Jennifer Righman McConnell

Associate Professor
University of Delaware
Department of Civil and Environmental Engineering

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EDUCATION

Doctor of Philosophy, West Virginia University, Civil Engineering, August 2005.

Master of Science, West Virginia University, Civil Engineering, May 2002.

Bachelor of Science, West Virginia University, Civil Engineering, Magna cum Laude, May 2000.

EXPERIENCE

Bentley Systems Career Development Professor, Department of Civil and Environmental Engineering, University of Delaware, Newark, DE. 2019 – present.

Associate Professor, Department of Civil and Environmental Engineering, University of Delaware, Newark, DE. 2012 – present.

Assistant Professor, Department of Civil and Environmental Engineering, University of Delaware, Newark, DE. 2005 – 2012.

JOURNAL PUBLICATIONS

*(*indicates current or former student)*

In-Press

31. Clarke-Sather, A., McConnell, J., Mahsoud, E. (2020). "Application of Lean Engineering to Bridge Inspection", *ASCE Journal of Bridge Engineering*, accepted Aug. 23, 2020.

Published

30. Ahmed, S., Schumacher, T., Thostenson, E., McConnell, J. (2020). "Performance Evaluation of a Carbon Nanotube Sensor for Fatigue Crack Monitoring of Metal Structures", *Sensors*, 20(16), 4383, <doi.org/10.3390/s20164383>.

29. McConnell, J., *Radovic, M., and *Keller, P. (2020). "Holistic Finite Element Analysis to Evaluate Influence of Cross-frames in Skewed Steel I-girder Bridges", 213, 110556.

28. Alabduljabbar, H., Haido, J. Alyousef, R., Yousif, T., McConnell, J., Wakil, K., Jermsittiparsert, K. (2020). "Prediction of the Flexural Behavior of Corroded Concrete Beams using Combined Method", *Structures*, 25, 1000-1008.

27. *Keller, P., McConnell, J., Schumacher, T., and Thostenson, E. (2019). "Construction Stress Monitoring of a Steel Frame Building using a Wireless Sensor Network to Evaluate Reuse Potential of Structural Steel", accepted by *ASCE Journal of Structural Engineering*, Feb, 2019.

26. *Ahmed, S.; Schumacher, T.; McConnell, J.; and Thostenson, E. (2018). "Experimental and Numerical Investigation on the Bond Strength of Self-Sensing Composite Joints", *International Journal of Adhesion and Adhesives*, 84, 227-237.

25. *Ahmed, S.; Thostenson, E.; Schumacher, T.; *Doshi, S.; and McConnell, J. (2018). "Integration of Carbon Nanotube Sensing Skins and Carbon Fiber Composites for Monitoring and Structural Repair of Fatigue Cracked Metal Structures", *Composite Structures*, 203, 182-192.

24. *Ahmed, S.; *Doshi, S.; Schumacher, T.; Thostenson, E.; McConnell, J. (2017). "Development of a Novel Integrated Strengthening and Sensing Methodology for Steel Structures using CNT-based Composites", *ASCE Journal of Structural Engineering*, 143(4).

23. McConnell, J.; Shenton, H.; and Mertz, D. (2016). "Performance of Uncoated Weathering Steel Bridge Inventories: Methodology and Gulf Coast Region Evaluation", *ASCE Journal of Bridge Engineering*, 21(12).

22. McConnell, J. and Su, H*. (2016). "Design of Cellular Composite Sandwich Panels for Maximum Blast Resistance via Energy Absorption", *Applied Composite Materials*, 23(3), 75-396.

21. McConnell, J.; Radovic, M.* and Ambrose, K.* (2016). "Field Evaluation of Cross-frame and Girder Live Load Response in Skewed Steel I-Girder Bridges", *ASCE Journal of Bridge Engineering*, 21(3).

20. Griebert, M.; Needle, A.; McConnell, J.; and Kaminski , T. (2016). "Lower-leg Kinesio Tape Reduces Rate of Loading in Subjects with Medial Tibial Stress Syndrome", *Physical Therapy in Sport*, 18, 62-67 <doi:10.1016/j.ptsp.2014.01.001>.

19. McConnell, J. and Fahnestock, L. (2015). "Innovations in Steel Design: Research Needs for Global Sustainability", *ASCE Journal of Structural Engineering*, 141(2).

18. McConnell, J.; Chajes, M.; and Michaud, K.* (2015). "Field Testing of a Decommissioned Skewed Steel I-girder Bridge: Analysis of System Effects", *ASCE Journal of Structural Engineering*, 141(1).

17. McConnell, J.; Cotter, T.*, and Rollins, T.* (2015). "Finite element analysis assessing partial catenary action in steel beams", *Journal of Constructional Steel Research*, 109, 1-12.

16. McConnell, J.; Shenton, H.; Mertz, D.; and Kaur, D.* (2014). "Performance of Uncoated Weathering Steel Highway Bridges Throughout the United States", *Transportation Research Record*, Issue 2406, 61-67.

15. McConnell, J.; Shenton, H.; Mertz, D.; and *Kaur, D. (2014). "National Review on Use and Performance of Uncoated Weathering Steel Highway Bridges", *ASCE Journal of Bridge Engineering*, 19(5), p.01014009-1--1014009-11.

14. *Su, H. and McConnell, J. (2014). "Energy Response of Composite Sandwich Panels Under Blast Loads", *ASCE Journal of Engineering Mechanics*, 140(1), 20-30.

13. *Su, H. and McConnell, J. (2012). "Optimum Material Properties for Energy Absorption of Composite Sandwich Panels under Blast Loads", *ASCE Journal of Composites for Construction*, 16(4), 464-476, <doi:10.1061/(ASCE)CC.1943-5614.0000269>.

