INTERNATIONAL CONFERENCE ON HIGHWAY PAVEMENT DATA, ANALYSIS AND MECHANISTIC DESIGN APPLICATIONS

September 7-10, 2003
Hyatt on Capitol Square, Columbus, Ohio

http://webce.ent.ohiou.edu/ICHP.html
Who Should Attend

With the diversity of activities currently underway, and with many mathematical and empirical models being developed over the past decade, it is vital that a forum be provided to exchange recent developments and findings on the structural performance of flexible and rigid pavements. This forum, The International Conference on Highway Pavement (ICHP) Data, Analysis, and Mechanistic Design Applications, will bring together engineers, researchers, and practitioners from state DOT's, FHWA, academia, the private sector, and industry to provide a platform for:

- The exchange of technologies related to the testing and monitoring of in-service highway test sections and other related topics;
- The validation, calibration and implementation of mechanistic design procedures; and
- The sharing of current activities, findings, experiences, and pavement research.

Knowledge gained from this conference will permit attendees and the agencies they represent to:

- Become aware of improved pavement design procedures;
- Become aware of sources of data for analysis;
- More reliably calibrate and validate existing design procedures; and
- Gain new insight regarding national and international trends in pavement research.

Workshops


The 2002 Guide for Mechanistic Pavement Design

Workshop Description

This workshop will provide participants with a comprehensive review of the new 2002 Design Guide procedures for new and rehabilitated pavements. Ms. Linda Pierce of the Washington State DOT will cover the current status and State viewpoint. Professor Matthew Witzczak and Mr. Mohamed El-Basyouny of Arizona State University will provide technical concepts and computer demonstrations of the flexible pavement design and rehabilitation procedures. Dr. Michael Darter and Mr. Gregg Larson of Applied Research Associates, Inc. will provide technical concepts and computer demonstrations of the rigid pavement design and rehabilitation procedures. Finally, a presentation on the implementation of the Guide will be given by Mr. Harold Von Quintus of ARA, Inc.

Instructors

Dr. Michael Darter, P.E.
ERES Consultants

Michael Darter is a principal engineer with ERES Consultants and an Emeritus Professor of Civil Engineering, University of Illinois. Dr. Darter has been involved in pavement engineering throughout his entire 36-year career and is an internationally recognized authority in highway and airport pavements. He worked several years for the Utah DOT, obtained his Ph. D from the University of Texas, and served as Professor of Civil Engineering at the University of Illinois for 24 years. He has received numerous awards for outstanding papers by the Transportation Research Board, the International Society for Concrete Pavements and other international conferences. Dr. Darter led the rigid pavement design group in the development of the new 2002 Design Guide over the past four years.

Linda Pierce, P.E.
Washington State Department of Transportation

Linda Pierce is the state pavement engineer for the Washington State Department of Transportation and has been involved with pavement design, pavement rehabilitation, pavement management, and pavement related research throughout her 15-year career with WSDOT. She obtained both a Bachelor's and Master's degree in Civil Engineering from the University of Washington. She is a current member of the AASHTO Joint Task Force on Pavements, several NCHRP panels (including NCHRP 1-37A), and TRB committees.

Ground Penetrating Radar (GPR) Implementation

Workshop Description

Participants will be introduced to GPR technology and be shown several case studies which have proven to be successful. The focus of the workshop will be on non-contact GPR systems where data can be collected at highway speeds, up to 70 mph. Items which will be covered include:

1) Performance specifications for GPR equipment
2) Principles of GPR
3) Instructions on how to conduct a survey
4) Demonstration of data processing on a typical project
5) Case studies
6) Wrap up
Instructor

Tom Scullion, P.E.
Texas Transportation Institute

Tom is the program manager of the Flexible Pavements program at the Texas Transportation Institute and is a registered professional engineer in the state of Texas. He has been involved with pavement research for over 25 years and his current interests are in the areas of pavement materials, non-destructive testing and pavement design. Mr. Scullion is an active member of the Transportation Research Board (TRB) and is a former chairman of TRB Committee A2B05 “Strength and Deformation of Materials”.

