

Dominique M. Pittenger

Norman, Oklahoma

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Credentials:

Ph.D., General Engineering – University of Oklahoma, 2012

Dissertation Topic: “Stochastic Life Cycle Cost Analysis Model for Sustainable Pavement Preservation Treatments”

M.S., Construction Administration (Thesis Option) - University of Oklahoma, 2010

Thesis Topic: “Life Cycle Cost-Based Pavement Preservation Treatment Design”

B.S., Construction Science - University of Oklahoma, 2002 with distinction

Minor, General Business (Concurrently) – University of Oklahoma, 2002

Associate Constructor - American Institute of Constructors, 2002

Expert Panels/Committees/Activities:

Member of National Research Council (NRC) - Transportation Research Board (TRB):

Committee on Pavement Preservation (AHD18). Terms: 2015 – 2018; 2012 - 2015.

Member of Transportation Research Board ACRP Project ACRP Review Panel for

“Proposed research in areas of Design (07), Maintenance (09) and Operations (10),”

Airport Cooperative Research Program, FFYs 2014 & 2015.

Member of Transportation Research Board ACRP Project ACRP Review Panel for

“ACRP Graduate Research Award” Airport Cooperative Research Program, FFY 2015 - 2017.

Mentor for Student Awardee, Transportation Research Board ACRP Project “ACRP Graduate

Research Award” Airport Cooperative Research Program, FFY 2015 - 2017.

TRB Webinar, Panelist, “Rigid Pavement Preservation: Research Results,” Transportation Research Board, Continuing Education Program, April 8, 2015.

Presiding Officer, Various Sessions, Transportation Research Board Annual Meeting, 2014 – 2017.

Member of Transportation Research Board (TRB) Panel 09-10 for “ACRP Project 09-10:

Benchmarking Terminal Energy End Uses: Determining Priorities for Future Upgrades,”

Airport Cooperative Research Program, 2013.

Member of Transportation Research Board (TRB) Panel S09-05 for “ACRP Synthesis 11-03:

Repairing and Maintaining Airport Parking Structure While in Use,” Airport Cooperative Research Program, 2012.

Member of National Science Foundation (NSF) Panel for Workshop on the Sciences behind Sustainability Quantification for Building and Infrastructure Design, Engineering and Construction, 2012.

Technical Committee Member, *Vision for OU Environmental Research and Testing Facility*, OU Vice President of Research Office, 2015.

Expert Witness/Consultant, *Clingan v. Town of Preston*, 2013 – present.

Educational & Training Program Advisor, Tashkent Automobile and Road Construction Institute (TARCI) Tashkent, Uzbekistan, 2013 to present.

Reviewer for Journals (e.g. *Transportation Research Record*, *International Journal of Pavement Engineering*), 2012 to present.

Publications:

Gransberg, D.D., **D.M. Pittenger** and G. Chambers, 2017. “Analysis of Utility Coordination Impact on Projects Delivered using Alternative Contracting Methods,” *Leadership in Sustainable Infrastructure*, 2017 CSCE Annual Conference, (under review).

Pittenger, D.M., M. Zaman and L. Cumberpatch 2016. Evaluate Densifier-over-Shotblasting (DOS) Treatment Performance for Pavements and Bridge Decks, ODOT Final Report 2258, FHWA-16-02.

McCuen, T. and **D.M. Pittenger**, 2016. “Use of BIM for Asset Management in North American Airports” AACE, International (under review).

McCuen, T. and **D.M. Pittenger**, 2016. *ACRP Synthesis: BIM for Airports*, Transportation Research Board, Airport Cooperative Research Program, Washington, DC.

Pittenger, D.M., 2015. “Literature Scan of Pavement Condition Assessment Methods for Oklahoma and Adjacent States,” published internally, Oklahoma Department of Transportation, ODOT Library.

Pittenger, D.M., R. Mosier, J. Daily and B. Russell 2015. “Literature Scan of the Current Gross and Axle Truck Weight and Truck Permitting Laws in the United States,” published internally, Oklahoma Department of Transportation, ODOT Library.

