

ASCE Newsletter

Central Ohio Section

December, 2015
Volume 20, Issue 4

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DECEMBER LUNCHEON

DATE: Thurs. Dec. 17, 2015, 11:30 A.M. Registration, 12:00 P.M. Lunch

LOCATION: OSU Fawcett Center, 2400 Olentangy River Road, Columbus OH 43210

TOPIC: Autonomous Vehicle Operation

This presentation will discuss the recent developments, ongoing trends, and future implications of automated/connected heavy duty vehicles. Various factors driving the development of vehicle automation will be discussed, including safety and efficiency. Different levels of automation, possible technologies, and an overview of cost versus benefits will be outlined. The talk will include research and implementation examples from around the world, and comparisons with corresponding automation technologies in passenger vehicles will be used to emphasize the importance of automated fleet/commercial traffic.



SPEAKER: Arda Kurt, Ph.D., The Ohio State University – Center for Automotive Research

Arda Kurt is a Senior Research Associate at The Ohio State University Center for Automotive Research (CAR) in Columbus, Ohio. Since joining OSU Control and Intelligent Transportation Research (CITR) group, Dr. Kurt has performed research, development and testing duties in multiple research teams responsible for designing and building a fully autonomous vehicle for urban transportation, developing advance driver assistance systems for intersection collision prediction, investigating estimation, validation, and scalability issues for autonomous vehicles in urban traffic, assessing and evaluating lane-departure warning/prevention systems, as well as developing multi-agent cooperation and control algorithms for teams of autonomous military robots. His earlier work in intelligent transportation and autonomous vehicles was on designing and implementing the high-level decision making and control software for Ohio State University Autonomous City Transport (OSU-ACT) vehicle, as a member of OSU team in DARPA Urban Challenge 2007. He has since worked on multiple advanced driver assistance systems using sensors and short-range vehicular communication, supported by industry partners; investigated a range of issues in realistic autonomous vehicle operation in urban traffic, supported by National Science Foundation; and focused on crash-imminent safety as part of a DoT University Transportation Center at OSU.

MENU: Box Lunches: Honey Roasted Turkey Breast, New Orleans Mufaletta or Vegetarian; all served with Chips, Fruit Salad, Cookie and Bottled Water.

CPD: A certificate for one 1 CPD hour will be issued.

COST: \$20 ASCE Members and Guests, \$15 ASCE Life Members, \$10 Students.

REGISTER: Registration is due by 5:00 PM on Friday, Dec. 11, 2015. Late registrations and walk-ins may not be accepted. Registration fees may apply for no-shows and registrants canceling after the deadline. Contact A.J. Smith at 614-793-9070, or register@centralohioasce.com to register.

PAYMENT: The preferred method of payment is online (click [HERE](#)) before the registration deadline. Payment on the day of the event is available by cash or check payable to Central Ohio ASCE.

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LETTER FROM THE PRESIDENT

Central Ohio Section Members:

The topic of our November's luncheon meeting was very insightful to hear. My thanks to Miriam Siegfried for her presentation on the history, management, and challenges of our local water dams and open reservoir. These important "structures" usually don't come to mind when we think about what is needed to run a safe and healthy city (or region) the size of Columbus.

December is here; don't forget to renew your membership! ASCE membership includes many benefits to help you in your career. Benefits like 5 free PDHs a year, many professional development opportunities, networking through local technical and social events, low-cost access to technical resources, group rate discounts; are just a few of the benefits of being part of ASCE.

If you are looking for a good year-end donation, check out the ASCE foundation. The ASCE foundation is behind many outreach, Civil Engineering advocacy, and philanthropy programs. The [ASCE Foundation](#) is a 501(c)(3) and gifts are tax-deductible to the extent allowed by law.

If you follow the news, you probably read that the FAST act was approved by Congress and was signed into law by the

President. It doesn't appear to be an all-encompassing answer to our transportation infrastructure long-term funding, but it's a big win as it was a true bipartisan effort. It is also a step in the right direction and a foundation to build on.

Even though the transportation infrastructure funding act was recently enacted into law, there is much more to do to educate our leaders on the state of our infrastructure and the need for appropriate and sustainable funding mechanisms. Planning is underway for 2016's ASCE Legislative Fly-In (March 15-17, 2016). Central Ohio Section will be well represented in this two-day event in Washington DC.

Wishing you and your family a fantastic and safe holiday season!