Mr. Scullion first started working with Ground Penetrating Radar systems in 1988. Since then he has been actively involved with applying this technology to a range of pavement applications, in developing interpretation software and in teaching training programs for DOT personnel. The Texas DOT currently operates a fleet of four GPR vehicles and now uses this technology on a routine basis for subsurface pavement investigations. Mr. Scullion has taught GPR workshops on a regular basis in Texas and also in Finland.

CONFERENCE SCHEDULE

Locations in italics

Sunday, September 7, 2003
11:00 AM – 5:00 PM
Governor’s Foyer
Registration

1:00 – 5:00 PM
Legislative Room
Workshop I – Ground Penetrating Radar Implementation

Governor’s A & B
Workshop II – 2002 Guide for Mechanistic Pavement Design

5:30 – 7:00 PM
Governor’s Foyer
Reception (Exhibits Open)

Monday, September 8, 2003
7:00 AM – 5:00 PM
Governor’s Foyer
Registration

7:30 – 8:30 AM
Governor’s Foyer
Continental Breakfast and Exhibits

8:30 – 9:00 AM
Governor’s Ballroom A & B
Welcome and Opening Remarks Cash Misel – Assistant Director of Planning and Production, Ohio DOT
Patrick Bower – Assistant District Director, Ohio FHWA
Gayle Mitchell – Director, ORITE / Ohio University

9:00 – 10:00 AM
Governor’s Ballroom A & B
Keynote Address - Dr. Carl Monismith, R. Horonjeff Professor of Civil Engineering, University of California – Berkeley

10:00 – 10:30 AM
Governor’s Foyer
Break and Exhibits

10:30 AM – 12:00 PM
SESSION I
A-1 Development, Calibration and Verification of M-E & FEM Models
Moderator: Bill Kenis, FHWA
Legislative Room

10:30 – 11:00 AM
Comparison between Airport Pavement Rehabilitation Designs Using the Mechanistic Design Approach with the Standard ICAO Design (FAA Design)
P. W. deBruin & G. J. Jordaan - Tshepaga Engineering, Menlopark, South Africa

11:00 - 11:30 AM
Evaluation Criteria of a Computer Program for Pavement Response Analysis
E. H. Guo & M. Dong - Galaxy Scientific Corporation, Egg Harbor Twp., NJ

11:30 AM - 12:00 PM
Mechanistic Evaluation of Georgia Wheel Tester and Its Implications
R. Y. Liang, A. Saleeb, H. Al Qablan, & B. Abu Alfoul - The University of Akron, Akron, OH
D. Powers & R. Green – Ohio DOT, Columbus, OH

10:30 AM – 12:00 PM
B-1 Pavement Data and Response
Moderator: Ben Worel, MnDOT
Governor’s Ballroom A & B

10:30 - 11:00 AM
Instrumentation and Data Collection for the Superpave In-Situ Stress/Strain Investigation (SISI) Project
D. A. Anderson, S. Stoffels & M. Salaimanian - Pennsylvania State University, University Park, PA
### SESSION I

**11:00 - 11:30 AM**  
Using LTPP Data to Assess the Impacts of Seasonal Variation of Subgrade Resilient Modulus on Overlay Mechanistic Design  
F. Bayomy & H. Salem - University of Idaho, Moscow, ID  
R. Smith & M. Santi - Idaho DOT, Boise, ID

**11:30 AM - 12:00 PM**  
Environmental Effects of Early Age and Long Term Response of PCC Pavement  
L. J. Bendana - New York State DOT, Albany, NY  
J. Wise - Ohio University, Athens, OH

**12:00 – 1:30 PM**  
Governor’s Ballroom C & D & E  
Luncheon

**1:30 – 3:00 PM**  
**SESSION II**

**A-2 Development, Calibration and Verification of M-E & FEM Models**  
**Moderator: Shad Sargand, ORITE/Ohio University**  
Legislative Room

- **1:30 - 2:00 PM**  
  Calibration of a Mechanistic/Empirical Analysis Based Program for PCP Design  
  C. I. M. Chavez, D. K. Merritt & B. F. McCullough - The University of Texas at Austin, Austin, TX