- Pittenger, D.M.**, 2015. "State-of-The-Practice Literature Scan of Linear Referencing Systems for All Roads Reporting," published internally, Oklahoma Department of Transportation, ODOT Library.
- Gransberg, D.D., and **D.M. Pittenger**, 2015. "Hardening Airport Pavements: A Sustainable Pavement Preservation Tool," Paper 204, 9th International Conference on Managing Pavement Assets, TRB, (accepted for presentation and publication in 2015).
- Cumberpatch, L., **D.M. Pittenger** and M. Zaman, 2015. "Evaluation of a Chemical Hardening Process to Inhibit Aggregate Abrasion and Polishing," Paper 15-0378, TRB 94th Annual Meeting Compendium of Papers, Transportation Research Board, National Academies, Washington, D.C.
- Pittenger, D.M.**, 2015. "State-of-the-Practice Literature Scan of Lithium Curing for Bridge Decks," published internally, Oklahoma Department of Transportation, ODOT Library.
- Franks, R., M. Reyes and **D.M. Pittenger**, 2015. "The Role of the Integrated Project Leader in the Architectural, Engineering, and Construction Industry," *Annual Proceedings*, Architectural, Engineering, and Construction, ASC 51st Annual International Conference, (accepted for publication and presentation 2015).
- Pittenger, D.M.**, 2014. "Sustainable Airport Pavements," Chapter: Climate Change, Sustainability, Energy, and Transportation Infrastructure. ISBN: 978-3-662-44718-5 (Print) 978-3-662-44719-2 (Online), Springer-Verlag Inc., Berlin, Germany, (<http://link.springer.com/book/10.1007%2F978-3-662-44719-2>).
- Gransberg, D.D., S.L. Tighe, **D.M. Pittenger** and M.C. Miller, 2014. "Sustainable Pavement Preservation and Maintenance Practices," Chapter in *Climate Change, Energy, Sustainability and Transportation Infrastructure*, Springer-Verlag, Inc., Berlin, Germany, (in press).
- Gransberg, D.D., **D.M. Pittenger** and C. Lopez del Puerto, 2014. "White Paper: Preconstruction Services Cost Estimating," Prepared for: AASHTO Subcommittee on Design 2014 Annual Meeting, Savannah, GA.
- Cumberpatch, L. and **D.M. Pittenger**, 2014." Preservation of Concrete Pavement Using a Lithium Densifier and Shotblasting," *CP² Center News*, Newsletter of the California Pavement Preservation Center, No. 31, September.
- Zaman, M., **D.M. Pittenger**, D.D. Gransberg, R. Bulut, S. Commuri, 2014. "Develop Draft Chip Seal Cover Aggregate Specification Based on Aggregate Imaging System (AIMS) Angularity, Shape and Texture Test Results," Oklahoma Department of Transportation, Final Report.
- Pittenger, D.M.**, 2014. "State-of-the-Practice Literature Scan of Stainless Steel Reinforcement as a Replacement for Epoxy Coated Steel in Bridge Decks," published internally, Oklahoma Department of Transportation, ODOT Library.
- Pittenger, D.M.**, 2014. "State-of-the-Practice Literature Scan of Silane Water Repellant Treatment Durability Evaluation on Bridge Decks," published internally, Oklahoma Department of Transportation, ODOT Library.
- Pittenger, D.M.**, 2014. "State-of-the-Practice Literature Scan of Post-Earthquake Bridge Inspection Methodologies," published internally, Oklahoma Department of Transportation, ODOT Library.
- Zaman, M., **D.M. Pittenger**, D.D. Gransberg, R. Bulut, S. Commuri, 2013. "Develop Draft Chip Seal Cover Aggregate Specification Based on Aggregate Imaging System (AIMS) Angularity, Shape and Texture Test Results," Oklahoma Transportation Center, Final Report.
- Pittenger, D.M.**, M. Zaman, D.D. Gransberg and C. Riemer, 2013. "Sustainability through Pavement Preservation," Oklahoma Transportation Center, *Newsletter*, 2013.
- Mosier, R., **D.M. Pittenger** and D.D. Gransberg, 2013. "Carbon Footprint Cost Index: Measuring the Cost of Airport Pavement Sustainability," *Compendium*, Annual Meeting of the Transportation Research Board, National Academies, Washington, D.C.
- Gransberg, D.D. and **D.M. Pittenger**, 2013. "Hardening Concrete Pavement against Friction Loss Due to Aggregate Polishing," 2013 Mid-Continent Transportation Research Symposium, Proceedings, Ames, Iowa.
- Gransberg, D.D., J. Shane, S. Anderson, A. Hessami, **D.M. Pittenger**, C. Lopez del Puerto, K. Strong, J. McMinimee and J. Schierholz, 2013. "A Guidebook for Construction Manager/General Contractor (CMGC) Contracting for Highway Projects," NCHRP Project 10-85.
- Pittenger, D.M.**, 2012. "A Sustainability Framework for Quantifying Economic, Environmental and Social Impacts of Building Infrastructure Projects," Concept paper accepted for publication for the 2nd International Conference for Sustainable Design, Engineering and Construction, Ft. Worth, TX 2012.