12. McConnell, J. and *Cann, M. (2012). "Coupled Field Monitoring and Structural Analysis to Assess Scour Conditions", *ASCE Journal of Performance of Constructed Facilities*, 26(4), 489-498, <doi:10.1061/ (ASCE)CF.1943-5509.0000252>.

11. McConnell, J. and *Brown, H. (2011). "Evaluation of Progressive Collapse Alternate Load Path Analyses in Designing for Blast Resistance of Steel Columns", *Engineering Structures*, 33(10), 2899-2909, <doi: 10.1016/j.engstruct.2011.06.014>.

10. *Bechtel, A.; McConnell, J.; and Chajes, M. (2011). "Ultimate Capacity Destructive Testing and Finite Element Analysis of Steel I-Girder Bridges", *ASCE Journal of Bridge Engineering*, 16(2), 197-206, <doi:10.1061/(ASCE)BE.1943-5592.0000137>.

9. Chajes, M., McConnell, J., Shenton, H., *Michaud, K., *Ross, J., and *Russo, C. (2010). "Full-Scale Destructive Bridge Test Allows Prediction of Ultimate Capacity", *Transportation Research Record*, Journal of the Transportation Research Board, Issue 2200, 117-124, <doi: 10.3141/2200-14>.

8. McConnell, J. and Barth, K. (2010). "Moment-Rotation Response of Slender Steel I-Girders", *ASCE Journal of Structural Engineering*, 136(12), 1533-1544, <doi:10.1061/(ASCE)ST. 1943-541X.0000259>.

7. McConnell, J. and Barth, K. (2010). "Rotation Requirements for Moment Redistribution in Steel Bridge I-Girders", *ASCE Journal of Bridge Engineering*, 15(3), 279-289, <doi:10.1061/(ASCE)BE. 1943-5592.0000046>.

6. McConnell, J.; Barth, K.; and Barker, M. (2010). "Rotation Compatibility Approach to Moment Redistribution for Design and Rating of Steel I-Girders", *ASCE Journal of Bridge Engineering*, 15(1), 55-64, <doi:10.1061/(ASCE)1084-0702(2010)15:1(55)>.

5. *Bechtel, A.; McConnell, J.; and Chajes, M. (2009). "Destructive Testing and Finite Element Analysis to Determine the Ultimate Capacity of Skewed Steel I-Girder Bridges", *Transportation Research Record*, Issue 2131, 49-56, <doi:10.3141/2131-05>.

4. Barth, K. E.; Yang, L.; and Righman, J. (2007). "Simplified Moment Redistribution of Hybrid HPS 485W Bridge Girders in Negative Bending Region", *ASCE Journal of Bridge Engineering*, 12(4), 456-466, <doi:10.1061/(ASCE)1084-0702(2007)12:4(456)>.

3. Barth, K.; Righman, J.; and Freeman, L. (2007). "Assessment of AASHTO LRFD Specifications for Hybrid HPS 690W Steel I-Girders", *ASCE Journal of Bridge Engineering*, 12(3), 380-388, < doi:10. 1061/(ASCE)1084-0702(2007)12:3(380)>.

2. Barth, K. E.; White, D. W.; Righman, J. E.; and Yang, L. (2005). "Evaluation of Web Compactness Limits for Singly and Doubly Symmetric Steel I-Girders", *Journal of Constructional Steel Research*, 61(10), 1411-1434, <doi:10.1016/j.jcsr.2005.03.002>.

1. Righman, J. E.; Barth, K. E.; and Davalos, J. F. (2004). "Development of an Efficient Connector System For Fiber Reinforced Polymer Bridge Decks to Steel Girders", *ASCE Journal of Composites for Construction*, 8(4), 279-288, <doi:10.1061/(ASCE)1090-0268(2004)8:4(279)>.

TRADE PUBLICATIONS

4. McConnell, J., and Mahmoud, H. (2018). "Life Cycle Analysis of Steel Bridges During Construction and In Service" Structures magazine, October, 2018.

3. McConnell, J., Stone, E., and Yost, J. (2017). "Optimizing Concrete for More Sustainable Bridges", *Structures Magazine*, September, 2017.

TECHNICAL REPORTS

1. McConnell, J., Shenton, H., and Mertz, D. (in review). "Performance of Uncoated Weathering Steel Bridges: Database Development and Evaluation in Selected Environments", United States Department of Transportation, Federal Highway Administration, Washington, DC.

BOOKS AND BOOK CHAPTERS

3. Hookham, H., McConnell, J., Andrew, J., Young, T., Mokhtarzadadeh, A., and Stults, M. "ASCE Standard Specifications for Sustainable Infrastructure, Chapter 5: Resource Allocation", ASCE Press, Washington, D. C., in review.

2. Webster, M. (ed.) "Structural Materials and Global Climate: A Primer on Carbon Emissions for Structural Engineers", ASCE Press, Washington, D.C., 2018. (Role: secretary of sponsoring committee)

1. Ziemian, R. (ed.). "Guide to Stability Design Criteria for Metal Structures", 6th edition, John Wiley and Sons, Hoboken , NJ, 2010. (Role: author of Section 5.7, "Design for Inelastic Deformation Capacity")

CONFERENCE PRESENTATIONS WITH PROCEEDINGS PUBLICATIONS

(indicates current or former student; + indicates presenter)*

Peer-reviewed papers with presentations

+,*Keller, P.; McConnell, J.; Thostenson, E.; and Schumacher, T. (2016). "Methodology for Construction Stress Evaluation for Reuse of Structural Steel", 19th International Association of Bridge and Structural Engineers Congress: Challenges in Design and Construction of an Innovative and Sustainable Built Environment, Stockholm, Sweden.

+,*Radovic, M. and McConnell, J. (2014). "Evaluating structural engineering finite element analysis data using multiway analysis." 2014 IEEE International Conference on Big Data, pp. 60-67.

