).
- Member - American Association of State Highway and Transportation Officials (AASHTO) Task Force 13.
- Member - Chi Epsilon (Civil Engineering Honorary Society).
- Member - Tau Beta Pi (Engineering Honorary Society).
- Member - American Society of Civil Engineers (ASCE).
- Member - International Road Federation (IRF).

Section 4.1.6 National and International Service Awards

2017 Certificate of Appreciation, Conference Planning Team and Chair – *First International Roadside Safety Conference – Safer Roads, Saving Lives, Saving Money*, The National Academies of Sciences – Engineering – Medicine, Transportation Research Board AFB20 Roadside Safety Design Committee, San Francisco, California, June 12-15, 2017.

2015 Volunteer Of The Year, TRB AFB20 Committee on Roadside Safety Design, Presented at the 2016 (95th) Annual Meeting of the Transportation Research Board, Washington, D.C., January 13, 2016.

Section 4.1.7 Regional and Local Service Awards

None

Section 4.1.8 Research Review Panels

Panel Member - National Cooperative Highway Research Program (NCHRP) Project Panel C20-05 49-08, FY 2017 – Pedestrian Safety Relative to Traffic Speed Management, 2017 to 2018, [*Synthesis No. 535: Pedestrian Safety Relative to Traffic-Speed Management - A Synthesis of Highway Practice*].

Panel Member - National Cooperative Highway Research Program (NCHRP) Project Panel C20-05 48-01, FY 2016 – Practicing for Preventing Roadway Departure Crashes, 2016 to 2017, [*NCHRP Synthesis No. 515 - Practices for Preventing Roadway Departures - A Synthesis of Highway Practice*].

Panel Member - National Cooperative Highway Research Program (NCHRP) Project Panel C22-31, FY 2015 – Development of Guidelines for the Selection and Placement of Test Levels 2 through 5 Median Barriers, 2014 to 2022 [*NCHRP Report No. 996 - Selection and Placement Guidelines for Test Level 2 through Test Level 5 Median Barriers*].

Panel Member - National Cooperative Highway Research Program (NCHRP) Project Panel C22-20 (02), FY 2010 - Design Methodology for Roadside Barriers Mounted on MSE Walls, 2009 to 2017 [*NCHRP Web-Only Document No. 326 - Design Guidelines for Test Level 3 through Test Level 5 Roadside Barrier Systems Placed on Mechanically-Stabilized Earth Retaining Walls*].

Panel Member - National Cooperative Highway Research Program (NCHRP) Project Panel C22-20, FY 2004 - Design Methodology for Roadside Barriers Mounted on MSE Walls, 2003 to 2009, [*NCHRP Report No. 663 - Design of Roadside Barrier Systems Placed on MSE Retaining Walls*].

Panel Member - National Cooperative Highway Research Program (NCHRP) Project Panel C16-04, FY 2003 - Design Guidelines for Safe and Aesthetic Roadside Treatments in Urban Areas, 2002 to 2008, [*NCHRP Report No. 612 - Safe and Aesthetic Design of Urban Roadside Treatments*].

Section 4.2 University Service

Section 4.2.1 Leadership on University Committees

None

Section 4.2.2 Membership on University Committees

Research Advisory Board, UNL Office of Research and Economic Development, August 23, 2021 – August 22, 2023, Two-Year Term

Faculty Representative, UNL Parking Appeals Committee, August 2002 - August 2005

Graduate Faculty Member - UNL, Effective October 16, 2000

Section 4.2.3 Other University Service

Judge – 2017 UNL Poster/Presentation Competition - Undergraduate Spring Research Fair (8 Poster Evaluations in Round 1)

Judge – 2017 UNL Poster/Presentation Competition - Graduate Spring Research Fair (2 Poster Evaluations)

Technical Committee – Bridging Big Data 2019 Workshop

Moderator – 2020 MATC Infrastructure Workshop, Sponsored by the Mid-America Transportation Center, Prem S. Paul Research Center, University of Nebraska-Lincoln, February 21, 2020.

Faculty Advisor – Young Americans for Freedom (YAF), 2019-Present

Faculty Advisor – University Lutheran Chapel, 2021-Present

Section 4.3 College Service

Section 4.3.1 Leadership on College Committees

None

Section 4.3.2 Membership on College Committees

Strategic Planning Committee Member, UNL College of Engineering's Core Planning Committee (eCPC) – February 25 & 26, March 15, & April 22 - 2019

Strategic Planning Committee Member, UNL College of Engineering's Core Planning Committee (eCPC) – September 23, October 11, & November 2019

Research Faculty Member, Research Full Professor Rank, College of Engineering's Promotion and Tenure (P&T) Committee, August 25, 2020 – Present

Research Faculty Member, Research Full Professor Rank, College of Engineering's Ad Hoc Promotion and Tenure (P&T) Committee, January 2023 – May 2023