- Pittenger, D.M.**, 2012. "Stochastic Life Cycle Cost Analysis Model for Sustainable Pavement Preservation Treatments," Dissertation 10734, ProQuest/UMI, Ann Arbor MI.
<http://www.proquest.com/en-US/default.shtml>
- Pittenger, D.M.**, D.D. Gransberg, M. Zaman and C. Riemer, 2012. "Stochastic Life Cycle Cost Analysis for Pavement Preservation Treatments," *Transportation Research Record*, Journal of the Transportation Research Board, National Academies, Washington, D.C., Issue 2292, pp. 45-51.
- Pittenger, D.M.** and D.D. Gransberg, 2012. "Performance-Based Life Cycle Cost Analysis: A Chip Seal Field Test Case Study," *Won Best Paper Award, Management Systems Category*, accepted for publication for 2012 International MAIREPAV7 (Maintenance and Rehabilitation of Pavements and Technological Control) Conference in The University of Auckland.
- Zaman, M., D.D. Gransberg, C. Riemer, **D.M. Pittenger** and B. Aktas, 2012. "Quantifying the Costs and Benefits of Pavement Retexturing as a Pavement Preservation Tool, Phase 2," Final Report, Oklahoma Transportation Center.
- Gransberg, D.D., and **D.M. Pittenger**, 2012, "Correlating Pavement Skid Data with Aggregate Imaging System (AIMS) Texture Indexes, 7th International Conference on Maintenance and Rehabilitation of Pavements, Auckland, New Zealand, August 28-30, 2012. (Accepted for presentation in August 2012).
- Gransberg, D.D. and **D. M. Pittenger**, 2012. "Quantifying the Whole Life Benefit of Preserving Concrete Pavements using Silicon Reactive Lithium Densifier and Shotblasting – A Promising New Technology. *Research, Development, and Practice in Structural Engineering and Construction*. Vimonsatit, V., Singh, A., Yazdani, S. (eds.) ASEA-SEC-1, Perth, RPS Publishers, Singapore, doi: 10.3850/978-981-08-7920-4_I-4-0093
<http://rpsonline.com.sg/proceedings/9789810736781/html/I-4-0093.xml>
- Gransberg, D.D. and **D. M. Pittenger**, 2012. "A Framework For Microsurfacing Project Selection: The Key To Long-Term Performance," TRB 91st Annual Meeting Compendium of Papers, #12-0246 National Academies, January, 2012.
- Riemer, C., **D.M. Pittenger**, D.D. Gransberg, and M. Zaman, 2012. "Preservation of Concrete Pavement Using a Lithium Densifier and Shotblasting: A Life Cycle Cost Analysis," TRB 91st Annual Meeting Compendium of Papers, Paper #12-0531 National Academies January.
- Gransberg, D.D., **D.M. Pittenger** and S.M. Tighe, 2012. "Microsurfacing Best Practices in North America," accepted for publication for 2012 International MAIREPAV (Maintenance and Rehabilitation of Pavements and Technological Control) 7 Conference in The University of Auckland.
- Riemer, C. and **D.M. Pittenger**, 2012. "Modeling Pavement Texture Deterioration as a Pavement Preservation Management System Tool," TRB 91st Annual Meeting Compendium of Papers, Paper #12-0938.
- Pittenger, D.M.**, 2011. "Evaluate Airport Pavement Maintenance/Preservation Treatment Sustainability Using Life-Cycle Cost, Raw Material Consumption and 'Greenroads' Standards," *Transportation Research Record*, Journal of the Transportation Research Board, National Academies, Washington, D.C. Issue 2206, 2011, pp 61-68.
- Zaman, M., D.D. Gransberg, C. Riemer, **D.M. Pittenger** and B. Aktas, 2011. "Quantifying the Costs and Benefits of Pavement Retexturing as a Pavement Preservation Tool," Final Report, Oklahoma Transportation Center.
- Pittenger, D.M.**, D.D. Gransberg, M. Zaman and C. Riemer, 2011. "Life Cycle Cost-Based Pavement Preservation Treatment Design," *Transportation Research Record*, Journal of the Transportation Research Board, National Academies, Washington, D.C. Issue 2235, 2011, pp 28-35.
- Pittenger, D.M.**, 2011. "Chapter II: Life-Cycle Cost Calculation Methods," Chapter II Editor. *2011 AACE International Professional Practice Guide on Life Cycle Cost Analysis*.
- Aktas, B., D.D. Gransberg, C. Riemer, and **D.M. Pittenger**, 2011. "Comparative Analysis of Macrotexture Measurement Tests for Pavement Preservation Treatments, *Transportation Research Record*, Journal of the Transportation Research Board, National Academies, Washington, D.C. Issue 2209, 2011, pp 34-40.
- Riemer, C., D.D. Gransberg, M. Zaman, and **D.M. Pittenger**, 2010. "Comparative Field Testing of Asphalt and Concrete Pavement Preservation Treatments in Oklahoma," *Proceedings*, 1st International Conference on Pavement Preservation, Paper 124, Transportation Research Board, Newport Beach, California, April 2010, pp.447-460
- Pittenger, D.M.** "Future Trends in the Application of E-Commerce to Construction," *Constructor*, Associated General Contractors of America, July 2002. (published under maiden name – Polson)

