

**NORBERT J. DELATTE, Jr., Ph.D., P.E.**

***Professor***

Department of Civil and Environmental Engineering  
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**EDUCATION**

**Ph.D.** The University of Texas, May 1996, Civil Engineering (Structures)  
**S.M. (Master of Science)** Massachusetts Institute of Technology, June 1986, Civil Engineering  
**B.S.** The Citadel, May 1984, Civil Engineering

**PROFESSIONAL EXPERIENCE**

**Cleveland State University**

***Professor*** (August 2007 – present)  
***Associate Professor*** (December 2003 – August 2007)  
Specialty: Transportation Engineering, Structures, Engineering Mechanics, and Construction Materials

**The University of Alabama at Birmingham**

***Associate Professor*** (October 2002 – December 2003)  
***Assistant Professor*** (September 1997 – September 2002)

**The University of Alabama in Huntsville**

***Adjunct Assistant/Associate Professor*** (February 2002 – December 2003)

**United States Military Academy**

***Assistant Professor*** (June 1996-August 1997)  
Specialty: Structures and Engineering Mechanics

**University of Texas, Austin, Texas**

***Research Assistant*** (1993-1996)  
Ph.D. Dissertation: *High Early Strength Bonded Concrete Overlay Designs and Construction Methods for Rehabilitation of CRCP*  
Dissertation Advisor: Dr. David W. Fowler.

**United States Army Corps of Engineers**

Promoted to Major, U.S. Army Reserve, 3 January 2000, honorable discharge March 2002

***Fort Stewart, Georgia, Staff Officer and Company Commander*** (1990-1993)

Staff officer responsible for engineer equipment maintenance for a 500-soldier engineer battalion at Fort Stewart and in Saudi Arabia, Iraq, and Kuwait during Operations Desert Shield and Desert Storm

Commander of a 130-soldier engineer company

Planned and supervised construction of light gauge steel buildings, masonry buildings, a reinforced concrete tank turning pad, and training area roads and embankments.

Planned and supervised renovation of a wood frame structure.

Planned and supervised deployment of 40 soldiers to the Sultanate of Oman to construct a light gauge steel building

Planned and supervised deployment of an engineer company to Homestead, Florida, for Hurricane Andrew relief operations, including debris removal and emergency building renovations

***Camp Humphreys, Korea, Platoon Leader and Construction Officer*** (1986-1989)

Direct supervisor of two different forty-soldier platoons

Second in command of a 130-soldier engineer company

Planned and supervised two earthwork and asphalt paving projects

Designed and supervised construction of a 4200-foot tactical airfield

**Massachusetts Institute of Technology, Cambridge, Massachusetts**

***Research Assistant*** (1984-1986)

S.M. Thesis: *Characterization of Dynamic Vehicle-Pavement Interaction*

Thesis Advisor: Michael Markow

## **PROFESSIONAL REGISTRATION**

Registered Professional Engineer in the State of Ohio, Number E-69047, State of Alabama, Number 22553, and Commonwealth of Virginia, Number 0402 020847. NCEES Record Number 25116.

## **AWARDS AND RECOGNITION**

American Concrete Institute Delmar L. Bloem Distinguished Service Award, bestowed by the ACI Board of Direction at its fall 2007 meeting specifically “for outstanding leadership of Committee 325, Concrete Pavements” awarded, Sunday, March 30, 2008

Fenn College Distinguished Faculty Service Award, Cleveland State University, 2007

American Concrete Institute (ACI International), Walter P. Moore, Jr. Faculty Achievement Award, awarded March 30, 2003.

ASCE Journal of Performance of Constructed Facilities, Outstanding Paper of 2002 Award, with Kevin L. Rens, for *Forensics and Case Studies in Civil Engineering Education: State of the Art*, Vol. 16, No. 3, August, 2002, awarded October 2003.

ASCE Journal of Performance of Constructed Facilities, Outstanding Paper of 2001 Award for *Another Look at the Hartford Civic Center Coliseum Collapse*, Vol. 15, No. 1, February 2001, awarded November 6, 2002.

ASCE Journal of Professional Issues in Engineering Education and Practice, 2000 – 2001 best paper award for *Lessons from Roman Cement and Concrete*, Vol. 127, No. 3, July 2001, awarded October 13, 2001.

UAB President’s Award for Excellence in Teaching, May 25, 2001

American Society of Civil Engineers Certificate of Award, The Long-Term Pavement Performance DataPave Contest 2000, Faculty Category, Presented on January 9, 2001 at the Transportation Research Board, Washington, D.C.

Eisenhower Faculty Fellowship, Spring 1998, Fall 1999, Fall 2002, Fall 2003

1998 Engineering Foundation Council (EFC) Faculty Excellence Award

Nominated for the Ellen Gregg Ingalls – UAB National Alumni Society Award for Excellence in Classroom Teaching, 1998

Tau Beta Pi Engineering Honor Society

Vice President, South Carolina Gamma Chapter, 1983-1984

Faculty Advisor, Alabama Gamma Chapter, fall 1999 – spring 2001

Phi Kappa Phi Honor Society

The Round Table, The Citadel

Star of the West Scholarship, The Citadel

### **INVITED PRESENTATIONS**

Failure Case Studies in Civil Engineering, workshop, CCEDS-II: Sustainability of Civil Engineering Structures, McMaster University, Hamilton, Ontario, Canada, May 23, 2008

Reducing Cracking of High Performance Concrete Bridge Decks, ACI Manitoba Chapter Bridge Deck Cracking Seminar, Winnipeg, Manitoba, Canada, February 13, 2008

Design Considerations for Pervious Concrete Pavements, University of Maryland, Baltimore County, Center for Urban Environmental Research and Education (CUERE), 16 March 2007.

Learning from Failures, Case Western Reserve University, 10 February 2006

Learning from Failures, BSCES/ASCE Structural Group 2005 Lecture Series, The Design Process: Concept Through Construction, Tufts University, Medford, Massachusetts, 19 October, 2005.

Collapse of the Quebec Bridge, 1907, and Hartford Civic Center, 1978, University of Dayton, 17 March 2005

Collapse of the Quebec Bridge, 1907, University of Louisville, 11 – 12 November, 2004.

### **JOURNAL EDITOR**

American Society of Civil Engineers Journal of Professional Issues in Engineering Education & Practice, October 2005 – present

### **PROFESSIONAL ASSOCIATION MEMBERSHIP AND ACTIVITIES**

American Society of Civil Engineers

President, The Citadel ASCE Student Chapter, 1983 – 1984

Advisor, UAB Student Chapter, 2000 – 2003

Editor, formerly Associate Editor and Corresponding Editor, Journal of Professional Issues in Engineering Education & Practice, and Chair, Education and Practice Publications Committee

Member of Editorial Board for Journal of Performance of Constructed Facilities

Chair of Executive Committee, Technical Council on Forensic Engineering

Former Chair and Secretary, Education Committee, and Member, Committee for the Dissemination of Failure Information, Technical Council on Forensic Engineering – also Member of 3<sup>rd</sup> and 4<sup>th</sup> Forensic Congress Steering Committee

Member, International Contest on LTPP Data Analysis, ASCE – LTPP Task Group, ASCE Pavement Committee

Member of ASCE delegation to International Conference on Forensic Engineering: Failure Diagnosis and Problem Solving, Mumbai, India, December 6 – 9, 2007, also presenter and session moderator

#### American Concrete Institute

Founding member Advisory Committee for Young Members (2007 – present)

Chair (2001 – 2007) and Secretary (1999 – 2001) of Committee 325 (Concrete Pavements), former chair of Task Force 325.31 (Design of Concrete Overlays), Member of Committees 327 Roller Compacted Concrete Pavements, 330 Parking Lots and Site Paving, 522 Pervious Concrete, and E802 Teaching Methods and Educational Materials.

Chair of E803 Faculty Network Coordinating Committee.

International Society for Concrete Pavements, former Chair of Editorial Board and Member of 8<sup>th</sup> International Conference on Concrete Pavements steering committee

#### Transportation Research Board

University Representative for Cleveland State University

Member of Committee AFN40, Concrete Materials and Placement Techniques (2006 – present)

Member of Committee AFN20, Properties of Concrete (2007 – present)

#### American Society for Engineering Education

#### International Concrete Repair Institute

#### The Masonry Society

Member, January 2002 – March 2004. International Editorial Board, International Journal of Pavements, Maintenance and Rehabilitation of Pavements and Technological Control, ISSN 1676-2797, Printed in Brazil. Journal web site <http://www.olemiss.edu/pubs/ijp/>

### **PROJECT PANELS**

Innovative Pavement Research Foundation (IPRF) Task 8, Performance and Design of Separated (Unbonded) Concrete Overlays, \$ 250,000, 2000 – 2002.

