Pennsylvania Again Takes National Leadership Role for Transportation

The Pennsylvania General Assembly has passed some long-overdue funding for Transportation in Pennsylvania. After years of effort, on November 25, 2013, the leadership of Governor Tom Corbett finally secured passage and signed Pennsylvania’s most comprehensive piece of state transportation legislation in decades.

Bipartisan members of the business community rallied with Governor Tom Corbett to pass the legislation critical to sustaining the Pennsylvania economy, supporting employers to be competitive in the global economy. The responsible action of these courageous lawmakers is applauded.

If your elected official is among those below, take this opportunity to contact them and congratulate them on their leadership.

By PA House District:

4 Curtis Sonney (R) 38 Bill Kortz (D)
5 Greg Lucas (R) 40 John Maher (R)
14 Jim Marshall (R) 44 Mark Mustio (R)
19 Jake Wheatley (D) 45 Nick Kotik (D)
22 Erin Molchany (D) 60 Jeffrey Pyle (R)
23 Dan Frankel (D) 62 David Reed (R)
24 Edward Gainey (D) 63 Donna Oberlander
25 Joseph Markosek (D) 64 R. Lee James (R)
28 Mike Turzai (R) 66 Sam Smith (R)
30 Hal English (R) 80 Gerry Stern (R)
35 Marc Gergely (D) 81 Mike Fleck (R)

By PA Senate District:

25 Joseph Scarnati (R) 42 Wayne Fontana (D)
35 John Wozniak (D) 45 James Brewster (D)
37 Matt Smith (D) 46 Tim Solobay (D)
38 Jim Ferlo (D) 47 Elder Vogel (R)
40 Randy Vulakovich (R) 49 Sean Wiley (D)
41 Donald C. White (R) 50 Robbins (R)

Recall the graph at the left from the 2011 report from the Governor Tom Corbett’s TFAC blue-ribbon panel. The graph shows the funding Pennsylvania needs to increase from $3.5 Billion to $7.2 Billion by 2020. The funding gap has now grown to $4.6 Billion. Passage of the funding is projected to generate about only $351 million more in 2014, but it will increase gradually up to $2.3 Billion over 5 years. More funding is still needed, but this act is a long-overdue start.
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Carnegie-Mellon Students Explore New Technology

The Environmental Water Resources Institute Carnegie Mellon University Graduate Chapter had a special webinar on November 5th, 2013 with Damian Palin, a TED Fellow and PhD candidate from TU Delft in the Netherlands. His presentation, “Bacterial Induced Mineralization” was an insightful lecture on bacterial mineralization and its many applications in the fields of civil and environmental engineering. Some of the applications he focused on included biological casting of stone, biological accumulation of minerals from desalination brine, and self-healing concrete.

Damian’s presentation assembled 30 Civil and Environmental Engineering department graduate students from the inspired by the potential of applying bacterial mineralization to a broad spectrum of engineering concepts. His presentation ended with a captivating quote by William Blake, “To the eyes of a man with imagination, nature is imagination itself.” Damian Palin is currently continuing his research on bacteria based self-healing concrete in marine environments.

For more information, contact Negin Ashoori, at CMU, nashoori@andrew.cmu.edu

YMF in the Community

YMF volunteers joined over 100 others for a KABOOM! build a playground in a day event in Duquesne this October. The KABOOM! organization, founded in 1996, encourages outdoor play for children by taking their design for a playground and then organizing volunteers to build it in one day. Volunteers did everything from ground preparation, to putting equipment together, and painting. Many of the children who would be using the space were there as well.

YMF President Angela Mayer said, ”Kaboom is a great program that benefits the community and their youth. Volunteering for this event has allowed me to meet some of Duquesne’s residents and work towards a common goal: Build these kids a playground!” A great way to get in the community, get our hands dirty, and really make a difference!

For more information on volunteering with the YMF, contact community service chair Sara Mullaney sara.mullaney@rhea.us.
Continuing Education Made Easy

Part 1: Continuing Education Basics

This is a multi-part series of short articles on Continuing Education. In this first part, we will explore the continuing education basics.

Canon 7 in ASCE's Code of Ethics states "Engineers shall continue their professional development throughout their careers, and shall provide opportunities for the professional development of those engineers under their supervision." It further reads "Engineers should keep current in their specialty fields by engaging in professional practice, participating in continuing education courses, reading in the technical literature, and attending professional meetings and seminars."

