

MARY STROUP-GARDINER
Senior Pavement Preservation Engineer
California Pavement Preservation Center, California State University, Chico, CA.
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EDUCATION

Ph.D., Civil Engineering, University of Minnesota, 1997
M.S., Civil Engineering, University of Nevada, Reno, 1987
B.S., Civil Engineering, University of Nevada, Reno, 1985

PROFESSIONAL REGISTRATION

Alabama Board of Professional Engineers, January, 1999.

EXPERIENCE

January 3 2008 – Present

Senior Pavement Preservation Engineer
California Pavement Preservation Center
California State University, Chico, CA

- Responsible for development of training materials for California Department of Transportation (Caltrans), evaluation and documentation of a wide range of pavement preservation treatments for both flexible and rigid pavement systems, forensic investigations of pavement preservation surface treatments problems, development of new non-standard specifications for innovative treatments.

August 2006 – January 3, 2008

Professor, Auburn University

August 2001 to August 2006

Associate Professor, Auburn University

January 1997 to August 2001

Assistant Professor, Auburn University

- Academic-related work and research focuses on ABET objectives, outcomes, assessments and feedback (Department ABET Coordinator 1999 – 2005), participation in Industry Liaison Council meetings, and student and faculty hiring, retention, and advancement (NSF)
- Research work focuses on a fundamental understanding of, and test method development for, characterizing a range of Civil Engineering materials (stabilized soils, aggregates, concrete, and hot mix asphalt), process control procedures for contractors, development of statistically-based pavement performance-related specifications, and the use of innovative technologies in the quality control of highway construction practices.
- Primary research topics in the last 3 years include 1) identification and quantification of odor-related volatile organic compound (VOC) emissions from hot mix asphalt production, and development of simple laboratory tests for paving contractors, 2) pavement asset management, 3) pavement preservation and management, 4) relationships between material properties and noise, and 5) lime mud stabilization of soils.

October 1991 to December 1996 Research Fellow, University of Minnesota

Research work included:

- Developed state-of-the-art materials research laboratory which was responsible for both the binder and mixture characterization of the bituminous materials used in the construction of the \$25M Minnesota Road Research (Mn/ROAD) project

(<http://mnroad.dot.state.mn.us>).

- Coordinated of interdepartmental research between the Chemical Engineering and Material Science, and Civil Engineering Departments for the \$1M Federal Highway Administration (FHWA) project on the evaluation of the benefits of polymer modified asphalts in cold climates.
- Investigated various environmentally-related materials topics for the use of 1) manufactured roofing waste as an additive in asphalt concrete mixtures, and 2) crumb rubber (waste tires) as either an aggregate replacement or as a polymer-modifier.

May 1987 to September 1991 Research Faculty, University of Nevada-Reno

Research work included:

- One of the three designers of the WesTrack test track for the Federal Highway Administration.
- Management of the University of Nevada, Reno pavement materials research program which handled state, federal, and privately funded research in excess of \$500,000 a year. Besides overall management of the entire program, served as either Principle Investigator or Co-Principle Investigator on asphalt and highway construction research projects for Nevada Department of Transportation, National Asphalt Pavement Association, Federal Aviation Administration, Federal Highway Administration, US Corps of Engineers, Arizona Department of Transportation.

PROFESSIONAL ACTIVITIES

International Journal for Pavement Engineering, Editorial Board

ASCE Journal of Civil Engineering Materials, Associate Editor

American Society for Testing and Materials, Membership Secretary, D4
Executive Committee

Transportation Research Board, member, Committee on Bituminous-Aggregate
Combinations to Meet Surface Requirements

Association of Asphalt Paving Technologists, member

American Society of Civil Engineers (ASCE), member

American Society of Engineering Educators (ASEE)

Women Engineers Programs and Networks (WEPAN), member

HONORS

ASCE ExCEED Scholarship, July 2005, West Point.

American Society for Testing and Materials D4 Honorary Membership, 2004

W.J. Emmons Annual Award for best paper Association of Asphalt Paving
Technologists, 2000

Auburn University Junior Faculty Research Award, 2000

Auburn University Outstanding Civil Engineering Faculty, 2000

American Society for Testing and Materials Distinguished Service Award, June 2000

EDITOR

Constructing Smooth Hot Mix Asphalt Pavements, ASTM STP 1433, M. Stroup-Gardiner, Ed.,
American Society for Testing and Materials, 2003

Flexible Pavement Rehabilitation and Maintenance, ASTM STP 1348, P.S. Kandhal and M. Stroup-Gardiner, Eds., American Society for Testing and Materials, 1998.

