

PHIL LEWIS, Ph.D., P.E.

Associate Professor & Graduate Program Coordinator
Department of Construction Science
College of Architecture
Texas A&M University

EDUCATION

Doctor of Philosophy, Civil Engineering, North Carolina State University, 2009
Master of Science, Management, North Carolina State University, 1999
Bachelor of Science, Civil Engineering, North Carolina State University, 1990

AFFILIATIONS

Professional Engineer, North Carolina	License #20687	1995 – Present
American Society of Civil Engineers (ASCE)	Member	2005 – Present
Tulsa Area Clean Cities	Member	2011 – Present
American Institute of Steel Construction (AISC)	Member	2012 – Present

AWARDS & ACHIEVEMENTS

- Bryan N. and Sandra K. Mitchell Endowed Professorship, Department of Construction Science, Texas A&M University Fall 2017
- *2016 Excellent Teacher Award*, College of Engineering, Architecture and Technology, Oklahoma State University Spring 2016
- University Outstanding Teaching Assistant Certificate (NC State) Spring 2009
- Dr. Emol A. Fails Graduate Fellowship (NC State) Fall 2007
- Certificate of Accomplishment in Teaching (NC State) Spring 2007
- LANGURE Junior Research Ethics Fellowship (NC State) Spring 2007
- Preparing the Professoriate Fellowship (NC State) Fall 2006
- Mentored Teaching Assistantship (NC State) Fall 2006
- Chi Epsilon National Civil Engineering Honor Society (NC State) Fall 2005

TIMELINE OF PROFESSIONAL EXPERIENCE

<u>Date</u>	<u>Title</u>	<u>Organization</u>
Sep 2017 – Present	Associate Professor	Texas A&M University
Jul 2016 – Aug 2017	Associate Professor	Oklahoma State University
Aug 2010 – Jun 2016	Assistant Professor	Oklahoma State University
Jan 2009 – Aug 2010	Construction Extension Specialist	North Carolina State University
Jan 2005 – Mar 2009	Ph.D. Student	North Carolina State University
Jan 1996 – Dec 2004	Senior Project Manager	Steel Dynamics, Inc.
Jan 1991 – Dec 1995	Transportation Engineer	North Carolina Dept. of Transportation
Aug 1985 – Dec 1990	BSCE Student	North Carolina State University

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ACADEMIC & INDUSTRY EXPERIENCE

September 2017 – Present: *Associate Professor.* Texas A&M University, College Station, TX. Serve as an Associate Professor and the Graduate Program Coordinator in the Department of Construction Science in the College of Architecture. Holder of the Bryan N. and Sandra K. Mitchell Endowed Professorship. Develop an externally funded research program in the area of sustainable construction. Teach undergraduate and graduate courses in the area of construction management. Engage in scholarly publishing activities and construction industry outreach activities. Serve on departmental, college, and university committees as needed. Serve on academic community committees as needed.

August 2010 – August 2017: *Assistant/Associate Professor.* Oklahoma State University, Stillwater, OK. Served as an Assistant and Associate Professor in the School of Civil and Environmental Engineering in the College of Engineering, Architecture, and Technology. Developed an externally funded research program in the area of construction engineering. Taught undergraduate and graduate courses in the area of construction engineering and project management. Engaged in scholarly publishing activities and construction industry outreach activities. Served on school and college level committees as needed. Served on academic community committees as needed.

January 2009 – August 2010: *Senior Construction Extension Specialist and Lecturer.* North Carolina State University, Raleigh, NC. Provided various extension services to industry professionals, including developing and teaching short-courses of special interest to construction and engineering professionals, teaching introductory construction management classes in the Project Management Diploma Series for industry professionals, and assisting with ACI/NCDOT Concrete Certification classes for concrete technicians. Taught one college level course (undergraduate or graduate) per semester, including CE 464/564 Legal Aspects of Contracting and CE 469 Construction Engineering Project. Provided leadership and guidance for student chapter professional organizations. Engaged in academic research and scholarly publishing activities. This was a full-time, non-tenure track faculty position.

January 2005 – March 2009: *Ph.D Student.* North Carolina State University, Raleigh, NC. Full-time student pursuing a Ph.D in Civil Engineering with an emphasis on construction engineering and management and a primary research focus on the environmental impacts of construction, particularly air pollutant emissions from construction equipment. Served as a teaching assistant and a research assistant.

January 1996 – December 2004: *Senior Project Manager; Vice President of Operations.* Steel Dynamics, Inc., Raleigh, NC, a general contracting firm specializing in the design and construction of commercial buildings including churches, flex units, offices, restaurants, retail, and warehouses. Provided project management for design-build and negotiated commercial building contracts. Provided contract administration with owners. Coordinated design process and reviewed contracts, estimates, plans, and specifications prior to construction. Negotiated contracts with material suppliers and subcontractors. Provided project schedules for field operations. Administered change orders with owners and subcontractors. Provided engineering and technical support. Coordinated with local municipalities to resolve permitting and inspection issues. Supervised three other project managers and one project assistant. Assisted with management and business administration of the firm.

January 1991 – December 1995: *Transportation Engineer.* North Carolina Department of Transportation. Served in various capacities with the NCDOT. Assistant District Engineer, Nashville, NC, coordinated and supervised highway maintenance projects. Assistant Resident Engineer, Nashville, NC, provided contract administration for NCDOT for highway and bridge construction projects. Hydraulics Design Engineer, Raleigh, NC, provided hydrologic analysis and hydraulic design for roadway drainage. Engineering Associate, Raleigh, NC, gained experience in various NCDOT units including, Bridge Maintenance, Location and Surveys, Roadway Design, Hydraulics, Structure Design, Construction, and Maintenance. One year of cooperative education experience during college.

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RESEARCH ACTIVITIES

Funded Research (Total Amount = \$1,013,151; PI = \$738,014, Co-PI = \$275,137)

1. “An Effective Framework to Track Rework and Quantify Its Impact on Productivity,” MCA, Inc., Principal Investigator: Yongwei Shan, **Co-Principal Investigator: Phil Lewis**. Total Amount \$10,000. Duration: July 1, 2017 – December 31, 2017.
2. “A Case Study on Construction Equipment Emissions,” Southern Plains Transportation Center, Principal Investigator: Rachel Mosier, **Co-Principal Investigator: Phil Lewis**. Total Amount \$12,600. Duration: July 1, 2015 – June 30, 2016.
3. “Incorporating Climate Impact to Assess the Deterioration of Bridge Decks,” Southern Plains Transportation Center, Principal Investigator: Yongwei Shan, **Co-Principal Investigator: Phil Lewis**. Total Amount \$12,600. Duration: July 1, 2015 – June 30, 2016.
4. “One Voice for Sewer Infrastructure,” National Association of Sewer Service Companies, **Principal Investigator: Phil Lewis**, Co-Principal Investigators: Yongwei Shan. Total Amount \$25,000. Duration: November 25, 2014 – September 30, 2016.
5. “Monitoring Extreme Loading and Climate Impact on Infrastructure,” Southern Plains Transportation Center (SPTC), Principal Investigator: Julie Hartell, **Co-Principal Investigators: Phil Lewis**, Yongwei Shan, and Tyler Ley. Total Amount \$147,074. Duration: October 1, 2014 – September 30, 2016.
6. “Sustainability and Training Materials for In-Place Recycling,” Southern Plains Transportation Center (SPTC), **Principal Investigator: Phil Lewis**, Co Principal Investigator: Steve Cross. Total Amount \$70,247. Duration: October 1, 2014 – March 31, 2016.
7. “Characterizing the Impact of Prefabrication on Productivity in Building Electrical Construction,” ELECTRI International, **Principal Investigator: Phil Lewis**, Co-Principal Investigator: Yongwei Shan. Total Amount \$39,944. Duration: July 1, 2014 – June 30, 2015.
8. “Assessing Time to Deficiency for Highway Bridge Superstructures – Phase 2,” National Steel Bridge Alliance, American Institute of Steel Construction. **Principal Investigator: Phil Lewis**, Co-Principal Investigator: Yongwei Shan. Total Amount \$65,673. Duration: June 15, 2014 – August 15, 2015.
9. “Assessing Time to Deficiency for Highway Bridge Superstructures – Phase 1,” National Steel Bridge Alliance, American Institute of Steel Construction. **Principal Investigator: Phil Lewis**. Total Amount \$58,233. Duration: October 1, 2012 – December 31, 2013.
10. “Calibration and Controlling Input Models for Pavement Management System,” *OkTC Research, Education and Outreach Support*, Oklahoma Transportation Center (OkTC), **Principal Investigator: Phil Lewis**, Co-Principal Investigator: David Jeong. Total Amount \$289,776. Duration April 1, 2012 – June 30, 2013.
11. “Data and Information Integration Framework for Highway Project Decision Makings,” *OkTC Research, Education and Outreach Support*, Oklahoma Transportation Center (OkTC), **Principal Investigator: Phil Lewis**, Co-Principal Investigator: David Jeong. Total Amount \$179,143. Duration April 1, 2012 – June 30, 2013.
12. “Development of an Interactive Website on Asphalt Recycling,” *OkTC Research, Education and Outreach Support*, Oklahoma Transportation Center (OkTC), Principal Investigator: Steve Cross, **Co-Principal Investigator: Phil Lewis**. Total Amount \$92,863. Duration April 1, 2012 – March 31, 2013.