Research Projects:

Research Associate: “NCHRP 20-07/Task 373 “Utility Coordination Using Alternative Contracting Methods,” TRB, NCHRP, 2016–2017, \$100,000.

Principal Investigator (OU): “Development of Aggregate Characteristics-Based Preventative Maintenance Treatments using 3D Laser Imaging and Aggregate Imaging Technology for Optimized Skid Resistance of Pavements,” ODOT, 2015-2017, \$240,000.

Principal Investigator: “BIM for Airports,” TRB, ACRP, Synthesis, 2015, \$40,000.

Research Associate: “NCHRP 24-44: Guidelines for Managing Geotechnical Risks in Design-Build Projects,” TRB, NCHRP, 2015–2017, \$350,000

Co-Principal Investigator: “Comparative Assessment of the Current Gross and Axle Truck Weight and Truck Permitting Laws in the United States,” ODOT, 2015, \$181,373.

Principal Investigator: “Evaluate Densifier-over-Shotblasting (DOS) Treatment Performance for Pavements and Bridge Decks,” ODOT, 2014-2016, \$250,000.

Co-Principal Investigator: Management of the Oklahoma Department of Transportation Library, 2013-2017, \$160,000 per annum.

Research Associate: “NCHRP 15-51: Pre-Construction Services Cost Estimating Guidebook,” 2013-2015, *TRB, NCHRP*, \$425,000.

Research Associate: “Airport Maintenance Roles in Planning, Design, Construction, Commissioning, and Activation,” 2013-2015, *TRB, ACRP*, \$200,000.

Research Associate: “NCHRP Report 10-85: A Guidebook for Construction Manager/General Contractor (CMGC) Contracting for Highway Projects,” 2012-2013, *TRB, NCHRP*, \$400,000.

Research Associate: “Develop Draft Chip Seal Cover Aggregate Specification Based on AIMS Angularity, Shape and Texture Test Results,” 2011-2013, ODOT Research Project# FFY2012-PS01.

Research Advisor for PhD Student Priyanka Sarker (Illinois Center for Transportation University of Illinois at Urbana Champaign): “Airfield Pavement Damage Evaluation Due to New-Generation Aircraft Wheel Loading and Wander Patterns,” 2016-2017, *TRB, ACRP*, \$10,000.

Research Advisor for PhD Student Rebekah Yang (Illinois Center for Transportation University of Illinois at Urbana Champaign): “Development of a Life-Cycle Analysis Tool to Quantify the Environmental and Economic Impacts of Airport Pavement Construction” 2015-2016, *TRB, ACRP*, \$10,000.

Research Advisor for PhD Student Maria Guercio (Villanova University): “Quantifying the Performance of Energy-Conscious Materials in Flexible Airfield Pavements,” 2013-2014, *TRB, ACRP*, \$10,000.

Research/Thesis Advisor for MS Student Liam Cumberpatch: “Evaluate Densifier-over-Shotblasting (DOS) Treatment Performance for Pavements and Bridge Decks,” Thesis, ODOT, 2014-2015.