PEER REVIEW PUBLICATIONS

- Lange, C. R., and Stroup-Gardiner, M. Commercial Odor-Reducing Agents for Minimizing the Odor Potential of Asphalt Binders. *ASCE Journal of Environmental Engineering*. Vol. 132, No. 4. pp. 567-573. April 2006.
- Carter, A., Stroup-Gardiner, M. Indirect Tension Relaxation Test to Evaluate the Effect of the Addition of RAP to HMA mixes. *ASCE Journal of Materials* (accepted for publication)
- Hodgson D.N., Schindler A.K., Brown D.A., Stroup-Gardiner M. The Feasibility of Using Self-Consolidating Concrete (SCC) in Drilled Shaft Applications. *ASCE Journal of Materials in Civil Engineering*. Vol. 17, No. 3, pp. 363-369 May/June 2005.
- Stroup-Gardiner, M., Lange, C.R. and Carter, A. "Quantification of Emission Potential from Asphalt Binders Using Mass Loss and Opacity Measurements. *International Journal of Pavement Engineering*. pp. 191-200 Vol. 6, No. 3, Sept. 2005.
- Lange, C.R., and Stroup-Gardiner, M., "Quantification of Potentially Odorous Volatile Organic Compounds from Asphalt Binders Using Head-Space Gas Chromatography," *Journal of American Society for Testing and Evaluation*, Vol. 33, No. 2 March, 2005.
- Harris, J.K., Parker, F., and Stroup-Gardiner, M. "The Effect of Material Transfer Devices on Flexible Pavement Smoothness," *Transportation Research Board Transportation Research Board TRR 1900*. pp. 50-55 Jan. 2004
- Stroup-Gardiner, M., Lange, C.R. "Field Validation of Laboratory Simulation of HMA Emissions", *International Journal for Pavement Engineering*. pp. 257-264 Vol. 6, No. 4 Dec. 2005.
- Stroup Gardiner, M., Carter, A., Das, P., and Bowman, B. "Development of a Ride Quality Specification Using an Inertial Profiler", *Transportation Research Boards Transportation Research Board, TRR 1900* pp. 41-49. Jan 2004.
- Stroup-Gardiner, M., Nixon, J., and Das, P., "Automated Temperature Profiling During HMA Construction," *Transportation Research Board, TRR 1900* pp. 41-49 Jan. 2004.
- Stroup-Gardiner, M., Studdard, J., and Wagner, C., "Influence of Hot Mix Asphalt Macrotecture on Skid Resistance," *ASTM Journal of Testing and Evaluation*, No. 10861, Jan. 2004.
- Stroup-Gardiner, M, Wagner, C.T., Hodgson, D.T., and Sain, J., "Effect of Temperature Differentials on Density and Smoothness," *Constructing Smooth Hot Mix Asphalt (HMA) Pavements, ASTM STP 1433*, M.S. Gardiner, Ed., American Society for Testing and Materials, West Conshohocken, PA 2002.
- Stroup-Gardiner, M., and Nelson, W., "Use of Normal Propyl Bromide Solvents for Extraction and Recovery of Asphalt Cements," *Journal of Testing and Evaluation* (June, 2001).
- Stroup-Gardiner, M., NeSmith, C., and Law, M., "Using Infrared Thermography to Detect and Measure Segregation", *International Journal of Pavement Engineering*, 2000, Vol. 00, pp 1-29, Oct. 2000.
- Stroup-Gardiner, M., and Law, M., "Application of ROSAN High Frequency Laser Surface Texture Measurements to Control HMA Segregation", *Journal of Association of Asphalt Paving Technologist*, Vol. 69, 2000.
- Stroup-Gardiner, M., "Using Rolling Nuclear Gauges to Identify Segregation in HMA Pavements", *American Society of Testing and Materials, Journal of Materials*, Vol. 28, No. 2, pp 121-130, March 2000.
- Stroup-Gardiner, M., "Influence of Segregation on Pavement Performance," *Journal of Association of Asphalt Paving Technologist*, Vol. 69, 2000.

- Stroup-Gardiner, M., Wagner, C., "Use of RAP in Superpave HMA Applications," Transportation Research Board, Jan. 1999.
- Stroup-Gardiner, M., Newcomb, D., DeSombre, R., Olson, R., "Volumetric Considerations in Testing, Construction, and Performance of HMA Pavements," International Society for Asphalt Pavements 8th International Conference on Asphalt Pavements, 1997.
- Stroup-Gardiner, M., Newcomb, D., Kussman, W., Olson, R., "Characteristics of Typical Minnesota Aggregates," Transportation Research Record 1583, 1997.
- Stroup-Gardiner, M., Newcomb, D., Olson, R., Teig, J., "Traffic Densification of Asphalt Concrete Pavements," Transportation Research Record 1575, 1997.
- Stroup-Gardiner, M., "The Significance of Phase Angle Measurements for Asphalt Cements," Journal of the Association of Asphalt Paving Technologists, Vol. 65, 1996
- Adedeji, A., Grunfelder, T., Bates, F.S., Macosko, C.W., Stroup-Gardiner, M., Newcomb, D., "Dispersion of Triblock Copolymers in Asphalt Oligomer," Rubber Chemistry and Technology, 1996.
- Adedeji, A., Grunfelder, T., Bates, F.S., Macosko, C.W., Stroup-Gardiner, M., Newcomb, D., "Asphalt Modified by SBS Triblock Copolymer: Structures and Properties," Polymer Engineering and Science, Vol. 36, No. 12, June 1996.
- Stroup-Gardiner, M., Newcomb, D., DeSombre, R., "Characterizing Properties of Asphalt Cement at Cold Temperatures," Transportation Research Record 1545, 1996.
- Stroup-Gardiner, M., Newcomb, D., "An Evaluation of Rheological Measurements for Unmodified and Modified Asphalt Cements," Transportation Research Record 1488, 1995.
- Stroup-Gardiner, M., Newcomb, D., Savage, D., "Defining Specification Limits with Respect to Testing Variability," Association of Asphalt Paving Technologists, Vol. 63, 1994.
- Stroup-Gardiner, M., Newcomb, D., Tanquist, B., "Asphalt Rubber Interactions," Transportation Research Record 1417, 1993.
- Newcomb, D., Stroup-Gardiner, M., Weikle, B.M., Drescher, A., "Dense Graded and Stone Mastic Asphalts Containing Roofing Shingle Waste," American Society for Testing and Materials STP 1193, 1993.
- Shook, J.F., Diaz, M.A., Stroup-Gardiner, M., "Performance-Related Specifications for Asphalt Concrete," Proceedings of the 7th International Conference on Asphalt Pavements, Nottingham, England, 1992.
- Krutz, N., Stroup-Gardiner, M., "Permanent Deformation Characteristics of Recycled Tire Rubber Modified and Unmodified Asphalt Concrete Mixtures", Transportation Research Record 1259, 1992.
- Pickering, K, Sebaaly, P., Stroup-Gardiner, M., Epps, J., "Evaluating New Generation of Anti-Stripping Additives", Transportation Research Record 1342, 1992.
- Stroup-Gardiner, M., Epps, J. "Laboratory Tests for Assessing Moisture Damage of Asphalt Concrete Mixtures", Transportation Research Record 1353, 1992.
- Curtis, C., Stroup-Gardiner, M., Jones, D., "Effect of Aggregate Chemistry on the Net Adsorption of Asphalt: A Test Development", Transportation Research Record 1362, 1992.
- Krutz, N., Siddharthan, R., Stroup-Gardiner, M., "Investigation of Rutting Potential Using Static Creep Testing on Polymer Modified Asphalt Concrete Mixtures," Transportation Research Record 1317, 1991.

