

UNIVERSITY OF MINNESOTA

ACCELERATED
PAVEMENT TESTING

International Conference

2ND International Conference on Accelerated Pavement Testing

*September 26-29, 2004
Minneapolis, Minnesota*

Sponsored by:

California Department of Transportation
COST Action 347
Cold Regions Research & Engineering Laboratory
Federal Aviation Administration
Federal Highway Administration
Florida Department of Transportation
Georgia Department of Transportation
ITS, University of California, Berkeley
Louisiana Department of Transportation
Minnesota Department of Transportation
Ohio Department of Transportation
Texas Department of Transportation
Transportation Research Board
U.S. Army Corps of Engineers
University of Minnesota, Center for Transportation Studies

*Organized under the auspices of the Transportation Research Board
Committee A2B09, Full-Scale/Accelerated Pavement Testing.*

www.cce.umn.edu/engineering/accelerated_pavement

Sunday, September 26, 2004

6:00-7:30 p.m. Registration, Opening Reception, and Exhibits

Monday, September 27, 2004

7:00-8:00 a.m. Registration and Continental Breakfast

8:00-8:30 a.m. **Welcome** *Ben Worel, Minnesota Department of Transportation
Ken Fults, University of Texas at Austin
Joe Mahoney, University of Washington*

8:30-9:30 a.m. **Opening Overview** *Fred Hugo, University of Stellenbosch,*

9:30-10:00 a.m. **Break**

10:00-11:00 a.m. **Northern Hemisphere Update** *John Metcalf, Louisiana*

11:00 a.m.-12 noon **Southern Hemisphere Update** *Kieran Sharp, ARRB*

12 noon-1:00 p.m. **Lunch**

Concurrent Sessions Analysis I

1:00-1:30 p.m. **In-Situ Validation of Mechanistic Pavement Finite Element Modeling**
Imad Al-Qadi, Virginia Tech

1:30-2:00 p.m. **APT Testing and Visco-elastic Analysis of Asphalt Motorway Pavements**
Patrick Muraya, Delft University of Technology, The Netherlands

2:00-2:30 p.m. **The Equivalent Standard Axle Approach and Flexible Thin Surfaced Pavements**
David Alabaster, Transit New Zealand

2:30-3:00 p.m. **Break**

Concurrent Sessions Superpave

3:00-3:30 p.m. **Strain Responses in ALF Modified-Binder Pavement Study**
Xicheng Qi, Turner-Fairbank Research Center

3:30-4:00 p.m. **ALF Testing for Development of Improved Superpave Binder Specification**
Terry Mitchell, FHWA

4:00-4:30 p.m. **Effects of Asphalt Mixture and Vehicle Characteristics on Rutting of Superpave Pavements in Accelerated Testing**
Zhong Wu, Louisiana Transportation Research Center

5:00-9:00 p.m. **Optional Evening Activity: Mississippi River Boat Cruise**

South Africa

State University

Transport Research, Ltd. Australia

PCC I

Cumulative Fatigue Damage Analysis of Concrete Pavement Using Accelerated Pavement Testing (APT) Results
Shreenath Rao, University of Illinois at Urbana-Champaign

Crack Width Determination in Continuously Reinforced Concrete Pavements
Erwin Kohler, University of Illinois

Strain Analysis of UTW Composite Section Using Accelerated Pavement Testing
Khaled Galal, Indiana Department of Transportation

Unbound Materials

Load Damage Exponents For Thin Surfaced Granular Pavements
Richard Yeo, ARRB Transport Research Ltd., Australia

Accelerated Load Testing of Unsealed and Reinforced Pavements
Andrew Dawson, University of Nottingham, United Kingdom

Deformation of Unbound Pavement Materials – Heavy Vehicle Simulator and Cyclic Load Triaxial Tests
Niclas Odermatt, Swedish National Road Administration

Structures

APT Testing and 3D Finite Element Analysis of Asphalt Surfacing on Orthotropic Steel Deck Bridges
Marinus Huurman, Delft University of Technology, The Netherlands

Research of Structural Properties of Asphalt Pavement System on Orthotropic Steel Bridge Deck In Full Scale Tests
Lageng Shao, Changsha University of Science and Technology, China

APT Testing and 3D Finite Element Analysis of 'Modieslab' Modular Pavement Structures
Lambert J.M. Houben, Delft University of Technology, The Netherlands

Small Scale

A Discussion of MMLS3 Performance Testing of Laboratory Prepared HMA Slabs and Briquettes Compared With Hamburg and APA Wheel Tracking Tests
Andre de Fortier Smit, Texas Department of Transportation

Use of MMLS3 Scaled Accelerated Loading for Fatigue Characterization of Hot Mix Asphalt (HMA) in the Laboratory
Sudip Bhattacharjee, Worcester Polytechnic Institute

Distress of Hot Mix Asphalt on the NCAT Test Track Due to Accelerated Wet Trafficking with the MMLS3
Fred Hugo, University of Stellenbosch, South Africa