Federal Highway Administration (FHWA) “Concrete Overlays: State of the Technology Report and Workshop,” \$ 100,000, 2000 – 2002.

### **PROPOSAL AND PAPER REVIEWS**

National Science Foundation, Invited as Proposal Reviewer and Panel Chair, Course, Curriculum, and Laboratory Improvement (CCLI) program, Phase 1, July 10-11, 2008, Panel ID P080178

National Science Foundation, Invited as Proposal Reviewer and Panel Chair, Course, Curriculum, and Laboratory Improvement (CCLI) program, Phase 2 and 3, March 17-18, 2008, Panel ID P080913

National Science Foundation, Proposal Reviewer and Panel Chair, Course, Curriculum, and Laboratory Improvement (CCLI) program, Phase 2 and 3, March 12-13, 2007, Panel ID P071060

Reviewer for April 15 applications, Dwight David Eisenhower Fellowship Program 2005

Reviewer for National Science Foundation Graduate Fellowships, 2005

National Science Foundation Engineering Directorate's "Research Experience for Undergraduates (REU)" review panel, December 11-12, 2003, Panel ID REUENG04D, Arlington, Virginia.

National Science Foundation proposal reviewer, Phase I Small Business Innovation Research (SBIR) and/or Small Business Technology Transfer (STTR) proposals September 2000

Proposal Reviewer for Louisiana Board of Regents Support Fund Research and Development Program, December 2001.

Paper reviewer for ASCE Journal of Professional Issues in Engineering Education and Practice, ASCE Journal of Structural Engineering, ASCE Journal of Performance of Constructed Facilities, ASCE Journal of Engineering Management, ASCE Journal of Materials in Civil Engineering, Proceedings of the Second ASCE Forensic Engineering Congress, ACI Materials Journal, ASCE Geotechnical Special Publication No. 109, Educational Issues in Geotechnical Engineering, Transportation Research Board and Transportation Research Record, Fuel

Beta Tester for Federal Highway Administration Long Term Pavement Performance DataPave 2.0 software

## **NEW COURSES DEVELOPED**

CVE 447/547 Highway Engineering

CVE 601/701 Civil Engineering Graduate Seminar

CE 453/553 – Design of Timber Structures (former number and title CE 490/590 –Special Topics in Design of Timber Structures)

CE 454/554 Design of Masonry Structures (former number and title CE 490A/590A – Special Topics in Design of Masonry Structures)

CE 120 – Engineering the Environment (An Introduction to Civil Engineering)

EGR 094 – Redshirt Engineering II (Technical Communication)

## **COURSES TAUGHT**

### ***Cleveland State University***

CVE 446/546 – Transportation Engineering

CVE 447/547 Highway Engineering

CVE 421/521 – Behavior and Properties of Concrete

CVE 424/524 and MME 524 – Nondestructive Evaluation

CVE 428/528 – Structural Wood Design

CVE 523 Prestressed Concrete

CVE 601/701 Civil Engineering Graduate Seminar

ESC 211 – Strength of Materials

### ***The University of Alabama at Birmingham***

CE 457/657 – Concrete Technology

CE 642 Highway Materials and Construction

CE 443/543/643 – Pavement Design and Construction

CE 453/553 – Design of Timber Structures (former number and title CE 490/590 –Special Topics in Design of Timber Structures)

CE 454/554 – Design of Masonry Structures (former number and title CE 490A/590A – Special Topics in Design of Masonry Structures)

CE 460/660 – Advanced Structural Mechanics

CE 464/664/764 – Structural Dynamics I  
CE 345 – Introduction to Transportation Engineering  
CE 210 – Statics  
CE 215 – Dynamics  
CE 220 – Mechanics of Solids  
CE 120 – Engineering the Environment (An Introduction to Civil Engineering, developed new course)  
EGR 094 – Redshirt Engineering II (Technical Communication, developed new course)  
EGR 118 – Applied Engineering Mathematics III

***United States Military Academy***

EM 364/364A – Mechanics of Materials  
MS 302 – Combined Arms Operations II  
EM 302 – Statics and Dynamics

**RESEARCH GRANTS AND CONTRACTS**

Total external funds as Principal Investigator: \$ 1,365,000

Total external funds as Principal Investigator at Cleveland State University in excess of \$ 400,000

Total external funds as PI or co-investigator: \$ 2 million

Totals above do not include matching funds, but amounts below under individual projects include matching funds and internal funds as well as external support.

Assessing the Impact of Case Studies on the Civil Engineering and Engineering Mechanics Curriculum, National Science Foundation Project DUE-0536666, \$ 125,000, July 1, 2006 – June 30, 2009, Principle Investigator, with co-investigators William Beasley, Joshua Bagaka's, and Rosemary Sutton, Education.

Portland Cement Pervious Concrete Pavement: Field Performance Investigation on Parking Lot and Roadway Pavements, \$ 100,000, National Ready Mix Concrete Association (NRMCA) Research Foundation, January 1, 2006 – August 31, 2007, Principle Investigator.

Subcontract to Applied Pavement Technology for Innovative Pavement Research Foundation, \$ 30,000, see below.

Effect of Partial Layer Bonding on Design of Layered RCC Pavements, \$ 20,000, Portland Cement Association Education Foundation Fellowship, awarded May 10, 2005.

Evaluation of High Absorptive Materials to Improve Internal Curing of Low Permeability Concrete, State Job No. 134227, Federal Contract Number 20809, \$ 98,702.79, Ohio Department of Transportation, April 1, 2005, 24 months, Principle Investigator.

Laboratory Evaluation of Thin Bonded Overlays on Roller-Compacted Concrete Pavements, \$ 20,000, Portland Cement Association Education Foundation Fellowship, awarded June 25, 2004.

Gearing Up for Transportation Engineering: Phase IV, subcontract to Kate Leonard (UAH). The University Transportation Center for Alabama. UAB subcontract \$ 6,000. Investigator. January 1 – December 31, 2003.

Optimized Mix Design for Roller-Compacted Concrete Pavements, \$ 20,000, Portland Cement Association Education Foundation Fellowship, awarded August 16, 2002.

Developing Case Studies in Failures and Ethics for Engineering Educators, \$ 74,999, National Science Foundation project number DUE 0127419, 1 March 2002 – 29 February 2004.

Gearing Up for Transportation Engineering: Phase III, subcontract to Kate Leonard (UAH). The University Transportation Center for Alabama Project 02-301. UAB subcontract \$ 6,000. Investigator. January 1 – December 31, 2002.

Great Cities Universities Coalition Transportation Initiative Task 008 Maintenance and Management of Transit Infrastructure, with CCNY/CUNY, Cleveland State University, University of Illinois at Chicago, University of Cincinnati, USDOT Federal Transit Administration, \$204,996 in FTA funds and \$210,543 in matching funds, August 2001 – August 2002. Principal Investigator. 1 year.

Improving Field Predictions of Helical Anchor Capacity, Phase III, with Shen-en Chen. Investigator. Alabama Power Company and Southern Company. \$ 199,534. June 30, 2001 – December 31, 2002.

Improved Management of RCC Pavement Technology. The University Transportation Center for Alabama Project 01-231. \$ 100,000. Principal Investigator. August 1, 2001 – July 31, 2002.

Rapid Reusable Composite Bridge Pilot Study. UAB School of Engineering, Dean's Office Grant, with Gregg Jenowski, Shen-en Chen, Jim Davidson. \$ 25,000. July 1, 2001 – May 1, 2002.

Program for Encouraging Diversity in Transportation-Related Educational Programs in Alabama: Gearing Up for Transportation Engineering Summer Institute Part II, subcontract to Kate Leonard (UAH). The University Transportation Center for Alabama Project 01-326. UAB subcontract \$ 6,000. Investigator. January 1 – December 31, 2001.

Design and Quality Control of Concrete Overlays and Repairs, with James Davidson and Shen-en Chen. The University Transportation Center for Alabama Project 01-220. \$ 100,000. Principal Investigator. January 1 – December 31, 2001.

Matching funds for above research project (\$ 20,000) provided by American Concrete Institute Concrete Research Council.

Feasibility Study on Dynamic Bridge Load Rating, with Shen-en Chen (Principal Investigator) and B. J. Stephens. The University Transportation Center for Alabama Project 01-221. \$ 106,256. Investigator. January 1 – December 31, 2001.

Transfer of Transportation Materials and Safety Technology, with Houssam Toutanji (UAH), John McFadden (UA), and David Eckhoff. The University Transportation Center for Alabama Project 00-202. \$ 100,000. Principal Investigator. January 1 – December 31, 2000.

Program for Encouraging Diversity in Transportation-Related Educational Programs in Alabama: Gearing Up for Transportation Engineering Summer Institute, subcontract to Kate Leonard (UAH). The University Transportation Center for Alabama Project 00-304. UAB subcontract \$ 10,000. Investigator. January 1 – December 31, 2000.