- Davis, D., Stroup-Gardiner, M., "Correlation of Laboratory Tests to Field Performance for Chip Seals," Transportation Research Record 1300, 1991.
- Newcomb, D., Stroup-Gardiner, M., Epps, J., "Laboratory and Field Studies of Polyolefin and Latex Modifiers for Asphalt Mixtures," American Society for Testing and Materials STP 1108, 1992.
- Stroup-Gardiner, Epps, J., "Effect of Lime on Asphalt Concrete Pavement Performance," ASCE Materials Congress, Aug. 1990.
- Krutz, N., Stroup-Gardiner, M., "A Relationship Between Permanent Deformation of Asphalt Concrete and Moisture Sensitivity", Transportation Research Record 1259, 1990.
- Jenkins, S., Stroup-Gardiner, M., Newcomb, D., "Criteria for Selecting Desirable Quantities of Coal Tar Emulsion Seal Coat Components", Transportation Research Record 1216, 1990.
- Stroup-Gardiner, M., Newcomb, D., "A Comparison of Dolomitic versus Normally Hydrated Lime as an Anti-Stripping Additive", Transportation Research Record 1269, 1990.
- Stroup-Gardiner, M., Newcomb, D., Epps, J., "Precision of Methods for Determining Asphalt Cement Content", Transportation Research Record 1228, 1989.
- Stroup-Gardiner, M., Newcomb, D., Anderson, H., Epps, J., "Influence of Lime on the Fines Content of Asphalt Concrete Mixtures", American Society of Civil Engineers, Journal of Materials, 1988.
- Stroup-Gardiner, M., Newcomb, D., "Statistical Evaluation of Nuclear Asphalt Content Gauges Under Field Conditions," Transportation Research Record 1178, 1988.
- Stroup-Gardiner, M., Newcomb, D., Epps, J., "Laboratory Test Methods and Field Correlations for Predicting the Performance of Chip Seals", American Society for Testing and Materials STP, 1988.
- Stroup-Gardiner, M., Epps, J., "Four Variables Affecting the Performance of Lime in Asphalt-Aggregate Mixture", Transportation Research Record 1115, 1987.
- Paulsen, G., Epps, J., Stroup-Gardiner, M., "Roofing Waste in Asphalt Paving Mixtures", Transportation Research Record 1115, 1987.

PEER REVIEWED PROCEEDINGS

- Stroup-Gardiner, M., Zech, W., Rathod, J. Changes in Key Flexible Pavement Condition Measurements Over Typical Warranty Time Periods. Transportation Research Board Jan. 2007 (possible publication).
- Lange, C.R., and Stroup-Gardiner, M. Time-Dependent Speciation of Aromatic and Polyaromatic Hydrocarbons (PAHs) in Bitumen Fume. BG Academy for Occupational Health and Safety, Dresden Germany. Health Effects of Occupational Exposure to Emissions Symposium. June 2006.
- Carter, A., and Stroup-Gardiner, M. Influence of Texture on Tire-Pavement Noise. International Conference on Asphalt Pavements. Quebec City, Quebec. Aug. 2006.
- Carter A., Stroup-Gardiner M., Use of digital imaging to evaluate HMA surface texture and aggregate coverage on surface treatments. Canadian Technology Asphalt Association, Conference Proceeding, Nov. 2005.
- Carter, A., Stroup-Gardiner, M. An evaluation of coarse aggregate tests at the NCAT test track. 6th Transportation Specialty Conference (6^e Conférence spécialisée sur le génie des transports). June 2005.
- Lange, C., Stroup-Gardiner, M., "Characterization of Asphalt Odors and Emissions"

