



Dr. Waheed Uddin, P.E.

Professor and Director CAIT – Center for Advanced Infrastructure Technology
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Dr. Waheed Uddin has been Professor of Civil Engineering for the last 10 years at The University of Mississippi. He first joined as a visiting Assistant Professor in November 1991, in 1993 as Assistant Professor of Civil Engineering, and became Professor in 2007. He has been active in research grants since 1999 as Director of Center for Advanced Infrastructure Technology (CAIT). He received PhD in 1984 in transportation engineering from The University of Texas at Austin and has been a registered Professional Engineer since 1986. His M.S. in Geotechnical Engineering is from Asian Institute of Technology, Bangkok, 1975 and B.S. degree in Civil Engineering from University of Karachi.

Previously a pavement expert for the United Nations in the United Arab Emirates during 1989-91, Dr. Uddin has over 35 years of professional and teaching experience in highways, airports, sustainable development, air quality, and related areas of transportation engineering. He currently leads teaching and research programs in transportation, construction, materials, sustainable development, and natural disaster assessment using satellite imagery and geospatial analysis. Dr. Uddin's research projects have great potential for application in Mississippi, other states and globally. His transportation and flood inundation mapping products have been implemented for 2005 Hurricane Katrina impact assessment on Mississippi Gulf Coast, post 2010 floods in Pakistan, and 2011 floods in Thailand. His recent research includes economic viability studies of Gulf Coast commuter rail revival and extreme flood inundation and climate adaptation related sea level rise simulations.

Dr. Uddin has been PI or Co-PI of research grants exceeding \$16 million funded by The National Academies, U.S. DOT, FHWA, Mississippi DOT, NASA Stennis Space Center (including \$6.9 million from the USDOT UTC to the NCITEC consortium led by Mississippi State University, 2012-2016). He received additional \$4.6 million software grant from geospatial industry. He was co-PI of FHWA Center of Excellence on Crash Simulation at UM in mid 1990s and USDOT's NCRSTE Center at Mississippi State University (2000-2005). Dr. Uddin's transportation research was mentioned in the U.S. Congressional TEA 21 transportation bill of 1998-99, and in General Accounting Office (GAO) report GAO/RCED-98-9, on highway pavement design guide in 1997.

Dr. Uddin completed four PhD and 23 MS degrees at the University as primary advisor, six external PhD degrees; and currently advises two PhD and three MS students. These students originate from the USA and 13 other countries. Dr. Uddin's honors and service to the profession and society include the following highlights:

- 2016 Achievement Award at International Conference MAIREPAV8, Singapore
- 2016 UM 25-year service award; 2015 UM Engineering Senior Research award; 2001 Engineering Inaugural Faculty Service award; 2014 Life member, American Society of Civil Engineers (ASCE)
- 2014 Inductee of the University of Texas at Austin CAEE Academy of Distinguished Alumni
- 2011 and 2007 Excellence in Teaching Epps/Dart awards from Deep South ITE Section
- Mississippi Transportation Institute (MTI) – appointed member of the Board of Directors since 2014
- Gulf Region Intelligent Transportation Society (GRITS) –member of the Board of Directors, 2009-12
- Best paper awards in international conferences: 2012 (MAIREPAV7, New Zealand); 2005 (pavement Recycling Conference, São Paulo, Brazil)
- University of Mississippi representative for the Transportation Research Board (TRB) of the National Academies since 2004; member of TRB committees, Aircraft & Airport Compatibility, Geospatial
- Member, TRB Transit Research Project Panel on Transit State of Good Repairs, 2010-2014
- Honored for 25 years of participation at the annual meetings, Transportation Research Board, 2013
- Chief Editor of *IJP–International Journal of Pavements* since 2002; Chair and/or Co-organizer of 13 international conferences (USA, Brazil, China, Greece, Portugal, N. Ireland, Pakistan, South Korea); 35 Workshops/Courses; Invited lecturer and keynote speaker in USA and 17 other countries abroad
- Advisor to Mayor of Oxford, Mississippi for Oxford ITS Project (2000)
- Service projects for 2011 flood disaster in Thailand and 2008-2010 health facility planning in Togo

Dr. Uddin's 245 publications include 2013 McGraw-Hill's *Public Infrastructure Asset Management* book co-authored by Uddin, Hudson, and Haas. Other scholarly publications include three previous books, chapters in 2012 and 2016 Springer's *Climate Change Handbooks*, book chapter in 2006 CRC *Highway Engineering Handbook*, and 130 peer reviewed papers in refereed Journals and conference books. Dr. Uddin made 200 presentations including 80 invited lectures and keynote speeches worldwide in 29 countries. Publication list <http://home.olemiss.edu/~cvuddin/DrUddin-publications.pdf> Slide Share Post: <https://t.co/g6qj5Y0jQK>

CURRICULUM VITAE

DR. WAHEED UDDIN, P.E.