Supplementary Cementitious Materials to Enhance Bridge Deck Durability, subcontract to Houssam Toutanji (UAH). The University Transportation Center for Alabama Project 00-005. UAB subcontract \$ 20,000. Investigator. January 1 – December 31, 2000.

Improving Field Predictions of Helical Anchor Capacity, Phase II, with Shen-en Chen, David Conner, and B. J. Stephens. Alabama Power Company. \$ 120,000. Principal Investigator. January 15, 2000 – January 15, 2000.

Concrete Pavement Performance in the Southeastern United States. The American Concrete Pavement Association Southeast Chapter and University Transportation Center for Alabama Project 99-247. \$ 51,604. Principal Investigator. October 1, 1999 – July 31, 2000.

Matching funds from Southeast Chapter American Concrete Pavement Association for above project, \$ 5,000.

Development of a Multicampus Multidisciplinary Transportation Curriculum for UTCA, with John McFadden (UA), Mike Anderson (UAH), and Kate Leonard (UAH). The University Transportation Center for Alabama Project 99-249. \$ 69,578. Principal Investigator. October 1, 1999 – August 31, 2000.

Predictors of Car Accidents in Minorities and High Risk Groups, with Theresa Wynn, Mona Fouad, and Loring Rue III. The University Transportation Center for Alabama Project 99-50. \$ 43,931. Investigator. July 1, 1999 – May 30, 2000.

Improving Field Predictions of Helical Anchor Capacity, with David Conner and B. J. Stephens. Alabama Power Company. \$ 20,000. Investigator. June-September 1999.

Research Experiences Site in Structural Engineering, with Jim Davidson, David Olowokere, and Fouad Fouad. National Science Foundation EEC-9820484. Principle Investigator. \$ 300,000. Five years, May 1999 – April 2004.

Nondestructive Testing, Evaluation, and Rehabilitation of Civil Infrastructure. Sterne Library Collection Development Grant, awarded competitively by the Sterne Library. \$ 2000.00. May 1999.

History and Development of Ethical Issues and Standards of Practice in Civil Engineering. Sterne Library Collection Development Grant, awarded competitively by the Sterne Library. \$ 2000.00. May 1998.

Structural Supports for Highway Signs, Luminaires, and Traffic Signals. National Cooperative Highway Research Program Project 17-10(2), FY '98. \$ 370,000. Investigator. March 1999.

Two and Three Dimensional Finite Element Modeling of Bonded Concrete Overlay and Cementitious Repair Performance. Faculty development grant awarded by the UAB Graduate School. The purpose of the research is to extend the study sponsored by the U. S. Army Corps of Engineers Waterways Experiment Station below. Principal Investigator. \$ 3,000. February 1998 – February 1999.

ABAQUS Modeling of Bonded Concrete Overlay behavior. Research program for the U. S. Army Corps of Engineers Waterways Experiment Station in Vicksburg, Mississippi. The purpose of the research was to determine the effect of overlay parameters on performance. Principal Investigator. \$ 1,450. November 1996 – August 1997

## **RESEARCH PROJECTS AS SUBCONTRACTOR AND CONSULTANT**

Federal Highway Administration Concrete Pavement Technology Program, Task 65(03), Technology Transfer, Deployment and Delivery for the Concrete Pavement Technology Program (CPTP), consultant to Construction Technology Laboratories, Principal Investigator Shiraz Tayabji, September 2003 – September 2005

Innovative Pavement Research Foundation, Practices for Accelerated Airfield Concrete Pavement Rehabilitation and Reconstruction (Planning, Design, Execution), subcontractor to APTech, Principal Investigator David Peshkin, total contract amount \$ 200,000. Contract awarded July 17, 2003. CSU subcontract amount \$ 30,000.

## **BOOKS PUBLISHED**

Delatte, Norbert J., *Concrete Pavement Design, Construction, and Performance*, Taylor and Francis, Abingdon, UK, 2008, ISBN 978-0-415-40970-4, 372 pp. (published August 2007)

## **BOOKS UNDER CONTRACT**

Delatte, Norbert J., *Beyond Failure: Forensic Case Studies for Civil Engineers*, ASCE Press, manuscript submitted to ASCE September 28, 2007, expected publication in November 2008.

Delatte, Norbert J., Editor, *Failure, Distress and Repair of Concrete Structures*, Woodhead Publishing Ltd. of Abington Hall, Abington, Cambridge CB21 6AH, 20 individually authored chapters, contributor first drafts due February 2008

### **PROCEEDINGS EDITED**

Bosela, Paul A., and Delatte, Norbert J., *Forensic Engineering: Proceedings of the Fourth Congress*, ASCE, October 6 – 9, 2006.

Norbert Delatte and Will Hansen, *Proceedings of the 8<sup>th</sup> International Conference on Concrete Pavements*, Colorado Springs, Colorado, August 14 – 18, 2005.

Bosela, Paul A., Delatte, Norbert J., and Rens, Kevin L., *Forensic Engineering: Proceedings of the Third Congress*, ASCE, October 19 – 21, 2003.

### **REFEREED JOURNAL PUBLICATIONS**

Delatte, N.J. (2006) “Learning from Failures,” *Civil Engineering Practice*, Journal of the Boston Society of Civil Engineers Section/ASCE, Vol. 21, No. 2, pp. 21 – 38, Boston, MA, Fall/Winter 2006.

Pearson, C. and Delatte, N. (2006) “The Collapse of the Quebec Bridge, 1907,” *ASCE Journal of Performance of Constructed Facilities*, February 2006.

Delatte, N., and Storey, C., *Effects of Density and Mixture Proportions on Freeze-Thaw Durability of Roller-Compacted Concrete Pavement*, pp. 45 – 52, *Concrete Materials 2005*, Transportation Research Record 1914, 2005.

Cynthia Pearson and Norbert Delatte, “The Ronan Point Apartment Tower Collapse and its Effect on Building Codes,” *ASCE Journal of Performance of Constructed Facilities*, Volume 19, Number 2, pp. 172 – 177, May 2005.

Delatte, “A Failure of Cold-Formed Steel Beams during Concrete Placement,” technical note, *ASCE Journal of Performance of Constructed Facilities*, Volume 19, Number 2, pp. 178 – 181, May 2005.

Delatte, N., *Simplified Design of Roller-Compacted Composite Pavement*, pp. 57 – 65, *Pavement Design and Accelerated Testing 2004*, Transportation Research Record 1896, 2004.

Amer, N., Storey, C., and Delatte, N., *Roller-Compacted Concrete Mix Design Procedure with Gyrotory Compactor*, pp. 46 – 52, *Concrete 2004*, Transportation Research Record 1893, 2004.

Suzanne King and Norbert Delatte, “Collapse of 2000 Commonwealth Avenue: A Punching Shear Case Study,” *ASCE Journal of Performance of Constructed Facilities*, pp. 54 – 61, Vol. 18, No. 1, February 2004.

Delatte, N., “Undergraduate Summer Research in Structural Engineering,” *ASCE Journal of Professional Issues in Engineering Education and Practice*, pp. 37 – 43, Vol. 130, No. 1, January 2004.

H. Toutanji, N. Delatte, S. Aggoun, R. Duval, A. Danson, “Effect of supplementary cementitious materials on the compressive strength and durability of short-term cured concrete,” *Cement and Concrete Research* Vol. 34 No. 2 (2004) pp. 311 – 319.

Siswobusono, P; Chen, S-E; Jones, S; Callahan, D; Grimes, T; Delatte, N, “Serviceability-Based Dynamic Load Rating of a LT20 Bridge,” *Experimental Techniques*, Vol. 28 No. 6, Society for Experimental Mechanics, 2004.

Delatte, N; Chen, S; Maini, N; Parker, N; Agrawal, A; Mylonakis, G; Subramaniam, K; Kawaguchi, A; Bosela, P; McNeil, S; Miller, R, "Application of Nondestructive Evaluation to Subway Tunnels," pp. 127-135, *Design of Structures 2003*, Transportation Research Record 1845, 2003.

Delatte, Norbert, and Anshuman Sehdev, "Mechanical Properties and Durability of Bonded-Concrete Overlays and Ultrathin Whitetopping Concrete," p. 16, *Concrete 2003: Materials and Construction*, Transportation Research Record 1834, 2003.

Nader Amer, Norbert Delatte, and Chris Storey, "Using Gyrotory Compaction to Investigate Density and Mechanical Properties of Roller-Compacted Concrete," p. 77, *Concrete 2003: Materials and Construction*, Transportation Research Record 1834, 2003.

Delatte, "Using the LTPP Database in a Pavement Design Course," *ASCE Journal of Professional Issues in Engineering Education and Practice*, Vol. 128, No. 4, October 2002.