- **2:00 - 2:30 PM**  
  Finite Element Characterization of Bond-Levels and Performance of Pavements with Overlays  
  T. Nishiyama, M. A. Bhatti & H. D. Lee - University of Iowa, Iowa City, IA

- **2:30 - 3:00 PM**  
  Examination of the Impacts of Variability on Performance Using a Mechanistic-Empirical Design Procedure  
  S. Tighe - University of Waterloo, Waterloo, ON, Canada  
  J. Ponniah & T. Kazmierowski - Ministry of Transportation of Ontario, Downsview, ON, Canada

**1:30 - 3:00 PM**  
**B-2 Pavement Data and Response**  
**Moderator: Ludwig Figueroa, Case Western Reserve University**  
Governor’s Ballroom A & B

- **1:30 - 2:00 PM**  
  Analyzing the Rheological Properties of Shredded Rubber Modified Bitumen Using Oscillatory Shear Analysis  
  O. N. Celik - Selçuk University, Konya-Turkey

**2:00 - 2:30 PM**  
Application of Regression Trees to LTPP Data Analysis  
X. Wang - CH2M Hill, Las Vegas, NV  
D. C. Montgomery & E. B. Owusu-Antwi - Arizona State University, Tempe, AZ

**2:30 - 3:00 PM**  
Modeling Climatic Effects on Pavements at the Ohio SHRP Test Road  
A. Heydinger - The University of Toledo, Toledo, OH

**3:00 - 3:30 PM**  
Governor’s Foyer  
Break and Exhibits

**3:30 - 5:30 PM**  
**SESSION III**

**A-3 Development, Calibration and Verification of M-E & FEM Models**  
**Moderator: Anastasios Ioannides, University of Cincinnati**  
Legislative Room

- **3:30 - 4:00 PM**  
  Mechanistic Properties of Pavement Materials Utilized in Ohio  
  T. Masada, S. M. Sargand & B. Abdalla - Ohio University, Athens, OH  
  R. Green - Ohio DOT, Columbus, OH

- **4:00 - 4:30 PM**  
  3D-FE Simulation and Dynamic Response Analysis of FWD Impact Test on Asphalt Pavements  
  W. Uddin & S. G. Garza - University of Mississippi, University, MS

- **4:30 - 5:00 PM**  
  2-D and 3-D Modeling of Rutting in Asphalt Pavements  
  M. M. Zaman & R. A. Tarefder - The University of Oklahoma, Norman, OK  
  S. Pirabaroodan - España Geotechnical Consulting, Roseville, CA

- **5:00 – 5:30 PM**  
  On the Use of Artificial Neural Network in Modeling the Roughness of Kansas PCC Pavements  
  V. Felker & Y. Najjar - Kansas State University, Manhattan, KS  
  R. Barezinsky - Kansas DOT, Topeka, KS

**3:30 - 5:30 PM**  
**B-3 Pavement Data and Response**  
**Moderator: Gonzalo Rada, PCS Law Engineering**  
Governor’s Ballroom A & B
3:30 - 4:00 PM
A Probability-Based Analysis for Identifying Pavement Deflection-Test Intervals for Road Data Collection
N. Piyatrapoomi & A. Kumar – RMIT University, Melbourne, Victoria, Australia
N. Robertson & J. Weligamage - Queensland Government, Brisbane, Queensland, Australia

4:00 - 4:30 PM
Effects of Strength and Stress History on the Resilient Modulus of Certain Highway Base Course Aggregates
T. Mayrberger & R. J. Hodek - Michigan Technological University, Houghton, MI

4:30 - 5:00 PM
Effects of Axle Spacing on Rigid Pavement
D. Beegle & S. M. Sargand- Ohio University, Athens, OH

5:00 - 5:30 PM
Pavement Responses under Heavy Equipment
P. E. Sebaaly & E. Hitti - University of Nevada, Reno, NV
D. Huft - South Dakota DOT, Pierre, SD

6:00 - 7:00 PM
Governor's Foyer
Social (Exhibits Open)

