

# Agenda

*Presented by Dr. Michael E. Ayers  
of Global Pavement Consultants, Inc.*

## Opening Remarks and Introductions

### Concrete Pavement Types and Performance Overview

The evolution of concrete pavements  
50-year concrete pavements  
Jointed plain concrete pavements (JPCP)  
Continuously-reinforced concrete pavements (CRCP)

### Concrete Pavement Design Methodologies

Empirical design  
Mechanistic design  
Mechanistic-empirical design  
Basic design inputs

### AASHTO 1993 Pavement Design Procedure

Basic design assumptions  
Rigid pavement design inputs  
Flexible pavement inputs

### AASHTO Pavement Design Example Using WinPAS Software

Rigid pavement design example

### StreetPave Pavement Design Procedure

StreetPave design assumptions  
Development of design inputs

### Pavement Designer Software Overview and Demonstration

Rigid pavement design examples  
- Streets  
- Highways  
- Roller compacted concrete, industrial applications

### Introduction to the Mechanistic-Empirical Pavement Design Guide (M-E PDG)

Introduction to M-E design concepts  
Development of pavement M-E design inputs  
Evaluation of M-E design calculations

### Concrete Overlays

Overlay types  
Bonded concrete on existing asphalt pavements  
Unbonded concrete on existing concrete pavements

## Concrete Pavement Design, Construction and Rehabilitation

Merrillville, IN - Tuesday, February 19, 2019

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## Learning Objectives

### *You'll be able to:*

**Explore** concrete pavement types, including jointed plain concrete pavement and continuously-reinforced concrete pavement.

**Review** pavement design methodologies, including empirical, mechanistic, and mechanistic-empirical design.

**Explore** AASHTO 1993 pavement design procedure, including rigid and flexible pavement inputs.

**Discuss** StreetPave pavement design procedure, and watch a demonstration of pavement design software.

**Examine** the Mechanistic-Empirical Pavement Design Guide.

**Talk** about concrete overlay types for use on concrete and asphalt pavements.



## Concrete Pavement Design, Construction and Rehabilitation

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**Understand** concrete pavement types, including jointed and continuously-reinforced

**Identify** concrete pavement design methodologies

**Examine** AASHTO 1993 pavement design procedure

**Learn** Streetpave pavement design procedure

**Review** the Mechanistic-Empirical Pavement Design Guide

**Discuss** concrete overlays

### Continuing Education Credits

This seminar offers 7.0 Continuing Education Hours/PDHs to professional engineers

HalfMoon Education is approved by the Indiana State Board of Registration for Professional Engineers as a continuing education provider.





**Michael E. Ayers, Ph.D** *President of Global Pavement Consultants, Inc. (GPC)*

Dr. Ayers is the president of Global Pavement Consultants, Inc. (GPC). GPC conducts business worldwide and concentrates primarily on pavement design, construction, evaluation, full-depth reclamation with cement, rehabilitation and concrete overlays. Dr. Ayers specializes in pavement analysis using the AASHTO Mechanistic-Empirical Pavement Design Procedure, forensic analysis, just-in-time-training prior to project start-up, troubleshooting both during and after construction and development and delivery of pavement and materials-related seminars and short courses.

Dr. Ayers has extensive experience in the design and construction of concrete overlays, concrete roadways, unbound and stabilized base courses including cement-treated bases, lean concrete bases, full-depth reclamation (FDR) utilizing existing asphalt materials and roller-compacted concrete (RCC). He recently completed development of the Aggregates and Portland Cement Concrete training modules for the Federal Highway Administration (FHWA) Highway Materials Engineering course, the design chapter for the new FDR Guidelines and several chapters in the new FHWA Guide for Concrete Pavement Distress Assessments and Solutions. He also serves as an expert witness on a variety of design and materials-related issues focusing on concrete and RCC pavements. He has substantial experience in field investigations and forensic studies and has conducted numerous large-scale investigations using the MIT SCAN B2 for determining embedded steel location and alignment in concrete pavements.