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13. "Using Prevention through Design (PtD) Approaches to Reduce Diesel Exhaust Emissions from Heavy Duty Construction Equipment," *NIOSH Pilot Projects Research Training Program*, Southwest Center for Occupational and Environmental Health, **Principal Investigator: Phil Lewis**. Total Amount \$9,998. Duration: August 1, 2012 – July 31, 2013.

Pending Research Proposals

1. "Indoor Air Quality for Construction Equipment," National Institute of Occupational Safety and Health, **Principal Investigator: Phil Lewis**. Total: \$71,202, Duration: One Year. (In Review)

TEACHING ACTIVITIES (Courses Taught)

COSC 321 Structural Systems I (Texas A&M University): *3 credit hour Undergraduate Course with Lecture only;* Introduction to the physical principles that govern classical statics and strengths of materials through the design of architectural structures.

COSC 681 Seminar (Texas A&M University): *1 credit hour Graduate Course;* Discussion and review of degree requirements, career opportunities, and current research activities in construction management.

CIVE 4273 Construction Engineering and Project Management (Oklahoma State University): *3 credit hour Senior Level Undergraduate/Graduate Course with Lecture and Lab;* Principles and practice of construction engineering and project management. Project planning, development of cost estimates and project schedules, construction methods and fundamental terminology used in the engineering and construction industry.

CIVE 5113 Construction Business Management (Oklahoma State University): *3 credit hour Graduate Course with Lecture only;* Fundamental theories and applied methods of financial management of construction companies. The spectrum of the present and future practice of business management at the construction company level. Basic construction business operations in context of construction accounting, financial management, cash flow analysis, financial planning, and risk analysis

CIVE 5133 Construction Contracts and Specifications (Oklahoma State University): *3 credit hour Graduate Course with Lecture only;* Nature of contracts. Contract documents. Principles of specification writing. Contract types. Bonds and insurance. Bidding. Subcontracting. Disputes resolution.

CIVE 5143 Construction Project Management (Oklahoma State University): *3 credit hour Graduate Course with Lecture only;* Management of design and construction of civil engineering projects. Topics include owner's study, forming project teams, design coordination, construction, and project closeout.

CIVE 5163 Construction Equipment Management (Oklahoma State University): *3 credit hour Graduate Course with Lecture Only;* Analysis of construction equipment. Performance under various operating conditions. Application of engineering fundamentals to construction methods. Selection and costs of equipment, prediction of equipment production rates, and unit costs of work in place.

CIVE 5183 Construction Estimating (Oklahoma State University): *3 credit hour Graduate Course with Lecture and Lab;* The construction industry, its makeup, operation, estimating, and bidding procedures. Theory and practice of estimating materials, labor, equipment, and overhead costs for various types of construction. Emphasis on preliminary cost estimates during the conceptual design phase of a construction project.

CE 201 Civil Engineering Measurements and Surveys (North Carolina State University): *3 credit hour Sophomore/Junior Level Undergraduate Course with Lecture and Lab;* Plane surveying, topographical surveying, horizontal and vertical curves, topographic surveys, construction surveys, earthwork, route surveying. Use of computers to adjust measured quantities, calculate coordinates and areas, and locate points for design grades and planned roadways.

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CE 469 Construction Engineering Project (North Carolina State University): *3 credit hour Senior Level Undergraduate Course with Lecture and Lab*; Capstone course involving integrated team approach in the design of the construction process, utilizing computerized tools for cost estimation, planning, scheduling, process design, and management of two construction projects. Each student also selects an individual project. Lecture topics include: ethics, professionalism, marketing, bid presentations, business planning, finance, and other appropriate topics by guest speakers from industry.

CE 464/564 Legal Aspects of Contracting (North Carolina State University): *3 credit hour Senior Level Undergraduate Course and Graduate Course with Lecture only; taught in class and online versions*; Legal aspects of contract documents, drawings and specifications; owner-engineer-constructor relationship and responsibilities; bids and contract performance; labor laws; governmental administrative and regulatory agencies; torts; business organizations; ethics and professionalism; analysis of current topics and issues. Investigation of recent statute and case implications.

OUTREACH & EXTENSION ACTIVITIES

Construction Project Management Certificate Program (Oklahoma State University). In collaboration with the College of Engineering, Architecture, and Technology's Continuing Education program, I was the original developer of the Construction Project Management Certificate program. This program consists of a series of five, eight hour courses that are offered to provide continuing education units (CEU) and professional development hours (PDH) for professionals in the architecture, engineering, and construction industries. A participant received a Certificate of Construction Project Management for attending the following courses:

1. Fundamentals of Construction Documents
2. Essentials of Estimating
3. Fundamentals of Bidding
4. Tips and Techniques of Effective Scheduling
5. Cost Control
6. Managing Your Projects
7. Leadership (Half-day)

ACADEMIC SERVICE ACTIVITIES

1. **Committee Member**, *Standing Committee on Maintenance Equipment (AHD60)*, Transportation Research Board, April 15, 2012 – April 14, 2018.
2. **Assistant Specialty Editor**, American Society of Civil Engineers Journal of Construction Engineering and Management, *Sustainable Construction Area*, 2011 – present.
3. **Guest Editor**, American Society of Civil Engineers Journal of Construction Engineering and Management, *Special Issue on Sustainability*, August 2012-May 2013.
4. **Expert Peer Reviewer**, Environmental Protection Agency (EPA), Office of Research and Development's (ORD) National Center for Environmental Research (NCER), Grant solicitation entitled: "Healthy Schools: Environmental Factors, Children's Health and Performance, and Sustainable Building Practices," Washington, DC, January 7-8, 2014.
5. **Journal Reviewer**, Frequent reviewer for ASCE journals including *Journal of Construction Engineering and Management*, *Journal of Management in Engineering*, *Journal of Environmental Engineering*, and *Journal of Infrastructure Systems*; Reviewer for *Journal of Fuel Processing Technology* and *Journal of Automation in Construction*.