Delatte, "Agricultural Product Loads and Warehouse Failures," *ASCE Journal of Performance of Constructed Facilities*, Vol. 16, No. 3, August 2002.

Norbert J. Delatte and Kevin L. Rens, "Forensics and Case Studies in Civil Engineering Education: State-of-the-Art," *ASCE Journal of Performance of Constructed Facilities*, Vol. 16, No. 3, August, 2002. This paper was invited by the editor.

Delatte, N.J., "Lessons from Roman Cement and Concrete," *ASCE Journal of Professional Issues in Engineering Education and Practice*, Vol. 127, No. 3, July 2001. Awarded the journal's 2000 – 2001 Best Paper Award.

Martin, Rachel, and Delatte, Norbert, "Another Look at the Hartford Civic Center Coliseum Collapse," *ASCE Journal of Performance of Constructed Facilities*, Vol. 15, No. 1, February 2001. Awarded the journal's 2001 Best Paper Award.

Martin, Rachel, and Delatte, Norbert, "Another Look at the L'Ambiance Plaza Collapse," *ASCE Journal of Performance of Constructed Facilities*, Vol. 14, No. 4, November 2000, and closure of discussion to above paper, *ASCE Journal of Performance of Constructed Facilities*, Vol. 16 No. 1, February, 2002.

Delatte, N. J., Wade, D. M., and Fowler, D. W., "Laboratory and Field Testing of Concrete Bond Development for Expedited Bonded Concrete Overlays," *ACI Materials Journal*, May-June 2000.

Delatte, N. J., Williamson, M. Scott, and Fowler, David W., "Bond Strength Gain with Maturity of High Early Strength Bonded Concrete Overlays," *ACI Materials Journal*, March-April 2000.

Delatte, N. J., Fowler, D. F., McCullough, B. F., and Gräter, S. F., "Investigating Performance of Bonded Concrete Overlays," *ASCE Journal of the Performance of Constructed Facilities*, Vol. 12 No. 2, May 1998.

Delatte, N. J., "Failure Case Studies and Engineering Ethics in Engineering Mechanics Courses," *ASCE Journal of Professional Issues in Engineering Education and Practice* Vol. 123 No. 3, July 1997, and closure of discussion to above paper, *ASCE Journal of Professional Issues in Engineering Education and Practice* Vol. 124 No. 4, October 1998.

Delatte, N. J., Fowler, D. W., and McCullough, B. F., "Criteria for Opening Expedited Bonded Concrete Overlays to Traffic," p. 103, *Advances in Concrete and Concrete Pavement Construction*, Transportation Research Record 1574, 1997.

Delatte, N. J., Fowler, D. W., and McCullough, B. F., "Full-Scale Test of High Early Strength Bonded Concrete Overlay Designs and Construction Methods," pp. 9-16, *Portland Cement Concrete Pavements, Bridges, and Quality Management*, Transportation Research Record 1544, 1996.

## **ORGANIZED CONFERENCE AND TECHNICAL PROGRAM**

Alabama Concrete Technology and Engineering Conference, October 23 and 24, 2001, 23 presentations, 70 participants, Homewood, Alabama.

## **WORKSHOP AND SEMINAR INSTRUCTOR AND DEVELOPER**

Case Studies Workshop – funded by NSF and ASCE, Birmingham 2003, CSU 2004, 2005, 2006, University of Colorado – Denver 2007

FHWA CPTP Workshop – Concrete Pavement Construction Best Practices & Recent Advances

- Columbus, Ohio, for 2005 Ohio Concrete Pavement Seminar & Workshop Series, sponsored by Ohio Concrete Construction Association, March 1, 2005
- Gainesville, Florida, for Florida Department of Transportation, March 31, 2005

FHWA/ACI Portland Cement Concrete (PCC) Overlays: State of the Technology Workshop

- Delaware Department of Transportation, Dover, Delaware, March 29, 2004
- Nebraska LTAP, Lincoln, Nebraska, September 9, 2004
- Iowa State University Center for PCC Pavement Technology, Ames, Iowa, December 2004

LTPP Data Analysis Professor Training Workshop, University of Nevada, Reno, December 14 – 15, 2001, sponsored by ASCE-LTPP Task Committee, Long Term Pavement Performance Program, and Federal Highway Administration.

## **PRESENTATIONS**

Lessons from failure investigations: A resource for engineering education, by Ken Carper, Delatte, and Kevin Rens, International Conference on Forensic Engineering: Failure Diagnosis and Problem Solving, Mumbai, India, December 8, 2007

Developing a Structural Design Method for Pervious Concrete Pavement, Session 47 Pervious Pavement for Public Roadways, 60<sup>th</sup> Annual Ohio Transportation Engineering Conference, October 25, 2006.

Evaluation of High Absorptive Materials to Improve Internal Curing of Low Permeability Concrete, Session 15 Concreting Into the Future, 60<sup>th</sup> Annual Ohio Transportation Engineering Conference, October 24, 2006.

Developing a Structural Design Method for Pervious Concrete Pavement, ACI Northeast Ohio Chapter meeting, October 12, 2006.

Developing a Structural Design Method for Pervious Concrete Pavement, Concrete Technology Forum: Focus on Pervious Concrete, NRMCA, Nashville, Tennessee, May 25, 2006.

With John Cleary, “Developing a Structural Design Method for Pervious Concrete Pavement,” 14th Annual International Center for Aggregates Research (ICAR) Symposium in Austin, Texas, April 25, 2006.

Maintenance and Management Lessons Learned from Bridge Collapses, Session 54 Bridge Maintenance, 59<sup>th</sup> Annual Ohio Transportation Engineering Conference, October 28, 2005.

Roller Compacted Concrete (RCC) Pavement, Session 32 New Tools for Design Professionals, 59<sup>th</sup> Annual Ohio Transportation Engineering Conference, October 27, 2005.

Effect of Density and Mixture Proportions on Freeze-Thaw Durability of Roller-Compacted Concrete Pavement (05-0861), Norbert Joseph Delatte, Cleveland State University, Chris Storey, University of Alabama, Birmingham, selected for inclusion in TRB Catalog of Practical Papers.

*Anchor Bolt Design for Support Structure Foundations*, Session 819, Design and Sign, Signal, and Light Supports, Transportation Research Board 83<sup>rd</sup> Annual Meeting, 15 January 2004.

*Simplified Design of Roller-Compacted Composite Pavement*, Session 330, Mechanistic-Empirical Design, Transportation Research Board 83<sup>rd</sup> Annual Meeting, 12 January 2004.

*Use of Gyratory Compactor for Making RCC Specimens*, session Roller-Compacted Concrete Pavements, ACI Fall Convention, Boston, Massachusetts, September 29, 2003.

*Using Failure Case Studies in Civil Engineering Courses*, 2003 American Society for Engineering Education Annual Conference & Exposition, Nashville, Tennessee, 24 June 2003.

*Linking Research and Teaching*, 2003 Walter P. Moore, Jr. award winner invited presentation, session Things You Need to Know About NDE of Concrete, ACI Spring Convention, Vancouver, B.C., Canada, March 31, 2003.

*Application of Nondestructive Evaluation to Subway Tunnel Systems*, Session 706, Modern Tunnel Construction and Evaluation Techniques, Transportation Research Board 82<sup>nd</sup> Annual Meeting, 15 January 2003.

*Using Gyratory Compaction to Investigate Density and Mechanical Properties of RCC*, Session 282, Improving Portland Cement Concrete Pavement: Bottom to Top, Transportation Research Board 82<sup>nd</sup> Annual Meeting, 13 January 2003.

*Mechanical Properties and Durability of BCO and UTW Concrete*, Session 212, Physical and Mechanical Properties of Concrete Pavements, Overlays, and Structures, Transportation Research Board 82<sup>nd</sup> Annual Meeting, 13 January 2003. Also presented at 1<sup>st</sup> Annual UTCA Transportation Research Symposium November 17, 2003.

*Using Case Studies in Courses*, Forensics & Failures Session, ASCE 150<sup>th</sup> Anniversary Civil Engineering Conference & Exposition, November 6, 2002.

*Workshop on Failure Case Studies in Engineering Education*, Value-Added Education session, ACI Fall Convention, Phoenix, Arizona, October 28, 2002.

*UTW and SASW for General Aviation Airport Pavement Rehabilitation*, 2002 Federal Aviation Administration Technology Transfer Conference, Atlantic City, N.J., May 7, 2002.

*New Method for Fabricating Roller-Compacted Concrete Laboratory Specimens*, Research in Progress: Part I: session, ACI Spring Convention, Detroit, Michigan, April 21, 2002.

*Fatigue Design Loads for Noncantilevered Support Structures*, in session Performance of Sign and Signal Support Structures, ASCE 2002 Structures Congress and Exhibition, 6 April, 2002.