+McConnell, J.; Schumacher, T.; Thostenson, E.; Wennick, T.*; and Keller, P.* (2014). "Evaluating Structural Steel for Reuse through Field Monitoring", Proceedings of the International

Association of Bridge and Structural Engineering: Engineering for Progress, People, and Nature, Madrid, Spain.

[+]McConnell, J.; Shenton, H.; Mertz, D.; and Kaur, D.* (2014). "Performance of Uncoated Weathering Steel Highway Bridges throughout the United States", Proceedings of the 2014 Transportation Research Board Annual Meeting, Washington, D.C.

[+]McConnell, J. and *McCarthy, G. and *Wurst, D. (2012). "Influences of Aging on the System Capacity of Steel Girder Bridges", 6th International Conference on Bridge Maintenance and Safety, International Association for Bridge Maintenance and Safety (IABMAS), Lake Como, Italy, 2012.

[+]Chajes, M., McConnell, J., Shenton, H., *Michaud, K., *Ross, J., and *Russo, C. (2010). "Full-Scale Destructive Bridge Test Allows Prediction of Ultimate Capacity", 7th International Bridge Engineering Conference, Transportation Research Board, San Antonio, TX, December 1-3, 2010.

[+]McConnell, J., Chajes, M., Shenton, H., *Michaud, K., *Ross, J., and *Russo, C. (2010). "Destructive Test of a Steel Slab-on-Girder Bridge", Proceedings of the 5th International Conference on Bridge Maintenance and Safety, International Association for Bridge Maintenance and Safety (IABMAS), Philadelphia, PA, July 11-15, 2010.

[+]McConnell, J. and *Cann, M. (2010). "Coupled field monitoring and structural analysis to assess scour conditions", Mini-Symposium on Monitoring & Assessment of Bridges using Novel Techniques, Proceedings of the 5th International Conference on Bridge Maintenance and Safety, International Association for Bridge Maintenance and Safety (IABMAS), Philadelphia, PA, July 11-15, 2010.

[+,]*Su, Hong and McConnell, J. (2009). "Optimum Material Properties of Composite Sandwich Panels for Energy Absorption", Proceedings of the Society for Advancement of Materials and Processing Engineering (SAMPE) Conference, Baltimore, MD, May 18 – 21, 2009.

[+,]*Bechtel, A., McConnell, J., and Chajes, M. (2009). "Ultimate Capacity of Skewed Steel I-Girder Bridges", Proceedings of the 2009 Transportation Research Board Annual Meeting, Washington, D.C.

Papers with peer-reviewed abstracts and presentations

*Almoosi, Y., McConnell, J. and [+]Oukaili , N. (2019). "Structural Modeling of Cross-Frame Behavior in Steel Girder Bridges", IEEE 12th International Conference on Developments in eSystems Engineering - Monitoring, Assessment, and Strengthening of Buildings and Bridges Session, Kazan, Russia.

[+,*]Abo Alouk, A., McConnell, J., Chajes, M., Shenton, H., Van Lith, B. (2018). "Lessons Learned From Destructive Tests of a Slab-On-Steel Girder Bridge", International Bridge Conference, Washington, D.C.

[+,*]Masoud, E, Clarke-Sather, A., McConnell, J. (2017). "Application of Lean Philosophy in Bridge Inspection", International Bridge Conference, Washington, D.C.

-,*Ahmed, S., Schumacher, T., Thostenson, E., McConnell, J. (2017). "Simultaneous life extension and crack monitoring of fatigue-damaged steel members using multifunctional carbon nanotube based composites", SPIE Smart Structures and Materials + Nondestructive Evaluation and Health monitoring, Portland, Oregon, <doi: 10.1117/12.2272206>.

-,*Bai, T. and McConnell, J. (2017). "Data Analysis of Steel Bridge Infrastructure including Climate and Traffic Effects", 13th Annual Inter-University Sympsium on Infrastructure Management, West Lafayette, IN.

+,*Ahmed, S., *Doshi, S., Schumacher, T., Thostenson, E., McConnell, J. (2016). "Coupled Fatigue-Life Extension and Crack Monitoring of Damaged Steel Bridge Members Using Carbon Nanotube-Based Composites", NDE/NDT for Highways & Bridges: Structural Materials Technology, Portland, OR.

+,*Ahmed, S., *Doshi, S., Schumacher, T., Thostenson, E., McConnell, J. (2016). "Novel Self-Sensing Carbon Nanotube-Based Composites for Rehabilitation of Structural Steel Members", AIP Conference Proceedings, 42nd Annual Review of Progress in Quantitative Nondestructive Evaluation, Minneapolis, MN.

+,*Ahmed, S.; *Doshi, S.; Schumacher, T.; Thostenson, E.; and McConnell, J. (2015). "Novel Fiber Composites for Simultaneous Strengthening and Structural Health Monitoring of Steel Structures", Proceedings of the Society for the Advancement of Material and Processing Engineering, Baltimore, MD, May, 2015.

+,*Radovic, M. and McConnell, J. (2014). "Evaluation of Cross-frame Designs for Highly Skewed Steel I-Girder Bridges", Proceedings of 31st Annual International Bridge Conference, Pittsburg, PA.

McConnell, J., Ambrose, K., and Radovic, M. (2013). "Cross-Frame Forces in Skewed Steel I-Girder Bridges: Field Testing and Applications to System-Capacity", 2013 ASCE / SEI Structures Congress, Pittsburgh, PA.

+Barth, K. and McConnell, J. (2010). "An Assessment of Weathering Steel Bridges in West Virginia", International Conference on Short and Medium Span Bridges, Niagara Falls, Canada.

+McConnell, J. and *Cann, M. (2010). **"**Assessment of Bridge Strength and Stability under Scour Conditions" 2010 ASCE / SEI Structures Congress, Orlando, FL.

+McConnell, J. and *Helmstetter, D. (2009). "Simplified Analytical Modeling Of Composite Sandwich Panels Under Blast Loading", American Society for Composites, Newark, DE.