Technology, codes, and standards continually evolve as a civil engineer progresses through his or her career. To be at the forefront of the profession, civil engineers have an obligation to stay up-to-date with advancements that affect their industry and specialty areas. Active continuing education helps individuals' career growth, advances the profession, and ultimately benefits the safety, health, and welfare of the public (ASCE, 2013).

Continuing education and lifelong learning are important parts of a Civil Engineer's career development and licensing requirements. Accordingly, the Continuing Education Committee's main objective is to provide a forum for communications among members of the Pittsburgh Section, members of Technical Groups, and civil engineering educators to share knowledge and information on new practices, techniques, and other information to maintain and advance technical and professional skills of Section members. For example, understanding electrical engineering is a critical continuing education need as most Civil Engineers struggle dealing with electrical engineering parts of their projects. To address this need, the Committee will offer a continuing education seminar "EE for CE" in Pittsburgh to provide basic practical electrical engineering every civil engineer needs to know. Planned for spring 2014, this seminar will be announced in a future issue of this newsletter.

Continuing education is no longer an optional career enhancement activity. Civil engineers are mandated to obtain continuing education for their professional engineer licenses and professional certifications, such as Diplomate Water Resources Engineer (D.WRE) certification from ASCE’s American Academy of Water Resources Engineers (AAWRE). Unfortunately, continuing education requirements vary for various licenses and certifications which leads to confusion, and often frustration. The main purpose of this article series is to clarify the continuing education requirements, share resources, and suggest an easy but structured approach to meet those requirements.
Continuing Education Definitions and Acronyms

Continuing Professional Competency (CPC): This terminology is used to specify license renewal requirements in various jurisdictions.

Contact Hour: The number of instructional contact hours excluding non-instructional time (e.g., breaks, lunch, or housekeeping information).

Professional Development Hour (PDH): A contact hour (nominal) of instruction or presentation. The PDH is the common denominator for other units of continuing education (e.g., CEU defined below). Some licensing jurisdictions have an erroneous interpretation of definition of a PDH. For example, consider a 1-day seminar that begins at 8 AM and ends at 5 PM with a 1-hour break for lunch. According to NCEES Model Rules, a maximum of 8 PDHs can be earned for this seminar. But the question invariably arises, what about a morning and afternoon break of 20 minutes each? The general understanding is that short-term breaks are permissible as long as a minimum of 50 minutes of presentation/participation per hour is undertaken. If there are no breaks or if breaks of less than 10 minutes per hour are included, no additional time may be claimed. Seminar presenters may attempt to take the number of elapsed minutes (such as 8 hours x 60 minutes) and then divide by 50 to arrive at the PDHs for which the seminar is advertised. This would result in over 9 PDHs in an 8-hour period, which is not permitted. The general rule is that PDHs cannot exceed the actual contact clock hours. For the fractions of hours, NCEES recommends rounding PDHs to the nearest half hour and no credit for an activity of less than 30 minutes. For example, a qualifying activity of 50 minutes would be reported as 1 PDH, and an activity of 40 minutes would be reported as a 0.5 PDH (NCEES, 2013).

Continuing Education Unit (CEU): Unit of credit customarily used for continuing education courses. One continuing education unit equals 10 hours of class in an approved continuing education course (NCEES, 2013). Since one CEU is awarded for each 10 contact hours of instruction, it logically follows that one CEU is equivalent to 10 PDHs. When a sponsor of PDH activities fully follows the requirements of the International Association for Continuing Education and Training (IACET) in awarding CEUs, 10 PDHs can be credited for 1 CEU. However, licensees should be aware that some organizations may advertise CEU credit without having met the requirements of the IACET. In addition, some organizations report 1 CEU of credit for each contact hour of instruction (ASCE St. Louis, 2013).

References and Resources

- ASCE St. Louis Section (2013). Continuing Professional Competency For Professional Engineers Continuing Education Website, http://sections.asce.org/stlouis/Education.htm

Next issue: Part 2: Continuing Education Requirements for Pennsylvania Professional Engineers

For more information, contact Continuing Education Committee Chair Sam Shamsi at sam.shamsi@gmail.com
Pittsburgh Section Opportunities to Learn and Network

Maintain technical proficiency and current knowledge, and learn what other members, companies, organizations, and lawmakers are doing. **Mark your calendars now.**

Member prices extend to non-member spouses or one guest of member, except as noted by ‘*’.