*Using the LTPP Database to Compare Predicted and Actual Pavement Performance*, Pavement Performance Data Analysis Forum, TRB Data Analysis Working Group, TRB Annual Meeting, January 12, 2002, Washington, D. C.

*Laboratory and Field Application of the Maturity Method to Bond Strength*, in session on Maturity Testing of Concrete, ACI Fall Convention, Dallas, Texas, October 28, 2001.

“Roller-Compacted Concrete Mix Design with Gyratory Compactor,” Alabama Concrete Technology and Engineering Conference, October 23 and 24, 2001, Homewood, Alabama.

“Concrete Overlays for Highways, Streets, and Local Roads,” Alabama Concrete Technology and Engineering Conference, October 23 and 24, 2001, Homewood, Alabama.

*The Hyatt Regency Collapse, Twenty Years Later: What We've Learned and What We Haven't*, Alabama Section ASCE Summer Meeting, Gulf Shores, Alabama, August 2, 2001.

*High Performance Concrete for Bonded Pavement Overlay Applications*, Second International Symposium on Maintenance and Rehabilitation of Pavements and Technological Control, Auburn, Alabama, July 31, 2001. Presentation translated into Portuguese.

*Multicampus Multidisciplinary Curriculum Development in Transportation Engineering*, 2001 Annual Meeting of the Southeastern Section of The American Society for Engineering Education, The Citadel, Charleston, S.C., April 3, 2001.

*Undergraduate Summer Research in Structural Engineering*, 2001 Annual Meeting of the Southeastern Section of The American Society for Engineering Education, The Citadel, Charleston, S.C., April 2, 2001.

*High Performance Bonded Concrete Overlays*, at the American Concrete Institute Spring Convention in Philadelphia, PA on March 26, 2001.

*Concrete Pavement Performance in the Southeastern United States*, presented at the 2001 SASHTO Quality Workshop for Materials and Construction in Charlotte, NC on March 14, 2001, and at the American Concrete Institute Spring Convention in Philadelphia, PA on March 26, 2001.

*The Collapse That Wasn't: The Citicorp Tower Case*, seminar presented at Butler Manufacturing Company workshop, January 23 and 25, 2001, also presented to Birmingham Branch ASCE, February 1, 2001.

*Using the LTPP Database in a Pavement Design Course*, presented during Informal Discussion on Using DataPave and the LTPP Data in Pavement Engineering Classes, January 9, 2001, at 80<sup>th</sup> Meeting of the Transportation Research Board, Washington, D.C.

*Ultra-Thin Whitetopping – Design Issues*, seminar sponsored by PCA and ACPA, Birmingham, Alabama, September 14, 2000.

*Using failure case studies in civil engineering education*, the 2<sup>nd</sup> ASCE Forensics Congress, San Juan, Puerto Rico, May 21-23, 2000, also at Alabama Section ASCE Summer Meeting, Gulf Shores, Alabama, August 3, 2000.

*Engineering the Environment: A New Course for Recruiting Civil and Environmental Engineers*, Gulf Symposium, Mobile, Alabama, April 11, 2000.

*Concrete Pavement Restoration (CPR) – When, What, and How*, 43<sup>rd</sup> Alabama Transportation Conference, Montgomery, Alabama, February 9, 2000.

*Performance of Whitetopping Overlays*, in session 318 “Pavement Rehabilitation – State Experience, at Transportation Research Board 79<sup>th</sup> Annual Meeting, 11 January 2000.

*Universal Lessons from Roman Cement and Concrete*, in Session SU02 “From Robert E. Lee to the Egyptians – Concrete Innovations,” ACI Fall Convention, Baltimore, October 31, 1999.

*Performance of Bonded Concrete Overlays*, with John T. Laird, II, in session 213 “Performance of Rehabilitated Pavements,” at Transportation Research Board 78<sup>th</sup> Annual Meeting, 12 January 1999, Washington, DC, paper number 990339, selected for inclusion in TRB Catalog of Practical Papers. Abstract on the web at <http://gulliver.trb.org/publications/am/catalog99.html>.

*Interface Stresses and Bond Strength in Bonded Concrete Overlays*, in session 334 “Bond Interaction Between Two-Layer Concrete Systems,” Transportation Research Board 78<sup>th</sup> Annual Meeting, 13 January 1999, Washington, DC

*Faculty Mentoring and Failure Case Studies in Civil Engineering Education*, work-in-progress presentation at Frontiers in Education '98, November 7, 1998, Tempe, Arizona. On the web at <http://fie.engrng.pitt.edu/fie98/papers/1052.pdf>.

“Teaching Concrete with Failure Case Studies,” Session: Bring Your Classroom to Life, ACI Fall Convention, Los Angeles, October 28, 1998.

“Opportunities in Transportation Engineering,” presented to the Birmingham Chapter of the Society of Women Engineers, October 23, 1998

“Failure Case Studies in Concrete,” Fifth Undergraduate Faculty Enhancement Symposium on Teaching the Materials Science, Engineering and Field Aspects of Concrete, NSF Center for Advanced Cement-Based Materials (ACBM) and Portland Cement Association (PCA), University of California at Berkeley, July 12-15, 1998.

“Laboratory Exercises to Demonstrate Properties of Fiber Reinforced Concretes,” Fourth Faculty Enhancement Workshop, National Science Foundation Center for Advanced Cement-Based Materials, Lehigh University, July 20-23, 1997.

“Toward Greater Use of Forensic Case Studies in the Undergraduate Civil Engineering Curriculum,” 1997 ASEE Zone 1 Spring Meeting, April 25-26 1997.

Presented a paper by Fowler, D. W., and Delatte, N. J., “Graduate Course in Forensic Engineering,” at ASCE Texas Section Spring Meeting, 22 April 1994, Corpus Christi, Texas.

## **SESSIONS MODERATED**

Session 6: Use of Innovative Materials in PCC Paving, 8<sup>th</sup> International Conference on Concrete Pavements, Colorado Springs, Colorado, August 14 – 18, 2005.

Forensics & Failures Session, ASCE 150<sup>th</sup> Anniversary Civil Engineering Conference & Exposition, November 6, 2002.

Alabama Concrete Technology and Engineering Conference, October 23 and 24, 2001, Homewood, Alabama. Moderated session 1B – New Products, Materials, and Technologies I and session 2A – Bridges II: Innovations in Bridges and Bridge Repair.

Theme 5 Session 5C, *Life-Cycle Analysis/Maintenance Management*, Second International Symposium on Maintenance and Rehabilitation of Pavements and Technological Control, Auburn, Alabama, August 1, 2001.

Strength and Constructibility of Concrete Pavements, Overlays, and Repairs: Part 1, 9 – 12 a.m., and Part 2, 2 – 5 p.m., at the American Concrete Institute Spring Convention in Philadelphia, PA on March 26, 2001.

## **REFEREED PROCEEDINGS PUBLICATIONS**

Delatte, N. J. Bosela, P., Sutton, R., Beasley, W., and Bagaka's, J., “Assessing the Impact of Case Studies on the Civil Engineering and Engineering Mechanics Curriculum, Phase II,” *Proceedings of the 2008 American Society for Engineering Education Annual Conference & Exposition*, Pittsburgh, Pennsylvania, June 2008.

Delatte, N. J., Using Failure Case Studies to Address Civil Engineering Program and BOK Criteria,” *Proceedings of the 2008 American Society for Engineering Education Annual Conference & Exposition*, Pittsburgh, Pennsylvania, June 2008.

ASEE conference papers on the web at <http://www.asee.org/conferences/v2search.cfm>

Lessons from failure investigations: A resource for engineering education, by Ken Carper, Delatte, and Kevin Rens, International Conference on Forensic Engineering: Failure Diagnosis and Problem Solving, Mumbai, India, December 6 – 9, 2007

Delatte, Norbert, and Cleary, John, “Using Internal Curing in Concrete Pavements,” *Proceedings of the International Conference on Optimizing Paving Concrete Mixtures and Accelerated Concrete Pavement Construction and Rehabilitation, Atlanta, Georgia*, November 7 – 9, 2007

Norb Delatte, Rosemary Sutton, William Beasley, and Joshua Bagaka’s, “Assessing the Impact of Case Studies on the Civil Engineering and Engineering Mechanics Curriculum,” *Proceedings of the 2007 American Society for Engineering Education Annual Conference & Exposition*, Honolulu, Hawaii, 24 – 27 June 2007.

Norb Delatte, Paul Bosela, Kevin Rens, Kenneth Carper, and Kevin Sutterer, “Findings from Workshops on Failure Case Studies in the Civil Engineering and Engineering Mechanics Curriculum,” *Proceedings of the 2007 American Society for Engineering Education Annual Conference & Exposition*, Honolulu, Hawaii, 24 – 27 June 2007.

