

**PRELIMINARY TECHNICAL PROGRAM**

**International Conference on  
Optimizing Paving Concrete Mixtures and Accelerated  
Concrete Pavement Construction and Rehabilitation**

**November 7 to 9, 2007 – Atlanta, Georgia**



**SPONSORED BY**

**Federal Highway Administration  
and**

**American Association of State Highway and Transportation Officials**

**American Concrete Pavement Association**

**Cement Association of Canada**

**Concrete Reinforcing Steel Institute**

**Georgia Department of Transportation**

**International Society for Concrete Pavements**

**Portland Cement Association**

**Transportation Research Board**



## **BACKGROUND**

It is becoming an established practice in the United States to require that concrete pavements provide low-maintenance service lives of 40 or more years. Damage to concrete pavements over the service life is expected to be due to traffic and environmental loadings and not due to concrete materials failure. Therefore, concrete durability is an important attribute of paving concrete. For long-life concrete pavements, the engineering criteria for concrete that are most important are *workability* (matching the concrete to the paving and finishing operations), *durability*, and *strength*. Most production concrete paving on the primary roadway network is carried out using slipform pavers that necessitate use of concrete that is workable, can be easily consolidated, will not segregate, and can be finished to achieve the desired geometric shape. The finished end product needs to be durable—no early-age distress or materials-related distress. Concrete mixture optimization involves the adaptation of available concrete making resources to meet varying engineering criteria, construction operations requirements, and economic needs.

Another requirement that is defining how concrete pavements are constructed relates to the need to maintain an accelerated construction schedule for concrete pavement construction and rehabilitation. Construction traffic congestion and construction zone safety are key concerns of motorists and State highway agencies. A goal of all highway agencies is to “*Get In, Get Out, and Stay Out*” when dealing with major highway pavement construction and rehabilitation. However, many State highway agencies are finding that considerable resources are needed to lessen the negative effects resulting from construction within urban high-volume traffic areas. In order to minimize the need for frequent pavement construction and rehabilitation activities in high-impact corridors, highway agencies consider use of concrete pavement as a cost-effective long-term solution for these corridors. The use of concrete pavement under these conditions poses many challenges. These challenges can be addressed successfully through careful planning, use of the right construction processes, optimizing construction zone traffic management, and public awareness programs.

This 2 1/2-day conference is being organized as a part of technology transfer activities for the national Concrete Pavement Technology Program that operates within the Federal Highway Administration. The conference will provide an international forum to address various aspects of concrete mixture optimization and accelerated concrete pavement construction and rehabilitation that result in *long-life concrete pavements*.

## **SCOPE**

This conference is targeted at pavement, materials, and construction professionals who are involved in various aspects of concrete pavement construction and rehabilitation. These professionals include Federal, State, and municipal engineers; consulting engineers; contractors; materials suppliers; testing professionals, and academia. The conference should also be of interest to planners and traffic management professionals involved in construction and rehabilitation of highway corridors with high-volume traffic. The conference will provide discussion on:

- 1. Best Practices for optimizing paving concrete to achieve concrete that is workable for slipform paving and remains durable.**
- 2. Best Practices for accelerated concrete pavement construction and rehabilitation, considering early-age concrete requirements, acceptance testing processes, and construction zone traffic management. Specifically, case studies will be presented for nighttime, weekend, and full-closure construction/rehabilitation.**

## CONFERENCE PROGRAM SUMMARY

| Tuesday, Nov. 6             | Wednesday, Nov. 7                | Thursday, Nov. 8                 | Friday, Nov. 9                  |
|-----------------------------|----------------------------------|----------------------------------|---------------------------------|
|                             | Group Breakfast                  | Group Breakfast                  | Group Breakfast                 |
|                             | Plenary                          | Accelerated Construction/Rehab 2 | Concrete Mixture Optimization 3 |
|                             | Concrete Mixture Optimization 1  | Concrete Mixture Optimization 2  | Forum 3*                        |
|                             | Group Lunch                      | Group Lunch                      | Noon – End of Conference        |
| Registration Starts 3:00 PM | Accelerated Construction/Rehab 1 | General Session                  |                                 |
|                             | Forum 1*                         | Forum 2*                         |                                 |
| Reception (Exhibition Area) | Group Dinner                     | Dinner on Your Own               |                                 |

- \* Forum 1: Accelerated Construction and Rehabilitation—Weekend and Nighttime Closures (Georgia and Washington State Case Studies)
- Forum 2: Concrete Mixture Optimization
- Forum 3: Accelerated Construction and Rehabilitation—Full Closure (Detroit M-10/Lodge Freeway Case Study)

## REGISTRATION DETAILS (all fees are in U.S. dollars)

|                                    | Early<br>(by July 15, 2007) | Late<br>(after July 15, 2007) | Very Late<br>(after September 30, 2007) |
|------------------------------------|-----------------------------|-------------------------------|---|
| General registration               | 275                         | 325                           | 375                                     |
| Government agencies (U.S. only)    | 225                         | 275                           | 325                                     |
| Authors and academia               | 225                         | 275                           | 325                                     |
| Students                           | 175                         | 225                           | 275                                     |
| Spouses                            | 150                         | 200                           | 250                                     |
| Exhibitors (one free registration) | 1,200                       | 1,500                         | NA                                      |

Registration fee includes Tuesday evening reception, breakfast on Wednesday, Thursday, and Friday; lunch on Wednesday and Thursday; dinner on Wednesday; and breaks.