+,*Su, H. and McConnell, J. (2009). "Geometric Optimization Of Cellular Sandwich Panels For Maximum Energy Absorption And Blast Resistance", American Society for Composites, Newark, DE.

+,*Su, H. and McConnell, J. (2009). "Numerical Study of Energy Absorption Properties of Composite Sandwich Panels under Blast Loading", Joint ASCE-ASME-SES Conference on Mechanics and Materials, June 24-27, 2009, Blacksburg, VA.

McConnell, J. and +,*Brown, H. (2009). "Evaluation of Missing Column Analyses in Progressive Collapse Design Codes", 2009 ASCE / SEI Structures Congress, Austin, TX.

+,*Burrell, G. and McConnell, J. (2007). "Distortional Buckling of Steel I-Girders", Proceedings of the 2007 Structural Stability Research Council Annual Technical Session and Meeting, New Orleans, LA.

+Chajes, M., Mertz, D., Righman, J., *Ross, J., Zoli, T., Volk, J., (2006). "Evaluating Ultimate Bridge Capacity Through Destructive Testing of Decommissioned Bridges", Proceedings of the Third International Conference on Bridge Maintenance, Safety and Management, Porto, Portugal, July 16-19, 2006.

+Righman, J., Barth, K., and Barker, M. (2006). "Inelastic Design and Rating of Steel I-Girders Based on Girder Rotation Capacity", Proceedings of the 2006 Structural Stability Research Council Annual Technical Session and Meeting, San Antonio, TX.

+Righman, J. E. and Barth, K. E. (2005). "Rotation Capacity Requirements for Continuous Span Steel Bridge Girders", Proceedings of the 2005 Structural Stability Research Council Annual Technical Session and Meeting, Montreal, QC.

+Righman, J. E., Barth, K. E., White, D. W., and Yang, L. (2004). "Development of Web Slenderness Limits to Assure Compact Steel I-Girder Performance", Proceedings of the 2004 Structural Stability Research Council Annual Technical Session and Meeting, Long Beach, CA, p. 59-78.

+Righman, J. E., Barth, K. E., White, D. W., and Barker, M. G. (2003). "On the Inelastic Design of Steel I-Girder Bridges", Proceedings of the 2003 Structural Stability Research Council Annual Technical Session and Meeting, Baltimore, MD, p. 619-638.

+Righman, J., Barth, K., and Davalos, J. (2002). "Experimental and Analytical Evaluation of Shear Stud Type Connectors for FRP Bridge Decks to Steel Stringers", Proceedings of the 17th Annual American Society for Composites Technical Conference, West Lafayette, IN.

+Righman, J., Barth, K., Davalos, J., Qiao, P., and Xu, X. F. (2001). "Development of an Economical and Efficient Connector System for FRP Decks to Steel Bridge Girders", Proceedings of the 16th Annual American Society for Composites Technical Conference, Blacksburg, VA.

OTHER CONFERENCE PRESENTATIONS

McConnell, J. (2019). "Examples of Sustainability Education within a Civil Engineering Curriculum", ASCE Structures Congress, Orlando, FL.

McConnell, J., Bai, T., Yost, J., Stone, E., and Smith, J. (2018). "Sustainability and Bridge Structures: Life Cycle Analysis and the Construction Phase", ASCE Structures Congress, Fort Worth, TX.

McConnell, J. and Radovic, M. (2017). "Distortional Stresses in Field Testing of Skewed Straight Girder Bridges", Steel Bridge Committee Meeting, Transportation Research Board, Washington, D.C.

Radovic, M. and McConnell, J. (2017). "Evaluating the Role of Cross-frames in Steel I-Girder Bridge Stress Distribution by "Holistic" Assessment of Finite Element Analysis Data", ASCE Structures Congress, Denver, CO.

McConnell, J., Stone, E., Yost, J., and Smith, J. (2016). "Best Practices for Translating Sustainability Guidelines into Sustainable Bridges", ASCE Structures Congress, Phoenix, AZ.

Keller, P., McConnell, J., Schumacher, T., and Thostenson, E.. (2016). "Stress Evaluation for Reuse of Structural Steel: Field, Laboratory, and Analytical Findings." International Conference on Sustainable Design, Engineering and Construction (ICSDEC), Tempe, Arizona.

McConnell, J. (2016). "Vertical, Lateral Bending, and Warping Stresses from Field Testing of Skewed Steel I-Girder Bridges", Structural Stability Research Council Annual Technical Session and Meeting, Orlando, FL.

+McConnell, J., Schumacher, T., Thostenson, E., Keller, P.*, and Wennick, T.* (2015). "Construction Monitoring of Steel-Framed Buildings to Assess Reuse Potential of Structural Steel", Structures Congress, Portland, OR.

+McConnell, J. (2008). "Modeling the Blast Effects on Steel Bridge Superstructures using AutoDyn Software", First American Academy of Mechanics Conference, Symposium on Performance Evaluation and Mitigation of Bridge Dynamic Effects, New Orleans, LA.

INVITED TALKS

Scholarship

"Proposed NSBA Research on Durability of Steel Bridge Corrosion Protection Systems", American Association of State Highway and Transportation Officials, Steel Bridge (T-14) Committee Meeting, Philadelphia, PA, August, 2019.

"Update on LTBPP Uncoated Weathering Steel Research", American Iron and Steel Institute, Corrosion Advisory Group, Washington, D.C., May, 2019.

"LTBPP Research on Durability of Uncoated Weathering Steel", National Steel Bridge Alliance Technical Committee Meeting, Pittsburgh, PA, April, 2019.

"ASCE/SEI Sustainability Committee Infrastructure Working Group Summary and Update", ASCE/SEI Sustainability Committee Meeting, Structures Congress, Orlando, FL, April, 24, 2019.