Norbert Delatte, Nader Amer, and Chris Storey, “Effect of Density on Strength and Freeze-Thaw Durability of Roller Compacted Concrete,” *Proceedings of the 8<sup>th</sup> International Conference on Concrete Pavements*, pp. 268 – 282, Colorado Springs, Colorado, August 14 – 18, 2005.

David Peshkin, Monty Wade, James Bruinsma, and Norbert Delatte, “Case Studies in Accelerated Practices for Airfield Concrete Pavement Construction,” *Proceedings of the 8<sup>th</sup> International Conference on Concrete Pavements*, pp. 1204 – 1221, Colorado Springs, Colorado, August 14 – 18, 2005.

Chris Storey and Norbert Delatte, “Lessons from the Collapse of the Schoharie Creek Bridge,” *Forensic Engineering: Proceedings of the Third Congress*, pp. 158 – 167, Bosela, Paul A., Delatte, Norbert J., and Rens, Kevin L., Editors, ASCE, October 19 – 21, 2003.

Stacey Solava and Norbert Delatte, “Lessons from the Failure of the Teton Dam,” *Forensic Engineering: Proceedings of the Third Congress*, pp. 168 – 177, Bosela, Paul A., Delatte, Norbert J., and Rens, Kevin L., Editors, ASCE, October 19 – 21, 2003.

Cynthia Rouse and Norbert Delatte, “Lessons from the Progressive Collapse of the Ronan Point Apartment Tower,” *Forensic Engineering: Proceedings of the Third Congress*, pp. 190 – 200, Bosela, Paul A., Delatte, Norbert J., and Rens, Kevin L., Editors, ASCE, October 19 – 21, 2003.

Norbert Delatte, Shen-en Chen, Nitin Maini, Neville Parker, Anil Agrawal, George Mylonakis, Kolluru Subramaniam, Akira Kawaguchi, Paul Bosela, Sue McNeil, and Richard Miller, “Using Nondestructive Evaluation (NDE) to Evaluate the Condition of Subway Tunnel Systems,” *Forensic Engineering: Proceedings of the Third Congress*, pp. 329 – 340, Bosela, Paul A., Delatte, Norbert J., and Rens, Kevin L., Editors, ASCE, October 19 – 21, 2003.

Delatte, Norbert J., *Using Failure Case Studies in Civil Engineering Courses*, Proceedings of the 2003 American Society for Engineering Education Annual Conference & Exposition, Nashville, Tennessee, 22 – 25 June 2003.

Delatte, Norbert J., *Developing Case Studies in Failures and Ethics for Engineering Educators*, Proceedings of the 2003 American Society for Engineering Education Annual Conference & Exposition, Nashville, Tennessee, 22 – 25 June 2003.

Delatte, Norbert J., *Re-engineering a Summer Undergraduate Research Site*, Proceedings of the 2003 American Society for Engineering Education Annual Conference & Exposition, Nashville, Tennessee, 22 – 25 June 2003.

Delatte, Norbert J., Chen, Shen-en, and Jackson, N. Mike, "UTW and SASW for General Aviation Airport Pavement Rehabilitation," Proceedings, 2002 Federal Aviation Administration Technology Transfer Conference, Atlantic City, N.J., May 7, 2002.

Delatte, N.J., *High Performance Concrete for Bonded Pavement Overlay Applications*, Proceedings, Second International Symposium on Maintenance and Rehabilitation of Pavements and Technological Control, Auburn, Alabama, July 29 – August 1, 2001.

Norbert J. Delatte, Michael Anderson, Kathleen Leonard, and John McFadden, *Multicampus Multidisciplinary Curriculum Development in Transportation Engineering*, Proceedings, 2001 Annual Meeting of the Southeastern Section of The American Society for Engineering Education, The Citadel, Charleston, S.C., April 3, 2001.

Norbert J. Delatte, *Undergraduate Summer Research in Structural Engineering*, Proceedings, 2001 Annual Meeting of the Southeastern Section of The American Society for Engineering Education, The Citadel, Charleston, S.C., April 2, 2001.

Delatte, N.J., *Using failure case studies in civil engineering education*, Proceedings of the 2<sup>nd</sup> ASCE Forensics Congress, San Juan, Puerto Rico, May 21-23, 2000.

Delatte, N. J., *Faculty Mentoring and Failure Case Studies in Civil Engineering Education*, Proceedings, Frontiers in Education '98, November 4-7, 1998, Tempe, Arizona.

Choi, D., Fowler, D. W., Jirsa, J. O., and Delatte, N. J., "Use of Large Powder-Driven Shear Connectors to Improve Interface Bond Strength of Concrete in Bonded Concrete Overlays," *Proceedings, A Research-to-Practice Symposium on Research and Rehabilitation of Bridges and Pavements, May 1-3, 1996, Warwick, Rhode Island*, published May 1997.

Choi, D., Fowler, D. W., Jirsa, J. O., and Delatte, N. J., "Use of Shear Connectors to Improve Bond in Concrete Overlays," 4<sup>th</sup> CANMET/ACI International Conference on Durability of Concrete, Sydney, Australia, August 18, 1997.

Brademeyer, B. D., Delatte, N. J., and Markow, M. J., "Analyses of Moving Dynamic Loads on Highway Pavements: Part II – Pavement Response," Proceedings, International Symposium on Heavy Vehicle Weights and Dimensions, Kelowna, British Columbia (1986) pp. 381-393.

## **TRB ANNUAL MEETING PREPRINT PAPERS**

*Implementation of Internal Curing in Transportation Concrete (08-1629)*  
John Cleary, Cleveland State University  
Norbert Joseph Delatte, Cleveland State University  
Transportation Research Board 87<sup>th</sup> Annual Meeting, 13-16 January 2008.

*Effect of Steel Slag Replacement on Fresh and Hardened Properties of Concrete (08-1643)*  
Richard S. Obratil, Cleveland State University  
Ashish Patel, Cleveland State University  
Paul A. Bosela, Cleveland State University  
Norbert Joseph Delatte, Cleveland State University  
Transportation Research Board 87<sup>th</sup> Annual Meeting, 13-16 January 2008.

*Laboratory Evaluation of Fatigue Performance of Roller-Compacted Concrete: Bonded Concrete Overlay Composite Pavement System (08-1609)*  
Nader Amer, Cleveland State University  
Norbert Joseph Delatte, Cleveland State University  
Transportation Research Board 87<sup>th</sup> Annual Meeting, 13-16 January 2008.

*Structural Design of Pervious Concrete Pavement (07-0956)*

Norbert Joseph Delatte, Cleveland State University

Transportation Research Board 86<sup>th</sup> Annual Meeting, 21-25 January 2007.

*Maintenance and Management Lessons Learned from Bridge Collapses (07-2306)*

Norbert Joseph Delatte, Cleveland State University

Dan Miller, Cleveland State University

Constantine Peter Kontos, Cleveland State University

Transportation Research Board 86<sup>th</sup> Annual Meeting, 21-25 January 2007.

*Reducing Cracking of High-Performance Concrete Bridge Decks (07-0953)\*\**

Norbert Joseph Delatte, Cleveland State University

Dale Crawl, Ohio Department of Transportation

Eric Charles Mack, TranSystems

Transportation Research Board 86<sup>th</sup> Annual Meeting, 21-25 January 2007.

\*\* Design and Construction Group Practice-Ready Paper

*Accelerated Practices for Airfield Concrete Pavement Construction: Lessons Learned from Planning Phase (07-3407)*

James Bruinsma, Applied Pavement Technology, Inc.

David G. Peshkin, Applied Pavement Technology Inc.

Monty J. Wade, Applied Pavement Technology, Inc.

Norbert Joseph Delatte, Cleveland State University

Transportation Research Board 86<sup>th</sup> Annual Meeting, 21-25 January 2007.

*Accelerated Practices for Airfield Concrete Pavement Construction: Lessons Learned from Construction Phase (07-3400)*

Monty J. Wade, Applied Pavement Technology, Inc.

James Bruinsma, Applied Pavement Technology, Inc.

David G. Peshkin, Applied Pavement Technology Inc.

Norbert Joseph Delatte, Cleveland State University

Transportation Research Board 86<sup>th</sup> Annual Meeting, 21-25 January 2007.

*Evaluation of Ground-Penetrating Radar for Detecting Defects in Concrete at Early Ages (05-0936)*

Sathaporn Lek-udom, Cleveland State University

Paul A. Bosela, Cleveland State University

Norbert Joseph Delatte, Cleveland State University

Transportation Research Board 84<sup>th</sup> Annual Meeting, 9-13 January 2005.

Delatte, Calvert, E., and Fouad, F., *Anchor Bolt Design for Support Structure Foundations*, Paper 04-3126,

Transportation Research Board 83<sup>rd</sup> Annual Meeting, 11-15 January 2004.