- International Society for Asphalt Pavements, Copenhagen, Denmark, Aug. 2002.
- Stroup-Gardiner, M., Lange, C., "Affect of Odor Reducing Additives on Smoke and Emissions from Asphalt Binders," Transportation Research Board 2002 meeting
- Stroup-Gardiner, M., "Selective Absorption of Asphalt Fractions by SBS Triblock Copolymers," Proceedings of the 25th North American Thermal Analysis Society, McLean, Virginia, Sept. 7-9, 1997.
- Stroup-Gardiner, M., Newcomb, D., Adedji, A., Macosko, C., Bates, F.C., "Evaluation of Low Temperature Properties of Polymer Modified Asphalts," Fourth International Rilem Symposium, Mechanical Tests for Bituminous Materials, May 14-16, 1997, France.
- Stroup-Gardiner, M., Newcomb, D., Weikle, B., "Permanent Deformation and Low Temperature Behavior of Roofing Waste Modified HMA," Federal Highway Administration and Environmental Protection Agency Symposium Proceedings, Recovery and Effective Reuse of Discarded materials and By-Products for Construction of Highway Facilities, Denver, Colorado, Oct. 19-22, 1993.
- Stroup-Gardiner, M., "Cost Factors", Federal Highway Administration, Crumb Rubber Modifier Workshop, Design Procedures and Construction Practices, Denver, Colorado, March 1-2, 1993.
- Stroup-Gardiner, M., Krutz, N., Epps, J., "Fundamental Properties of Asphalt Rubber Mixtures," Presentation at Sixth Annual 4R Conference and Road Show, Atlanta, Georgia, Dec. 6-8, 1992.
- Stroup-Gardiner, M., Newcomb, D., "Data Distributions for Asphalt Concrete Resilient Modulus and Tensile Strength," Strategic Highway Research Program and Transportation Research Board Joint Conference, Gothenberg, Sweden, Sept. 1989.
- Stroup-Gardiner, M., Epps, J., "Comparison of Mix Design Methods for Rubberized Asphalt Concrete Mixtures", Proceedings, Asphalt Rubber Producer's Group Annual Meeting, Kansas City, MO, Nov., 1989.

PRESENTATIONS (Last 5 Years Only)

- Use of Readily Available Traffic Data for Adjusting the AASHTO 2002 Pavement Design Guide Traffic Inputs: An Alabama Case Study, TRB Jan. 2005 meeting
- Profile, Rut Depth and Cross Slope Measurements Using the ARRB Walking Profiler," Transportation Research Board Jan. 2004.
- Automated Temperature Profiling During HMA Construction," Transportation Research Board, Jan. 2004.
- "Odor Emissions Research at NCAT", 47th Annual National Asphalt Pavement Association Convention, San Diego, CA, March 3-7, 2003
- "Effect of MTDs on Segregation," Alabama Asphalt Pavement Association Annual Meeting, Birmingham, AL. March 2003
- "Characterizing Asphalt Odors and Emissions," International Society for Asphalt Pavements Meeting, Copenhagen, Denmark. August 2002.
- "Hot-Mix Asphalt Smoke and Emission Potential", Transportation Research Board Annual Meeting, Washington, D.C., January, 17, 2002
- "In-Line Process Control of Binders", Southern Association of State Highway and Transportation Officials, Myrtle Beach, SC, February 25-28, 2002
- "Odor Emissions Research at NCAT", 47th Annual National Asphalt Pavement Association

Convention, San Francisco, CA, March 3-7, 2002

“Techniques for Identifying Segregation Using the ROSAN Unit”, Asphalt Pavement Alliance, Nov. 13-15, 2001, Austin, Texas

A Rheological Explanation of Why Polymers Influence the Phase Angle of Polymer Modified Asphalts, American Chemical Society Symposium on Asphalt, 217th ACS Meeting, Anaheim, California, March, 1999.

Detecting and Measuring Segregation in HMA, 42nd Annual Alabama Transportation Conference, Montgomery, AL, February, 1999.

Use of RAP in Superpave HMA Applications, Transportation Research Board Annual Meeting, Washington, D.C., Jan. 1999.

SESSIONS & SYMPOSIUMS CHAIRED

Constructing Smooth HMA Pavements, American Society for Testing and Materials Symposium, December 2001.

Engineering Performance, American Chemical Society Symposium on Asphalt, Number One Thermoplastic Polymer, 217th ACS Meeting, Anaheim, California, March 1999.

Aggregates for Asphalt Mixtures: Properties and Performance, Transportation Research Board Annual Meeting, Washington, D.C., Session 140, January, 1999.

Symposium on Flexible Pavement Rehabilitation and Maintenance, American Society for Testing and Materials, San Diego, California, December, 1997. Co-Chairman with P.S. Kandhal.

Laboratory Test Methods to Evaluate Quality of Bituminous Mixtures and Aggregates, Transportation Research Board Annual Meeting, Washington, D.C., Session 56, January, 1997.

REPORTS

Carter, A, and Stroup-Gardiner, M., Field Noise and Texture Evaluation of Different Pavement Surface Draft, Final Report for Phase I. Quebec Department of Transportation, Feb. 2005

Stroup-Gardiner, M., Parker, F., Harris, K, and Williams, M.B., The Effect of Material Transfer Devices on HMA Material Uniformity and Ride Quality, Alabama Department of Transportation, Project Number 970-471, February, 2004.