"Uncoated Weathering Steel Update", North American Steel Construction Conference and World Steel Bridge Symposium, St. Louis, MO, April, 2019.

"Long Term Bridge Performance Program Findings on Uncoated Weathering Steel Bridges", 2nd International Symposium on Applications of High-Performance Weathering Steels for Bridges, Beijing, China, July, 2018.

"Observations on Achieving the Optimum Corrosion Protection from Uncoated Weathering Steel", North American Steel Construction Conference, San Antonio, TX, March 24, 2017.

Panelist for "Philadelphia ASCE Younger Members Forum– Critical Issues Seminar on Sustainable Infrastructure", May, 2017.

"Weathering Steel Research Update", presented at Transportation Research Board, Steel Bridge Committee Meeting, Washington, D.C., January 11, 2016.

"Long-Term Performance of Uncoated Weathering Steel Bridges", presented at North American Steel Construction Conference, Nashville, TN, March 26, 2015.

"Evaluation of Uncoated Weathering Steel Highway Bridge Performance", presented at Transportation Research Board Annual Meeting, Status of the Long Term Bridge Performance Program Workshop, Washington, D.C., Jan. 15, 2015.

"Evaluation of Uncoated Weathering Steel Highway Bridge Performance", presented at meeting of Transportation Research Board, Long Term Bridge Performance Program, Expert Task Group on Bridge Evaluation and Monitoring (via webinar), Nov. 20, 2014.

"Evaluation of Uncoated Weathering Steel Highway Bridge Performance", presented at State Coordinators Meeting of the Long Term Bridge Performance Program, Washington, D.C., Oct. 16, 2014.

"National Performance of Uncoated Weathering Steel (UWS) Bridges", American Iron and Steel Institute, Corrosion Advisory Group, Semi-Annual Meeting, October 23, 2013.

"Rotation Compatibility Approach to Moment Redistribution for Design and Rating of Steel I-Girder Bridges", Joint Meeting of AASHTO T-14 Design Advisory Group, AASHTO T-14, and American Iron and Steel Institute (AISI) Steel Bridge Task Force, Nashville, TN, August 2, 2007.

"Distortional Buckling of Steel I-Beams", American Society of Civil Engineers, Committee on Compression and Flexural Members, May, 19, 2007.

"Designing for Corrosion Resistance in Steel Bridges", University of Delaware Structural and Geotechnical Engineering Seminar, October 26, 2005.

"Moment Redistribution for Design and Rating of Steel I-Girder Bridges", Johns Hopkins University Civil Engineering Seminar, October 11, 2005.

Other

"Time Management Strategies for Faculty and Researchers", presented to Fulbright Program visiting scholars, July 2016.

"Time Management Strategies for Faculty and Researchers", presented to Fulbright Program visiting scholars, Jul. 21, 2014.

"Efficient Work Practices for Faculty and Graduate Students", Presentation for University of Delaware Women in Engineering, November 15, 2013.

Panelist for "Balancing Your Life—job, family, collegiality, support mechanisms", Success Strategies for Emerging Faculty Workshop, University of Delaware, September 13, 2010.

SELECTED OTHER PRESENTATIONS

"University of Delaware Structural Engineering & Center for Innovative Bridge Engineering", Mexico City, Mexico, May 2017.

"Application of LEAN Philosophy to Routine Inspection of Bridges", Center for Advanced Infrastructure and Transportation, Webinar, August, 2017.

RESEARCH GRANTS

Current

Weathering Steel Performance Data Collection
Funding Organization: US Department of Transportation, Federal Highway Administration
Amount Awarded: $599,797 (in addition to in-kind support from Connecticut, Delaware, Iowa, and Minnesota Departments of Transportation)
Period of Performance: May 9, 2018 to May 8, 2022
PI: Jennifer McConnell
Co-PI: Harry Shenton

Development of Structural Carbon Nanotube-Based Sensing Composites for Rehabilitation of Deteriorating and Fatigue-Damaged Steel Bridges
Funding Organization: US Department of Transportation, Federal Highway Administration
Amount Awarded: $749,972 (in addition to in-kind support from Delaware Department of Transportation)
Period of Performance: September 9, 2013 to August 31, 2019
PI: Thomas Schumacher
Co-PIs: Erik Thostenson and Jennifer McConnell

Completed

Multi-scale Condition and Structural Analysis of Steel Bridge Infrastructure
Submitted to: CAIT-UTC
Amount Awarded: $57,654
Period of Performance: February 1, 2016 to August 31, 2017
PI: Jennifer McConnell

Lean Construction Applications for Bridge Inspection
Submitted to: CAIT-UTC
Amount Awarded: $59,776 (in addition to in-kind support from Delaware Department of Transportation)
Period of Performance: February 1, 2016 through June 30, 2017
PI: Abigail Clarke-Sather
Co-PI: Jennifer McConnell

Support of Research on Cold Spray Technology for Repair of Steel Bridge Corrosion Damage
Funding Organization: US Department of Transportation, Federal Highway Administration/ Professional Services Industries
Funding Awarded: $36,878
Period of Performance: January 1, 2015 to August 14, 2015
PI: Jennifer McConnell

Reuse of Structural Steel: Towards Maximizing the Greenness of Buildings
Funding Organization: US National Science Foundation
Amount Awarded: $299,330 (in addition to in-kind support from Whiting Turner Contracting Company)
Period of Performance: September 1, 2013 to August 31, 2018
PI: Jennifer McConnell
Co-PIs: Thomas Schumacher and Erik Thostenson

Rehabilitation of Fatigue Cracks in Steel Bridges: Evaluation of Fatigue Cracks in the Field and Laboratory Testing
Funding Organization: Delaware Department of Transportation
Funding Awarded: $50,000
Period of Performance: September 1, 2013 to August 31, 2015
PI: Thomas Schumacher
Co-PIs: Jennifer McConnell and Erik Thostenson