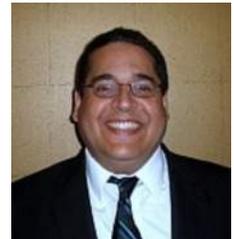
Sincerely,

Carlos Vazquez, PE, M. ASCE

President

ASCE Central Ohio Section

president@centralohioasce.com



LEGISLATIVE UPDATE

After years of short-term transportation bill patches, Congress finally passed, and President Obama signed into law, the bipartisan FAST Act (Fixing America's Surface Transportation). The five-year, \$305 billion bill was strongly supported by ASCE and provides long-term funding at increased levels. The bill includes \$233 billion for highways, \$49 billion for transit, and \$10 billion for passenger rail. The bill passed the House by a vote of 359-65 and the Senate by a vote of 83-16. The bill includes:



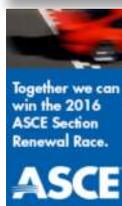
- Creation of a dedicated \$1.25 billion freight program to help ensure federal investments are targeted at improving U.S. economic competitiveness;
- Providing \$900 million per year for large-scale projects under a new, nationally-significant freight and highways program;
- Cutting the TIFIA program from \$1 billion to around \$300 million per year. TIFIA helps leverage billions of dollars in

private sector capital for investment in our nation's infrastructure;

- Innovation initiatives, such as establishing a national program to explore surface transportation funding alternatives to the fuels tax;
- Investment in transit by creating a new research and deployment program, increasing funds for fixed guideways, and establishing a new bus facility program;
- Provisions to streamline environmental reviews and approvals to accelerate project delivery

Federal gasoline taxes used to support the bill were supplemented through \$70 billion in general fund money from sources unrelated to transportation. The largest offset came from spending down a capital surplus account in the Federal Reserve. The bill does not fix the trust fund as ASCE had been calling for, because it does not provide a sustainable source of revenues to support the Highway Trust Fund. The Highway Trust Fund is now slated to experience a \$24 billion annual shortfall starting in fiscal year 2021 should Congress fail to provide a future funding fix to this looming crisis.

2016 MEMBERSHIP RENEWALS



FAST TRACK OUR SECTION TO WIN \$1,000!

The three sections with the highest percentage of renewed members by December 11, 2015 will win a cash prize of \$1,000!

Get into the Renewal Race today, pay your Society and Section dues, and keep our section in the running for the \$1,000 prize. Your renewal supports valuable local programs and is always appreciated!

Go to www.asce.org/finishline to renew...and Thank You!

FREE WEBINAR - HEC-RAS 5.0 COUPLED 1D/2D

What: Free Webinar - 1.0 PDH

When: Fri. Feb. 12, 2015
12:00 PM - 1:00 PM

Where: Stantec
1500 Lake Shore Dr.
Columbus, OH 43204

Topic: Using HEC-RAS 5.0 for a Coupled 1D/2D Analysis

RSVP: To Mark.Seidemann@stantec.com by Wed., Feb. 9, 2015.



*Open only to Central Ohio ASCE Section Members.

*Seating is limited to the first 25 people.

*Bring your own lunch.

Purpose and Background

HEC-RAS V5.0 has the ability to model runoff in a 2D environment coupled with traditional 1D modeling. There is also the ability to apply precipitation to the 2D surface and external hydrographs and other boundary conditions to the 2D surface. This ability allows the modeler to fully capture the nature of the runoff event flow patterns and depths.

Visualization of the hydraulic results is extremely useful in estimating flooding extents, determining key causes of flooding and developing mitigation strategies. The 2D component allows the modeler to fully account for overbank storage volume plus the diversion and return of the overbank flow to the channel. Visual depictions of the floodwave assist with presentation to the public, clients and for reports and submittals.

This webinar focuses on a more in-depth look at the use of HEC-RAS 5.0 1D/2D coupling ability. The webinar discusses briefly the use of RAS Mapper in the development of the 2D model, preparing and importing composite surfaces to include "proposed" conditions in the modeling, with an emphasis on the coupling of the 1D and 2D portions of the model in RAS 5.0. Participants who wish to attend this webinar must be well-versed in using previous software versions of unsteady HEC-RAS and GIS software.