(Cost: \$45 per person)

Tuesday, September 28, 2004

7:00-8:00 a.m.	Continental Breakfast
8:00-8:30 a.m.	MnROAD Phase-1 Summary and Phase-2 Future
8:30-9:00 a.m.	European Cooperation in COST 347 Brings ALT Activities Closer Together
9:00-9:30 a.m.	Ten-Year Perspective of Accelerated Pavement Testing, CalTrans Partnered Pavement Research Program
9:30-10:00 a.m.	CEDEX Update
10:00-10:30 a.m.	Break
Concurrent Sessions	LTPP
10:30-11:00 a.m.	Assessing Different Loading Configurations in Accelerated Pavement Testing <i>Bouzid Choubane, Florida Department of Transportation</i>
11:00-11:30 a.m.	The Development of a Protocol for the Establishment and Operation of LTPP Sections in Conjunction with APT Sections <i>David Jones, CSIR Transportek, South Africa</i>
11:30-12 noon	Comparison of Dynamic Responses from Four LTPP-SPS Sections in the Field and in the Accelerated Pavement Loading Facility in Ohio <i>William Edwards, Ohio University</i>
12 noon-12:30 p.m.	Low Temperature Cracking Study at MnROAD <i>Xue Li, University of Minnesota</i>
12:30-1:30 p.m.	Lunch
1:30-1:50 p.m.	First Results of the European COST 347 Action: Existing ALT Facilities in Europe, Previous and Current ALT European Research
1:50-2:50 p.m.	Open Forum Participants in the open forum will be limited to five minutes and are encouraged to bring 100 copies of a one-page (front and back) description of their topic or facility including a URL if available. The Open Forum will accommodate as many individuals as time allows. Sign up at the conference registration desk.
2:50-3:10 p.m.	Break
3:10-6:00 p.m.	Travel and Tour of MnROAD
6:00 p.m.	Barbecue at MnROAD
9:00 p.m.	Return to Hotel

Ben Worel, Minnesota Department of Transportation

Gregers Hildebrand, Danish Road Directorate, Denmark

Randy Iwasaki, California Department of Transportation

Aurelio Ruiz, CEDEX, Spain

Stabilized Base	Instrumentation
Characterization of Foamed Bitumen Treated Materials from HVS Test Sections <i>Fenella Long, CSIR Transportek, South Africa</i>	Inability of the Elastic-Layered Theory to Predict Pavement Vertical Stresses <i>Amara Loulizi, Virginia Tech</i>
Heavy Vehicle Simulator Assessment of Deep In Situ Recycling Using Bituminous Stabilization <i>Hechter Theyse, CSIR Transportek, South Africa</i>	MnROAD Automated Laser Profile System "ALPS" Introduction of Test Pavement Sections and Data Acquisition Systems in the KHC Test Road <i>Jiwon Kim, Total Pavement System</i>
Investigation into the Correlation of the MMLS3 and HVS APT Devices <i>Lucas Jan-Ebels, University of Stellenbosch, South Africa</i>	Comparative Strain Measurements in Bituminous Layers with the Use of ALT <i>Michael Wistuba, LAVOC-EPFL, Switzerland</i>
Accelerated Pavement Testing Evaluation of Stabilized Foundation Layer Materials for Midwest Flexible Pavements <i>Stefan Romanoschi, Kansas State University</i>	Pavement Sensors Used at Accelerated Pavement Test Facilities <i>Thomas Weinmann, CTL, Inc.</i>

Jean-Maurice Balay, LCPC, France

Wednesday, September 29, 2004

7:00-8:00 a.m.	Continental Breakfast
8:00-8:30 a.m.	National Center for Asphalt Technology (NCAT) Update
8:30-9:00 a.m.	Accelerated Pavement at the Federal Aviation Administration's (FAA) NAPTF
9:00-9:30 a.m.	LINTRACK ALT Research Supports Accelerated Implementation of Innovative Pavement Concepts in the Netherlands
9:30-10:00 a.m.	Public Works Research Institute (PWRI) Update
10:00-10:30 a.m.	Break
Concurrent Sessions	Analysis II
10:30-11:00 a.m.	Modeling of the Stress State and Deformations of APT Tests <i>Leena Korkiala-Tanttu, VTT, Finland</i>
11:00-11:30 a.m.	Simulation of Permanent Deformation Using an Elastic-Viscoplastic Constitutive Relation <i>Dae-Wook Park, Texas A&M University</i>
11:30 a.m.-12 noon	Determination of HMA Modulus Values for Use in Mechanistic-Empirical Pavement Design <i>Timothy Clyne, University of Minnesota</i>
12 noon-12:30 p.m.	MnROAD Mainline Rutting Forensic Investigation <i>Ronald Mulvaney, Minnesota Department of Transportation</i>
12:30-1:30 p.m.	Lunch
Concurrent Sessions	Performance Evaluation
1:30-2:00 p.m.	APT and Laboratory Evaluation of Crumb Rubber Asphalt Pavements <i>Louay Mohammad, Louisiana Transportation Research Center</i>
2:00-2:30 p.m.	Performance of Two Thin Pavement Structures During Accelerated Pavement Testing Using a Heavy Vehicle Simulator <i>Sigurdur Erlingsson, University of Iceland</i>
2:30-3:00 p.m.	APT Testing of Modular Pavement Structure 'Rollpave' and Comparison with Conventional Asphalt Motorway Structures <i>Lambert J.M. Houben, Delft University of Technology, The Netherlands</i>
2:50-3:20 p.m.	Break
3:20-4:05 p.m.	Conference Synthesis and View Ahead
4:05-4:30 p.m.	Questions and Answers