Fouad, F., Calvert, E., Davidson, J., and Delatte, *Proposed Revisions to AASHTO 2001 Support Specifications*,

Paper 04-4404, Transportation Research Board 83<sup>rd</sup> Annual Meeting, 11-15 January 2004.

In addition, several papers subsequently published in Transportation Research Record – see above.

## RESEARCH REPORTS

Delatte, N., Miller, D., and Mrkajic, A. (2007) "Field Performance Investigation on Parking Lot and Roadway Pavements: Final Report," RMC Research & Education Foundation, December 1, 2007. Online at <http://www.rmc-foundation.org/newsite/images/Long%20Term%20Field%20Performance%20of%20Pervious%20Final%20Report.pdf>

Evaluation of High Absorptive Materials to Improve Internal Curing of Low Permeability Concrete, State Job No. 134227, Federal Contract Number 20809, \$ 98,702.79, Ohio Department of Transportation, May 2007. Posted on the web at <http://www.dot.state.oh.us/research/2007/Materials/134227-FR.pdf>.

Peshkin, David G., James E. Bruinsma, Monty J. Wade, and Norbert Delatte, *Accelerated Practices for Airfield Concrete Pavement Construction – Volume I: Planning Guide*, Report IPRF-01-G-002-02-3, Innovative Pavement Research Foundation, Skokie, Illinois, April 2006. Available on the web at <http://www.iprf.org/products/main.html>.

Peshkin, David G., James E. Bruinsma, Monty J. Wade, and Norbert Delatte, *Accelerated Practices for Airfield Concrete Pavement Construction – Volume II: Case Studies*, Report IPRF-01-G-002-02-3, Innovative Pavement Research Foundation, Skokie, Illinois, April 2006. Available on the web at <http://www.iprf.org/products/main.html>.

Fouad H. Fouad, James S. Davidson, Norbert Delatte, Elizabeth A. Calvert, Shen-en Chen, Edgar Nunez, Ramy Abdalla, *Structural Supports for Highway Signs, Luminaires, and Traffic Signals*, NCHRP Report 494, National Cooperative Highway Research Program, Transportation Research Board, Washington, D. C., 2003. Available on the web at [http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp\\_rpt\\_494.pdf](http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_494.pdf).

Delatte, N; Chen, S; Maini, N; Parker, N; Agrawal, A; Mylonakis, G; Subramaniam, K; Kawaguchi, A; Bosela, P; McNeil, S; Miller, R, *The Application of Nondestructive Evaluation to Subway Tunnel Systems*, Final report for Great Cities Universities Coalition Transportation Initiative Task 008 Maintenance and Management of Transit Infrastructure. On the web at <http://www.eng.uab.edu/cee/GCUTI/GCUTI.htm> - click on “Projects,” “008,” and then “Final Report.”

Norbert Delatte, Nader Amer, and Chris Storey, *Improved Management of RCC Pavement Technology*, Report No. 01231, the University Transportation Center for Alabama, February, 2003. Posted on the web at [http://utca.eng.ua.edu/projects/final\\_reports/01231-rpt.pdf](http://utca.eng.ua.edu/projects/final_reports/01231-rpt.pdf)

Norbert Delatte, Shen-en Chen, James Davidson, Anshuman Sehdev, Nader Amer, and Mark Endfinger, *Design and Quality Control of Concrete Overlays*, Report No. 01220, the University Transportation Center for Alabama, December 31, 2001. Posted on the web at [http://utca.eng.ua.edu/projects/final\\_reports/01220-RPT.pdf](http://utca.eng.ua.edu/projects/final_reports/01220-RPT.pdf)

Houssam Toutanji, Andre D. Danson, Norbert Delatte, *Supplementary Cementitious Materials to Enhance Bridge Deck Durability*, Report No. 00305, the University Transportation Center for Alabama, November 2001. Posted on the web at [http://utca.eng.ua.edu/projects/final\\_reports/00305-rpt.pdf](http://utca.eng.ua.edu/projects/final_reports/00305-rpt.pdf)

Norbert J. Delatte, David Eckhoff, Houssam Toutanji, and John McFadden, *Transfer of Transportation Management and Safety Technologies*, Report No. 00202, the University Transportation Center for Alabama, January 2001. Posted on the web at [http://utca.eng.ua.edu/projects/final\\_reports/00202report.pdf](http://utca.eng.ua.edu/projects/final_reports/00202report.pdf)

Norbert J. Delatte, Michael Anderson, Kathleen Leonard, and John McFadden, *Development of a Multi-Campus Multidisciplinary Transportation Curriculum for UTCA*, Report No. 99249, the University Transportation Center for Alabama, December 2000. Posted on the web at [http://utca.eng.ua.edu/projects/final\\_reports/99249report.pdf](http://utca.eng.ua.edu/projects/final_reports/99249report.pdf)

Kathleen M. Leonard, Houssam Toutanji, Michael Anderson, Norbert Delatte, Jeanelle Hodges, *Gearing Up for Transportation Engineering. A Summer Institute*, Report No. 00304, the University Transportation Center for Alabama, December 2000. Posted on the web at [http://utca.eng.ua.edu/projects/final\\_reports/00304report.htm](http://utca.eng.ua.edu/projects/final_reports/00304report.htm)

Norbert J. Delatte, Mudhar Safarjalani, and Natalie B. Zinger, *Concrete Pavement Performance in the Southeastern United States*, Report No. 99247, the University Transportation Center for Alabama, September 2000. Posted on the web at [http://utca.eng.ua.edu/projects/final\\_reports/99247report.pdf](http://utca.eng.ua.edu/projects/final_reports/99247report.pdf)

Delatte, Norbert J., and Hightower, James, *Feasibility Study: Improving Field Predictions of Helical Anchor Capacity*, Alabama Power, September 30, 1999

Delatte, N. J., Fowler, D. W., and McCullough, B. F., *High Early Strength Bonded Concrete Overlay Designs and Construction Methods*, Research Report 2911-4, Center for Transportation Research, November 1996.

Delatte, N. J., Gräter, S. F., Treviño-Frias, M., Fowler, D. W., and McCullough, B. F., *Partial Construction Report of a Bonded Concrete Overlay on IH-10, El Paso, and Guide for Expedited Bonded Concrete Overlay Design and Construction*, Research Report 2911-5F, Center for Transportation Research, December 1996.

### **TECHNOLOGY TRANSFER COURSES DEVELOPED**

Concrete Pavement Restoration, 1 day, Birmingham, Alabama, November 2, 2000, with James Mack of the American Concrete Pavement Association

Use of Aggregates in Transportation, 1 day, Birmingham, Alabama, September 28, 2000

### **POSTER PRESENTATIONS**

Delatte, Norbert J., *Developing Case Studies in Failures and Ethics for Engineering Educators*, 2003 American Society for Engineering Education Annual Conference & Exposition, Nashville, Tennessee, 23 June 2003.

Delatte, Norbert J., *Re-engineering a Summer Undergraduate Research Site*, 2003 American Society for Engineering Education Annual Conference & Exposition, Nashville, Tennessee, 24 June 2003.

### **DOCTORAL DISSERTATION SUPERVISED**

Nader Amer, D.Eng., Dissertation Title: "Laboratory Evaluation of Fatigue Behavior of Thin Bonded Overlays on Roller-Compacted Concrete Pavements," 2007, also published as Portland Cement Association Report PCA R&D Serial No. 2872

### **MSCE THESES SUPERVISED**

James G. Hightower, Thesis Title: "Improving the Field Prediction of Helical Anchor Capacity Using the SASW Method," fall 2000

Nader Amer, Thesis Title: "Development and Validation of a New Test Method for Fabricating RCC Specimens," summer 2002

Nitin Maini, Thesis Title: "Application of Nondestructive Evaluation to Subway Tunnel Systems," fall 2002

Anshuman Sehdev, Thesis Title: "Behavior and Durability of Concrete Overlays," fall 2002

Natalia Zinger, Thesis Title: "Optimization of Core Section Geometry and First Iteration as a part of Feasibility Study of Rapid Reusable Composite Bridge," fall 2002

Chris Storey, Thesis Title: "Freeze-Thaw Durability of Gyrotory Compacted RCC," spring 2004 (UAB)

Eric Mack, Thesis Title: "Using Internal Curing to Prevent Concrete Bridge Deck Cracking," summer 2006

Blake Kreuer, Thesis Title: "Bond Shear Strength of a Rigid Pavement System with a Roller Compacted Concrete Base," summer 2006

John Cleary, Thesis Title: "Reducing Concrete Cracking for Structures and Pavements," December 2007

Dan Miller, Thesis Title: "Field Performance of PCPC in Severe Freeze-Thaw Environments," December 2007