Stroup-Gardiner, M., and Hanson, D., “HMA for Seniors and Graduates”, Federal Highway Administration, Feb. 2002.

Stroup-Gardiner, M., “Process Control of Binders During HMA Production”, Federal Highway Administration, March, 2002.

Stroup-Gardiner, M., and Pratt, N.D., “Low Speed Measurements of IRI”, National Center for Asphalt Technology, May, 2002.

Stroup-Gardiner, M., “Influence of ESAL Variability on Structural Number”, Highway Research Center, May, 2002.

Stroup-Gardiner, M., and Nelson, W. , “Use of Normal Propyl Bromide Solvents for Extraction and Recovery of Asphalt Cements,” National Center for Asphalt Technology Report 00-06, February, 2001.

Stroup-Gardiner, M., Studdard, J., and Wagner, C., “Influence of Hot Mix Asphalt Macrotecture on Skid Resistance,” Highway Research Center, April, 2001.

- Stroup-Gardiner, M. and Wagner, C., "Real-Time Measurements of Thickness, Smoothness, and Volumetrics," National Center for Asphalt Technology Report, April, 2001.
- Stroup-Gardiner, M. and Salomon, A., "Assessment of HMA and PCC Production in Recent Years," Asphalt Pavement Alliance, January, 2001.
- Stroup-Gardiner, M., "NCHRP 9-11 Segregation in Hot Mix Asphalt Pavements: Interim Report (Tasks 1-3)," National Cooperative Highway Research Board, March, 1998.
- Stroup-Gardiner, M., "Relationships Between Rheological Properties and Morphology for Polymer Modified Asphalts," Minnesota Department of Transportation, 1997
- Stroup-Gardiner, M., Newcomb, D., Drescher, A., Zhang, W., "Influence of Test Method Variables on MN/ROAD Hot Mix Asphalt Mixture Test Results," Federal Aviation Administration, Jan., 1997
- Stroup-Gardiner, M., Newcomb, D., "Investigation of Hot Mix Asphalt Mixtures at MN/ROAD - Final Report," Minnesota Department of Transportation, July, 1996
- Stroup-Gardiner, M., Newcomb, D., Crow, B., Kussman, W., Wegman, D., "Moisture Sensitivity in Asphalt Concrete Mixtures," Minnesota Department of Transportation Report No. MN/RC - 96-04, 1996
- Stroup-Gardiner, M., Newcomb, D.E., "Polymer Literature Review," Minnesota Department of Transportation Report No. 95-27, 1995.
- Newcomb, D., Stroup-Gardiner, M., Kim, J., Allen, B., Wattenhoffer-Spry, J., "Polymerized Crumb Rubber Modified Mixtures in Minnesota," Minnesota Department of Transportation Report No. 94-08, 1994.
- Newcomb, D., Stroup-Gardiner, M., Weikle, B., Drescher, A., "Influence of Roofing Shingles on Asphalt Concrete," Minnesota Department of Transportation Report No. 93-09, June, 1993.
- Stroup-Gardiner, M., Newcomb, D., "Physio-Chemical Evaluation of Asphalt-Aggregate Interactions," Minnesota Department of Transportation Report No. 94-12, 1994.
- Newcomb, D., Zhang, W., Stroup-Gardiner, M., "Investigation of Large-Stone Mixtures," Minnesota Department of Transportation Report No. 94-09, 1993.
- Davis, D., Stroup-Gardiner, M., Epps, J., Krutz, N., "Field Manual on Design and Construction of Chip Seals for Nevada Department of Transportation," March, 1991.
- Krutz, N., Stroup-Gardiner, M., Sebaaly, P., "Type II Coarse Gradation Asphalt concrete Permanent Deformation (Creep) Study," for the Nevada Department of Transportation, April 1991.
- Stroup-Gardiner, M., Henry, S., "Relationship Between Moisture Conditioning of Laboratory Samples and Pavement Performance," National Lime Association, January, 1991.
- Stroup-Gardiner, M., Epps, J.A., "Laboratory Test Results for Chip Seals Prepared with Emulsions", Nevada Department of Transportation, 1989.
- Stroup-Gardiner, M., Henry, S., "Report of Test Results to ARE, Inc. for Federal Highway Administration Contract DTFH61-87-00071", 1989.
- Epps, J.A., Newcomb, D., Stroup-Gardiner, M., "Review of Arizona Department of Transportation's Quality Assurance Asphalt Concrete Specification", 1990.
- Jenkins, S., Stroup-Gardiner, M., "Monitoring of Airport Pavement Test Sections: Evaluation for Oct. 1989", for Federal Aviation Administration, 1989.
- Stroup-Gardiner, M., Epps, J.A., "Laboratory Evaluation of Sand-Asphalt-Sulfur Mixtures", for Etnyre, Inc., 1989.