<i>Ray Brown, NCAT</i>
<i>David Brill, FAA</i>
<i>Arthur van Dommelen, Ministry of Transport, Public Works and Water, The Netherlands</i>
<i>Iwao Sasaki, PWRI, Japan</i>

APT Operations	Performance Prediction I
Inaugural Results of the Texas Accelerated Pavement Test Center <i>W. Ronald Hudson, University of Texas at Austin</i>	Performance Prediction of Test Roads in Cold Region <i>Yves Savard, Transport Ministry of Quebec, Canada</i>
Accelerated Loading Test with Loading Vehicles Controlled Automatically Using Construction IT <i>Hiroshi Kido, Public Works Research Institute, Japan</i>	Accelerated Loading Tests on Applicability of Large Stone Asphalt Concretes in Surface Course for Airports <i>Yukitomo Tsubokawa, National Institute for Land and Infrastructure Management, Japan</i>
Experimental and Operational Progress and Benefit/Cost Analysis for Louisiana's Pavement Research Facility <i>William King Jr., Louisiana Transportation Research Center</i>	MnROAD Mainline 2003 Maintenance Activities for Hot Mix Asphalt Test Cells <i>William Zervas, Minnesota Department of Transportation</i>
Comparing FWD Initial Tests with HVS Induced Initial and Long-Term Rutting <i>Carl Lenngren, Chalmers University of Technology, Sweden</i>	Evaluation of Restored Pavement Cuts Using an Accelerated Pavement Testing Machine <i>Khalid Farrag, Gas Technology Institute</i>

PCC II	Performance Prediction II
Load Proximity Correlation of Dynamic Strain Measurements in Concrete Pavement <i>Thomas Burnham, Minnesota Department of Transportation</i>	Rutting Prediction Using Calibrated Model with TXMLS and AASHO Road Data <i>Dar-Hao Chen, Texas Department of Transportation</i>
Heavy Vehicle Simulator Experiment on a Semi-Rigid Pavement Structure <i>Ronald Blab, Vienna University of Technology, Austria</i>	Calibration of Pavement Fatigue Performance Using Recursive Miner's Law <i>Bor-Wen Tsai, University of California-Berkeley</i>
Accelerated Pavement Testing on Concrete Pavements: A Review of Some Lessons Learned <i>John Harvey, University of California - Davis</i>	Preliminary Plastic Deformation Analysis of Unbound Layers from the California Accelerated Pavement Test Program <i>Manuel Bejarano, University of California, Berkeley</i>

Joe Mahoney, University of Washington
John Harvey, University of California-Davis; Mihai Marasteanu, University of Minnesota

Conference Co-Chairs

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Technical Advisory Committee

Imad Al-Qadi, Virginia Tech
Mike Ayers, American Concrete Pavement Association
Jean-Maurice Balay, Laboratoire Central des Ponts et Chaussées, France
Tommy Beatty, Federal Highway Administration
Ray Brown, National Center for Asphalt Technology
Steve Brown, International Society for Asphalt Pavements, United Kingdom
Bouzid Choubane, Florida Department of Transportation
Nick Coetzee, Dynatest
Glenn Engstrom, Minnesota Department of Transportation
Amy Epps Martin, Texas A&M
Jon Epps (Past Chair)
Gary Fitts, Asphalt Institute
Reed Freeman, USACOE, WES
John Harvey, University of California-Davis
Gordon Hayhoe, Federal Aviation Administration
Philip Hendricks, Council for Scientific and Industrial Research, South Africa
Gregers Hildebrand, COST 347, Denmark
Tom Hoover, California Department of Transportation
Mustaque Hossain, Kansas State University
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Lev Khazanovich, University of Minnesota
Bill King, Louisiana Transportation Research Center
Erland Lukanen, Pavement Research Institute, University of Minnesota
Joe Mahoney, University of Washington
Mihai Marasteanu, University of Minnesota
Terry Mitchell, Federal Highway Administration
Andre Molenaar, Delft University of Technology, Netherlands
Carl Monismith, University of California-Berkeley
Dave Newcomb, National Asphalt Pavement Association
Aurelio Ruiz, Centro de Estudios y Experimentación de Obras Públicas, Spain
Ted Scott, American Trucking Association
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