Section 4.4 Unit Service

Section 4.4.1 Leadership on Unit Committees

Chair, Search Committee for MwRSF Research Assistant/Associate Professor, 2021

Chair, Search Committee for MwRSF Research Assistant Professor, 2014 and 2019

Section 4.4.2 Membership on Unit Committees

Search Committee for Nebraska Transportation Center (NTC) Director, 2021-2022

Search Committee for Transportation Engineering Faculty in Civil Engineering, 2018-2019-2020-2021
 Personnel Committee – Civil and Environmental Engineering, 2021-Present
 Search Committee for MwRSF Research Assistant/Associate Professor, 2021
 Search Committee for MwRSF Research Assistant Professor, 2014 and 2019

Section 4.5 Other Community Service

Section 4.5.1 Christ Lutheran Church, Lincoln, Nebraska

Dry Food/M meal Preparer & Packager at Chapter 25, Serve Lincoln Day, Christ in the Community Event, April 2019
 Dry Food/M meal Preparer & Packager at Chapter 25, Serve Lincoln Day, Christ in the Community Event, December 1, 2018
 Dry Food/M meal Preparer & Packager at Chapter 25, Serve Lincoln Day, Christ in the Community Event, April 28, 2018
 Painter at Fresh Start, Serve Lincoln Day, Christ in the Community Event, April 29, 2017
 Communion Assistant – 2010-2020, 2022-Present
 Memorization Reviewer - Cross-Training/Confirmation – 2012-2013, 2013-2014, 2014-2015, & 2015-2016
 Table Leader - Cross-Training/Confirmation (8th Grade Boys) - 2011-2012
 Table Leader - Sunday School (7th & 8th Grade Boys) - 2010-2011

Section 4.5.2 Polycystic Kidney Disease (PKD) Foundation

Volunteer - Nebraska Friends Group, 1998-2010, 2018-Present

Volunteer, committee member, and participant at the Nebraska Chapter Fundraising Event, *Nebraska Cocktails for a Cure - 2019*, sponsored by the Nebraska Chapter of the Polycystic Kidney Disease (PKD) Foundation, May 10, 2019, Bel Air Banquet Room, Omaha, Nebraska.

Volunteer, committee member, and participant at the Fourth, *Searching The Stars For A Cure - 2004*, sponsored by the Nebraska Friends Group of the Polycystic Kidney Disease (PKD) Foundation, May 8, 2004, Harrah’s Hotel and Conference Center, Council Bluffs, Iowa.

Volunteer, committee member, and participant at the Third, *Searching The Stars For A Cure - 2002*, sponsored by the Nebraska Friends Group of the Polycystic Kidney Disease (PKD) Foundation, August 17, 2002, Harrah’s Hotel and Conference Center, Council Bluffs, Iowa.

Volunteer, committee member, and participant at the Second Annual, *Searching The Stars For A Cure - 2000*, sponsored by the Nebraska Friends Group of the Polycystic Kidney Research (PKR) Foundation, November 11, 2000, Embassy Suites Hotel, Omaha, Nebraska.

Volunteer, committee member, and participant at the First Annual, *Searching The Stars For A Cure*, sponsored by the Nebraska Friends Group of the Polycystic Kidney Research (PKR) Foundation, November 5, 1999, Harvey’s Casino and Convention Center, Council Bluffs, Iowa.

Section 4.5.3 Service to Local Students

Presentation on Safety Research at MwRSF to Local Cub Scout Troup, Lincoln, Nebraska, November 7, 2016
 Sponsored Cheney 6th grade students in a math field trip to MwRSF, February 7, 2002
 Sponsored students in the Engineering Research Center's (ERC's) High School Internship Program, June 1993, July 1996
 Sponsored students in the Engineering Research Center's (ERC's) MESA Program, June 1998, June 1999, June 2000, June 2001

Section 5 Other Accomplishments

Section 5.1 Professional Licensure

Licensed Civil Engineer in the State of Nebraska (E-7709), April 1993
 Passed Engineer-In-Training (EIT) Exam, April 1986

Section 5.2 Miscellaneous

Outstanding Young Men of America, 1986

Eagle Scout, 1981

UNL Protégé Program under Bill Jones of Hoskins, Western, and Sonderegger Inc., Lincoln, Nebraska, 1985-1986

Joseph Sorkin Scholarship, and the Irene and George Holling Scholarship

Secretary of UNL Chapter of ITE, 1985-1986

Section 6 Professional Consulting

Section 6.1 General Engineering Consulting

Intellistrobe Safety Systems, Inc., Springfield, Missouri - 2004

Remcon Plastics Incorporated, Reading, Pennsylvania - 2004

Gleason and Son Signs, Salina, Kansas - 2003

Three D Traffic Works, Inc. Burbank, California - 2003 - 2004

ROO GUARDS, INC., Spirit Lake, Iowa - 2003

Services and Materials Company, Jackson Products, Inc., St. Charles, Missouri - 2003