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6. **Proposal Reviewer**, reviewed technical content for research proposals funded by Maryland Industrial Partnerships (MIPS).
7. **Session Chair**, *International Conference on Sustainable Design, Engineering, and Construction - Track 8: Data*, Arizona State University, Tempe, AZ, May 19-20, 2016.
8. **Specialty Track Co-Chair**, *Construction Research Congress 2014 – Sustainable Design and Construction Track*, Georgia Institute of Technology, Atlanta, GA, May 19-21, 2014.
9. **Session Chair**, *Construction Research Congress 2014 – Sustainable Design and Construction Track*, Georgia Institute of Technology, Atlanta, GA, May 19-21, 2014.
10. **Specialty Track Co-Chair**, *Construction Research Congress 2012 – Track 9, Environmentally Sustainable Design and Construction*, Purdue University, West Lafayette, IN, May 21-23, 2012.
11. **Session Chair**, *Construction Research Congress 2012 – Environmentally Sustainable Design and Construction*, Purdue University, West Lafayette, IN, May 21-23, 2012.
12. **Session Co-Chair**, “Session 9: Climate Impacts and Adaptation,” *Greenhouse Gas Strategies in a Changing Climate Conference*, San Francisco, CA, November 16-17, 2011.
13. **Technical Committee Member**, *9th Asia Pacific Transportation Development Conference* Chongqing, China, June 29 – July 1, 2012.

OKLAHOMA STATE UNIVERSITY SERVICE ACTIVITIES

1. **CEAT Faculty Advisory Council Member**, College of Engineering, Architecture, and Technology, Representative for School of Civil and Environmental Engineering, 2015 – present.
2. **Oklahoma State University Fire Council**, School of Civil and Environmental Engineering Representative, 2016 – present.
3. **Southern Plains Transportation Center Transportation Leadership Council Faculty Advisor**, School of Civil and Environmental Engineering, 2015 – present.
4. **Construction Management Technology (CMT) Faculty Search Committee**, School of Civil and Environmental Engineering, 2016.
5. **CIVE Curriculum Review Committee Member**, School of Civil and Environmental Engineering, 2015 – present
6. **CIVE Workload Policy Committee Member and Chair**, School of Civil and Environmental Engineering, 2013 – present.
7. **CIVE Reappointment, Promotion, and Tenure (RPT) Policy Revision Committee**, School of Civil and Environmental Engineering, 2015 – present.
8. **CIVE Scholarship Committee Member**, School of Civil and Environmental Engineering, 2012 – present.
9. **CIVE Construction Faculty Search Committee Chair**, School of Civil and Environmental Engineering, 2012 – 2014 (Two separate searches).
10. **CIVE Design Day Committee Member**, School of Civil and Environmental Engineering, Oklahoma State University, 2010 – 2012.

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DISSERTATION & THESIS ADVISING

PhD Dissertation Major Advisor

1. **Apif Hajji**, August 2010 – May 2013, Dissertation Title: “Development of a Productivity-Based Economic, Energy, and Environmental Model for Heavy Duty Diesel Construction Equipment,” *Graduated May 2013*.
2. **Saeed Abdollahipour**, June 2012 – May 2013, Co-Advisor. Dissertation Title: “Multi-Parameter Bidding in Highway Construction and Rehabilitation Projects,” *Graduated May 2013*.
3. **Heni Fitriani**, June 2012 – May 2014, Dissertation Title: “Development of Predictive Modeling for Estimating Fuel Use and Emissions Rates of Heavy-Diesel Construction Equipment,” *Graduated May 2014*.
4. **Mohamed El Gohary**, August 2010 – May 2014, Dissertation Title: “Towards an Improved Process for Reducing Preliminary Engineering Costs for Multi-Sided Steel Poles,” *Graduated May 2014*.
5. **Chuanhai Zhu**, August 2011 – May 2015, Dissertation Topic: “Characterization of Air Pollutant Emissions and Fuel Use of CNG Buses,” *Graduated May 2015*.
6. **Boshra Karimi**, August 2015 – present, Dissertation topic related to characterizing the effectiveness of emissions reduction strategies for heavy duty diesel construction equipment. Expected Graduation May 2018.

PhD Committee Member (Not Advisor)

1. **Cristian Contreras-Nieto**, *Expected Graduation December 2017*
2. **Hossein Khaleghian**, *Expected Graduation December 2017*
3. **Sheldon Qui**, *Graduated December 2013*
4. **Stephanie Wang**, *Graduated May 2015*
5. **Ingrid Arocho**, North Carolina State University, *Graduated December 2014*

Master Thesis Major Advisor

1. **Vinay Mekki Basavaraj**, August 2010 – December 2011, Thesis Title: “Influence of Bid Quantity on Asphalt Unit Prices in the State of Oklahoma,” Oklahoma State University. *Graduated December 2011*.
2. **See Hyiik “Alan” Ting**, January 2011 – December 2012, Co-Advisor. Thesis Title: “Prediction of Likelihood of Failure of Underground Linear Assets Using Survival Analysis.” Oklahoma State University. *Graduated December 2012*.
3. **Kidst Demeke**, August 2011 – May 2013, Thesis Title: “Comparison and Benchmarking of Real-World Fuel Use and Emissions Data from Nonroad Heavy Duty Diesel Construction Equipment.” Oklahoma State University. *Graduated May 2013*.
4. **Cristian Contreras-Nieto**, August 2012 – May 2014, Thesis Title: “Development of Linear Models to Predict Superstructure Ratings of Steel and Prestressed Concrete Bridges.” *Graduated May 2014*.
5. **Elizabeth Holder Hazzard**, January 2013 – May 2014, Thesis Title: “Quantifying the E3 Impact on a Bridge Replacement Project.” *Graduated May 2014*.

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6. **Emily West Zoellner**, August 2012 – May 2015, Thesis Title: “Evaluation of the Relationship between Age and Deficiency Rating of Highway Bridge Superstructures.” *Graduated May 2015.*
7. **Mohammed Alabdullah**, January 2015 – December 2016, “Predicting First Time Reaching Deficiency Status for Steel Bridges in Oklahoma.” *Graduated December 2016.*
8. **Jason Mayes**, August 2015 – present, Thesis topic related to determining the relationship between emotional intelligence and productivity on construction projects.

Master Thesis Committee (Not Advisor)

1. Mignote Alemayehu, *Graduated 2011*
2. Natnael Asfaw, *Graduated 2011*
3. Kristy Bumpas, *Graduated 2012*
4. David Pretorius, *Graduated 2012*
5. Helal Shittah, *Graduated 2012*
6. Martha Castellon, *Graduated 2013*
7. John Hawkins, *Graduated 2013*
8. Jacob Lingo, *Graduated 2013*
9. Alem Workie, *Graduated 2013*
10. Chris Huang, *Graduated 2014*
11. Preetham Kaukuntla, *Graduated 2014*
12. Hamza Imran, *Graduated 2015*
13. Vamsi Parvathaneni, *Graduated 2015*
14. Maseeh Rezazadah, *Graduated 2015*
15. Abishek Reguri, *Graduated 2015*
16. Saba Asrat, *Graduated 2016*
17. Srikanth Bangaru, *Expected Graduation 2017*

Master Creative Component Major Advisor

1. Mahdis Arianpour, *Graduated 2012*
2. Brenda Harvey, *Graduated 2012*
3. Muthiah Manickam, *Graduated 2013*
4. Ahmed Al Issaei, *Graduated 2015*
5. Moussa El Hamati, *Graduated 2015*
6. Joseph Large, *Graduated 2015*
7. Javier Moran Hornedo, *Graduated 2015*
8. Vidyardhi Nimmagada, *Graduated 2015*
9. Damilohun Omotehinse, *Graduated 2015*
10. Ali Alshamrani, *Graduated 2016*
11. Anshul Bansal, *Graduated 2016*
12. Guillermo Castellon, *Graduated 2016*
13. Abdul Shareef Shaik, *Graduated 2016*
14. Monica Velez Grau, *Graduated 2016*
15. Balakumar Balasubramani, *Graduated 2016*
16. Johnathan Ryan, *Graduated 2017*

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17. Shubham Dhuppad, *Expected Graduation 2018*
18. Saurav Kumar Mohanty, *Expected Graduation 2018*
19. John Reck, *Expected Graduation 2018*
20. Vishalkumar Sisodia, *Expected Graduation 2018*
21. Mattie Abbott, *Expected Graduation 2018*

Master Creative Component Committee (Not Advisor)