Potential exhibitors should contact Shiraz Tayabji at [stayabji@CTLGroup.com](mailto:stayabji@CTLGroup.com) or by phone at 410-997-0400 to reserve space.

# International Conference on Optimizing Paving Concrete Mixtures and Accelerated Concrete Pavement Construction and Rehabilitation

## PRELIMINARY TECHNICAL PROGRAM – JUNE 1, 2007

| DATE                | SESSION                                     | PRESENTATION  | AUTHORS  | PRIMARY AUTHOR'S ORGANIZATION                 |
|---------------------|---|---|--|---|
| <b>Nov 6</b>        | <b>REGISTRATION, RECEPTION, AND EXHIBIT</b> |   |  |   |
| <b>Nov 7</b>        | <b>1 — PLENARY</b>                          | Keynote Presentations   | Federal Highway Administration/Georgia Department of Transportation/<br>American Concrete Pavement Association |   |
|                     |   | Paving Concrete Mixtures—What We Need, Where We Are   | Invited  |   |
|                     |   | Accelerated Concrete Pavement Construction and Rehabilitation—the Challenge                         | Invited  |   |
| <b>BREAK</b>        |   |   |  |   |
| <b>Nov 7</b>        | <b>2 — CONCRETE MIXTURE</b>                 | Concrete Mixture Issues for USAF Airfield Pavements   | Raymond Rollings, James Greene, and<br>Ronald Hutchinson   | Rollings Consulting                           |
|                     |   | Iowa's Experience Utilizing Optimized Concrete Paving Mixtures                                      | Todd Hanson  | Iowa Department of Transportation             |
|                     |   | Concrete Pavement Mixture Design and Proportioning Guide  | Leif Wathne  | American Concrete Pavement Association        |
|                     |   | Optimized Concrete Paving Mixtures: Their Origin and Evolution                                      | James Shilstone, Sr., and<br>James Shilstone, Jr.  | Shilstone & Associates, Inc.                  |
| <b>GROUP LUNCH</b>  |   |   |  |   |
| <b>Nov 7</b>        | <b>3 — ACCELERATED CONSTRUCTION</b>         | Nondestructive Testing Techniques for Acceptance of Concrete During Accelerated Construction        | Soheil Nazarian, Deren Yuan,<br>Farhad Ansari, and Don Alexander   | University of Texas El Paso                   |
|                     |   | Rapid Concrete Panel Replacement in Washington State: Lessons Learned                               | Steve Muench, Brett Ozolin,<br>Jeff Uhlmeyer, and Linda Pierce   | University of Washington                      |
|                     |   | Precast Concrete Pavements and Results of Traffic Load Tests  | Erwin Kohler, Louw du Plessis, Peter<br>Smith, John Harvey, and Tom Pyle                                       | University of California at Davis             |
|                     |   | New Technique for the Rapid Construction and Rehabilitation of Concrete Pavements                   | N.X.C. Bax, A.W.F.M. van Deurzen,<br>and A.A.A. Molenaar   | Beton Son                                     |
| <b>BREAK</b>        |   |   |  |   |
| <b>Nov 7</b>        | <b>4 — FORUM 1</b>                          | <b>Accelerated Construction (Nighttime and Weekend Closures)</b>                                    |  |   |
| <b>GROUP DINNER</b> |   |   |  |   |
| <b>Nov 8</b>        | <b>5 — ACCELERATED CONSTRUCTION</b>         | Use of Heavy Vehicle Simulators to Evaluate Technologies for Rapid Concrete Pavement Rehabilitation | Erwin Kohler, Louw du Plessis, and<br>John Harvey  | University of California at Davis             |
|                     |   | Study on Factors Influencing Characteristics of High-Strength Concrete for Airport Pavements        | Yoshitaka Hachiya, J. Noda, S. Kameta,<br>T. Tochigi, Y. Tsubokawa, R. Maekawa,<br>and Y. Takieuchi            | Port and Airport Research Institute,<br>Japan |