Primary Discussion Topics

- Terrain importing and editing
- Setting and editing 2D grid size

- Defining boundary conditions
- Coupling 1D and 2D components
- Mapping output options

Learning Outcomes

- Learn how to add terrain, shapefiles and web imagery
- Learn to combine 2D modeling & 1D riverine components
- Learn how to add proposed conditions terrain
- Generate depth grids and flood elevations for use in various CADD software.
- Trouble shoot common HEC-RAS errors encountered in coupled 1D/2D modeling

Webinar Benefits

- Learn how to couple 1D and 2D modeling
- Efficiently map flooding depths, velocities and extents
- Insight to some "work arounds" to overcome some of the early version deficiencies of the software

Webinar Outline

- RAS mapper basics and data layers
- Terrain processing
- 2D model development
- Coupling of 1D and 2D components within the model
- Tips for working around some initial version limitations.
- Applying hydrology to the coupled model via direct precipitation on surface and external boundary conditions
- Common error messages encountered
- Generate CADD data for incorporation into exhibits

The Central Ohio Section sponsors free continuing education webinars as a service to our members. These webinars are produced by ASCE and normally cost \$250 or \$300 for ASCE members. However, the Section is paying the registration fee and inviting any interested section members to attend for free. You can see [the complete list of webinars available from ASCE National on their website](#). If you see one you like, let us know. If you and your company would like to host one, let us know that too. If you open it up to any interested Central Ohio ASCE section members to come, we will pay the registration fee.

CADD CLASS VOLUNTEERS



Starting again in 2016 the ASCE Younger Member Group (YMG) will be presenting instructional Autodesk Civil3D Computer Aided Design (CAD) seminars on the campus of the Ohio State University.

The seminars will introduce the students to drafting software and provide an introductory level of instruction to familiarize students with the skills necessary of a typical entry-level

engineering position. The YMG is seeking volunteers from the Central Ohio Section to supplement our teaching group. This is also a great way to see prospective interns in action learning valuable job skills. Please contact Tom Less (Tom.Less@woolpert.com) if you're interested in taking part.

The classes will occur once a week for a few hours on a day to be determined, running likely from the 2nd week in January through April. Volunteers can come to as many or few sessions to assist as they like, but the more instructors we have the better we can provide individual attention.

FREE WEBINAR - GEOSYNTHETIC CLAY LINERS

What: Free Webinar - 1.5 PDH

When: Mon., Feb. 22, 2015
11:30 AM - 1:00 PM

Where: S&ME
6190 Enterprise Ct.
Dublin OH 43016

Topic: Selected Topics Regarding Geosynthetic Clay Liners

RSVP: To Jason Ross at JDRoss@smeinc.com by Wed. Feb 17, 2015.

*Open only to Central Ohio ASCE Section Members.

*Seating is limited to the first 25 people.

*Bring your own lunch.


Primary Topics of Discussion

- Brief History of GCLs
- Cases of Inadequate Shear Strength
- Shear Strength and Peak vs. Residual Decisions
- Tension Peel Strength
- GCL External Interfaces
- Cases of Inadequate Hydraulic Conductivity
- Flow Through GCL Overlaps
- GCL Panel Separation
- GCLs vs. CCLs in Liners and Covers
- The GRI-GCL3 Specification

Learning Outcomes

- Discover the history and manufacturing of GCLs
- Learn about field cases of inadequate shear strength
- Understand testing and critical details of shear testing
- Discuss field cases of inadequate hydraulic conductivity
- Explore critical details of hydraulic conductivity testing
- Become familiar with point-and-counterpoint of GCLs vs. CCLs in both liners and covers
- Emerging GCL opportunities
- Generic specification for GCLs

Webinar Benefits

- Understanding of GCL strengths and weaknesses
- Learn the distinctions of using GCL's as liners vs. covers
- Learn about current research and testing of GCLs
- Understand the distinctions between GCLs and CCLs in liner and cover systems
- Hear about new GCL uses and a generic specification

Webinar Outline

- GCL Overview
- Shear strength issues and testing
- Hydraulic conductivity issues and testing
- GCL's vs. CCL's in liner and cover systems
- Emerging GCL's opportunities
- GCL generic specification

Purpose and Background

Geosynthetic clay liners (GCLs) are very thin layers of bentonite sandwiched between two geotextiles and then needle-punched or stitch-bonded together to form a barrier to liquids and gases. They first appeared in 1986 to absorb leakage through overlying geomembranes in landfill liner systems. Currently, they are being used for both liner and cover systems in myriad environmental, transportation, hydraulic and private development applications. There are approximately twenty manufacturers and the worldwide annual usage is about 150 million square meters. That said, the acceptance and use of GCL's by geotechnical engineers has not progressed nearly as rapidly as it has with other geosynthetic materials like geomembranes, geogrids, etc. Perhaps the main reasons are that compacted clay liners (CCLs) are deeply entrenched in the academic backgrounds of geotechs and also subsequent field experience over the years. This is reflected in current environmental regulations, few of which allow for GCLs to replace or even augment CCLs. This webinar presents the most relevant topics/aspects involving GCLs, including cases of inadequacies in the areas of shear strength and hydraulic conductivity. The webinar also covers the most current GCL testing protocols. In that light, the webinar offers a point-and-counterpoint of GCLs vs. CCLs in both liners and covers. It describes a generic specification with not only suggested limiting test values but also recommendations on quality control and quality assurance.