1. Daniel Adesina, *Graduated 2011*
2. Satyashil Shinde, *Graduated 2011*
3. Haroon Hassan, *Graduated 2012*
4. Ann Walta, *Graduated 2012*
5. Feven Abebe, *Graduated 2013*
6. Jose Alvarez, *Graduated 2014*
7. Ajay Sankurubhuktha, *Graduated 2015*
8. Ryan Baskin, *Graduated 2016*
9. Chao Han, *Graduated 2016*
10. Ajeeth Adavalli, *Expected Graduation 2017*
11. Hisham El Hamati, *Expected Graduation 2017*

PUBLICATIONS

Peer-Reviewed Journal Articles Published or Accepted

1. Shan, Y., Imran, H., **Lewis, P.**, and Zhai, D., "Investigating the Latent Factors of Quality of Work-Life Affecting Construction Craft Worker Job Satisfaction," *Journal of Construction Engineering and Management*, American Society of Civil Engineers, 143(5): 04016134, DOI: 10.1061/(ASCE)CO.1943-7862.0001281, 2017.
2. Arocho, I., Rasdorf, W., Hummer, J., and **Lewis, P.**, "Time and Cost Characterization of Emissions from Non-Road Diesel Equipment for Infrastructure Projects, *International Journal of Sustainable Engineering*, Taylor and Francis, DOI: 10.1080/19397038.2016.1218569, 2016.
3. **Lewis, P.** and Rasdorf, W., "Fuel Use and Pollutant Emissions Taxonomy for Heavy Duty Diesel Construction Equipment." *Journal of Management in Engineering*, American Society of Civil Engineers, DOI: 10.1061/(ASCE)ME.1943-5479.0000484, 04016038, 2016.
4. Rasdorf, W., **Lewis, P.**, Arocho, I., and Hummer, J., "Characterizing Air Pollutant Emissions for Highway Construction Projects," *Smart and Sustainable Built Environment*, Emerald Group Publishing Limited, 4(3), 315-328, 2015.
5. **Lewis, P.**, Fitriani, H., and Arocho, I., "Engine Variable Impact Analysis of Fuel Use and Emissions for Heavy Duty Diesel Maintenance Equipment," *Transportation Research Record: Journal of the Transportation Research Board*, National Research Council, Washington, DC, 2482, 8-15, 2015.
6. **Lewis, P.**, Shan, Y., Hajji, A., and Hazzard, E., "Characterizing Equipment Cost, Fuel Use, and Emissions for Earthwork Activities," *The Professional Constructor*, Journal of the American Institute of Constructors, 39(1), 19-27, 2015.
7. Hazzard, E. and **Lewis, P.**, "Assessing the Economic, Energy, and Environmental Impacts of a Bridge Replacement Project," *The Professional Constructor*, Journal of the American Institute of Constructors, 39(1), 6-18, 2015.

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8. Hajji, A. and **Lewis, P.**, "Development of Productivity-based Estimating Tool for Energy and Air Emissions from Earthwork Construction Activities," *Smart and Sustainable Built Environment*, Emerald Group Publishing Limited, 2(1), 84-100, 2013.
9. Ahn, C., **Lewis, P.**, Golparvar-Fard, M. and Lee, S., "Integrated Framework for Estimating, Benchmarking, and Monitoring the Pollutant Emissions of Construction Operations," *Journal of Construction Engineering and Management Special Issue: Sustainability in Construction*, American Society of Civil Engineers, 139(12) A4013003-1 – A4013003-11, 2013.
10. **Lewis, P.**, Rasdorf, W., Frey, H.C., Leming, M., "Effects of Engine Idling on NAAQS Criteria Pollutant Emissions from Nonroad Diesel Construction Equipment," *Transportation Research Record: Journal of the Transportation Research Board*, National Research Council, Washington, DC, 2270, 67-75, 2012.
11. Rasdorf, W., **Lewis, P.**, Marshall, S. K., Arocho, I., and Frey, H.C., "Evaluation of On-Site Fuel Use and Emissions over the Duration of a Commercial Building Project," *Journal of Infrastructure Systems*, American Society of Civil Engineers, 18(2), 119-129, 2012.
12. Marshall, S. K., Rasdorf, W., **Lewis, P.**, and Frey, H.C., "A Methodology for Estimating Emissions Inventories for Commercial Building Projects," *Journal of Architectural Engineering*, American Society of Civil Engineers, 18(3), 251-260, 2012.
13. **Lewis, P.**, Leming, M., and Rasdorf, W., "Impact of Idling on Fuel Use and CO₂ Emissions of Nonroad Diesel Construction Equipment," *Journal of Management in Engineering Special Issue: Engineering Management for Sustainable Development*, American Society of Civil Engineers, 28(1), 31-38, 2012.
14. **Lewis, P.**, Leming, M., Frey, H.C., and Rasdorf, W., "Assessing the Effects of Operational Efficiency on Pollutant Emissions of Nonroad Diesel Construction Equipment," *Transportation Research Record: Journal of the Transportation Research Board*, National Research Council, Washington, DC, 2233, 11-18, 2011.
15. Frey, H. C., Rasdorf, W., and **Lewis, P.**, "Comprehensive Field Study of Fuel Use and Emissions of Nonroad Diesel Construction Equipment," *Transportation Research Record: Journal of the Transportation Research Board*, National Research Council, Washington, DC, 2158, 69-76, 2010.
16. Rasdorf, W., Frey, H.C., **Lewis, P.**, Kim, K., Pang, S-H., and Abolhasani, S., "Field Procedures for Real-World Measurements of Emissions from Diesel Construction Vehicles," *Journal of Infrastructure Systems*, American Society of Civil Engineers, 16 (3), 216-225, 2010.
17. **Lewis, P.**, Rasdorf, W., Frey, H.C., Pang, S-H., and Kim, K., "Requirements and Incentives for Reducing Construction Vehicle Emissions and Comparison of Nonroad Diesel Engine Emissions Sources," *Journal of Construction Engineering and Management*, American Society of Civil Engineers, 135 (5), 341-351, 2009.
18. **Lewis, P.**, Frey, H.C., and Rasdorf, W., "Development and Use of Emissions Inventories for Construction Vehicles," *Transportation Research Record: Journal of the Transportation Research Board*, National Research Council, Washington, D.C., 2123, 46-53, 2009.
19. Abolhasani S., Frey, H.C., Kim, K., Rasdorf, W., **Lewis, P.**, Pang, S-H., "Real-World In-Use Activity, Fuel Use, and Emissions for Nonroad Construction Vehicles: A Case Study for Excavators," *Journal of the AWMA*, Air and Waste Management Association, 58, 1033-1046, 2008.
20. Frey, H.C., Rasdorf, W., Kim, K., Pang, S-H., and **Lewis, P.**, "Comparison of Real World Emissions of Backhoes, Front-End Loaders, and Motor Graders for B20 Biodiesel vs. Petroleum Diesel and for Selected Engine Tiers," *Transportation Research Record: Journal of the Transportation Research Board*, National Research Council, Washington, DC, 2058, 33-42, 2008.

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21. Frey, H.C., Kim, K., Rasdorf, W., Pang, S-H., and **Lewis, P.**, "Characterization of Real-World Activity, Fuel Use, and Emissions for Selected Motor Graders Fueled with Petroleum Diesel and B20 Biodiesel," *Journal of the AWMA*, Air and Waste Management Association, 58, 1274-1287, 2008.

Peer Reviewed Journal Articles in Review

1. **Lewis, P.**, Zhu, C., and Shan, Y., "Characterization of Real-World Fuel Use, Emissions, and Vehicle Activity for a Compressed Natural Gas Bus Fleet," *Journal of Infrastructure Systems*, American Society of Civil Engineers, In Review.
2. **Lewis, P.**, Karimi, B., Rasdorf, W., Shan, Y., "Comparative Analysis of Biodiesel versus Petroleum Diesel Fuel Use in Off-Road Maintenance Equipment," *Transportation Research Record: Journal of the Transportation Research Board*, National Research Council, Washington, DC, In Review.