- Stroup-Gardiner, M., Newcomb, D., Shields, P., "Site Characterization and Materials Characterization of Asphalt Concrete for Overlay Design Test Sites", for the Nevada Department of Transportation, 1988.
- Stroup-Gardiner, M., Siddharthan, R., "Survey and Evaluation of Nevada's Transportation Infrastructure: Structural Capacity of Highways", for the Nuclear Waste Project Office, 1988.
- Stroup-Gardiner, M., Dietz, J., Epps, J.A., "Properties of Typical Paving Mixtures When Tar Sand Products are Used as a Component of the Mixture", for Weber State College, 1988.
- Dunn, D., Stroup-Gardiner, M., Newcomb, D., "Effectiveness of Lime as an Anti-Strip Additive with Various Aggregate Sources", for Chemstar Lime Co., 1988.
- Stroup-Gardiner, M., Epps, J.A., Waite, H., "The Effects of Various Lime Products on the Moisture Sensitivity of Asphalt Concrete Mixtures", for Chemstar Lime Co., 1987.
- Stroup-Gardiner, M., Newcomb, D., Epps, J., "Precision of Methods for Determining Asphalt Content", for the National Asphalt Pavement Association, 1987.
- Stroup-Gardiner, M., Newcomb, D., Epps, J.A., "Precision of ASTM D2041: Theoretical Maximum Specific Gravity", for the National Asphalt Pavement Association, 1987.
- Stroup-Gardiner, M., Newcomb, D., Epps, J., "Precision of ASTM D2726: Bulk Specific Gravity of Compacted Bituminous Materials", National Asphalt Pavement Association, 1987.
- Stroup-Gardiner, M., Newcomb, D., "Statistical Evaluation of Nuclear Density Gauges Under Field Conditions", for the National Asphalt Pavement Association, 1987.
- Stroup-Gardiner, M., Newcomb, D., Epps, J.A., "Precision of ASTM D1188: Bulk Specific Gravity of Paraffin-Coated Compacted Bituminous Materials", National Asphalt Pavement Association, 1987.
- Stroup-Gardiner, M., "Statistical Based Specifications for Density Control of Asphalt Concrete Pavements", for the National Asphalt Pavement Association, 1987.
- Stroup-Gardiner, M., Epps, J.A., "Relationships Between Subgrade Resilient Modulus and "R"-Value", for the Nevada Department of Transportation, 1986.
- Stroup-Gardiner, M., Newcomb, D., "Evaluation of Options Described for the Theoretical Maximum Specific Gravity Test Procedure (ASTM D2041)" for the Nevada Department of Transportation, 1986.
- Stroup-Gardiner, M., Newcomb, D., "Use of C-Values for Monitoring Asphalt Cement Viscosities", for the Nevada Department of Transportation, 1985.
- Anderea, J., Epps, J., Stroup-Gardiner, M., Siegel, W., "Effect of Additives on the Physical Properties of Paving Grade Asphalt", for Sun Oil, 1984.

OUTREACH / CONTINUING EDUCATION ACTIVITIES (PDH's)

- Update on automated methods for measuring segregation. Florida Department of Transportation staff. Aug. 2005.
- Introduction of new test method for evaluating RAP mixes to members and visitors at June, 2005 American Society for Testing and Materials International D4 committee meeting, Reno, Nevada.
- Update on emissions research. Wisconsin Asphalt Pavement Association. 2004.
- "Odor Emissions Research at NCAT", 47th Annual National Asphalt Pavement Association Convention, San Diego, CA, March 3-7, 2003
- "Effect of MTDs on Segregation," Alabama Asphalt Pavement Association Annual Meeting, Birmingham, AL. March 2003.

- National Center for Asphalt Technology two week “Professor Training Short Course in Asphalt Technology” (June, 1999). Developed and taught 2-hour lecture on current pavement design topics (22 professors, FHWA representatives).
- Florida Department of Transportation, Development and presentation of the pilot courses for 1) Certification for HMA Roadway Technician (levels I, II, and Manager), and 2) Certification for HMA Plant Technician (levels I, II, and Manager), March 1999.
- National Center for Asphalt Technology two week “Course in Asphalt Technology” short course (Jan. 1998). Taught 8 hours of lecture of a 44 hour lecture series for industry (12 students). Topics covered included History of Asphalt Cements, Superpave Binder Tests, Maintenance and Rehabilitation topics.
- Alabama Department of Transportation Superpave Technician Training Short Course (Feb. 17, 1998). Topics included the basic ideas and use of hot mix asphalt volumetrics.
- Georgia Department of Transportation Technician Certification Training (Feb. 23, 1998; April 13, 1998). Taught 4 hours of a 16-hour lecture, 16-hour lab short course for HMA industry certification of technicians and laboratory managers (16 students). Topics included the basic ideas and use of hot mix asphalt volumetrics.
- Southeastern Superpave Center, “Superpave Volumetric Mix Design Training Seminar” (March 4, 1998; April 1, 1998). Topics included the basic ideas and use of hot mix asphalt volumetrics.
- National Highway Institute “Superpave for the Generalist Engineer and Project Manager,” Senior Lecturer (March 25-26, 1998). Taught half of a two-day course on the development and use of the Superpave binder and mix technology (16 students).
- Center for Transportation Studies, University of Minnesota, “Evaluation of Moisture Sensitivity of Asphalt Concrete Mixtures,” Co-wrote and Co-taught a one-day short course with Dr. D. Newcomb, Minneapolis, Minnesota. May, 1996.
- National Center for Asphalt Technology two week “Course in Asphalt Technology Short Course,” Lecturer, Jan. 1997; Jan. 1998.
- Alabama Department of Transportation “Superpave Technician Training Short Course,” Feb. 17, 1998.
- Georgia Department of Transportation Technician Certification Training, Feb. 23, 1998; April 13, 1998.
- Southeastern Superpave Center, “Superpave Volumetric Mix Design Training Seminar,” March 4, 1998; April 1, 1998.
- National Highway Institute, “Superpave for the Generalist Engineer and Project Manager,” Senior Lecturer, March 25-26, 1998.