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**December 5, 2013 Thursday, December Dinner**
1. PPG Aquarium at the Pittsburgh Zoo
2. 6:00 pm.
3. $45 for members
4. Sponsored by YMF
5. Contact Linda Kaplan, 412-922-5575, lkaplan@gfnet.com

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**January 17, 2014 YMF Resume Book deadline**

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**January 22, 2014**
1. ACE mentoring
2. 4 – 6 pm
3. Structural Session on Wind Design
4. Mascardo Corp
5. Contact Linda Kaplan, 412-922-5575, lkaplan@gfnet.com

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**January 23, 2014 Thursday, SEI Dinner**
1. Joint w/ABCD
2. Sheraton Cranberry
3. 6:00 pm.
4. Ken Wright of HDR presenting on the Cleveland Inner Belt project
5. Contact Linda Kaplan, 412-922-5575, lkaplan@gfnet.com

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**February 3, 2014 Monday, STEM Career Symposium**
1. Allegheny Intermediate Unit, Waterfront
2. Contact Leanne McConnell, lfm5023@gmail.com

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**February 22, 2014 Saturday, Engineers Week Awards Banquet**
1. ESWP
2. 6:00 pm.
3. $60 for members
4. Contact Pat Sullivan, 412-249-1574, psullivan@cecinc.com

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**Civil Engineer Position Available**

Jacobs Engineering Group in Pittsburgh seeks a civil engineer with 5-10 years experience on both highway and site development projects.

Necessary skills involve proficiency in Inroads and Microstation software. Familiarity with Site Civil and AUTOCAD software is not required, but considered a benefit.

Work experience on PennDOT and PTC projects preferred. Work experience with municipal projects concerning other infrastructure is a bonus.

A Bachelor’s of Science degree in Civil Engineering required. A Pennsylvania Professional Engineering License is not necessary but desired. Applicant should be open to developing skills most associated with highway engineering but should also be open to broadening skill set with site development and other areas. Although the job doesn’t currently require construction inspection experience, this experience would be seen as beneficial as well. Limited local area travel occasionally required. Interested candidates contact Chris Nash at 412-249-3480.
TMDL PART 5

In the last newsletter articles the basics of TMDLs (Total Maximum Daily Loads) were introduced, why one should be interested, what they are, how they are developed, and formulating a TMDL to address sources of water pollution.

TMDLs on water bodies were compared to the total load applied to a bridge.

Background information is collected in an Aquatic Life Use survey (ALU survey). Some of the sources of pollution might be livestock grazing, acid mine drainage (AMD), fertilizer runoff, and water reclamation plant discharges. The effect on different organisms is measured.

This information is based on a presentation made to members of the Environmental and Water Resources Institute in the Pittsburgh Section of ASCE by Bill Brown, Chief of the TMDL Development Section in the Division of Watershed Protection of the Pennsylvania Department of Environmental Protection.

Several methods are considered to determine the limits imposed by a TMDL:

1. Use numeric criteria when available.
   No numeric water quality criteria exist for nutrients (ALU) or sediment
2. Use a narrative standard:
   “Water may not contain substances attributable to point or nonpoint source discharges in concentration or amounts sufficient to be inimical or harmful to the water uses to be protected or to human, animal, plant or aquatic life”.
3. Compare to a Reference or Paired watershed
4. Use values empirically developed by EPA

The Reference Watershed approach:

1. Identify similar watershed meeting standards (Reference Watershed) with similar characteristics to impaired watershed
2. Determine loading rates in reference and impaired watersheds through modeling analysis
3. Calculate load reductions by land use/source required in impaired watershed to meet reference watershed loading rates
4. Allocate loads to subwatersheds
5. Bioassessments form the basis for impairment listings
6. Bioassessments provide means for setting TMDL values for aquatic life use impairments where no numeric criteria for pollutants exist
5. Reference watersheds are chosen considering:
   Land Use  Geology  Topography  Streams Meeting Standards

Next issue: Implementing new TMDLs.

For more information, contact Bill Brown, at PADEP, 717-783-2951, willbrown@state.pa.us
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