Research Advisor for Student Liam Cumberpatch: “Evaluation of Environmental and Cost Considerations for Asphalt Project Alternatives,” Oklahoma Asphalt Pavement Association, Research Scholarship Opportunity, 2015, \$3,000.

Research Advisor for Student Michael Hendrick: “Evaluation of RSA and RAP Hot Mix Asphalt Projects,” Oklahoma Asphalt Pavement Association, Research Scholarship Opportunity, 2014, \$3,000.

Research Advisor for Student Rande Patterson: “Cost Model for Hot Mix Asphalt Projects,” Oklahoma Asphalt Pavement Association, Research Scholarship Opportunity, 2012, \$3,000.

Graduate Research Assistant: “Quantify the Costs and Benefits of Pavement Retexturing as a Pavement Preservation Tool, Phase II” 2010-2011, OTCREOS9.1-21.

Graduate Research Assistant: “Quantify the Costs and Benefits of Pavement Retexturing as a Pavement Preservation Tool” 2008-2010, OTCREOS7.1-16. \$432,000.

Graduate Research Assistant: “Sustainable Pavement Maintenance Practices,” 2009-2010, NCHRP Project 41-04, \$35,000.

Principal Investigator: “Evaluate Airport Pavement Maintenance/Preservation Treatment Sustainability Using Life-Cycle Cost, Raw Material Consumption and ‘Greenroads’ Standards,” Airport Cooperative Research Program Project, Transportation Research Board, 2009-2010, \$10,000.

Research and Technical Presentations:

- “BIM for Airports,” GIS Workshop Session 145, TRB Annual Meeting, Washington DC January 2017.
- “Pavement Preservation,” OU Professor Musharraf Zaman pavement design class, Norman, OK, November 2016.
- “Heavy Civil Construction Estimating,” OU Professor Somik Ghosh’s cost estimating class, Norman, OK, November 2016.
- “Development of Aggregate Characteristics-Based Preventive Maintenance Treatments Using 3D Laser Imaging and Aggregate Imaging Technology for Optimized Skid Resistance of Pavements” Oklahoma Transportation Research Day, Oklahoma City, October 2016.
- “BIM for Airports” 19th Annual AAAE Airport Geospatial Technologies Conference, Milwaukee, Wisconsin, June 2016.
- “BIM for Airports” Aviation Geographic Information Systems and Data Joint Subcommittee Meeting, TRB, Washington DC, January 2016.
- “Comparative Analysis of Microsurfacing and Portland Cement Slurry Seal for Rut Filling,” International Conference on Managing Pavement Assets, TRB, Washington DC, May 2015.
- “Hardening Airport Pavements: A Sustainable Pavement Preservation Tool,” 9th International Conference on Managing Pavement Assets, TRB, Washington DC, May 2015.
- “Evaluation of a Chemical Hardening Process to Inhibit Aggregate Abrasion and Polishing,” Transportation Research Board *Session 446*, Washington DC, January 2015.
- “Heavy Civil Construction Estimating,” OU Professor Somik Ghosh’s cost estimating class, Norman, OK, November 2014.
- “Post-Earthquake Bridge Inspection Methodologies, A State-of-the-Practice Scan,” Transportation Research Day, Oklahoma Department of Transportation/Southern Plains Transportation Center, Oklahoma City, OK, October 2014.
- “Carbon Footprint Cost Index: Measuring the Cost of Airport Pavement Sustainability,” Transportation Research Board Annual Meeting, Washington, D.C., 2014.
- “Comparative Analysis of Microsurfacing and Portland Cement Slurry Seal for Rut Filling,” Transportation Research Board Annual Meeting, Washington D.C., 2014.
- “Pavement Preservation,” OU Professor Musharraf Zaman pavement design class, Norman, OK, November 2013.
- “Heavy Civil Construction Estimating,” OU Professor Somik Ghosh’s cost estimating class, Norman, OK, November 2013.
- “Sustainability through Pavement Preservation,” Oklahoma Transportation Research Day, Oklahoma City, OK, September 2013.
- “A Comparative Analysis of Life Cycle Cost Analysis Methods of Asphalt and Concrete Pavement Preservation Treatments in Oklahoma,” Transportation Research Board *Session 256*, Washington DC, January 2013.
- “Chip Seal,” Oklahoma Aggregates Association Annual Meeting, Oklahoma City, OK, January 2013.
- “Chip Seal,” Oklahoma County Commissioners Workshop, Norman, OK, November 2012.
- “A Sustainability Framework for Quantifying Economic, Environmental and Social Impacts of Building Infrastructure Projects,” 2nd International Conference for Sustainable Design, Engineering and Construction, Ft. Worth, TX 2012.
- “Performance-Based Life Cycle Cost Analysis: A Chip Seal Field Test Case Study,” 2012 International MAIREPAV7 (Maintenance and Rehabilitation of Pavements and Technological Control) Conference at The University of Auckland, August 2012.
- “Stochastic Life Cycle Cost Analysis for Pavement Preservation Treatments,” (Dissertation topic), National Academy of Sciences’ Transportation Research Board *Session 549*, Washington DC, January 2012.
- “New Life Cycle Costing Model,” Southeast Pavement Preservation Partnership Conference, Oklahoma City, OK, May 2011.
- “Life Cycle Cost-based Pavement Preservation Treatment Design,” (Thesis topic), National Academy of Sciences’ Transportation Research Board *Session 260*, Washington DC, January 2011.
- “Evaluate Airport Pavement Maintenance/Preservation Treatment Sustainability Using Life-Cycle Cost, Raw Material Consumption and ‘Greenroads’ Standards,” National Academy of Sciences’ Transportation Research Board, *Sessions 369 and 398 and International Discussion Panel*, Washington DC, January 2011.
- “Heavy Civil Construction Estimating,” OU Professor Tamera McCuen’s cost estimating class, Norman, OK, November 2010, 2011, 2012.