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Blog URL: <http://infrastructureglobal.com/>

Education, Appointment/Employment History, Publications, Professional Service, Honors

EDUCATION

Ph.D. Transportation Engineering, The University of Texas at Austin, 1984

M.S. Geotechnical Engineering, Asian Institute of Technology (AIT), Bangkok, Thailand, 1975

B.S. Civil Engineering, University of Karachi (NED Engineering College), Pakistan, 1970

PROFESSIONAL REGISTRATION P.E., Texas, since 1986 **U.S. Citizen**

APPOINTMENT/EMPLOYMENT/EXPERIENCE

University of Mississippi, Oxford, Mississippi

Department of Civil Engineering

<http://home.olemiss.edu/~cvuddin/>

Professor, August 2007; *Acting Chair of Department*, Fall 2007

Associate Prof, August 2000 to July 2007; *Assistant Prof*, January 1993 to July 2000; *Visiting Assist Prof*, 1992

Founder and Director, Center for Advanced Infrastructure Technology (CAIT), December 1999 to present

Associate Director – Research, National Center for Intermodal Transportation for Economic Competitiveness (NCITEC), funded by the U.S. DOT, Jan 2012-Aug 2016 <http://www.olemiss.edu/projects/cait/ncitec/>

Please see the “University of Mississippi Experience Summary” for detailed experience, 1992-present.

http://home.olemiss.edu/~cvuddin/Uddin_University%20of%20Mississippi_Experience_Summary.pdf

Over 35 years of professional experience in transportation engineering and infrastructure management; proven administrative and management expertise in academic environment and industry practice. At the University of Mississippi (UM) I served as the civil engineering graduate coordinator (2004-09) and Acting Chair in 2007. Received research grants over 16 million dollars including 6.9 million dollars UTC grant to NCITEC (2012-2016) from U.S. Department of Transportation (DOT) and a 4.6 million dollars software gift in August 2009 to UM CAIT; annual over \$100,000 Intergraph geospatial software licenses, 2005-2013.

Dr. Uddin’s transportation research work was mentioned in the U.S. congressional TEA-21 transportation bill of 1998-99, and in General Accounting Office (GAO) report GAO/RCED-98-9, on highway pavement design guide in 1997. Other recent projects: US-side PI of the National Academy of Science (NAS)/USAID project on Karachi Transportation & Traffic Management (2007-2010); NAS/Federal Aviation Administration (FAA) project on Airborne Laser Deployment for Airport Obstruction Surveys (2007-2009); Mississippi DOT projects on Top-down Cracking of Asphalt Pavements (2012-2013), Performance Evaluation of Roundabouts (2008-2011), Ground Penetrating Radar (2005-2006), and several pavement projects; US DOT-funded project to MSU Consortium on Applications of Remote Sensing and Related Spatial Technologies to Environmental Assessments in Transportation with UM subcontract on Air Quality (2000-2005).

World Bank Project for Jasa Marga – Indonesian Toll Road Authority

Colin Corne Consulting, Project Consultant, Jakarta, Indonesia

Road Pavement and Safety Evaluation Expert, 1991/1992 (Advisor to Project Consultant)

Developed Road Maintenance Management database specifications, prepared technical memos on related topics and step-by-step guide to incorporate the AASHTO pavement overlay design procedure for maintenance need programming, investigated wet weather safety problems on road sections near Jakarta city, and made recommendations for condition monitoring, decision support system, and maintenance intervention to eliminate hydroplaning accidents on toll roads.

United Nations Centre for Human Settlement/United Nations Development Programme (UNDP)

Dubai Municipality, United Arab Emirates (UAE)

United Nations Pavement Expert, 1989-1991 (Advisor to Dubai Municipality Roads Department)

Established Road Pavement Management Services Unit for the Government of Dubai Roads Department with offices, engineer and support staff, equipment, and operation manuals. I trained 10 engineers including three local engineers.

Texas Research & Development Foundation, Riverdale, Maryland, Technical Management
Contractor for Strategic Highway Research Program (SHRP), Long Term Pavement Performance (LTPP), TRB, National Academies, Washington, DC

LTPP Pavement/Materials Engineer, 1987-1989

Working from TRDF Riverdale office in Maryland, I coordinated expert task group meetings, tracked the work of other subcontractors and regional LTPP contractors, and supported the SHRP-LTPP staff in tasks assigned to TRDF.