Load Path Redundancy, Phase 3
Funding Organization: University of Delaware University Transportation Center (UD-UTC)
Funding Awarded: $8,000
Period of Performance: June 1, 2012 through August 31, 2013
PI: Jennifer McConnell

Quantitative Acoustic Emission Monitoring of Fatigue Cracks in Fracture Critical Steel Bridges
Funding Organization: Center for Advanced Infrastructure and Transportation (CAIT) University Transportation Center
Funding Awarded: $64,750
Period of Performance: September 1, 2012 through August 31, 2013
PI: Thomas Schumacher
Co-PI: Jennifer McConnell

Advancing Steel and Concrete Bridge Technology to Improve Infrastructure Performance
Funding Organization: US Department of Transportation
Funding Requested: $2,760,000
Period of Performance: October 1, 2011 through September 31, 2016
PI: Richard Sause
PI for Task 7 (original budget of $240,000): Jennifer McConnell
Co-PIs for Task 7: Michael Chajes and Harry Shenton

Evaluation of Unpainted Weathering-Steel Highway-Bridge Performance
Funding Organization: US Department of Transportation, Federal Highway Administration
Funding Awarded: $216,108 (in addition to in-kind support from Delaware, Louisiana, Maryland, Pennsylvania, New York, and Texas Departments of Transportation)
Period of Performance: October 1, 2011 through September 30, 2014
PI: Harry Shenton
Co-PIs: Dennis Mertz, Jennifer McConnell, and S. K. Lee

Investigation of Load-Path Redundancy in Aging Steel Bridges, Phase 2
Funding Organization: University of Delaware University Transportation Center

Funding Awarded: $49,428
Period of Performance: September 1, 2011 through August 31, 2012
PI: Jennifer McConnell

Investigation of Load-Path Redundancy in Aging Steel Bridges
Funding Organization: University of Delaware University Transportation Center
Funding Awarded: $50,225
Period of Performance: September 1, 2010 through August 31, 2012
PI: Jennifer McConnell

Cross-Frame Forces in Skewed I-Girder Bridges
Funding Organization: Delaware Department of Transportation
Funding Awarded: $87,264
Period of Performance: July 1, 2010 through August 31, 2012
PI: Jennifer McConnell

Field Testing and FEM Analysis of the Rt. 141 Newport Viaduct
Funding Organization: Delaware Department of Transportation
Funding Awarded: $175,412
Period of Performance: March 1, 2009 through May 31,2010
Co-PIs: Harry Shenton, Jennifer McConnell, Michael Chajes, and Dennis Mertz

Mitigation of Blast Forces Through Advanced Composite Materials
Funding Organization: US Department of Defense
Funding Awarded: $433,387
Period of Performance: June 1, 2007 through May 7, 2011
PI: Jennifer McConnell
Co-PI: Jack Gillespie

Near Real-Time Monitoring of Indian River Inlet Scour Hole Edge Evolution Seaward of the Bridge Piers: Phase 1
Funding Organization: Delaware Department of Transportation
Funding Awarded**:** **$**842,397
Period of Performance: October 1, 2007 through September 30, 2010
PI: Jack Puleo
Co-PIs: Jennifer McConnell and Michael Chajes

Scour Monitoring of the Indian River Inlet River Bridge: Pilot Study
Funding Organization: Delaware Department of Transportation
Funding Awarded: $50,112
Period of Performance: July 1, 2006 through June 30, 2007
PIs: Jennifer McConnell, Jack Puleo, Jamie MacMahan, and Michael Chajes

Analysis of Blast Loading Effects on Bridges
Funding Organization: University of Delaware Research Foundation
Funding Awarded: $25,000
Period of Performance: June 1, 2006 through May 31, 2007
PI: Jennifer McConnell

Moment Redistribution and the Service II Limit State
Funding Organization: Delaware Department of Transportation
Funding Awarded: $56,342
Period of Performance: July 1, 2005 through June 30, 2007
PI: Jennifer McConnell

Performance of Weathering Steel Bridges in West Virginia
Funding Organization: West Virginia Department of Transportation, Division of Highways
Funding Awarded: $95,000
Period of Performance: September 1, 2004 through August 30, 2005
PIs: Karl Barth and Pedro Albrecht
Co-Investigator: Jennifer McConnell

Completed – Other In-Kind Support

In-Service and Destructive Testing of Bridge 4
Supporting Organization: Delaware River and Bay Authority
Donation: One decommissioned highway and contracted labor and materials for load testing
Date: 2017 - 2018

In-Service and Destructive Testing of Bridge 7R
Supporting Organization: Delaware River and Bay Authority
Donation: One decommissioned highway and contracted labor and materials for load testing
Date: 2005 - 2009

Completed – Other Support for Research Assistants

UD-UTC Graduate Fellowship
Funding Organization: University of Delaware University Transportation Center (UD-UTC)
Funding Awarded: $53,740
Period of Performance: September 1, 2012 through August 31, 2013
PI: Jennifer McConnell
Student: Diane Wurst

UD-UTC Graduate Fellowship
Funding Organization: University of Delaware University Transportation Center (UD-UTC)
Funding Awarded: $40,484
Period of Performance: September 1, 2008 through August 31, 2009
PI: Jennifer McConnell
Student: Houston Brown

PROFESSIONAL CERTIFICATIONS

Engineer-in-Training (EIT) Certification, 2000.

HONORS AND AWARDS

American Iron and Steel Institute Steel Bridge Committee and American Association of State Highway and Transportation Officials Technical Committee for Structural Steel Design, Robert J. Dexter Memorial Lecture, 2007.

American Society of Civil Engineers, Excellence in Civil Engineering Education Fellow, 2007.