D.P. Sawyer, Inc., Lincoln, Nebraska - 2002

Petersen Manufacturing Company, Inc., Leisure Products Division, Denison, Iowa - 2002

Stonewear Composite Stone Products, Carson City, Nevada - 2002

Dicke Tool Company, Downers Grove, Illinois - 1998 - 2003

Applied Research and Investigations, Scottsdale, Arizona - 1991

Smeal Fire Apparatus, Snyder, Nebraska - 1991

RDM Design Systems, Lincoln, Nebraska - 1990

Section 6.2 Expert Witness and/or Safety Engineering Consultant

Asset Integrity Management Solutions LLC (AIMS International) vs. Cary A. Bourgeois and GEC, Inc. (GEC), Louisiana Case No. 2018-00123346A, In the 23rd Judicial Court, Parish of Ascension, State of Louisiana, Law Firm: Pujo – Irwin, Attorney At Law, September 2020 to Present, [**Plaintiff Report** prepared on June 30, 2022. **Deposition** provided on September 13, 2022].

The Estate of Ryan Missler vs. Nucor Corporation, et al., Ohio Case No. 16CV7339, In the Common Pleas Court of Franklin County, Ohio, Engineering Consultant & Expert Witness for Defense, Law Firm: Hahn, Loeser, & Park LLP, May 2017 to 2019. [**Defense Report** prepared on February 9, 2018.]

Benjamin H. Parr, as Personal Representative for the Estate of Darius Darell Washington, deceased; and Sabrenda Washington, as mother and next friend of Darius Darell Washington, deceased v. W.S. Newell & Sons, Inc.; et al., Alabama Case No. CV 15-900141; In the Circuit Court of Russell County, Alabama; Law Firm: Smith, Spires, Peddy, Hamilton, & Coleman, P.C.; Engineering Consultant & Expert Witness for Defense, October 2015 to August 2018. [**Deposition** provided on March 6, 2017]

Shirley Robinson, as Personal Representative for the Estate of Katereia Robinson, deceased v. Marvin Anthony Alexander; Joann R. Bellamy; W.S. Newell & Sons, Inc.; H & L Guardrail, Inc.; H & L Construction, Inc., Alabama Case No. CV 2014-900232; In the Circuit Court of Russell County, Alabama; Law Firm: Smith, Spires, Peddy, Hamilton, & Coleman, P.C.; Engineering Consultant & Expert Witness for Defense, October 2015 to August 2018. [**Deposition** provided on March 6, 2017]

Robert Tolbert, as Personal Representative for the Estate of Chelsea Tolbert v. Marvin Anthony Alexander; Joann R. Bellamy; W.S. Newell & Sons, Inc.; H & L Guardrail, Inc.; H & L Construction, Inc., Alabama Case No. CV 15-900233; In the Circuit Court of Russell County, Alabama; Law Firm: Smith, Spires, Peddy, Hamilton, & Coleman, P.C.; Engineering Consultant & Expert Witness for Defense, October 2015 to August 2018. [**Deposition** provided on March 6, 2017]

Engineering Consulting for John Christensen, NIRMA, for Rural Bridge Accident in Knox County, Nebraska, January 2011 - October 2011.

Blake Lofgren vs. Saunders County, Nebraska Case No. CI-10-114, Consulting for Vincent Valentino, Attorney At Law, Saunders County Motor-Vehicle Accident - Blake Lofgren/Ashley Markvicka, January 2011 - March 2011.

Consulting for Vincent Valentino, Attorney At Law, Platte County Motor-Vehicle Accident - Christopher Johnson/Gene Schlake, March 2010 - September 2010 and November 2011 - January 2012.

Susan DeVries and Mark Bradford vs. Hamilton County Board of Commissioners, Indiana Cause No. 29D01-0710-CT-1119, Hamilton County Superior Court, Indiana, Law Firm: Coots, Henke, and Wheeler, Attorneys At Law, P.C., Consultant for the Defense, March 2010 - April 2010.

Chad Ball & Richard Goracke vs. Johnson County, Nebraska, Case No. CI-06-118/160, District Court of Johnson County, Nebraska, Law Firm: Vincent Valentino, Engineering Consultant and Expert Witness for the Defense, September 2007 - July 2011. [Trial Testimony provided on July 13th, 2011]

Lori Whiffen vs. Pawnee County, Nebraska, Case No. GCPawnee027158, District Court of Pawnee County, Nebraska, Law Firm: Vincent Valentino, Consultant for the Defense, April 2009 - October 2009.

Larry and Debra McIntyre vs. Greeley County, Nebraska, Case No. CI-08-14, District Court of Greeley County, Nebraska, Law Firm: Vincent Valentino, Consultant for the Defense, November 2008 - May 2009.

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]

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