**Tuesday, September 9, 2003**

7:00 AM – 4:00 PM
Governor’s Foyer
Registration

7:00 – 8:00 AM
Governor’s Foyer
Continental Breakfast and Exhibits

8:00 – 9:00 AM
Governor’s Ballroom A & B
Keynote Speaker - Dr. Mike Nunn, Principle Scientist and Research Fellow, Transportation Research Laboratory, United Kingdom

9:00 - 10:00 AM
B-4 Pavement Data and Response
Moderator: Arun Kumar, RMIT University
Governor’s Ballroom A & B

9:00 - 9:30 AM
Monitoring of Dowelled and Undowelled PCC Pavement under Environmental Cycling
S. M. Sargand - Ohio University, Athens, OH
M. Swanlund – FHWA, Washington D. C.

9:30 - 10:00 AM
Determining Design Modulus Values with Seismic Data
I. Abdallah, S. Nazarian & D. Yuan - The University of Texas at El Paso, El Paso, TX

9:00 - 10:00 AM
C-1 Distress Models
Moderator: Jack Springer, FHWA
Legislative Room

9:00 - 9:30 AM
Modeling Road Use for Capacity Loss Resulting from Pavement Distress
J. Ben-Edigbe - JBE & Associates Ltd, Coventry, England, United Kingdom

9:30 - 10:00 AM
A Detailed Breakdown of the IRI Statistic: The LTPP GPS3 Profile Case Study
C. Byrum - Soil and Materials Engineers, Inc., Plymouth, MI

10:00 - 10:30 AM
Governor’s Foyer
Break and Exhibits

10:30 AM - 12:00 PM
SESSION V
C-2 Distress Models
Moderator: Andrew Williams, Ohio DOT
Legislative Room

10:30 - 11:00 AM
Assessing Laser Profilers for Measurement of Pavement Smoothness in Florida
B. Choubane, R. L. McNamara - Florida DOT, Gainesville, FL

11:00 AM - 11:30 PM
Longevity of Highway Concrete Pavements in the United States

11:30 - 12:00 PM
The Effect of Initial Smoothness on Flexible Pavement Life
J. J. Hajek & D. K. Hein – Applied Research Associates Inc., Toronto, ON, Canada
T. J. Kazmierowski - Ontario Ministry of Transportation, Downsview, ON, Canada
10:30 AM - 12:00 PM
**D-1  Non-Destructive Testing**
**Moderator: Judith Corley-Lay, North Carolina DOT**
Governor’s Ballroom A & B

10:30 - 11:00 AM
Backcalculation of Mechanical Properties of Subgrade Soils for Ohio Test Road Pavement Sections from the Maximum FWD Deflection
C. A. Alvarez - GRL Engineers, Orlando, FL
J. L. Figueroa - Case Western Reserve University, Cleveland, OH

11:00 AM - 11:30 AM
A Rigorous Method for Structural Evaluation of Pavement from Deflection Measurements
M. M. Hossain - New York State DOT, Albany, NY

11:30 - 12:00 PM
Comparison of FWD and Dynaflect Measurements on the Ohio SHRP Test Road
R. Green - Ohio DOT, Columbus, OH
W. F. Edwards - Ohio University, Athens, OH

12:00 - 1:30 PM
Governor’s Ballroom C, D & E
Luncheon

1:30 - 3:00 PM
**SESSION VI**
**C-3  Distress Models**
**Moderator: S. S. Jain, India Institute of Technology**
Legislative Room

1:30 - 2:00 PM
Prediction on Overlay Smoothness Improvements Using Artificial Neural Network (ANN) Approach
W. Hong & R. L. Baus - University of South Carolina, Columbia, SC

2:00 - 2:30 PM
Use of Surface Macrotexture Measurements to Detect Segregation
G. W. Flintsch & E. L. Izeppi - Virginia Polytechnic Institute and State University, Blacksburg, VA
K. McGhee - Virginia Transportation Research Council, Charlottesville, VA

2:30 - 3:00 PM
Performance Based Pavement Design - A Case Study
S. K. Rao, P. Roychowdhury, S. Murthy & H. Karmungi - Lea Associates South Asia Pvt. Ltd, New Delhi, India