RESEARCH ADVISING

Ph.D. Students, Dissertation Supervisor

6. Yousif Almoosi (Ph.D. Civil Engineering, current, visiting scholar from Baghdad University)
   Fatigue Effects of Warping in Steel I-Girder Bridges
5. Tian Bia (Ph.D. Civil Engineering, current)
   Quantification of Suitable Environments for Unpainted Weathering Steel Bridges
4. Asmaa Taha Abo Alouk (Ph.D. Civil Engineering, current)
   Warping Stress Effects on Steel I-girder Skewed Bridges With and Without Intermediate Cross-frames
3. Philipp Keller (Ph.D. Civil Engineering 2019)
   Construction Monitoring, Laboratory Testing, and Finite Element Analysis to Evaluate Reuse Potential of Structural Steel
2. Matija Radovic (Ph.D. Civil Engineering 2017)
   Evaluating the Role of Cross-frames in Stress Distribution of Steel I-Girder Bridges by "Holistic" Assessment of Finite Element Analysis Data
1. Su Hong (Ph. D. Civil Engineering 2011)
   Energy Absorption Capabilities of Composite Sandwich Panels under Blast Loads

Masters Students, Thesis Supervisor

16. John (JT) Rupp (Civil Engineering, current)
    Field and Maintenance Data Collection for Unpainted Weathering Steel Bridges
15. Emal Masoud (MCE 2017)
    (Co-advised with Abigail Clarke-Sather)
    Application of Lean Philosophy to Routine Inspection of Bridges
14. Dhilvinder Kaur (MCE 2014)
    Development and Use of a GIS Database for the Evaluation of Uncoated Weathering Steel Highway Bridge Performance
    (Co-advised with Tripp Shenton)
13. Diane Wurst (MCE 2013)
    Finite Element Analysis to Simulate Reinforced Concrete Corrosion in Beams and Bridge Decks
12. Tom Cotter (MCE 2013)
    Catenary Behavior of Steel Girders under Progressive Collapse-Type Loads
11. Gillian McCarthy (MCE 2012)
    Improved Bridge Rating Procedures Integrating Load Path Redundancy: A Cost-Effectiveness Simulation
    (Co-advised with Sue McNeil)
10. Kelly Ambrose (MCE 2012)
    Field Measurements and Corresponding FEA of Cross-frame Forces in Skewed Steel I-Girder Bridges
9. Kervin Michaud (MCE 2011)
    Evaluating Reserve Bridge Capacity through Destructive Testing of a Decommissioned Bridge
    (Co-advised with Michael Chajes)
8. Houston Brown (MCE 2010)
    Evaluation of Missing Member Analyses for Progressive Collapse Design of Steel Buildings and Girder Bridges
7. Michael Cann (MCE 2009)
    Structural Modeling of the Indian River Inlet Bridge under Current and Potential Scour Conditions
6. Dennis Helmstetter (MCE 2009)
    Analysis Procedures for Optimizing the Core of Composite Sandwich Panels for Blast Resistance

5. Andrew Bechtel (MCE 2008)
   Destructive Testing and Ultimate Capacity of Skewed Simple-Span Bridges
   (Co-advised with Michael Chajes)
4. Geoffrey Burrell (MCE 2007)
   Distortional Buckling in Steel I-Girders
3. Renee Cimo (MCE 2007)
   Analytical Modeling to Predict Bridge Performance under Blast Loading
2. Justin Ross (MCE 2007)
   Evaluating Ultimate Bridge Capacity through Destructive Testing of Decommissioned Bridges
   (Co-advised with Michael Chajes)
1. Michael Zettlemoyer (MCE 2007)
   Evaluation of the Service II Limit State for AASHTO Elastic and Moment Redistribution Procedures

Undergraduate Students, Primary Advisor

13.	John (J.T.) Rupp	Research, 2017-2018
12.	Megan Beachy	Research, 2017
11.	Ryan Dayton	Research, 2014
10.	Tiera Rollins	Research, 2014
9.	Matt Sparacino	UD-UTC Summer Fellowship, 2013
8.	Ryan Campell	Research, 2013
7.	Jordan Wynn	University of Delaware Science and Engineering Scholar, 2011
6.	Nathan Mayercsik	Senior Thesis, 2009-2010
5.	Ian Roddy	Summer Research, 2009
4.	Jeffrey Rockwell	Independent Study, 2008-09
3.	Frank Bloodsworth	McNair Scholars Program, 2008
2.	Doug Charles	University of Delaware Research Foundation-REU, 2007
1.	Greg Black	NSF-REU, 2006

Ph.D. Students, Committee Member

3. Shafique Ahmed (Civil Engineering, current)
2. Sandeep Tamrakar (Civil Engineering, 2018)
1. Hongbo Dai (Civil Engineering, 2017)

Undergraduate Students, Senior Thesis Committee Member (Third Reader)

4.	Matthew Sinnot	Biomedical Engineering / Mathematics, 2013
3.	Mark Oteiza	Mechanical Engineering, 2012
2.	Manasa Sridhar	Biological Sciences, 2012
1.	Maggie Griebert	Athletic Training, 2012

COURSES TAUGHT

([1] indicates course co-taught)

CIEG 301	Structural Analysis	Fall 2005[1], Fall 2006, Fall 2007, Fall 2010, Fall 2013, Fall 2015, Fall 2016
CIEG 302	Structural Design	Spring 2007[1], Spring 2009[1], Spring 2012[1], Spring 2013[1]

CIEG 412	Steel Design	Fall 2017, Fall 2018,
CIEG 667-011	Bridge Analysis	Spring 2017
CIEG 667-012	Structural Design for Extreme Events	Spring 2009, Spring 2011, Fall 2012
CIEG 667-015	Behavior of Steel Members and Frames	Spring 2010
CIEG 801	Advanced Steel Design	Spring 2006, Spring 2012, Spring 2014, Spring 2016, Spring 2018
CIEG 865	Structures Seminar	Spring 2007, Fall 2009, Spring 2010, Spring 2012[1]
ENGG 101	Introduction to Engineering	Fall 2010[1]

CONSULTING

New Vision, 2011 – 2012, Suggested and assessed potential retrofits for structural support systems for residential solar panels.