| DATE                          | SESSION  | PRESENTATION  | AUTHORS   | PRIMARY AUTHOR'S ORGANIZATION                          |  |
|-------------------------------|--|---|---|--|--|
|                               |  | CA4PRS Use in Washington State  | Brett Ozolin, Steve Muench, Jeff Uhlmeier, and Linda Pierce   | University of Washington                               |  |
|                               |  | Precast Prestressed Concrete Pavement for Rapid Bridge Approach Slab Reconstruction   | Mark Dunn, Michael LaViolette, David Merritt, and Sam Tyson   | Iowa Department of Transportation                      |  |
|                               | <b>BREAK</b>   |   |   |  |  |
|                               | <b>6 — CONCRETE MIXTURE</b>  |   | Design Concrete Mixtures for High Performance Pavements   | Mauricio Ruiz and Ted Ferragut                         | The Transtec Group, Inc.                     |
|                               |  |   | Evaluation of Ternary Concrete Mixtures with GGBFS and Fly Ash for Concrete Pavements                 | Adam Rudy, Jan Olek, Tommy Nantung, and Richard Newell | Purdue University                            |
|                               |  |   | Lab of the Future—Mixture Design and Analysis for Optimized Concrete Paving Performance               | Richard Meininger and Jussara Tanesi                   | Federal Highway Administration               |
|                               |  |   | Material and Construction Optimization for Prevention of Premature Pavement Distress in PCC Pavements | Jim Grove  | National Concrete Pavement Technology Center |
|                               | <b>GROUP LUNCH</b>   |   |   |  |  |
|                               | <b>7 — GENERAL SESSION</b>   |   | Dowel Retrofitting with Rapid Hardening Repair Materials: Lessons Learned                             | Robert Gulyas and Sandra Sprouts                       | BASF Construction Chemicals                  |
|                               |  |   | Economical Rehabilitation of Concrete Pavements   | Chris Ramseyer and Brent Chancellor                    | University of Oklahoma                       |
|                               |  | Concrete Mix Properties to Optimize Concrete Pavement Design and Performance Using the MEPDG  | Chetana Rao, Jagannath Mallela, Michael Darter, and Leslie Titus-Glover                               | ARA, Inc   |  |
|                               |  | Petrographic Analysis of Concrete Pavements for Assessing Material Properties for Early-Age Shrinkage and Other Distresses                          | Tom Patty and Kevin Copeland  | WJE Associates, Inc.                                   |  |
| <b>BREAK</b>                  |  |   |   |  |  |
| <b>8 — FORUM 2</b>            | Concrete Mixture Optimization—Case Studies and New Directions                                    |   |   |  |  |
| <b>DINNER ON YOUR OWN</b>     |  |   |   |  |  |
| <b>Nov 9</b>                  | <b>9 — CONCRETE MIXTURE</b>  | Strength and Deicer Scaling Resistance of Grade 100 and Grade 120 Slag Cement Concrete  | Irene LaBarca, Ryan Foley, and Steve Cramer   | Wisconsin Department of Transportation                 |  |
|                               |  | From Concrete Mixture Design to Mixture Proportioning and Analysis With the FHWA COMPASS Software   | Mauricio Ruiz and Sabrina Garber  | The Transtec Group, Inc.                               |  |
|                               |  | Effect of Different Air Entraining Agents, Supplementary Cementitious Materials, and Water Reducing Agent on the Air Void Structure of Fresh Mortar | Tyson Rupnow, V. Schaefer, K. Wang, and P. Tikalsky   | Iowa State University                                  |  |
|                               |  | Using Internal Curing in Concrete Pavements   | Norbert Delatte and John Cleary   | Cleveland State University                             |  |
| <b>BREAK</b>                  |  |   |   |  |  |
| <b>10 — FORUM 3</b>           | Accelerated Construction and Rehabilitation—Full Closure (Detroit M-10/Lodge Freeway Case Study) |   |   |  |  |
| <b>NOON — CONFERENCE ENDS</b> |  |   |   |  |  |

## ***CONFERENCE VENUE/HOTEL***

The conference will be held at the Westin Hotel Atlanta Airport, located within minutes of Atlanta's Hartsfield–International Airport. The conference room rate of \$124 (approved Federal rate of \$124 for U.S.-based government agency staff), single or double, plus applicable taxes (currently about 15 percent) is available to all attendees, but you must make your reservation by October 16, 2007 (or earlier if the room block sells out). This rate is good from November 5–9, 2007. The group reservation code for the conference is "Concrete Pavement Conference."

## ***CONFERENCE STEERING COMMITTEE***

Shiraz Tayabji (CTLGroup) (Chair), Angel Correa (Federal Highway Administration), Mohamad Elfino (Virginia Department of Transportation), Georgene Geary (Georgia Department of Transportation), Wouter Gulden (American Concrete Pavement Association – Southeast Chapter), Kurt Smith (Applied Pavement Technology, Inc.), Paul Tikalsky (University of Utah), Sam Tyson (Federal Highway Administration), Jeff Uhlmeyer (Washington State Department of Transportation), and Leif Wathne (American Concrete Pavement Association).

Secretary: Seungwook Lim, PE (CTLGroup)

## ***FOR ADDITIONAL INFORMATION, CONTACT:***

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**Updated information related to the conference and online registration  
is available at**

<http://www.fhwa.dot.gov/pavement/concrete/2007CPTPconf.cfm>