1:30 - 3:00 PM
**D-2  Non-Destructive Testing**
**Moderator: Linda Pierce, Washington DOT**
Governor’s Ballroom A & B

1:30 - 2:00 PM
Quality Management of Flexible Pavement Layers with Seismic Methods
M. Arellano - Texas DOT, Austin, TX
S. Nazarian & D. Yuan - The University of Texas at El Paso, El Paso, TX

2:00 - 2:30 PM
The Need for a Smaller FWD Plate in Determining Surface Layer Modulus and Thicknesses of a Thin Pavement
M. M. Hossain - New York State DOT, Albany, NY

2:30 - 3:00 PM
Project Level Study using Continuous Deflection Profiles Measured with the Rolling Dynamic Deflectometer
J. L. Lee, D. J. Turner & K. H. Stokoe, II - The University of Texas at Austin, Austin, TX
D. H. Chen & J. Bilyeu - Texas DOT, Austin, TX

3:00 - 3:30 PM
Governor’s Foyer
Break and Exhibits

3:30 - 5:30 PM
**SESSION VII**
**C-4  Distress Models**
**Moderator: Julian Bendana, New York DOT**
Legislative Room

3:30 - 4:00 PM
Crack Propagation in Portland Cement Concrete: Combining Dimensional Analysis and Finite Elements
A. Ioannides, J. Peng & S. Sengupta - University of Cincinnati, Cincinnati, OH

4:00 - 4:30 PM
Multi-Criterion Examination of Expanded Asphalt Stabilization as a Possible Pavement Rehabilitation Alternative
S. Tighe - University of Waterloo, Waterloo, ON, Canada
B. Lane & T. Kazmierowski - Ministry of Transportation of Ontario, Downsview, ON, Canada

4:30 - 5:00 PM
Modeling Rigid Pavement Smoothness for Mechanistic-Empirical Design
Wednesday, September 10, 2003

7:00 – 8:00 AM
Governor’s Foyer
Registration

7:30 – 8:30 AM
Governor’s Foyer
Continental Breakfast and Exhibits

8:30 – 10:00 AM
 SESSION VIII
 E-1  Accelerated Pavement Testing
 Moderator: Nick Coetzee, Dynatest Incorporated
Governor’s Ballroom A & B

8:30 – 9:00 AM
Influence of Subgrade Type and Moisture Content on Failure Criteria
V. Janoo & E. Cortez - ERDC/CRREL, Hanover, NH
L Irwin – Cornell University, Ithaca, NY
W. S. Yang – New York State DOT, Albany, NY
K. Petros – FHWA, McLean, VA

8:30 – 9:30 AM
Performance of Crumb Rubber Asphalt Pavements Through Accelerated Loading
L. N. Mohammad - Louisiana State University, Baton Rouge, LA
B. Huang - The University of Tennessee, Knoxville, TN
F. Roberts - Louisiana Tech University, Ruston, LA
M. Rasoulian - Louisiana Transportation Research Center, Baton Rouge, LA

9:00 – 10:00 AM
West Virginia Smart Road: Early Age Behavior of Dowelled Concrete Pavements
S. N. Shoukry, M. Y. Riad & G. W. William - West Virginia University, Morgantown, WV

8:30 – 10:00 AM
 Moderator: Dar Hao Chen, Texas DOT
Legislative Room
 F-1  Forensic Studies

8:30 – 9:00 AM
Forensic Studies in Texas
D. H. Chen, J. Bilyeu, K. Fults & M. Murphy - Texas DOT, Austin, TX
T. Scullion - Texas A&M University, College Station, TX

9:00 – 9:30 AM
A Forensic Investigation of Concrete Pavement Distress US 460 Bypass, Appomattox, VA
T. E. Freeman - Virginia Transportation Research Council, Charlottesville, VA
Trenton M. Clark - Virginia DOT, Richmond, VA

9:30 – 10:00 AM
Forensic Analyses of Early Distress in Concrete Pavements
D. A. Morian - Quality Engineering Solutions, Inc., Conneaut Lake, PA

10:00 – 10:30 AM
Governor’s Foyer
Break and Exhibits
10:30 AM - 12:00 PM
SESSION IX
E-2 Accelerated Pavement Testing
Moderator: Vincent Janoo, ERDC/CRREL
Governor’s Ballroom A & B