University Service

- Civil Engineering Department ABET coordinator/representative (EC2000 College of Engineering) 1999 – 2005
- ASCE Student Chapter Faculty Advisor, 2003 – 2006
- Undergraduate Research Fellowship Selection Committee (competitive competition)
- Member, Search Committee for Hydraulics Faculty Position, 2003 and 2004 (two searches).
- Chairman, Search Committee for Pavement Design and Materials Faculty Position (July, 2000).
- Member, Search committee for Materials Professor, October 1997.

Services to institutions, industry, governments

Editorial Board, International Journal of Pavement Engineering

Associate Editor, ASCE Journal of Civil Engineering Materials

WEPAN 2006 Program Planning committee

Invited to serve on the National Science Foundation Major Research Instrumentation,

Division of Civil and Mechanical Engineering April, 1999 panel

Annual review of papers for various TRB committees (usually between 5 and 8 papers per year).

Reviewer of papers for ASTM Journal of Materials and Evaluation.

Reviewer for NSF national and international research proposals

TABLE 1. Actual Courses Taught for the Last Three Years.

Semester	Courses Taught (with hours)	Enrollment
Spring, 2005	CIVL 7810 Advanced CE Materials (4 credits) CIVL 8990-Research and Dissertation CIVL 4980 / 7980 Baja Track Class (3 credits)	4 3 32/3
Summer, 2004	CIVL 7970 Directed Reading – Pavement Design for Military Airfields (3 credits)	1
Fall, 2004	CIVL 3810 CE Materials (4 credits) CIVL 7970-Pavement Manag. and Rehab (3 credits) CIVL 7990-Research and Thesis	50 5 3
Spring, 2004	CIVL 4970 Directed Reading – PCC Mix Properties (3 credits) CIVL 7810 Advanced CE Materials (4 credits) CIVL 8990-Research and Dissertation	2 3 2
Fall, 2003	CIVL 3810 CE Materials (4 credits) CIVL 7970-Pavement Management and Rehab (3 credits) CIVL 7990-Research and Thesis	59 5 3
Spring, 2003	CIVL 7970-HMA Topics (3 credits) CIVL 4980-004 Special Problems (3 credits) CIVL 7990 Research and Thesis (1 credit) CIVL 8990-Research and Dissertation	3 1 4 1
Fall, 2002	CIVL 7810 Advanced CE Materials (4 credits) CIVL 7970-Low Vol. Roads (3 credits) CIVL 7970-Pavement Management and Rehab (3 credits) CIVL 7990-Research and Thesis	13 5 1 5

Table 2. Graduate students (completed).

Student	Degree	Year	Current Employer	Role
Josh Hayes	MS	2006	Lazenby and Associates, Baton Rouge, LA	Major Advisor
Brian Kane	MCE	2006	Currently Interviewing	Committee member
Wen Huang	MS	2006	Consulting Engineer, Atlanta, GA	Major Advisor
Angela Priest	MS	2005	Kimley Horne, Atlanta, GA	Committee member
Hongbin Xie	Ph.D.	2005	Consulting Engineering company, CA	Committee member
Buzz Powell	Ph.D.	2005	Auburn University, National Center for Asphalt Tech.	Committee member
Jignish Rathod	MS	2005	HRD Engineering, Pensacola, FL	Committee member
Onat Levent	MCE	2005	ATS Light Alloy wheels (Environ. Engineer), Auburn AL	Committee member
Alan Carter	Ph.D.	2005	Professor, Ecole de Technologie Superieure Montreal, Canada	Major Advisor
Casey Robinson	MS	2004	Georgia Power, Atlanta, GA	Major Advisor
Brian Brasher	MCE	2004	Air Force	Committee member
Rosli Hanin	Ph.D.	2004	India	Committee member
Jeremy Jess	MS	2004	Ozier Engineering, Huntsville, AL	Committee member
Jason McQueen	MS	2004	Anderson Engineers, Santa Rosa Beach, FL	Committee member
Ann Moore	MS	2003	Harmon Engineering and Contracting, Lafayette, AL	Committee member
Will Barrett	MS	2003	Goodwyn, Mills and Cawood Montgomery, AL	Committee member
Barkley Williams	MS	2003	Sain Engineering Associates, Inc., Birmingham, AL	Major Advisor
Trey Hodgson	MS	2003	Schlumberger	Major Advisor
Kristie Burns	MS	2003	Federal Highway Administration, Montgomery, AL	Committee member
Jiansheng Song	MS	2003	Consulting Company, Canada	Committee member
Warren Aaron	MS	2003	Mobile County, AL, Assistant County Engineer	Committee member
Jagan Gudimetlla	MS	2002	Federal Highway Administration, Washington, DC	Major Advisor
Jujella Subrahinanyan	MS	2002	California Department of Transportation	Major Advisor
Chris Wagner	MS	2001	Federal Highway Administration, Atlanta GA	Major Advisor
Atenea Salomon	MS	2001	Florida Department of Transportation	Major Advisor
Michael Law	MS	2000	Scotty's Contracting, Bowling Green, KY	Major Advisor
Jamie Green	MS	1999	US Corps of Engineers	Committee member

TABLE 3. Grants and Contracts Received at Auburn.