I was the primary author of Field Sampling and Laboratory Material Testing Guides under the overall supervision of SHRP-LTPP staff Mr. Adrian Pelzner/Mr. Neil Hawks. (Later, several of these test protocols have been adapted by AASHTO.) I also contributed to LTPP deflection testing guide and distress identification manual.

University of Texas at Austin, Austin, Texas

Center for Transportation Research (CTR)

Research Engineer, 1987; *Graduate Research Assistant*, 1981-1984

Assisted transportation faculty in conducting three projects for the Texas DOT including progress reports, presentations, and final reports based on primarily my doctoral research. In the last project I developed equipment specifications and purchased the first falling weight deflectometer and implemented it for the DOT. Additionally, I developed a new Austin Airport passenger volume demand forecasting model, later used by the City of Austin Aviation Department. I projected its impacts on airside and groundside airport facilities and presented the results at 1983 TRB annual meeting (published in TRR 1025). This pioneering work led the City to move the airport later to its current Bergstrom location. As a research Engineer in 1987, I developed and presented the first Airport Pavement short course that has been offered by CTR since then.

Austin Research Engineers, Inc., Austin, Texas

Pavement Engineer, 1985-1987

Supported PIs in several research projects funded by the state DOTs and co-authored project reports (examples; diagnostic evaluation of highway pavement performance for the Oklahoma DOT, development of life cycle cost analysis software for the Pennsylvania DOT, profilometer based pavement smoothness specifications for the Arizona DOT, deflection data analysis for several highway and airport projects, and condition data collection on city streets of Albuquerque, NM).

I contributed to the state-of-the practice review of bridge inspection and maintenance practices of several state DOTs and initial framework of Bridge Management Systems (NCHRP Report 300, 1987). I planned and conducted field evaluation of deflection equipment, distress monitoring methods, and void detection equipment for a pre-SHRP pavement equipment study funded by the FHWA, 1985-87. I was the co-author of three Pre-SHRP reports.

University of Petroleum & Minerals (UPM), Dhahran, Saudi Arabia

Sulfur-Asphalt Road Research Project of Research Institute (RI)

Assistant Research Engineer, 1978 to 1981

I was hired by Dr. William Pickering (formerly Director of Viking Mars space exploration program of 1970's at NASA's Jet Propulsion Laboratory) who was the director of the newly established RI at UPM in 1978. My primary responsibilities were to: procure asphalt pavement testing equipment for a new Asphalt Research Laboratory, implement sulfur-asphalt test methods in cooperation with Gulf Canada, develop test forms and lab protocols, and train lab staff, coordinate a full-scale field trial of sulfur-asphalt road pavement with the consultant and contractor of the Saudi Ministry of Communications as a part of a new highway. I also collected in-service traffic count data, deflection data, and field performance data with the cooperation of the project consultant. This project was safely and successfully completed.

Netherlands Airport Consultants (NACO), Jeddah, Saudi Arabia

Airport Construction Projects at Gassim, Dhahran, Jeddah; *Materials Engineer*, 1975-1978

Responsible for QC, QA, and safe operations, as Department of Aviation Consultant staff, during airport pavement construction projects of: Jeddah International Airport, 1977-78; Dhahran International Airport, 76-77; Gassim Airport, 75-76.

INFRASTRUCTURE, TRANSPORT SAFETY & ASSET MANAGEMENT EXPERTISE; SERVICE – Examples

- Legal Expert Advisor for Road Safety Related Legal Cases to Attorneys in Tennessee, Mississippi, Alabama
- Workshops/Seminars (Lectures & Notebooks): Natural Disaster & Community Preparedness (São Paulo, Brazil, 2013, 2011), AIT (Bangkok, 2011), Traffic Safety & Intelligent Transportation System (ITS) and GIS (USAID-Pakistan, 2008), Traffic Congestion Management (USAID-Pakistan, 2007), Road & Traffic Safety Management (Brunei, 2007), Pavement Management Courses (Gold Coast-Australia 2006, Pisa-Italy 2004)
- Faculty Advisor, Institute of Transportation Engineers Student Chapter since 2001
- Advisor to Mayor of Oxford, MS for Oxford ITS Plan and citywide airborne laser mapping survey (2000); helped establish key land surveying monuments throughout the university and city of Oxford for aerial photo & laser mapping surveys; Advisor to Civil Aviation Department, City of Austin, Texas (1983-85)