National Steel Bridge Alliance, 2005, Co-authored two volumes of design examples.

PROFESSIONAL MEMBERSHIPS AND SERVICE

Leadership Positions in Professional Organizations

Member, National Technical Program Committee, ASCE Structures Congress, 2019 – present.
Associate Editor, ASCE Journal of Bridge Engineering, 2016 – present.
Working Group Leader, Structural Engineering Institute Sustainability Committee Infrastructure Working Group, 2015 - present
Steering Committee Member, Structural Engineering Institute Sustainability Committee, 2014 - present
Secretary, Structural Engineering Institute Sustainability Committee, 2015 – 2017.
Chair, Structural Engineering Institute, Steel Members Committee, 2010-2014
Secretary, Structural Engineering Institute, Steel Members Committee, 2009-2010

Membership in Professional Organizations

NSBA Program Committee
ASCE Sustainable Solutions Competition 2020 Rules Committee
ASCE SEI Steel Bridge Committee
Structural Engineering Institute, Sustainability Committee Infrastructure Working Group
Structural Engineering Institute, Sustainability Committee
Structural Engineering Institute, Bridge and Tunnel Security Committee
Structural Engineering Institute, Committee on Metals
Transportation Research Board, Steel Bridge Committee, member and liaison with ASCE SEI Steel Bridge Committee
Transportation Research Board, Steel Bridge Analysis Sub-Committee
Structural Stability Research Council, Beams Task Group
American Society of Civil Engineers

Manuscript and Proposal Reviews

National Science Foundation SBIR/STTR Program
Transportation Research Board / Transportation Research Record
ASCE Journal of Engineering Mechanics
ASCE Journal of Structural Engineering
ASCE Journal of Bridge Engineering
Journal of Constructional Steel Research
Engineering Structures
ASCE Journal of Infrastructure Systems
ASCE Journal of Performance of Constructed Facilities
Army Research Office
Nevada EPSCoR Office

Conference Sessions Moderated

2019 ASCE Structures Congress, LCA in Bridge and Tunnel Inspections
2018 ASCE Structures Congress, Bridge Sustainability Session
2013 ASCE Structures Congress, Bridge Analysis Session
2010 Conference on Bridge Maintenance, Safety and Management, Bridge Testing and Assessment Session
2009 American Society of Composites Conference, Dynamic Response Session
2007 Delaware Transportation, Education, and Security Conference, Bridges and Structures Session

Teaching

Assistant Mentor, ASCE ExCEED Teaching Workshop, West Point, NY, 2008

DEPARTMENT, COLLEGE, AND UNIVERSITY SERVICE

Department Leadership Positions

Graduate program co-director, 2018 – present
Structures group coordinator, 2018 – present

Department Committee Participation

Department Graduate Committee Member, 2007 – present
Department Undergraduate Committee Member, 2007, 2017-present
Ad-hoc Alumni Award Committee Member 2017

Service to Students and Student Organizations

Alpha Omega Epsilon (Engineering and Technical Science Sorority) advisor, 2010 – present
Faculty sponsor for President's Diversity Initiative, Women of Promise Celebration, 2013 - 2014
FE review sessions for Chi Epsilon fundraiser, 2010 – present
Panelist for Alpha Omega Epsilon informational session on graduate school, 2011, 2012
ASCE student chapter advisor, 2006 – 2010
ASCE steel bridge team co-advisor, 2006 – 2010

Search Committees for Faculty Positions

MEEG search committee, 2018 – 2019
CIEG search committee, 2017 – 2018 (structures position)
CIEG chair search committee, 2017

CIEG search committee chair, 2015-2016 (structures position)
CCM search committee, 2009 – 2011
CIEG search committee, 2008 – 2009 (structures and environmental positions)
CIEG search committee, 2007 – 2008 (coastal position)

Academic Advising

Academic advisor for 16 students in the class of 2019, 2015 - present
Academic advisor for 29 students in the class of 2013, 2009 – 2013
Academic advisor for 22 students in the class of 2009, 2005 – 2009

Participation in Outreach and Recruiting Events

Outreach events answering 2nd graders questions on bridges at elementary schools
COE representative at Chesapeake Bay Girl Scout Council Women of Distinction Celebration (2014)
COE Spring Break Camp (2011)
Department Graduate Student Open Houses
Blue and Gold Day (recruiting event for prospective undergraduate students)
Alpha Omega Epsilon "Engineering 101" Tour (outreach event to high school students, 2013)
MathCounts (outreach event to middle school students)
Multiple meetings & phone conversations with prospective undergraduate students and their parents

Staff Search Committees

CIEG Undergraduate Coordinator, 2012
CIEG Lab Coordinator, 2012

Other College Service

Educational Activities Committee, 2013 – 2018
Center for Composite Materials Awards Committee, 2007
Moderator, University of Delaware Center for Composite Materials Research Reviews, 2006 – 2009, 2011 – 2012

Other University Service

Reviewer for internal research proposals and limited submissions, 2019-present
Speaker for Promotion and Tenure for Assistant Professors Panel, 2015
University of Delaware Faculty Success Program Coach, 2014 (inaugural program), 2015, 2016
Board of Senior Thesis Readers, 2011

SELECTED PROFESSIONAL DEVELOPMENT

Participant, "Revolutionizing Engineering Diversity", Rowan University, 2018.
Participant, Post-Tenure Pathfinders Program, National Center for Faculty Development and Diversity, 2017.
Participant, Denice Denton Emerging Leaders Workshop, University of Wisconsin, 2016.
Participant, Faculty Success Program, National Center for Faculty Development and Diversity, 2013.