- “Comparative Analysis of Macrottexture Measurement Tests,” Part I, Oklahoma Transportation Center/Oklahoma Department of Transportation *Transportation Research Day*, Oklahoma City, OK, October, 2010.
- “Life Cycle Cost-based Pavement Preservation Treatment Design,” Part II, Oklahoma Transportation Center/Oklahoma Department of Transportation *Transportation Research Day*, Oklahoma City, OK, October, 2010.
- “Introduction – The Discipline of Construction Science,” Part I, College of Architecture’s *Going Green: Partnering Five Architecture Disciplines Summer Academy*, Norman, OK, July 2010.
- “Sustainability in the Construction Phase,” Part II, College of Architecture’s *Going Green: Partnering Five Architecture Disciplines Summer Academy*, Norman, OK, July 2010.
- “Life Cycle Cost-based Pavement Preservation Treatment Design,” Oklahoma Transportation Center’s *First Annual Summer Symposium*, Midwest City, OK, July 2010.
- “Evaluate Airport Pavement Maintenance/Preservation Treatment Sustainability Using Life-Cycle Cost, Raw Material Consumption and ‘Greenroads’ Standards,” Oklahoma Transportation Center’s *First Annual Summer Symposium*, Midwest City, OK, July 2010.
- “Evaluate Airport Pavement Maintenance/Preservation Treatment Sustainability Using Life-Cycle Cost, Raw Material Consumption and ‘Greenroads’ Standards,” Oklahoma Asphalt Paving Association, *2010 Conference and Annual Meeting*, Branson, MO, April 2010.
- “Pavement Retexturing as a Pavement Preservation Tool,” FHWA Pavement Preservation *Expert Task Group* New Orleans, LA, May 2009.
- “Pavement Retexturing as a Pavement Preservation Tool,” *Poster Session OTC Research Day*, Oklahoma City, OK, October 2008 & October 2009.
- “Heavy Civil Construction Equipment,” Professor Richard Ryan’s construction equipment class, Norman, OK, October 2008.
- “E-Commerce in Construction,” AGC Annual Conference, Las Vegas, Nevada, March 2002.

Academic Experience:

University of Oklahoma, Norman, Oklahoma

Research Assistant Professor, Gallogly College of Engineering, 2013 – present

CEES 5303 – Asphalt Mix Design: instructor Spring 2013, 2015; lecturer and lab instructor (selected sessions), Fall 2010.

ENGR 2002 – Professional Development: taught course sections Spring/Fall 2015, 2016, 2017.

ENGR 1411 – Freshman Engineering Experience: taught course sections Fall 2012, 2014, 2015, 2016, 2017; Spring 2015, 2017.

CNS 5513 – Project Management and Controls: taught course Fall 2011, 2012; lecturer (selected sessions) Fall 2010; Taught scheduling lectures and lab in Fall 2008/2009.