Grant/Contract Title	Principal Investigator	Co-Principal Investigator(s)	Funding Source	Completion Date	Amount
NCHRP 14-17 Manual for Emulsion-Based Chip Seals	Scott Shuler (Colorado State University)	M. Stroup-Gardiner (Auburn Sub-contractor)	NCHRP	Dec. 2008	\$350,000
NSF PAID Advance Auburn “Small Wins”	M. Stroup Gardiner	D. Sollie M. Wooten O. Jenda	NSF	Oct. 2009	\$500,000
Vulcan Materials Self Consolidating Concrete Mix Design	M. Stroup-Gardiner	---	AU Environmental Institute	Oct. 2008	\$120,000
Quebec Noise Study (Part II)	M. Stroup-Gardiner	M. Crocker	Quebec Department of Transportation	Oct. 2005	\$35,000
Pavement Management for County Roads	M. Stroup-Gardiner	---	HRC	Dec. 2005	\$35,000
Quebec Noise Study (Part I)	M. Stroup-Gardiner	M. Crocker	Quebec Department of Transportation	Feb. 2005	\$18,000
An Evaluation of Alternatives and Development of a Framework for Pavement Rideability Specifications	M. Stroup Gardiner	B. Bowman	ALDOT	Oct. 2004	\$200,000
AASHTO Design Guide 2002 Evaluation	D. Timm	M. Stroup-Gardiner	ALDOT	Dec. 2004	\$100,000
Emissions, Fumes and Odors (part III)	C. Lange	M. Stroup-Gardiner	NAPA, NCAT	May 2003	\$50,000
Evaluation of Paving and Monitoring Equipment for Improving Smoothness and Reducing Segregation	M. Stroup-Gardiner	F. Parker	ALDOT	May 2003	\$256,147
Non-Solvent Based Test Method for RAP	M. Stroup-Gardiner	---	Superpave Center, NCAT	Oct. 2003	\$80,000
Characterization of Arizona Department of Transportation Polymer Modified HMA	M. Stroup-Gardiner	---	Superpave Center, NCAT	June 2002	\$35,000

Evaluation of VMA Requirements for Superpave Mixtures	M. Stroup-Gardiner	---	Superpave Center, NCAT	June 2002	\$50,000
Low Speed Roughness Research for Roadware	M. Stroup-Gardiner	---	Roadware, Inc.	June 2002	\$82,900
Development of a Screed to Detect and Measure Segregation	M. Stroup-Gardiner	---	NCHRP	June 2002	\$70,000
Hot Mix Asphalt Technology for Seniors and Graduate Students	M. Stroup-Gardiner	D. Hanson	FHWA, NAPA	June 2002	\$74,410
Reliability of ESAL's in Pavement Design	M. Stroup-Gardiner	R. Vecellio	HRC	June 2002	\$28,950
Characterization of Arizona Department of Transportation Polymer Modified HMA	M. Stroup-Gardiner	---	Superpave Center, NCAT	Dec. 2001	\$35,000
Hot Mix Asphalt Technology for Seniors and Graduate Students	M. Stroup-Gardiner	D. Hanson	FHWA, NAPA	June 2001	\$74,410
Emissions, Fumes and Odors (part I)	C. Lange	M. Stroup-Gardiner	NAPA, NCAT	Dec. 2001	\$100,000
Influence of Coarser HMA Macrotecture on Skid Resistance	M. Stroup-Gardiner	---	HRC	Oct. 2001	\$25,000
Process Control of Binders During Production of HMA	M. Stroup-Gardiner	---	FHWA	Jan. 2001	\$123,448
Emissions, Fumes and Odors	M. Stroup-Gardiner	C. Lange	NAPA, NCAT	Dec. 2000	\$131,000
Evaluation of Recovered Binder Properties After Extraction with Non-Chlorinated Solvents	M. Stroup-Gardiner	----	Superpave Center, NCAT	Dec. 2000	\$30,000
Peak of Excellence-Smoothness	M. Stroup-Gardiner	---	AU COE	Oct. 2000	\$15,000
Analysis of Dubai Hot Mix Asphalt Mixtures	M. Stroup-Gardiner	---	ARA, Inc.	Oct. 2000	\$157,500
Hot Mix Asphalt Technology for Undergraduates	M. Stroup-Gardiner	D. Hanson	FHWA	Completed	\$27,696
NCHRP 9-11 Segregation in Hot Mix Asphalt Pavements	M. Stroup-Gardiner	E.R. Brown	NCRP	Completed	\$300,000

TOTAL	\$3,104,461
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FHWA: Federal Highway Administration

HRC: Highway Research Center, Auburn University

NCHRP: National Cooperative Highway Research Program

NCAT: National Center for Asphalt Research, Auburn University

ALDOT: Alabama Department of Transportation

NAPA: National Asphalt Pavement Association