FREE ON-DEMAND WEBINARS

As a benefit to members, in 2015 ASCE is offering five free, on-demand webinars good for one PDH each. You may choose up to 5 webinars from the 60 on-demand webinars



listed [HERE](#). Each one is a 1-hour webinar worth 1 PDH. That's 5 free PDHs from our comprehensive continuing education library – just for being a member!

Categories include *Environmental, Geotechnical, Hydraulics and Water Resources, Management and Practice, Structural, and Transportation.*

Not a member? Join online or call Customer Service at 800-548-ASCE (2723) or 703-295-6300, Monday-Friday, 9:00 a.m. – 6:00 p.m., ET to take advantage of this exclusive member benefit.

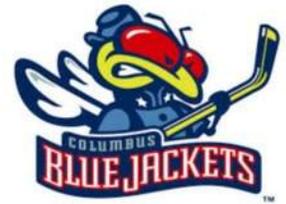
Webinars must be taken by December 31, 2015

BLUE JACKETS HOCKEY GAME

What: Blue Jackets vs. Calgary Flames
 When: Thursday, Jan. 21, 2016
 Where: Nationwide Arena
 Cost: \$10 members, \$15 guests

Based on the popularity of our last Blue Jackets outing, we are planning a group outing to the Blue Jackets-Flames game. Tickets are \$10 per member and \$15 for non-ASCE guests. We're accepting pre-payment using Paypal (click [HERE](#)). As these tickets usually sell for \$50 face value, it's a great deal! Prior to the game, we'll have a social for put on

by the Younger Members group at Brother's, so even if you don't want to go to the hockey game, please come out for drinks, food and fellowship!



You can pick up the tickets from Matt Baxendell at Brother's before the game. If you would like to go, please email Matt at mbaxendell@primeeng.com. Contact Matt for more info or any questions.

DREAM BIG CONTEST



ASCE wants to hear about your journey as a civil engineer. What big dreams have you achieved? What aspirations do you have for the profession or your future as a steward of the built world? How has a career in civil engineering helped you pursue your personal dreams?

Share your dream by clicking [HERE](#) and you could win a dream experience! 3 qualified contestants will win a dream experience:

- A trip for 2 to an international location shoot for the filming of Dream Big; or
- A trip to attend an exclusive rough cut screening of Dream Big in Laguna Beach, California; or
- A Dream Big premiere event in your local community

Tell us in 250 words or less how you dream big!

Contestants are encouraged to submit supplementary material, whether original work or previously published, that helps to tell their story. This may include, but is not limited to, video clips, news articles, drawings, and photos.

Only ASCE members in good standing are qualified to win. Entries must be received by 11:59 p.m. EST. Monday, February 1, 2016. See [contest rules](#) for full details.

2016 STEM EXPO

What: 2016 STEM Expo
 When: Sat. March 5, 2016, 9:00 AM-1:00 PM
 Where: Thomas Worthington High School
 300 W. Dublin-Granville Road,
 Worthington OH 43085

See Flyer at the end of this newsletter

After much success in 2014 and 2015, the ASCE Central Ohio Section Younger Member Group is hosting a STEM (Science, Technology, Engineering, Math) Expo to conclude Engineer's Week. The Younger Member Group is seeking



local STEM companies to sponsor hands-on, STEM related activities for the event.

The goal is to expose K-8 students to the world of STEM through fun, interactive activities.

Rather than seek monetary sponsorship, we invite local STEM professionals to organize an activity on behalf of their employer.

Sponsoring an activity is an easy and great way to get involved in this educational and outreach event. Activity sponsor responsibilities would include:



- Developing a fun, interactive STEM related activity
- Obtaining funding through your employer for the activity materials, if necessary
- Facilitating the activity at the STEM Expo event (typically 2-3 people are needed)

Information for the event, including a list of sponsors and the planned activities can be found at <http://www.centralohioasce.com/STEM-Expo>

Please help us make this a great community event.