Peer Reviewed Full Paper Conference Proceedings Published

1. Kim, J., Shan, Y., Choi, J., **Lewis, P.**, and Hong, W. "A Basic Study on the Evacuation Characteristics of High-rise Building through Comparing Evacuation Experiment and Simulations – A Case Study in Korea," *2017 International Workshop on Computing in Civil Engineering*, Seattle, WA, 2017.
2. Mosier, R., Reyes, M., Aghaeipoor, M., and **Lewis, P.**, "Indoor Air Quality in Construction Cabs," Compendium of papers for the *96th Annual Meeting of the Transportation Research Board*, Washington, DC, 2017.
3. Contreras-Nieto, C., Shan, Y., and **Lewis, P.**, "Characterization of Steel Bridge Superstructure Deterioration through Data Mining Techniques," Compendium of papers for the *96th Annual Meeting of the Transportation Research Board*, Washington, DC, 2017.
4. Fitriani, H. and **Lewis, P.** "Quantification of Emissions Rates of NOx based on Equipment and Engine Tier Types for Diesel Construction Equipment," *Sriwijaya International Conference on Engineering, Science, and Technology*, Bangka Island, Indonesia, 2016.
5. **Lewis, P.**, Khaleghian, H., and Shan, Y. "One-Voice for Sewer Condition Assessment and Asset Management," *Utilities Engineering & Surveying Institute Pipelines Conference 2016*, American Society of Civil Engineers, Kansas City, MO, 2016.
6. **Lewis, P.**, Khaleghian, H., and Shan, Y. "Development of a Sustainable National Sewer Inventory," *2016 International Conference on Sustainable Design, Engineering, and Construction*, American Society of Civil Engineers, Tempe, AZ, 2016.
7. Khaleghian, H., Shan, Y., and **Lewis, P.** "A Case Study of the Productivity Improvement by Electrical Prefabrication," *2016 Construction Research Congress*, American Society of Civil Engineers, San Juan, Puerto Rico, 2016.
8. Shan, Y., Contreras-Nieto, C., and **Lewis, P.** "Using Data Analytics to Characterize Steel Bridge Deterioration," *2016 Construction Research Congress*, American Society of Civil Engineers, San Juan, Puerto Rico, 2016.
9. Contreras-Nieto, C., **Lewis, P.**, and Shan, Y. "Developing Predictive Models of Superstructure Ratings for Steel and Prestressed Concrete Bridges," *2016 Construction Research Congress*, American Society of Civil Engineers, San Juan, Puerto Rico, 2016.

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10. **Lewis, P.**, Fitriani, H., and Shan, Y., “Development of a Fuel Consumption and Emissions Taxonomy for Nonroad Diesel Equipment,” *Compendium of papers for the 95th Annual Meeting of the Transportation Research Board*, Washington, DC, 2016.
11. **Lewis, P.**, Shan, Y., and Hazzard, E., “Sustainability Planning Framework for Reducing Ground-level Ozone Formation in Construction Activities,” *Procedia Engineering, Special Issue: Defining the Future of Sustainability and Resilience in Design, Engineering and Construction*, Elsevier, Volume 118, 766-773, 2015. doi:10.1016/j.proeng.2015.08.512, 2015.
12. **Lewis, P.**, Zhu, C., and Shan, Y., “Assessing the Relationships between Emissions and Vehicle Activity for a CNG Transit Bus Fleet,” *2015 International Conference on Ecology & Transportation*, Raleigh, NC, 2015.
13. **Lewis, P.**, Fitriani, H., and Shan, Y., “Benchmarking Fuel Use and Emission Rates for Heavy Duty Diesel Highway Maintenance Equipment,” *2015 AASHTO/TRB Conference on Transportation Infrastructure Maintenance and Operations*, Des Moines, IA, 2015.
14. **Lewis, P.**, Zhu, C., and Shan, Y. “Real-World Emission Rates and Vehicle Activity Data for a CNG Transit Bus Fleet,” *Air & Waste Management Association's 108th Annual Conference & Exhibition Connecting the Dots: Environmental Quality to Climate*, Raleigh, NC, 2015.
15. Shan, Y., Goodrum, P., and **Lewis, M.** “Construction Productivity Impacts of Forecasted Global Warming Trends Utilizing an Integrated Information Modeling Approach,” *2015 International Workshop on Computing in Civil Engineering*, pp. 523-530, Austin, TX, 2015. doi: 10.1061/9780784479247.065
16. **Lewis, P.**, Hazzard, E., and Shan, Y., “Sustainability Planning Framework for Reducing Ground-Level Ozone Formation in Construction Activities,” *International Conference on Sustainable Design, Engineering and Construction 2015*, Chicago, IL, 2015.
17. **Lewis, P.**, Fitriani, H., and Arocho, I., “Engine Variable Impact Analysis of Fuel Use and Emissions for Heavy Duty Diesel Maintenance Equipment,” *Compendium of papers for the 94th Annual Meeting of the Transportation Research Board*, Washington, DC, 2015.
18. Fitriani, H. and **Lewis, P.**, “Characterizing Fuel Use and Emissions Rates of Heavy-Duty Diesel Equipment: A Case Study for Wheel Loaders,” *Third International Conference on Sustainable Built Environment*, Yogyakarta, Indonesia, 2014.
19. Fitriani, H. and **Lewis, P.**, “Comparison of Simple Linear Regression and Multiple Linear Regressions for Estimating Fuel Use and Emission Rates for Excavators,” *International Conference on Construction Materials and Structures*, Johannesburg, South Africa, 2014.
20. Hazzard, E. and **Lewis, P.**, “Results of a Case Study on Quantifying Fuel Use and Emissions for a Bridge Replacement Project,” *2014 Construction Research Congress*, Atlanta, GA, 2014.
21. Fitriani, H. and **Lewis, P.**, “Comparison of Predictive Modeling Methodologies for Estimating Fuel Use and Emission Rates for Wheel Loaders,” *2014 Construction Research Congress*, Atlanta, GA, 2014.
22. Khaleghian, M., **Lewis, P.**, Jeong, D., and Woldesenbet, A., “Evaluation of Asphalt Pavement Deterioration Curves for Oklahoma Interstate Highways,” *2014 Construction Research Congress*, Atlanta, GA, 2014.
23. **Lewis, P.** and Hajji, A., “Case Study of an Energy and Environmental Inventory for a Municipal Heavy-Duty Diesel Equipment Fleet,” *Compendium of papers for the 93rd Annual Meeting of the Transportation Research Board*, Washington, DC, 2014.