Aleksandr Mrkajic, Thesis Title: "Investigation and Evaluation of PCPC Using Nondestructive Testing and Laboratory Evaluation of Field Samples," December 2007

### **MSCE REPORTS SUPERVISED**

Mudhar Safarjalani, "The Performance of Concrete Pavements in the Southeastern United States"

Lillard D. Evans, "Employment Access using Public Transportation in the Birmingham Metropolitan Area"

David Harchelroad, "Anchor Bolt Embedment Design for Support Structure Foundations"

Hashem Jarrar, "Traffic Control Innovations: An Evaluation of Work Zone Safety with Implications for the State of Alabama"

Rhonda Webb, "Performance of Whitetopping," presented at 2000 TRB Annual Meeting by Delatte

### **GRADUATE STUDENT COMMITTEE SERVICE**

CSU

Sathaporn Lek-Udom, D.Eng.  
Ayan Ghosh, MSCE, thesis

UAB

Ramy S. Abdalla, MSCE, thesis  
Monika Belton, MSCE, thesis  
Dan Connell, MSCE, thesis  
Fred Gauntt III, MSCE, report  
Tom Grimes, MSCE, thesis  
Renee Morquecho, MSCE, thesis  
Anna Simpson, MSCE, report  
George H. Talley, II, MSCE, report  
Marc Thompson, MSCE, report  
Robert Warr, MSCE, thesis

### **SERVICE**

Member of Provost search committee, 2006

Elected to 2006 AAUP bargaining council, at large

Reviewer for The Gorgas Scholarship Program, sponsored by the Alabama Power Foundation, Inc., administered by the Alabama Academy of Science, 2000-2001.

Research Project Judge for the National Science Foundation Alabama Louis Stokes Alliance for Minority Participation and Alabama Minority Graduate Education Program, summer 1999

Member of School of Engineering Research Advisory and Space Resources Committee, 1997 – present

Member of School of Engineering Academic Misconduct Committee, spring term 1998

Member of School of Engineering Redshirt Engineering Committee, 1998 – present

Member of School of Engineering Depuis Interview Committee, 1998

Organized department presentations for visit by Alabama School of Fine Arts students to School of Engineering, 20 February 1998.

Chair of department open house committee, 8-10 February 1998, member of School of Engineering open house committee 2000.

Organized department presentations for Faraday Lecture, 28 January 1998.

Chair for UA Systems Joint Ph.D. working group on admissions and transfer, fall 1997.

### **TEACHING WORKSHOPS ATTENDED**

Fifth Undergraduate Faculty Enhancement Symposium on Teaching the Materials Science, Engineering and Field Aspects of Concrete, NSF Center for Advanced Cement-Based Materials (ACBM) and Portland Cement Association (PCA), University of California at Berkeley, July 12-15, 1998.

National Science Foundation Teaching Teachers to Teach Engineering Workshop, July-August 1997

Fourth Faculty Enhancement Workshop, National Science Foundation Center for Advanced Cement-Based Materials, Lehigh University, July 20-23, 1997

USMA Instructor Summer Workshop, June-August 1997

National Science Foundation Teaching Teachers to Teach Engineering Workshop, Junior Team Mentor, August 1996

USMA Instructor Summer Workshop, June-August 1996

### **TECHNICAL WORKSHOPS ATTENDED**

University Professors' Masonry Workshop, University of Minnesota, Minneapolis, Minnesota, March 13-15, 2005

Multi-Hazard Building Design Summer Institute: Dam Safety, Federal Emergency Management Agency, Emmitsburg, Maryland, July 21-24, 2003

Design of Concrete Bridges by the AASHTO LRFD Specifications, Portland Cement Association, A Seminar for Civil Engineering Educators in Cooperation with the Precast Prestressed Concrete Institute and the Post-Tensioning Institute, Skokie, Illinois, August 8-9, 2002.

University Professors' Masonry Workshop, Clemson University, Clemson, S.C., March 12-13, 2001

Multi-Hazard Building Design Summer Institute Wind Engineering Course, Federal Emergency Management Agency, Emmitsburg, Maryland, July 24-28, 2000

Engineering of Concrete Pavements, A Seminar for Engineering Educators, American Concrete Pavement Association, Concrete Reinforcing Steel Institute, National Ready Mixed Concrete Association, Skokie, Illinois, June 21-23, 2000

The Engineering and Economics of Reinforced Concrete Buildings, Portland Cement Association, Skokie, Illinois, July 27-29, 1998

National Center for Asphalt Technology Professor Training Course, Auburn University, Auburn, Alabama, June 15-26, 1998, with expenses in the amount of \$ 1360.00 provided by NCAT.

#### **PARTICIPATION IN STUDENT ACTIVITIES**

Faculty Advisor, UAB Student Chapter ASCE, fall 2000 – spring 2003

Faculty Advisor, Tau Beta Pi, Alabama Gamma Chapter, fall 1999 – spring 2001

CEE Faculty Representative, 1998 UAB School of Engineering Open House Planning Committee

Academic Counselor, Civil Engineering Division, USMA

Officer Representative and Coach, USMA Sailing Team

Assistant Faculty Advisor, USMA Concrete Canoe Team

#### **FELLOWSHIPS**

Eisenhower faculty fellowship, U.S. DOT (awarded four times)

#### **PAPERS CURRENTLY UNDER PEER REVIEW OR ACCEPTED FOR PUBLICATION**

None at this time.

#### **ACI COMMITTEE DOCUMENTS**

*Guide for the Design and Construction of Concrete Parking Lots*, ACI 330R-08, published 2008.

*Specification for Pervious Concrete Pavement*, ACI 522.1-08, published 2008

*Concrete Overlays for Pavement Rehabilitation*, ACI 325.13R-06, published 2006.

*Pervious Concrete*, ACI 522R-06, published 2006.

*Guide for Design of Jointed Concrete Pavements for Streets and Local Roads*, ACI 325.12R-02, effective January 11, 2002.

*Accelerated Techniques for Concrete Paving*, ACI 325.11R-01, effective January 3, 2001.

#### **OUTREACH ACTIVITIES**

Ambassador for ASCE Birmingham Branch 150<sup>th</sup> Anniversary Celebration Building Big Program to St. Barnabas School, Birmingham, 85 5<sup>th</sup> through 8<sup>th</sup> graders, May 22, 2001

Ambassador for ASCE Birmingham Branch Coloring Book competition to Tuxedo and C.J. Donald schools, spring 2000

## **OTHER PUBLICATIONS**

Delatte, N. J., *Examining Structural Failure Case Studies in the Classroom*, Concrete International, pp. 47-49, Vol. 22, No. 6, June 2000.

Delatte, N. J., review of "When Engineering Fails," by Henry Petroski, in the *ASCE Journal of Professional Issues in Engineering Education and Practice*, Vol. 125 No. 3, July 1999.

Delatte, N. J., "Tips on Teaching Concrete with Failure Case Studies," *Academic News*, Center for Advanced Cement-Based Materials and Portland Cement Association, Volume 4, Number 1, Winter 1999.

Delatte, N. J., "Failure Case Studies in Concrete," Proceedings, Fifth Undergraduate Faculty Enhancement Symposium on Teaching the Materials Science, Engineering and Field Aspects of Concrete, NSF Center for Advanced Cement-Based Materials (ACBM) and Portland Cement Association (PCA), University of California at Berkeley, July 12-15, 1998.

Delatte, N. J., "Laboratory Exercises to Demonstrate Properties of Fiber Reinforced Concretes," Proceedings, Fourth Faculty Enhancement Workshop, National Science Foundation Center for Advanced Cement-Based Materials, Lehigh University, July 20-23, 1997.

Delatte, N. J., "Toward Greater Use of Forensic Case Studies in the Undergraduate Civil Engineering Curriculum," Proceedings, 1997 ASEE Zone 1 Spring Meeting, April 25-26 1997.

Delatte, N. J., "Black Diamond Maintenance in SWA," *Ordinance*, May 1992.

## **CONSULTING ACTIVITIES COMPLETED**

Several reports prepared for insurance companies through Bosela Forensic Engineering Consultants.

Deposition in Case of Avis L. Johnson v. Oxmoor Ridge Apartments, et al., Case No. 01-0005, 14 October 2002.

Report in Case of Jerry Maddox, Thomas W. Gibbs, Randall Battles, Jonathan Battles, v. Dukes Contracting, Inc., et al., Civil Action Number: CV 99-4834, 15 May 2001. Case settled before trial.

Deposition in Case of The Industrial Development Board of Geneva County; and Brooks Ag Company, Inc., vs. J & M Testing Lab, Inc., American Buildings Company, et al., 21 November 2000. Case settled before trial.

Report of Inspection of Damage to Downs Residence, Enterprise, Alabama 26 February, 1999. Report prepared for insurance company.