10:30 - 11:00 AM
Analysis of Ultra Thin White Topping over Composite Pavement Section Using Large-Scale Accelerated Pavement Testing
S. A. Newbolds, K. A. Galal & T. Nantung - INDOT Research Division, West Lafayette, IN
J. Olek & W. J. Weiss - Purdue University, West Lafayette, IN

11:00 - 11:30 AM
Field Performance Testing on the NCAT Pavement Test Track
R. B. Powell - The National Center for Asphalt Technology, Auburn, AL

11:30 AM - 12:00 PM
2002 MnROAD Hot-Mix Asphalt Mainline Summary Condition Report
B. Worel, D. Palmquist & W. Zerfas - Minnesota DOT, Maplewood, MN

10:30 AM - 12:00 PM
F-2 Forensic Studies
Moderator: Jim Hall, ERES Consultants, Inc.
Legislative Room

10:30 - 11:00 AM
Preliminary Paper on Forensic Study for Sections 390103, 390108, 390109, and 390110 of Ohio SHRP U.S. Rt. 23 Test Pavement
S. M. Sargand, I. Khoury, A. Harrigal & L. Sargent - Ohio University, Athens, OH

11:00 - 11:30 AM
Pavement Deterioration Models for PMS
S. S. Jain, M. Parida & S. Aggarwal - Indian Institute of Technology, Roorkee, Uttarakhand, India

12:00 - 1:30 PM
Governor’s Ballroom C, D & E
Lunch, Conference Summation
Mr. Paul Teng, Director, Office of Infrastructure Research & Development
Federal Highway Administration
Turner-Fairbank Highway Research Center

1:30 - 5:00 PM
Site Visits
Accelerated Pavement Load Facility
Lancaster, Ohio
Ohio US 33 SHRP Test Road
Delaware, Ohio

Keynote Speakers

Dr. Carl Monismith
University of California Berkeley

Carl Monismith has been a member of the Faculty of the Department of Civil Engineering at the University of California, Berkeley (UCB) since 1951. During the period 1974-1979 he served as Department Chairman. Currently he is the Director of UCB’s Pavement Research Center.

Professor Monismith is internationally recognized for his work in the fields of pavement design and rehabilitation and asphalt paving technology. He has been active in many professional societies including the Association of Asphalt Paving Technologists, the Transportation Research Board, the International Society for Asphalt Pavements, and the American Society of Civil Engineers. He is a registered Civil Engineer in California.

Dr. Mike Nunn
Transportation Research Laboratory, United Kingdom

Dr Mike Nunn is a Principal Scientist and a Senior Research Fellow in the Infrastructure Division at TRL Limited. In 1971, he was employed by the Refined Bitumen Association as a Senior Physicist researching pavement deterioration before joining TRL 3 years later. Since then he has played a leading role in the field of asphalt pavement design in the UK, and he has been responsible for the introduction of new materials, construction techniques and innovative solutions to highway problems. He has published numerous technical papers and originated the concept of long-life flexible pavement design for very heavy traffic. He has been active in several International Committees including co-chairman of the European committee responsible for developing a new advanced method of pavement design.

Mr. Paul Teng
Federal Highway Administration

Paul Teng was appointed Director of FHWA’s Office of Infrastructure Research and Development in March 1999. He directs a multi-level staff which is responsible for the improvement of highway infrastructure-related technology through research, development, and testing; through an outreach process to identify future targets of opportunity; and through pursuit of advanced research initiatives. Prior to this appointment, he held a range of engineering positions including the position of Chief of FHWA’s Pavement Division.

Prior to joining the FHWA in 1981, he worked on a number of engineering functions with the Mississippi Depart-
ment of Transportation. He was the Department's Research and Development Division Engineer from 1974-81.

He is a member of the Senior Executive Service of the United States, and has received numerous commendations, performance and honor awards including the FHWA Administrator's Award for Superior Achievement, and the US DOT Secretary's Award for Meritorious Achievement. He is a professional engineer and has degrees in BSCE, MSCE and MBA. He has authored many technical publications in the highway pavement and materials area.