CNS 5970/4970 – Directed Reading Instructor for 7 students (heavy civil and economics topics).

CNS 1113 – Construction and Impact on Society: Taught course Fall 2011.

CNS 5970/4853 – Heavy Civil Construction Management: Instructor Spring semesters: 2009 - 2013.

CNS 4823 – Soils and Foundations: Grader/Lab Assistant.

Graduate Research Assistant: Fall 2008 to Spring 2012

FFY2012-PS01 “Develop Draft Chip Seal Cover Aggregate Specification Based on AIMS Angularity, Shape and Texture Test Results,” Responsible for lab testing and reporting requirements.

OTCREOS9.2- “Quantify the Costs and Benefits of Pavement Retexturing as a Pavement Preservation Tool, Phase II”: Responsible for Life Cycle Cost Analysis model development; conducted monthly field testing; reduced test data, conducted analysis and prepared monthly, quarterly and final reports.

OTCREOS7.1- “Quantify the Costs and Benefits of Pavement Retexturing as a Pavement Preservation Tool”: Responsible for Life Cycle Cost Analysis model development; conducted monthly field testing; reduced test data and conducted analysis.

OU Heavy Civil Competition Team Coach: Fall 2008 to Spring 2013

Coached six undergraduate CNS students to compete in the ASC/AGC Regional Heavy Civil Division Competition in Dallas, TX; Won Regional Championship in 2009, 2010 & 2012.

Coached six undergraduate CNS students to compete in the ASC/AGC 2009 National Heavy Civil Division Competition in San Diego, CA; Won 2nd Place. Coached six undergraduate CNS students for ASC/AGC Regional Competition 2011 and 2013, won 3rd Place.

Professional Experience:

Southern Plains Transportation Center, USDOT Region 6, <http://www.sptc.org/>

Technical Director, June 2015 – present

Assistant Technical Director, December 2014 – May 2015

Administer research program (prepare and deliver research *request for proposals* (RFPs) and preparation workshops, coordinate reviews of proposals, manage technical reporting, manage invoices, facilitate research services offices), provide all technical reports to and ensure compliance with federal funding agency, develop content for dissemination (e.g. prepare SPTC Newsletters, two-page SPTC Briefs, UTC Spotlight Articles), review application packets (e.g. student awards, research proposals), represent the Center at events/meetings (e.g. CUTC, OTRD), develop relationships/activities with transportation industry and international partners, participate in/facilitate Center events and activities related to research, education, outreach, technology transfer and collaboration, facilitate public relations.

Oklahoma Transportation Library, Oklahoma

Co-Principle Investigator, 2013 – present.

Provide literature search and services to ODOT staff to support execution of professional duties and to facilitate the research program [e.g. specific field/practice issues, creating request for proposals (RFPs)], facilitate planning/executing of events (e.g. Open House, Oklahoma Transportation Research Day) draft ODOT Research Highlighters for dissemination of ODOT research efforts:

https://www.ok.gov/odot/Programs_and_Projects/Research_and_Implementation/Highlighters.html

Arbor Services, Inc., USA

Co-Founder, November 2003 – present

Orchestrate and execute all strategic planning with regard to the financial, legal and operational issues for this company. Provide research, consulting, panel and student mentorship services for *National Academy of Sciences* (TRB – NCHRP, SHRP2, ACRP Programs); Bid/negotiate/procure/ manage/ complete/ analyze every aspect of public and private civil, commercial and residential construction/ remodel/demolition/deconstruction projects for/with agencies including ODOT, KDOT, county and city governments; Acquire/manage/liquidate assets; Perform all bookkeeping, human resources, insurance, employee education and public relations functions; Ensure compliance with regulatory agencies such as the Federal Motor Carrier Safety Administration, Kansas and Oklahoma Corporation Commissions, Department of Environmental Quality, City of Topeka/Norman Residential/Commercial Code Compliance and Occupational Safety & Health Administration.

Broce Construction/Manufacturing Company, Oklahoma and Kansas

Estimator/Project Manager/Office Engineer/Contract Administrator,

January 2007 – present (*limited*)

Manage the motor carrier fleet and its safety, filings, authorities, registrations and tax requirements for *Broce Broom* transport. Defend the company in audits and ensure compliance with regulatory agencies such as the Federal Motor Carrier Safety Administration, Department of Environmental Quality and Occupational Safety & Health Administration. Provide project management on ODOT and other agencies' multi-million dollar asphalt paving projects. Prepare trade subcontracts, construction estimates, bids and payment applications. Develop pre-construction bid documents, CPM schedules and construction submittals. Attend industry functions, continuing education opportunities, conferences and seminars.

