

# Education

**Friday, June 6**  
**8:15 am – 9:45 am**  
**(1.5 PDH\*)**

## **Get Your Project in HD! Using High-Definition Survey on Engineering Projects**

*Paul J. DiGiacobbe, PE*

This session will provide an introduction to laser scanning technology and High-Definition Survey (HDS). You will gain an understanding of how to integrate this tool into the survey and design process. You will learn about the numerous applications, deliverables and benefits that laser scanning technology offers the engineering world.

Laser Scanning Explained • The HDS Process • Applications for HDS • Example Scan Data • Example CADD Extraction • Case Studies • Deliverable Options • Suggested Software • Benefits of HDS

*Paul J. DiGiacobbe, PE is Principal and Director of Engineering Automation at Nave Newell, Inc. Mr. DiGiacobbe is responsible for directing the automation group and information technology throughout the company.*

**Friday, June 6**  
**8:15 am – 9:45 am**  
**(1.5 PDH\*)**

## **Pennsylvania Engineers Licensing Codes, Regulations, and Violations**

*Robert C. Grubic, PE*

This session will provide information to engineers regarding the structure, duties and operation of the State Registration Board for Professional Engineers, Land Surveyors and Geologists.

The Registration Law, Regulations and processes for handling applications for licenses, violations and adjudication of cases will be examined.

Requirements for continuing education will be reviewed, discussing probable implementation for the 2009-11 license renewal cycle

*Robert C. Grubic, PE has served as President of Herbert, Rowland & Grubic, Inc. (HRG) since 1989. Mr. Grubic currently serves on the Pennsylvania State Registration Board for Professional Engineers, Land Surveyors and Geologists as Vice President.*

**Friday, June 6**  
**10:00 am – 12:00 pm**  
**(2.0 PDH\*)**

## **New ACI 302 & 360 Guidelines – Designing Cost-Effective Slabs on Ground**

*Eric J. Gerencir*

This session will discuss changes to industry standards and their resulting impact on designers.

Escalating prices and lack of availability of steel and cement have significantly impacted construction capabilities since 2004. However, the new ACI 302.1R-04 guidelines for Concrete Floor and Slab Construction, released in June of 2004, can help you mitigate your professional liability through industry recognized construction methods that translate into the high-quality floors owners expect.

Through a “strategic reinforcement” design, load transfer is only placed at the joints; therefore, optimizing the amount of steel in the slab.

This presentation focuses on how your projects may be affected by new industry standards and design methods that accommodate slab shrinkage through proper jointing. The merits of various types of reinforcing and installation will also be discussed and reference made to various published articles from Concrete International and Concrete Construction magazines, ACI and PCA.

*Eric has worked for PNA Construction Technologies as the Mid-Atlantic Territory Manager since 2006.*

**Friday, June 6**  
**10:00 am – 12:00 pm**  
**(2.0 PDH\*)**

## **Controlling the Budget by Defining the Scope**

*Steven F. Wilson, PE*

One of the leading contributors to poor project performance is a poorly defined scope of work. Without a well defined scope of work, there is no mutual understanding or agreement on what is expected to be done, how to do it, or what information will be provided. Without that type of information, one is open to additional work without additional compensation.

A well developed scope of work for a project will define the work that needs to be accomplished for the delivery of a product, service or provides the specified features and functions. This session will present the benefits of a clearly defined project scope of work and identify key factors in controlling and meeting the budget with a well defined scope.

*Steven F. Wilson, PE was responsible for organizing Baker’s material and instructing staff at Michael Baker in scoping projects and maintaining budgets. Steve was recently appointed Assistant Vice President of Pittsburgh Transportation for Michael Baker Jr., Inc. He also serves as the company’s director of highways and project management.*

*\*Session is pre-approved for engineer’s license renewal in NY.*

# Education

**Friday, June 6**  
**1:30 pm – 3:00 pm**  
**(1.5 PDH\*)**

## **Infrastructure Challenges and Improvements**

*Gary L. Graham, PE*

This session will provide insight from an owner's perspective, into the financial, technical, political and management issues related to infrastructure stewardship.

The presentation will include the history, composition, financials, current and planned projects of the PA Turnpike System. Legislative mandates - Act 61 and Act 44 - will be discussed. Transportation funding in the form of fuel-based taxes, toll or VMT assessments, and monetization of assets will be reviewed. Future directions at the Pennsylvania Turnpike Commission such as improvements to the existing system, tolling systems, expansion of existing system and funding will be presented.