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24. Woldesenbet, A., Jeong, D. and **Lewis, P.**, "Three-Tiered Data and Information Integration Framework: A Case Study of Transportation Project Daily Work Reports", Compendium of papers for the 93rd Annual Meeting of the Transportation Research Board, Washington, DC, 2014.
25. Fitriani, H. and **Lewis, P.**, "Characterizing Fuel Use and Emissions Rates of Heavy Duty Diesel Equipment: A Case Study for Wheel Loaders," *Third International Conference on Sustainable Built Environment*, Kandy, Sri Lanka, 2014, (ISBN 978-602-983974-6).
26. Fitriani, H., Hajji, A., and **Lewis, P.**, "Variability and Uncertainty in Characterizing Emission Rates of Heavy-Duty Diesel Construction Equipment," *Second International Conference on Sustainable Infrastructure and Built Environment*, Bandung, Indonesia, 2013, (ISBN 978-979-98278-4-5).
27. **Lewis, P.** and Hazzard, E., "Using Earned Value Management to Quantify Economic, Energy, and Environmental Sustainability in Construction Activities," *Canadian Society of Civil Engineers 2013 Annual Conference and 4th Construction Specialty Conference*, Montreal, QC, 2013.
28. **Lewis, P.** and Hajji, A., "Comparison of Two Models for Estimating Equipment Productivity for a Sustainability Quantification Tool," *2nd International Conference for Sustainable Design, Engineering and Construction*, Ft. Worth, TX, 2012.
29. **Lewis, P.** and Hajji, A., "Estimating the Economic, Energy, and Environmental Impact of Earthwork Activities," *2012 Construction Research Congress*, West Lafayette, IN, 2012.
30. **Lewis, P.** and Hajji, A., "Evaluation of Construction Equipment Fleets through Fuel Use and Emissions Inventories," American Society of Civil Engineers, *9th Asia Pacific Transportation Development Conference*, Chongqing, China, 2012.
31. **Lewis, P.**, Rasdorf, W., Frey, H.C., Leming, M., "Effects of Engine Idling on NAAQS Criteria Pollutant Emissions from Nonroad Diesel Construction Equipment," Compendium of papers for the 91st Annual Meeting of the Transportation Research Board, Washington, DC, 2012.
32. **Lewis, P.**, "Modeling Fuel Use and Emission Factors for Representative Construction Equipment Duty Cycles," *Texas Section ASCE Fall 2011 Meeting: Roping the Wind and Water in the Wide, Wide, West*, Amarillo, TX, 2011.
33. **Lewis, P.** and Basavaraj, V., "Influence of Bid Quantity on Asphalt Unit Prices," *Texas Section ASCE Fall 2011 Meeting: Roping the Wind and Water in the Wide, Wide West*, Amarillo, TX, 2011.
34. Rasdorf, W., **Lewis, P.**, Marshal. S.K., and Arocho, I., "Project Based Fuel Use and CO₂ Emissions Performance of Construction Equipment," *3rd International/9th Construction Specialty Conference*, Ottawa, Ontario, 2011.
35. **Lewis, P.**, Leming, M., Frey, H.C., and Rasdorf, W., "Assessing the Effects of Operational Efficiency on Pollutant Emissions of Nonroad Diesel Construction Equipment," Compendium of papers for the 90th Annual Meeting of the Transportation Research Board, Washington, D.C., 2011.
36. **Lewis, P.** and Leming, M., "Involving Industry Partners in Construction Engineering and Management Capstone Courses," *2010 ASEE Annual Conference*, Louisville, KY, 2010.
37. Rasdorf, W., **Lewis, P.**, and Frey, H.C., "Estimating Productivity Emission Rates and Cost Emission Rates of Diesel Construction Equipment," *6th International Conference on Innovation in Architecture, Engineering, and Construction*, Penn State University, State College, PA, 2010.
38. Frey, H. C., Rasdorf, W., and **Lewis, P.**, "Comprehensive Field Study of Fuel Use and Emissions of Nonroad Diesel Construction Equipment," Compendium of papers for the 89th Annual Meeting of the Transportation Research Board, Washington, D.C., 2010.

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39. **Lewis, P.**, Frey, H.C., and Rasdorf, W., "Development and Use of Emissions Inventories for Construction Vehicles," *Compendium of papers for the 88th Annual Meeting of the Transportation Research Board*, Washington, D.C., 2009.
40. Frey, H.C., Rasdorf, W., Kim, K., Pang, S-H., and **Lewis, P.**, "Comparison of Real World Emissions of Backhoes, Front-End Loaders, and Motor Graders for B20 Biodiesel vs. Petroleum Diesel and for Selected Engine Tiers," *Compendium of papers for the 87th Annual Meeting of the Transportation Research Board*, Washington, D.C., 2008.
41. Frey, H. C., Rasdorf, W., Pang, S. H., Kim, K., Abolhasani, S., and **Lewis, P.**, "Methodology for Activity, Fuel Use, and Emissions Data Collection and Analysis for Nonroad Construction Equipment," *Air and Waste Management Association Annual Conference*, AWMA, Pittsburgh, PA, 2007.
42. Frey, H.C., Rasdorf, W., Pang, S., Kim, K., and **Lewis, P.**, "Methods for Measurement and Analysis of In-Use Emissions of Nonroad Construction Equipment," *EPA Emissions Inventory Conference*, Environmental Protection Agency, Raleigh, NC, 2007.

Peer Reviewed Extended Abstracts

43. **Lewis, P.**, "Characterization of CO₂ Emissions from Nonroad Diesel Construction Equipment," *Greenhouse Gas Strategies in a Changing Climate Conference*, San Francisco, CA, 2011.
44. **Lewis, P.**, "Using Earned Value Management to Quantify Economic, Energy, and Environmental Sustainability in Construction," *S2QBIDEC Workshop sponsored by NSF at the 2nd International Conference for Sustainable Design, Engineering and Construction*, Ft. Worth, TX, 2012.

Project Technical Reports

1. Shan, Y., **Lewis, P.**, Li, Q., and Floyd, R., "Assessing the Impact of Climate on Bridge Deck Deterioration," Final Report, Southern Plains Transportation Center, Norman, OK, 2016.
2. Mosier, R., Reyes, M., and **Lewis, P.**, "A Case Study on Construction Equipment Emissions," Final Report, Southern Plains Transportation Center, Norman, OK, 2016.
3. **Lewis, P.**, Shan, Y., and Contreras-Nieto, C., "Assessing Time to Deficiency of Highway Bridge Superstructures, Phase 2," Final Report, National Steel Bridge Alliance, American Institute of Steel Construction, Chicago, IL, 2016.
4. **Lewis, P.**, Shan, Y., and Khaleghian, H., "An Introduction to Prefabrication for Small Electrical Contractors," Final Report, ELECTRI International, Bethesda, MD, 2016.
5. **Lewis, P.**, and Cross, S., "Sustainability and Training Materials for In-Place Recycling," Final Report, Southern Plains Transportation Center, Norman, OK, 2016.
6. **Lewis, P.**, Contreras-Nieto, C., and Khaleghian, H., "Assessing Time to Deficiency for Highway Bridge Superstructures in Oklahoma," Final Report, National Steel Bridge Alliance, American Institute of Steel Construction, Chicago, IL, 2014.
7. **Lewis, P.**, Jeong, D., and Khaleghian, H., "Calibration of Controlling Input Models for Pavement Management System," Final Report, Oklahoma Transportation Center, Oklahoma City, OK, 2013.
8. **Lewis, P.**, Jeong, D., and Woldesenbet, A. "Data and Information Integration Framework for Highway Project Decision-Making," Final Report, Oklahoma Transportation Center, Oklahoma City, OK, 2013.

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9. Cross, S. and **Lewis, P.**, “Development of an Interactive Website on Asphalt Recycling,” Final Report, Oklahoma Transportation Center, Oklahoma City, OK, 2013.
10. **Lewis, P.** “Prevention through Design (PtD) to Improve the Design of Construction Processes,” Final Report, NIOSH Pilot Projects Research Training Program, Southwest Center for Occupational and Environmental Health, Houston, TX, 2013.
11. Frey, H.C., Rasdorf, W., Kim, K., Pang, S.H, **Lewis, P.**, and Abolhassani, S. “Real-World Duty Cycles and Utilization for Construction Equipment in North Carolina,” FHWA/NC/ 2006 – 55, Prepared by North Carolina State University for North Carolina Department of Transportation, Raleigh, NC, 2008.
12. Frey, H. C., Rasdorf, W., Kim, K., Pang, S.-H., **Lewis, P.**, and Abolhassani, S., “Life Cycle Inventory and Impact Analysis Framework for Nonroad Construction Vehicles and Equipment Based Upon In-Use Measurements,” Technical Report, National Science Foundation, Washington, D.C., 2007.

Dissertation

Lewis, P. “Estimating Fuel Use and Emissions Rates of Nonroad Diesel Construction Equipment Performing Representative Duty Cycles.” Ph.D. Dissertation, North Carolina State University, Raleigh, NC, 2009.