Broce Construction Company, Oklahoma, Kansas, Texas, Colorado and New Mexico

Project Manager/Estimator, September 2001 – November 2003

Prepared estimates, bids, quotes and CPM schedules for multi-million dollar public and private highway/asphalt paving projects in five states; Managed/coordinated every aspect of multi-million dollar project operations, including asphalt plant operations, asphalt paving crew, subcontractor and quality control (asphalt laboratory) operations in two states;

Intern – January 2001 – August 2001

Conducted quality control testing and assisted Daniel Gierhart in preparing asphalt mix designs in the Broce asphalt lab. Also assisted in the production of construction estimates and bids as well as assisted superintendent on the asphalt plant and paving crew for a month.

Professional Training:

NSF Workshop on the Sciences behind Sustainability Quantification for Building and Infrastructure Design, Engineering and Construction (Invitation only), Fort Worth, TX, 2012;
Professional Ethics Training, University of Oklahoma, 2011;
Asphalt Institute Airport Pavement Design Workshop, Dallas, TX, 2010;
OAPA Advanced Pavement Design Workshop, Oklahoma City, OK, 2009;
ODOT Bridge Certification Class, Oklahoma City, OK, 2009;
Federal Motor Carrier Safety Administration Audit, Dodge City, KS, 2008;
Heavy Construction Systems Specialist (HeavyBid) User's Group Meeting, Houston, TX, 2007;
AGC Training: New Federal and State mandates regarding DBE/WBE/MBE, OKC, OK, 2007;
AGC Training: New Department of Environmental Quality mandates, OKC, OK, 2007;
Federal Motor Carrier Safety Administration Audit, Belvue, KS, 2005;
Kansas Corporation Commission Safety Seminar, Topeka, KS, 2004;
Profilograph Certification, Topeka, KS, 2003;
Heavy Construction Systems Specialist (HeavyBid) User's Group Meeting, Houston, TX, 2003.

Professional Conferences/Seminars:

ODOT-SPTC, Oklahoma Transportation Research Day, October 2016;
ODOT-SPTC, Oklahoma Transportation Research Day, October 2015;
Council of University Transportation Centers, Summer Meeting, New Brunswick, NJ, 2015;
Transportation Research Board Annual Meeting, Washington, DC, January 2015;
Region 6 Transportation-Climate Summit, Norman, OK, October 2014;
ODOT-SPTC, Oklahoma Transportation Research Day, October 2014;
Transportation Research Board Annual Meeting, Washington, DC, January 2014;
Transportation Research Board Annual Meeting, Washington, DC, January 2013;
2nd International Conference for Sustainable Design, Engineering/Construction, Ft. Worth, TX 2012;
International MAIREPAV7 (Maintenance and Rehabilitation of Pavements and Technological Control) Conference at the University of Auckland, August 2012;
Oklahoma Asphalt Pavement Association Conference, San Antonio, TX, April 2012;
Transportation Research Board Annual Meeting, Washington, DC, January 2012;
Southeast Pavement Preservation Partnership Conference, Oklahoma City, OK, May 2011.
Oklahoma Asphalt Pavement Association Conference, Branson, MO, April 2011;
Transportation Research Board Annual Meeting, Washington, DC, January 2011;
OTC/ODOT Transportation Research Day, Oklahoma City, OK, October 2010;
Oklahoma Transportation Center First Annual Summer Symposium, Midwest City, OK, July 2010;
Transportation Research Board Annual Meeting, Washington DC, January 2010;
First International Pavement Preservation Conference, Newport Beach, CA, May 2010;
Oklahoma Asphalt Pavement Association Conference, Branson, MO, April 2010;
FHWA Pavement Preservation Expert Task Group, New Orleans, LA, May 2009;
OK Asphalt Pavement Association Asphalt Quality Improvement Task Force Meetings, OKC, 2009;
Oklahoma Asphalt Pavement Association Conference, Galveston, TX, April 2009;
OK Asphalt Pavement Association Asphalt Quality Improvement Task Force Meetings, OKC, 2008;
Oklahoma Asphalt Pavement Association Conference, Branson, MO, April 2008;
Perpetual Pavements Design Seminar, Lawrence, KS, February 2002.