Dr. Ayers has been very active in the industry serving on a variety of National Cooperative Highway Research Program (NCHRP) expert tasks groups, FHWA projects and university-based research programs. He instructs design and construction courses for the University of Wisconsin,

## Seminar Information

**Hilton Garden Inn Merrillville**  
7775 Mississippi Street  
Merrillville, IN 46410  
(219) 769-7100

**Tuition**  
**\$279** for individual registration  
**\$259** for three or more registrations.  
**Included with your registration:** Complimentary continental breakfast and printed seminar manual.

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**Cancellations:** Cancel at least 48 hours before the start of the seminar, and receive a full tuition refund, minus a \$39 service charge for each registrant. Cancellations within 48 hours will receive a credit toward another seminar or the self-study package. You may also send another person to take your place.

**Continuing Education Credit Information**

This seminar is open to the public and offers 7.0 continuing education hours/PDHs to professional engineers in all states. HalfMoon Education has been approved by the Indiana State Board of Registration for Professional Engineers as a continuing education provider (License No. CE21700059).

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Attendance will be monitored, and attendance certificates will be available after the seminar for most individuals who complete the entire event. Attendance certificates not available at the seminar will be mailed to participants within fifteen business days.

**Can't Attend? Order the Manual and Audio from the Live Seminar as a Self-Study Package!**  
An audio recording of this seminar is available for \$289. Allow four weeks from the seminar date for delivery. Please refer to specific state licensing rules or certification requirements to determine if this learning method is eligible for continuing education credit.

Halfmoon Education, FHWA and others. He is currently working on overseas projects in Belarus, Ukraine, and in Moldova, as well as numerous projects across the U.S.

Prior to founding GPC in January 2011, Dr. Ayers served as a director for the American Concrete Pavement Association (ACPA), in Rosement, Illinois. He managed the contractor-based education and training program and provided technical services for ACPA as well as contributing to a variety of projects for both the public and private sectors. He has also served as a university professor at Oklahoma State University, a division manager at ERES Consultants and a group leader at Applied Research Associates, Inc.

**Here's what past attendees had to say about the program and presenter Michael Ayers:**

“Very good speaker.” – *Professional Engineer*

Very knowledgeable on the class topic. Nice mix of book info and personal experiences.” – *Civil Engineer*

“Good seminar.” – *Project Manager/Civil Engineer*

## Additional Learning

### Webinar Series

**Commercial Solar Peaker Batteries**

- **Commercial Solar Peaker Batteries, Part I**  
Wed., Jan. 9, 2019, 11:00 AM - 3:15 PM CST
- **Commercial Solar Peaker Batteries, Part II**  
Thurs., Jan. 10, 2019, 11:00 AM - 2:15 PM CST

**Proposal Writing**  
Fri., Jan. 11, 2019, 11:00 AM - 3:30 PM CDT

**Technical Writing**

- **Technical Writing Basics**  
Mon., Jan. 14, 2019, 11:00 AM - 1:00 PM CST
- **Planning Documents**  
Mon., Jan. 14, 2019, 1:30 - 3:30 PM CST
- **Writing Documents**  
Tues., Jan. 15, 2019, 11:00 AM - 1:00 PM CST
- **Revising and Editing Documents**  
Tues., Jan. 15, 2019, 1:30 - 3:30 PM CST

For more information visit:  
[www.halfmoonseminars.org/webinars/](http://www.halfmoonseminars.org/webinars/)

## Registration

**Concrete Pavement Design, Construction and Rehabilitation**  
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| How to Register                                                                                                                                                     | Registrant Information                                                                                                                                                 |
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**Tuition**

( ) **I will be attending the live seminar.** Single Registrant - **\$279.00**. Three or more registrants from the same company registering at the same time - **\$259.00** each.

( ) **I am not attending.** Please send me the self-study package for **\$289.00**.

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