PRESENTATIONS (*Presenting Author)

Paper Presentations

1. Kim, J., Shan, Y.*, Choi, J., **Lewis, P.**, and Hong, W. “A Basic Study on the Evacuation Characteristics of High-rise Building through Comparing Evacuation Experiment and Simulations – A Case Study in Korea,” *2017 International Workshop on Computing in Civil Engineering*, Seattle, WA, 2017.
2. Mosier, R., Reyes, M., Aghaeipoor, M.*, and **Lewis, P.**, “Indoor Air Quality in Construction Cabs,” *96th Annual Meeting of the Transportation Research Board*, Washington, DC, 2017.
3. Contreras-Nieto, C.*, Shan, Y., and **Lewis, P.**, “Characterization of Steel Bridge Superstructure Deterioration through Data Mining Techniques,” *96th Annual Meeting of the Transportation Research Board*, Washington, DC, 2017.
4. Fitriani, H.* and **Lewis, P.** “Quantification of Emissions Rates of NO_x based on Equipment and Engine Tier Types for Diesel Construction Equipment,” *Sriwijaya International Conference on Engineering, Science, and Technology*, Bangka Island, Indonesia, 2016.
5. **Lewis, P.***, Khaleghian, H., and Shan, Y. “One-Voice for Sewer Condition Assessment and Asset Management,” *Utilities Engineering & Surveying Institute Pipelines Conference 2016*, American Society of Civil Engineers, Kansas City, MO, 2016.
6. **Lewis, P.***, Khaleghian, H., and Shan, Y. “Development of a Sustainable National Sewer Inventory,” *2016 International Conference on Sustainable Design, Engineering, and Construction*,” American Society of Civil Engineers, Tempe, AZ, 2016.
7. Khaleghian, H.*, Shan, Y., and **Lewis, P.** “A Case Study of the Productivity Improvement by Electrical Prefabrication,” *2016 Construction Research Congress*, American Society of Civil Engineers, San Juan, Puerto Rico, 2016.

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8. Shan, Y.*, Contreras-Nieto, C., and **Lewis, P.** “Using Data Analytics to Characterize Steel Bridge Deterioration,” *2016 Construction Research Congress*, American Society of Civil Engineers, San Juan, Puerto Rico, 2016.
9. Contreras-Nieto, C., **Lewis, P.**, and Shan, Y.* “Developing Predictive Models of Superstructure Ratings for Steel and Prestressed Concrete Bridges,” *2016 Construction Research Congress*, American Society of Civil Engineers, San Juan, Puerto Rico, 2016.
10. **Lewis, P.***, Fitriani, H., and Shan, Y., “Development of a Fuel Consumption and Emissions Taxonomy for Nonroad Diesel Equipment,” *95th Annual Meeting of the Transportation Research Board*, Washington, DC, 2016.
11. **Lewis, P.***, Zhu, C., and Shan, Y., “Assessing the Relationships between Emissions and Vehicle Activity for a CNG Transit Bus Fleet,” *2015 International Conference on Ecology & Transportation*, Raleigh, NC, 2015.
12. **Lewis, P.***, Fitriani, H., and Shan, Y., “Benchmarking Fuel Use and Emission Rates for Heavy Duty Diesel Highway Maintenance Equipment,” *2015 AASHTO/TRB Conference on Transportation Infrastructure Maintenance and Operations*, Des Moines, IA, 2015.
13. **Lewis, P.***, Zhu, C., and Shan, Y. “Real-World Emission Rates and Vehicle Activity Data for a CNG Transit Bus Fleet,” *Air & Waste Management Association's 108th Annual Conference & Exhibition Connecting the Dots: Environmental Quality to Climate*, Raleigh, NC, 2015.
14. **Lewis, P.***, Hazzard, E., and Shan, Y., “Sustainability Planning Framework for Reducing Ground-Level Ozone Formation in Construction Activities,” *International Conference on Sustainable Design, Engineering and Construction 2015*, Chicago, IL, 2015.
15. Shan, Y.*, Goodrum, P., and **Lewis, M.** “Construction Productivity Impacts of Forecasted Global Warming Trends Utilizing an Integrated Information Modeling Approach,” *2015 International Workshop on Computing in Civil Engineering*, Austin, TX, 2015.
16. **Lewis, P.***, Shan, Y., Hajji, A., and Hazzard, E., “Characterizing Equipment Cost, Fuel Use, and Emissions for Earthwork Activities,” *American Institute of Constructors (AIC) Annual Forum 2015*, Ft. Worth, TX, 2015.
17. Hazzard, E.* and **Lewis, P.**, “Assessing the Economic, Energy, and Environmental Impacts of a Bridge Replacement Project,” *American Institute of Constructors (AIC) Annual Forum 2015*, Ft. Worth, TX, 2015.
18. **Lewis, P.***, Fitriani, H., and Arocho, I., “Engine Variable Impact Analysis of Fuel Use and Emissions for Heavy Duty Diesel Maintenance Equipment,” *94th Annual Meeting of the Transportation Research Board*, Washington, DC, 2015.
19. Fitriani, H.* and **Lewis, P.**, “Characterizing Fuel Use and Emissions Rates of Heavy-Duty Diesel Equipment: A Case Study for Wheel Loaders,” *Third International Conference on Sustainable Built Environment*, Yogyakarta, Indonesia, 2014.
20. Fitriani, H.* and **Lewis, P.**, “Comparison of Simple Linear Regression and Multiple Linear Regressions for Estimating Fuel Use and Emission Rates for Excavators,” *International Conference on Construction Materials and Structures*, Johannesburg, South Africa, 2014.
21. Hazzard, E. and **Lewis, P.***, “Results of a Case Study on Quantifying Fuel Use and Emissions for a Bridge Replacement Project,” *2014 Construction Research Congress*, Atlanta, GA, 2014.
22. Fitriani, H.* and **Lewis, P.**, “Comparison of Predictive Modeling Methodologies for Estimating Fuel Use and Emission Rates for Wheel Loaders,” *2014 Construction Research Congress*, Atlanta, GA, 2014.

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23. Khalegian, H.*, **Lewis, P.**, Jeong, D., and Woldeesenbet, A., "Evaluation of Asphalt Pavement Deterioration Curves for Oklahoma Interstate Highways," *2014 Construction Research Congress*, Atlanta, GA, 2014.
24. **Lewis, P.*** and Hajji, A., "Case Study of Energy and Environmental Inventory for Municipal Heavy-Duty Diesel Equipment Fleet," *93rd Annual Meeting of the Transportation Research Board*, 2014.
25. Woldeesenbet, A.*, Jeong, D. and **Lewis, P.**, "Three-Tiered Data and Information Integration Framework: A Case Study of Transportation Project Daily Work Reports," *93rd Annual Meeting of the Transportation Research Board*, Washington, DC, 2014.
26. Fitriani, H.* and **Lewis, P.**, "Characterizing Fuel Use and Emissions Rates of Heavy Duty Diesel Equipment: A Case Study for Wheel Loaders," *Third International Conference on Sustainable Built Environment*, Kandy, Sri Lanka, 2014.
27. Fitriani, H.*, Hajji, A., and **Lewis, P.**, "Variability and Uncertainty in Characterizing Emission Rates of Heavy-Duty Diesel Construction Equipment," *The Second International Conference on Sustainable Infrastructure and Built Environment*, Bandung, Indonesia, 2013.
28. **Lewis, P.*** and Hazzard, E., "Using Earned Value Management to Quantify Economic, Energy, and Environmental Sustainability in Construction Activities," *Canadian Society of Civil Engineers 2013 Annual Conference and 4th Construction Specialty Conference*, Montreal, QC, 2013.
29. **Lewis, P.*** and Hajji, A., "Comparison of Two Models for Estimating Equipment Productivity for a Sustainability Quantification Tool," *2nd International Conference for Sustainable Design, Engineering and Construction*, Ft. Worth, TX, 2012.
30. **Lewis, P.*** "Using Earned Value Management to Quantify Economic, Energy, and Environmental Sustainability in Construction," *S2QBIDEC Workshop* sponsored by NSF at the *2nd International Conference for Sustainable Design, Engineering and Construction*, Ft. Worth, TX, 2012.
31. **Lewis, P.*** and Hajji, A., "Estimating the Economic, Energy, and Environmental Impact of Earthwork Activities," *2012 Construction Research Congress*, West Lafayette, IN, 2012.
32. **Lewis, P.***, Rasdorf, W., Frey, H.C., Leming, M., "Effects of Engine Idling on NAAQS Criteria Pollutant Emissions from Nonroad Diesel Construction Equipment," *91st Annual Meeting of the Transportation Research Board*, Washington, D.C., 2012.
33. Rasdorf, W., **Lewis, P.**, Marshal. S.K., and Arocho, I.*, "Project Based Fuel Use and CO₂ Emissions Performance of Construction Equipment," *3rd International/9th Construction Specialty Conference*, Ottawa, Ontario, CAN, 2011.
34. **Lewis, P.*** "Characterization of CO₂ Emissions from Nonroad Diesel Construction Equipment," *Greenhouse Gas Strategies in a Changing Climate Conference*, San Francisco, CA, 2011.
35. **Lewis, P.***, "Modeling Fuel Use and Emission Factors for Representative Construction Equipment Duty Cycles," *ASCE Fall 2011 Meeting: Roping the Wind and Water in the Wide, Wide West*, Amarillo, TX, 2011.
36. **Lewis, P.*** and Basavaraj, V., "Influence of Bid Quantity on Asphalt Unit Prices," *ASCE Fall 2011 Meeting: Roping the Wind and Water in the Wide, Wide West*, Amarillo, TX, 2011.
37. **Lewis, P.***, and Leming, M., "Involving Industry Partners in Construction Engineering and Management Capstone Courses," *2010 ASEE Annual Conference*, Louisville, KY, 2010.
38. Rasdorf, W.*, **Lewis, P.**, and Frey, H.C., "Estimating Productivity Emission Rates and Cost Emission Rates of Diesel Construction Equipment," *6th International Conference on Innovation in Architecture, Engineering, and Construction*, Penn State University, State College, PA, 2010.