*Gary L. Graham, P.E., was named Assistant Chief Engineer for Design of the Pennsylvania Turnpike Commission in November 2007. He leads the Commission's Engineering Design Department. As Assistant Chief Engineer for Design, Graham, a Harrisburg, PA resident, directs all engineering design activities across the 537-mile toll road system, overseeing a staff of 55 engineering personnel and managing a capital spending program in excess of \$400 million annually.*

**Friday, June 6**  
**1:30 pm – 3:00 pm**  
**(1.5 PDH)**

## **Electromagnetic Field Safety of Wireless Devices: A Consumer Update**

*Paul Dugan, PE*

Advancements in wireless technologies have enabled an explosion of new wireless devices and applications which have a profound impact on the way we live and work. Some consumers are becoming increasingly concerned about exposure to low levels of electromagnetic fields (EMF) from wireless devices such as cell phones, cordless phones, WIFI network devices, blue tooth devices, PDA's and laptops to name a few. This session will present the facts surrounding the issue of electromagnetic field safety. Discussion will center around the technical engineering aspects of EMF, define existing EMF standards which establish guidelines and exposure limits for consumer safety, explore methods of determining compliance with the standards, and discuss methods of minimizing exposure when working in close proximity to certain devices. Participants will gain an understanding of EMF based on the best available scientific evidence to date. Emphasis will be placed on offering practical advice to dispel myths surrounding EMF, understanding the basics of EMF from a consumer perspective, and practical guidelines for establishing safe environments while living and working in a modern world.

*Paul Dugan, P.E., is founder of Millennium Engineering, P.C., a consulting engineering practice which performs extensive EMF studies for wireless clients for 10 years. Mr. Dugan frequently testifies as an expert witness at municipal public meetings specifically on the subject of Electromagnetic Field Safety. Mr. Dugan holds a Bachelor of Science in Engineering, Master of Engineering, both Electrical, and a MBA from Widener University. He is a Registered Professional Engineer in nine jurisdictions and actively participates in numerous technical and professional societies.*

**Friday, June 6**  
**3:15 pm – 4:45 pm**  
**(1.5 PDH\*)**

## **Engineering During the Civil War**

*Gustav Person*

This session will provide an in-depth briefing on the US Army Corps of Engineers (COE)/Confederate States Army Engineers and their role in the American Civil War. The presentation will begin with a short history of the COE prior to the conflict; the organization and mission of each corps and their respective roles in supporting operations in all theaters. The presentation will concentrate on the vital role of the engineers and their considerable contributions.

*Gustav J. Person is a retired lieutenant colonel, New York Army National Guard. Currently, he is the installation historian at Fort Belvoir, Virginia; previously the US Army Engineer School from 1919-1989.*

**Friday, June 6**  
**3:15 pm – 4:45 pm**  
**(1.5 PDH\*)**

## **Accelerated Replacement of 4500 South Bridge over I-215, Salt Lake City, Utah**

*Jeffrey J. Campbell, P.E.*

Replacement of the 4500 South Bridge over I-215 was necessitated due to structural deficiencies. Accelerated Bridge Construction techniques were used for construction. While the new superstructure was constructed off-site, the new substructures were constructed underneath the existing bridge. During a week end closure, the existing bridge was removed followed by the placement of the new superstructure utilizing self-propelled modular transporters.

The Utah Department of Transportation (UDOT) selected Michael Baker Jr., Inc. (Baker) as the design consultant for the project. Baker evaluated bridge types and ABC options, developed preliminary cost estimates and design options, and perform the final design for both the bridge and roadway tie-in. Through Construction Manager/General Contractor procurement method, UDOT selected Ralph L. Wadsworth Construction Company, Inc. as the contractor to assist with the design and perform the construction.

The session will address the existing bridge condition, reasons for replacement, an explanation of the ABC process, challenges and innovations in the design and construction, and a summary on the use of self propelled modular transporter.

*Mr. Campbell is the Transportation Principal for Pennsylvania statewide operations that include the Harrisburg, Horsham, Philadelphia and Pittsburgh offices of Michael Baker Jr., Inc. The Pennsylvania transportation service area is comprised of over 300 transportation planners, aviation, environmental, highway, traffic and bridge engineers and scientist and software specialists. Recently he served as Baker's national bridge practice director and continues to support this technical service area. He has served as supervising manager for a number of signature river crossings and project manager of the AASHTO Virtis® (Bridge Load Rating) and Opis® (LRFD Bridge Design) software development projects.*

*\*Session is pre-approved for engineer's license renewal in NY.*