Site Visits
Two site visits will be offered in conjunction with the Conference on Wednesday, September 10 from 1:30 to 5 PM. Participants can choose to tour the Accelerated Pavement Load Facility in Lancaster, Ohio or the U.S. 23 OH-SHRP Test Road in Delaware, Ohio.

Accelerated Pavement Load Facility (APLF)
The loading mechanism in the environmentally controlled chamber of the Accelerated Pavement Load Facility (APLF) helps researchers evaluate the effects of various environmental conditions, materials, and load levels on a variety of pavement structures. By applying repeated loads over sections of pavement under rigidly controlled conditions, overall relative performance can be assessed much earlier and with much greater confidence than observing test sections constructed on in-service pavements. The APLF has several attributes which set it apart from similar facilities in the U.S. and around the world. Major features include:

- Asphalt and Portland cement concrete testing capability
- Full width capacity for two, 12-foot wide adjacent lanes with 4 and 10 foot shoulders, and 8-foot deep pit for construction of the desired base and subgrade.
- Full access for construction equipment to place pavements in accordance with standard highway specifications.
- Multiple test paths across the 24-foot wide pavement.
- Broad loading versatility with the ability to use various wheel loading configurations, loads from 9,000 lbs to 30,000 lbs and optional random lateral wander of the loaded wheel(s).
- Full environmental control within the enclosed test facility to regulate air temperature and humidity. Moisture also can be added to the subsurface pavement structure.
- Optional instrumentation to monitor pavement response to environmental changes and/or dynamic loading.

A reciprocating rolling wheel load mechanism is used to test rigid and flexible pavements. The wheel assembly travels at 5 mph while testing in one or both directions, and with optional random lateral wander of up to +/- 10 inches. The 38-foot wide pit permits testing at several locations across a full-scale pavement facility. Large sliding doors at both ends of the building allow the entrance of standard paving equipment to place the pavement as it would normally be constructed in the field.

The APLF offers considerable flexibility in testing pavements. Not only can different pavement, base, and subgrade materials be tested and compared under known conditions, the heavy duty loading mechanism permits the evaluation of various tire configurations and load levels on performance. Environmental changes can be superimposed to determine the effect of temperature gradients in flexible pavement, and the effect of temperature and humidity gradients on curing, curling and warping, joint load transfer, and dowel bar performance in rigid pavement.

Projects utilizing the APLF include studies of ultra thin concrete, verification of three-dimensional pavement models, dowel bars, materials, and other aspects of flexible and rigid pavement structures.

U.S. 23 OH-SHRP Test Road
As part of their contribution to the SHRP, the Ohio Department of Transportation, in cooperation with the Federal Highway Administration, agreed to construct a three-mile long test pavement on U.S. 23 north of Delaware, Ohio. This project encompasses four experiments identified in the Specific Pavement Studies and includes 40 test sections of asphalt and portland cement concrete with a variety of structural parameters, which include:

- 18 pavement sections instrumented with environmental sensors to monitor seasonal variations which severely affect highway pavements, including:
  - average temperature and temperature gradients within the pavement layer
  - moisture in the subgrade
  - depth of frost within the pavement structure
- 33 pavement sections instrumented with dynamic sensors to monitor structural response under full-scale traffic loading.
- controlled vehicle tests featuring ODOT dump trucks and a Canadian National Research Council customized research tank truck.
A comprehensive plan for instrumenting the pavement was developed and the efforts of five universities in implementing the plan were coordinated. The successful completion of this project resulted in the gathering of data never before available to the pavement community.

Data acquisition procedures were customized for this SHRP facility to permit the simultaneous monitoring of up to 18 pavement sections during controlled vehicle tests. Up to 250,000 data points were obtained each second as trucks containing various axle configurations, loads, and types of tires, and traveling over a range of speeds, passed over specific test sections. Data obtained during these tests permit researchers and engineers to assess the effect of these vehicle parameters and the numerous structural parameters contained within the pavement structures on overall performance of the pavement.