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Poster Presentations

39. Alabdullah, M.* and **Lewis, P.**, "Predicting Deficiency Status for Steel Bridges in Oklahoma Based on National Bridge Inventory Data," *Oklahoma Department of Transportation Research Day*, Oklahoma City, OK, 2016.
40. Zhu, C.* and **Lewis, P.**, "Characterization of Emission Rates and Engine Activity Data for A CNG Transit Bus Fleet," *Oklahoma Department of Transportation and Southern Plains Transportation Center Research Day*, Oklahoma City, OK, 2014.
41. Khaleghian, H.* and **Lewis, P.**, "Calibration of Pavement Deterioration Models in Oklahoma Interstate Highways," *Oklahoma Department of Transportation and Southern Plains Transportation Center Research Day*, Oklahoma City, OK, 2014.
42. Conteras-Nieto, C.* and **Lewis, P.**, "Linear Models to Predict Superstructure Ratings of Steel and Prestressed Concrete Bridges," *Oklahoma Department of Transportation and Southern Plains Transportation Center Research Day*, Oklahoma City, OK, 2014.
43. Zhu, C.* and **Lewis, P.**, "Real Time Emissions Testing in CNG Heavy Duty Fleets," *Green Truck Summit: The Future of Clean Commercial Vehicles*, Indianapolis, IN, 2014.
44. Zhu, C.* and **Lewis, P.**, "Real-World Emissions Measurements of Transit Buses," *Oklahoma Department of Transportation and Oklahoma Transportation Center Research Day*, 2013.
45. Fitriani, H.* and **Lewis, P.**, "Comparison of Predictive Emissions Models for Excavators," *Oklahoma Department of Transportation and Oklahoma Transportation Center Research Day*, 2013.
46. Hajji, A.* and **Lewis, P.**, "Development of Productivity-based and Cost-based GHG Emission Model and Estimator for Earthwork Construction Activities," *Oklahoma State University Research Symposium*, Stillwater, OK, 2013.
47. Hajji, A.* and **Lewis, P.**, "Development of Productivity-based Estimating Tool for Energy and Environmental Impact for Heavy Duty Diesel Construction Equipment," *Oklahoma Transportation Center Summer Research Symposium*, Oklahoma City, OK, 2012.
48. **Lewis, P.***, Leming, M., Frey, H.C., and Rasdorf, W., "Assessing the Effects of Operational Efficiency on Pollutant Emissions of Nonroad Diesel Construction Equipment," *90th Annual Meeting of the Transportation Research Board*, Washington, D.C., 2011.
49. Frey, H. C., Rasdorf, W., and **Lewis, P.***, "Comprehensive Field Study of Fuel Use and Emissions of Nonroad Diesel Construction Equipment," *89th Annual Meeting of the Transportation Research Board*, Washington, D.C., 2010.
50. **Lewis, P.***, Frey, H.C., and Rasdorf, W., "Development and Use of Emissions Inventories for Construction Vehicles," *88th Annual Meeting of the Transportation Research Board*, Washington, D.C., 2009.
51. Frey, H.C., Rasdorf, W., Kim, K., Pang, S-H.*, and **Lewis, P.***, "Comparison of Real World Emissions of Backhoes, Front-End Loaders, and Motor Graders for B20 Biodiesel vs. Petroleum Diesel and for Selected Engine Tiers," *87th Annual Meeting of the Transportation Research Board*, Washington, D.C., 2008.

Invited Presentations

52. **Lewis, P.***, Shan, Y., and Khaleghian, H., "The Impact of Prefabrication on Productivity," *Oklahoma Chapter of National Electrical Contractors Association (OK-NECA)*, Oklahoma City, OK, 2016.
53. **Lewis, P.***, "The (Almost) Definitive Guide to Construction Equipment Emissions," Guest Lecture, University of Michigan, Ann Arbor, MI, 2016 (via Skype).

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54. **Lewis, P.***, Shan, Y., and Khaleghian, H., “Characterizing the Impact of Prefabrication on Productivity in Building Electrical Construction,” Final Report presentation at ELECTRI International Council Meeting, *2015 NECA Convention & Trade Show*, San Francisco, CA, 2015.
55. **Lewis, P.**, “Assessing Time to Deficiency of Highway Bridge Superstructures,” *National Steel Bridge Alliance (NSBA) Executive Council Meeting*, Philadelphia, PA, 2015.
56. **Lewis, P.*** and Contreras-Nieto, C., “Assessing Time to Deficiency of Highway Bridge Superstructures,” *North American Steel Construction Conference (NASCC: The Steel Conference)* Nashville, TN, 2015.
57. **Lewis, P.**, “Characterizing the Impact of Prefabrication on Productivity in Building Electrical Construction,” *ELECTRI International July Council Meeting*, Toronto, Ontario, CAN, 2014.
58. **Lewis, P.**, “Characterization of Fuel Use and Emissions for CNG Transit Buses,” *Oklahoma Engineering Conference*, Oklahoma Society of Professional Engineers, Tulsa, OK, 2014.
59. **Lewis, P.**, “Case Study of an Energy and Environmental Inventory for a Municipal Heavy Duty Diesel Equipment Fleet,” *National Equipment Fleet Management Conference*, Orlando, FL, 2014.
60. **Lewis, P.**, “Characterizing the Impact of Prefabrication on Productivity in Building Electrical Construction,” *ELECTRI International January Council Meeting*, Boca Raton, FL, 2014.
61. **Lewis, P.**, “Characterization of Fuel Use and Emissions for CNG Transit Buses,” *Statewide Clean Cities Meeting*, Tulsa Area Clean Cities, Stillwater, OK, 2014.
62. **Lewis, P.**, “Assessing Time to Deficiency for Highway Bridge Superstructures in Oklahoma,” *National Steel Bridge Alliance Executive Council Meeting*, Washington, DC, 2013.
63. **Lewis, P.**, “Prevention through Design (PtD) to Improve the Design of Construction Processes,” Presentation of technical report, *NIOSH Pilot Projects Research Training Program*, Southwest Center for Occupational and Environmental Health, Houston, TX, 2013.
64. **Lewis, P.**, “One More Thing to Worry About: The Environmental Impacts of Our Fleets,” *27th Annual Southeastern States Equipment Managers Conference*, Little Rock, AR, 2013.
65. **Lewis, P.**, Oberlender, G., and Battle, D., Construction Estimating Panel, *Eastern Chapter of Oklahoma Structural Engineers Association*, Tulsa, OK, 2012.