JOURNAL REVIEWER AND SELECTED PROFESSIONAL ACTIVITIES

- Chief Editor, International Journal of Pavements (IJP), 2002-present <http://www.ijpavement.com/>
- Editorial board member of IJRA International Journal of Roads and Airports; paper reviewer for ASCE transportation and materials journals, TRB Journals and annual meetings, ASTM testing journal, and several other international journals (ATS-Advances in Transportation Studies, Elsevier's Structure and Infrastructure Engineering, Springer's Arabian Journal of Science and Engineering, etc.).
- Member of Review Panel, Transit State of Good Repairs Project, Transit Cooperative Research Program, The National Academies, Washington, DC, 2010-2014
- Previously review panel member for NSF, NASA, Multimodal Transportation Institute of Jackson State University-Mississippi, Louisiana Transportation Research Center
- Member ASCE since 1975; ASCE Committees on Highways and Airfield Pavements
- University Representative, Appointed by Transportation Research Board (TRB), 2004- present
Member TRB Committees AFB80, AF000(2); friend of AV070 and ABJ60; DAWG Steering Committee
- Founder President, international Society of Maintenance And Rehabilitation of Transport infrastructure (ISMARTi), 2004-2007; co-developed society constitution and bylaws; helped initiated ICTI conference series (2008 China, 2010 Brazil)
- Chair, Intl Symp. Pavement Maint & Technological Control, Auburn, AL, Aug 2001; editor of CD proceedings
- Co-chair, Intl. transport conference, Karachi, Pakistan (USAID project), July 2010; Chair, [2013 IJPC](#), Brazil
- Co-organizer, over 10 international conferences (Brazil, Portugal, Northern Ireland, Greece, China), 2003-2015
- Organizer or lecturer, over 35 international workshops/short courses (6 in USA, 3 in Mexico, 4 in Brazil, 2 in Brunei, 2 in Turkey, 15 in Pakistan; 1 each in Italy, Australia, Malaysia, China, Singapore), 1987 - present
Three PhD degrees and 23 MS degrees completed at UM (committee chair); over 50 diversified graduate student advisees from USA and 12 other countries; external reviewer of 6 PhD dissertations (Finland, India, Australia, Thailand) [University of Mississippi news coverage](#)
- Co-PI of two national Centers of Excellence funded by USDOT (Crash Simulations and Environmental Assessment); Primary author of successful CAIT research grant proposals of over \$ 12 million funded by The National Academies, USDOT, FHWA, Mississippi DOT, NASA Stennis Space Center; \$4.6 million software grant from geospatial industry
- Invited member of European project COST Action TU1208 "Civil Engineering Applications of Ground Penetrating Radar", coordinated by "Roma Tre" University, Rome, Italy, since 2012.
- Post-flood disaster assessment and flood protection recommendations after visiting Bangkok, Thailand upon the invitation of AIT President; contributed to [AIT/ASEAN Affairs Seminar](#) on "Thailand Floods and Flood Prevention", December 13-21, 2011. [AIT Visit news](#). <http://infrastructureglobal.com/?p=1834>
- Planet Forward (George Washington University) – video blog by UM Journalism student on Dr. Uddin's innovative transit research, January 6, 2012 <http://planetforward.org/idea/personal-rapid-transit-system-a-solution-for-cities/> 2012 "[Heat-Island Effects](#)" "[Life Cycle Economic Analysis](#)" 2013 "[How glass can help improve your community...](#)" 2015 [Dr. W. Uddin: Sustainable Transportation Research](#)
- India Transport Portal: Interview of Dr. Waheed Uddin on "India's Transport Infrastructure," Sep 10, 2015. <http://bit.ly/1M1t2Iy>
- Former PhD graduates serving as university professors in California, Mexico, Ethiopia.
- Former students and CAIT Research Assistants who completed doctoral degrees (Dr. Ned Mitchell, Dr. Lucy Priddy, Dr. Yamini Nanagiri)

PUBLICATIONS Complete list <http://home.olemiss.edu/~cvuddin/DrUddin-publications.pdf>

Dr. Uddin's 245 publications include four books (1997, 2001, 2005, 2013), chapters in three handbooks (2016 *Springer Handbook of Climate Change Mitigation and Adaptation*, 2012 *Springer Handbook of Climate Change Mitigation*, 2006 *CRC Handbook of Highway Engineering*), 130 peer reviewed papers in refereed journals and conference books, 50 papers in other conference proceedings, and 60 reports for funding agencies (18 reports published). Author of 19 short course/workshop lecture notebooks. Examples:

- *Public Infrastructure Asset Management*, McGraw-Hill, Inc., New York, 2013 (W. Uddin, W.R. Hudson, and R. Haas). ISBN 0071820116 ISBN-13: 978-0071820110
- Smith, Robert, and Waheed Uddin. "A Rational Theory of Tire-Pavement Friction. Research Article 4858317." *Advances in Tribology*, Hindawi Publishing Corporation, Volume 2016. <http://www.hindawi.com/journals/at/2016/4858317/> Accessed April 7, 2106.
- Nguyen, Quang and Waheed Uddin. "Applications of Shuttle Radar Data and Landsat-8 Satellite Imagery for HEC-RAS Floodplain Modeling." *National Hydrologic Warning Council Newsletter*, January 2016, pp. 2-4.
- Durmus, Alper and Waheed Uddin. "Extreme Flood Simulation and Inundation Impacts on Structural Integrity of Bridges." *National Hydrologic Warning Council Newsletter*, September 2015, pp. 1-2.
- Headrick, Jessica and Waheed Uddin. "Traffic Flow Microsimulation for Performance Evaluation of Roundabouts and Stop-controlled Intersections at Highway Overpass." *International Journal ATS-Advances in Transportation Studies*, Issue XXXIV, November 2014, pp 7-18.
- Uddin, W. "Value Engineering Applications for Managing Sustainable Intermodal Transportation Infrastructure Assets." *Management and Production Engineering Review*, MPER, Vol. 4, No. 1, March 2013, pp. 74–84.
- Uddin, W. and C. Colby Willis. "Airborne laser surveys for expediting airport obstruction mapping." *Journal of Airport Management*, London, U.K., Vol. 7, No. 2, March 2013, pp. 179–194.
- *Research Results Digest 10: Light Detection and Ranging (LIDAR) Deployment for Airport Obstruction Surveys*. Airport Cooperative Research Program (ACRP), TRB, The National Academies, Washington, DC, July 2010. (PI: Dr. Uddin)
- Uddin, W., Bill Gutelius, and Christopher Parrish. "Airborne Laser Survey Specifications and Quality Management Protocols for Airport Obstruction Surveys." Paper No. 11-1323, *Transportation Research Record 2214*, *Journal of Transportation Research Board*, Washington, DC, 2011, pp. 117-125.
- Uddin, W. "Air Quality Management Using Modern Remote Sensing and Spatial Technologies and Associated Societal Costs." *International Journal of Environmental Research and Public Health*, ISSN 1661-7827, MDPI, Vol. 3, No. 3, September 2006, pp. 235-243.
- Uddin, W. "Ground Penetrating Radar Study, Phase I – Technology Review and Evaluation." *Report No. FHWA/MS-DOT-RD-06-182*, Mississippi DOT State Study SS 182, CAIT, University of Mississippi, 2006.
- Uddin, W. "Crashworthiness Analysis and Simulations of Vehicles Impacting a Roadside Guardrail." *CMES: Computer Modeling in Engineering & Sciences*, Tech Sciences, Vol. 5, No. 3, 2004, pp. 269-278.

PRESENTATIONS Complete list <http://home.olemiss.edu/~cvuddin/DrUddin-presentations.pdf>

Dr. Uddin made 200 presentations including 80 invited and keynote lectures worldwide in 29 countries. During 2015-2016 Dr. Uddin was an invited speaker in Greece, Brazil, Dubai (UAE), Thailand, Singapore, and Malaysia.

HONORS AND AWARDS

- 2016 Achievement Award at International Pavement Conference *MAIREPAV8*, Singapore
- 2015 University of Mississippi School of Engineering Senior Research Award; 25-year Service Award, 2016
- 2014 Inductee of the University of Texas at Austin CAEE Academy of Distinguished Alumni
- 2014 Life Member, American Society of Civil Engineers (member since 1975)
- 2012 Epps/Dart Award for Excellence in Teaching, sponsored by the Deep South Institute of Transportation Engineers (ITE); 2007 Inaugural Award for Excellence in Teaching
- 2001 Inaugural Faculty Service Award, University of Mississippi School of Engineering, 12 October 2001
- 2014 Appointed Member, Board of Directors Mississippi Transportation Institute (MTI)
- 2009-2012 Appointed Member, Board of Directors, Gulf Region Intelligent Transportation Society (GRITS)
- Best paper award new trends, *MAIREPAV7 Conference*, University of Auckland, New Zealand, 29-31 Aug 2012
- First best paper award, *Intl. Symposium on Pavements Recycling*, São Paulo, Brazil, 14-16 March 2005
- Value Engineering (VE) Expert Task Group Member, appointed by the US DOT Federal Highway, 2004
- University Representative for TRB (The National Academies), 2004; Who's Who in Science & Engineering, 94
- UK Government full scholarship for Master's degree at AIT, Bangkok, Thailand, 1973-1975