Environmental data was obtained periodically throughout the year to better define the effect of seasonal variations on pavement structures and continuously during the controlled vehicle tests to properly interpret the response of pavement sections under actual truck loading.

Hotel Accommodations
Registrants should contact the Hyatt on Capitol Square and mention “ICHP 2003.”
Hyatt on Capitol Square
75 East State Street
Columbus, Ohio 43215 USA
Phone: 614 228 1234

A single occupancy rate of $75.00 has been negotiated with advanced reservations required by August 19, 2003 to guarantee a room at the ICHP 2003 rate. Rooms are double occupancy. Additional details about the Hyatt are available online at www.capitolsquare.hyatt.com.

Travel Information
Airlines
Major airlines serve Port Columbus International Airport, which is approximately 10 miles from the Hyatt. A public shuttle is available between the airport and the hotel every hour for a small fee. Car rentals are also available at the airport.

Directions
From Port Columbus Airport
1. Begin on Sawyer Rd and go 0.3 miles,
2. Turn right on International Gtwy, E 17th Ave and go 1.0 miles,
3. Continue on Ramp and go 0.8 miles,
4. Continue on I-670 and go 4.3 miles,
5. Exit I-670 via ramp at sign reading “Exit 4B US-23 S to High St / Third St” and go 0.6 miles,
6. Continue on US-23 and go 0.7 miles,
7. Turn right on E State St and go 140 feet to HYATT ON CAPITOL SQUARE
8. Parking is available at the Columbus City Center Parking Garage; valet parking is also available.
Registration Form

First Name: __________________________ Last Name: __________________________

Title: __________________________ Organization: __________________________

Address: __________________________ City: __________________________ State: __________________________ Country: __________________________ Zip Code: __________________________

Phone: __________________________ Fax: __________________________ Email Address: __________________________

Registration Fees

<table>
<thead>
<tr>
<th>Pre-Conference Workshops*, Sunday Sept. 7, 1–5 PM</th>
<th>Pre-Conf.</th>
<th>On-site</th>
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<td>(* Free to DOT personnel, however individuals must register for one of the workshops below)</td>
<td>$75</td>
<td>$125</td>
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Select one of the following workshops:

- The 2002 Guide for Mechanistic Pavement Design
- Ground Penetrating Radar Implementation

Conference **

- Speakers, Governmental Employees, and Students: $250, $300
- Others: $375, $425

Exhibitors *** (Space first come, first serve)

*No on-site exhibitor registrations will be accepted.

Guest Luncheon Tickets: Please circle which day(s)

(Monday, Tuesday, and Wednesday) $20 per lunch

Number of Guest Lunch Tickets: ________ Guest Name: __________________________

Total Amount Enclosed: $_____________________

**Conference fee includes 3 continental breakfasts, 3 lunches and 5 breaks during the Conference; and ICHP proceedings. Registrations received without payment will be returned.

***Exhibitor fee includes exhibit space, 3 continental breakfasts and five breaks for one exhibitor personnel.

Site Visits:

Would you be interested in touring one of the following sites, on Wednesday, September 10, 2003, 1:30–5 PM?

Choose only one:

- Accelerated Pavement Load Facility, Lancaster, Ohio
- Ohio US 33 SHRP Test Road, Delaware, Ohio

Other Conference Information

- I require vegetarian meals
- My guest requires vegetarian meals

Payment Options: Please check one:

- Check/Money Order (made payable to Ohio University)
- Purchase Order# __________________________ (must accompany your registration and be payable within 30 days)
- VISA/MasterCard

Card #: __________________________ Exp. Date: __________________________

Signature: __________________________________________________________________________

Name on Card (please print): __________________________________________________________

The ICHP reserves the right to change the conference program. Refunds are strictly limited to registration fees. If you cannot attend the conference which you have registered, you may send a substitute. For cancellations up to August 1, 2003, your registration fee will be refunded. No refunds will be issued after August 1.

Fax Registration: 740-593-9476 Telephone Registration: 740-593-1764 Email Registration: carnahan@ohio.edu

http://webce.ent.ohiou.edu/ICHP.html
Register on-line at: http://www.ohiou.edu/noncredit/Conferences.htm
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