2015 - 2016 CENTRAL OHIO ASCE MEETINGS

Meeting Date	Topic	Group(s)	Location	Coordinator
Thursday Dec. 17, 2015 Lunch	OSU Center for Automotive Research	ASCE/ ASHE	Fawcett Center	David Pritchard
Thursday Jan. 21, 2016 Lunch	ODOT Planning and Projects	ASCE	Villa Milano.	Mark Seidelmann
Thursday Feb. 25, 2016 Lunch	Engineers Week Topic	ALL	T.B.D.	E-week Committee
Thursday March 17, 2016 Lunch	Insight 2050 (MORPC)	ASCE	T.B.D.	Carlos Vazquez
Thursday April 21, 2016 Dinner	OU/OSU Student Chapter Presentations	ASCE	Athens, OH	OSU/OU Student Chapters
April/May, 2016 All Day	ASCE Spring Seminar - Water Quality	ASCE	T.B.D.	Firat Sever
Thursday May 19, 2016 Lunch	OARS/Awards President-Elect "Raise the Bar"	ASCE	T.B.D.	Greg Barden
June, 2016 Dinner	2016-2017 Planning Meeting	All	Tommy's Pizza - Dublin, OH	Chris Nye
Friday June 17, 2016 Lunch & Dinner	Annual Golf Outing	ASCE	Darby Creek Golf Club	Jim Pajk

CIVIL ENGINEERING REFERENCE BOOKS

The Central Ohio Section bought a number of civil engineering reference books and donated them to the Columbus Main Library for public use. The titles are as follows:

- Minimum Design Loads (7-10)
- Design of Marine Facilities for Berthing, Mooring
- FRP Composite Connections
- Foundation Engineering Handbook
- Trenchless Technology Piping
- Civil Engineer's Handbook of Professional Practice

- Building Code Requirements and Specification for Masonry Structures (5-11 & 6-11)
- Urban Stormwater Controls
- Municipal Wastewater Plants
- Structural Steel Designer's Handbook



The books are for reference and can't be checked out. They are located on the 3rd floor in a special collection area of the main library (north side of building in the half-height stacks).

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Web: www.centralohioasce.com
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BOARD MEETING

*Our Next Board Meeting
 Will Be 11:30 A.M.
 January 28, 2016
 At W.D. Partners*

DREAM BIG! IMAX MOVIE



All around the world, engineers are pushing the limits of ingenuity and innovation in unexpected, imaginative and amazing ways. Dream Big will take viewers on a journey of discovery from the world's tallest building to a bridge higher than the clouds and a tunnel deep below the earth. Along the way the audience will witness how today's engineers are shaping the world of tomorrow.

Dream Big recently moved into full production thanks to the Bechtel Corporation, which has signed on as the film's presenting sponsor. The film will take advantage of the awe-inspiring scope of giant-screen theaters including IMAX to show how engineers have made civilization possible, and to encourage youth to make it a career. ASCE is working with award-winning documentary filmmakers MacGillivray Freeman on the production and associated educational materials. Dream Big will have its world premiere during Engineers Week in February 2017. Click [HERE](#) for a preview.

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EMPLOYMENT OPPORTUNITIES

As a service to our members and colleagues who may be seeking employment opportunities, we have provided links directly to *Human Resources* or *Careers* pages on the company website below. Please click any of the company logos to visit the site. We thank the companies below for their support of the Central Ohio Section of ASCE.

The ASCE National website also provides employment assistance with hundreds of job postings and additional resources. Please click the image to the right to visit the webpage.



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2016

TECHNOLOGY ENGINEERING
STEM EXPO
SCIENCE MATH

2016 CENTRAL OHIO STEM EXPO

SATURDAY, MARCH 5, 2016 9 AM—1 PM

**THOMAS WORTHINGTON HIGH SCHOOL
300 W. GRANVILLE ROAD, WORTHINGTON, OHIO**

The Central Ohio STEM Expo is a free educational outreach event for students grades K through 8 that will feature fun, interactive activities and exhibits in the Science, Technology, Engineering and Math fields. Last year's student participants built truss bridges and straw towers, met a live tortoise, modeled buildings under earthquake loading, explored magnetism, looked at real blueprints, built race cars out of everyday food items, and interacted with numerous other activities and exhibits.

Pre-Registration

Please visit the event webpage at <http://centralohioasce.com/STEM-Expo> to RSVP for this event. Pre-registration is encouraged but registration will also be available the day of the event. The first 150 students through the door will receive a free take-home activity bag.

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