The New Hampshire *Civil Engineer*

New Hampshire Section of the American Society of Civil Engineers
P.O. Box 4953, Manchester, NH 03108

VOL. 36 No. 07 August/September 2015

Many thanks to TFMoran, our AUGUST/SEPTEMBER SPONSOR OF THE MONTH!

PRESIDENT'S MESSAGE

Infrastructure Funding in the News

You can't escape it, everyone is talking about infrastructure. I turned on sports talk radio and was greeted by an argument about the Olympics in Boston. The most convincing point for the Olympics was improving the City's infrastructure and public transportation. The counter point was equally convincing, "Why do you need the Olympics to improve infrastructure?" This is a great point. The fact that sports guys who generally hate all things real life realize that infrastructure is an important issue is both refreshing and alarming.

In addition to this heated sports debate, a larger, more important battle was being waged in the United States Congress. As you may or may not know, we have a Highway Trust Fund crisis which will be bankrupt by the end of the summer. In other words, the trust fund has been paying out a lot more than it is receiving in gas taxes and other type of funding sources to the extent that it will soon be insolvent. The solution to this issue has been short term extensions, generally 6-months at a time. This prevents states such as New Hampshire from planning projects and infrastructure improvements for more than 6 months at a time. This also results in construction season delays since smaller states do not have the fiscal reserves it would need to cover the construction program until the funding is in place and are forced to delay advertisement of their projects.

However, we finally received some good news! Through a very aggressive lobbying campaign by ASCE national and our local chapter, the senate passed a 6-year surface transportation bill (65-34). Senate leaders James Inhofe and Barbara Boxer conveyed their gratitude to ASCE and our efforts to inform legislators of the importance of this bill. How did our senators vote? Both Senator Kelly Ayotte and Senator Jeanne Shaheen voted in favor of the bill. We are very proud of our bipartisan senators who looked passed party lines and acknowledge the importance of infrastructure improvements for the sustainability and development of NH for years to come. Unfortunately although the bill includes a 6-year authorization, the Congressional Budget Office (CBO) has estimated that the funding mechanisms would only result in about 3 years of funding.

continued page 2

What's Inside?

Newsletter Editor

Fran Weaver
Hoyle, Tanner & Associates, Inc.
150 Dow Street
Manchester, NH 03101
603-669-5555, x-111

Please Send Correspondence To:
The New Hampshire Civil Engineer
ASCE NH
PO Box 4953
Manchester, NH 03108
Email: fweaver@hoyletanner.com

Website: www.ascenh.org

ASCE NH Advertising Rates

Sponsorship Ad:
1.3" x 2.3" Artwork in the
Professional Directory
&
Company website link on
ASCE NH Website:
$165.00/year

Classified Ad:
$15/column-inch
3.5" column, 10-pt font

Advertisements should be placed with the newsletter editor prior to the deadline. Details on website.

All newsletter submissions must be received by the 10th of the month prior to publication.
Next deadline
(For October 2015 issue):
September 15, 2015

Newsletter Publisher
Town & Country Reprographics, Inc.
Concord, New Hampshire

continued from page 1

Despite the good the news, the fight is not over! The bill most now go before the house. ASCE is calling on EVERYONE to reach out to your representative and ask them to pass a long-term funding bill by the October 29, 2015 deadline. Here is the contact information for the NH representatives;

Congressman Frank Guinta
1st District
www.guinta.house.gov
Phone: (202) 225-5456

Congresswoman Ann Kuster
2nd District
www.kuster.house.gov
Phone: 202-225-5206

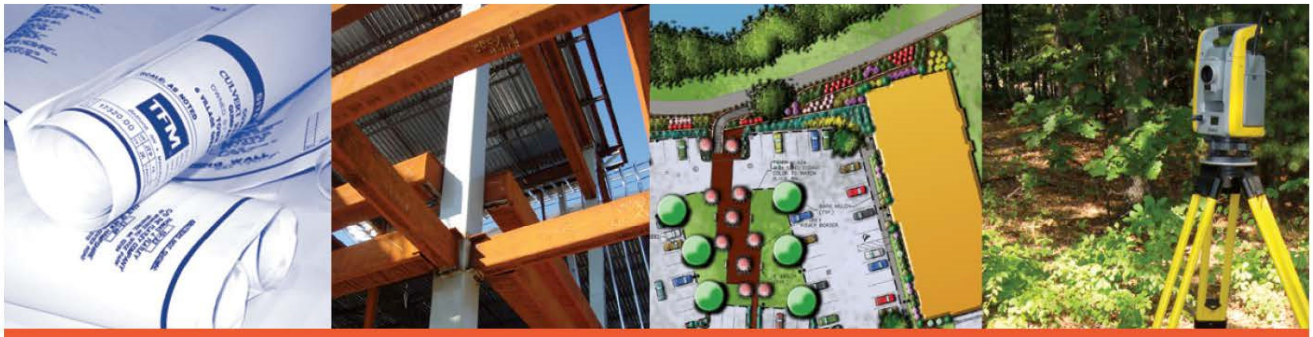
Contact them now while they are on their August break and let them know what it means to you as a voter and civil engineer. ASCE-NH also has a twitter account and is periodically updated with legislative happenings, please follow us at @ASCE_NH.

Thank you for your support and start lobbying!

Jay Hodkinson, P.E. is a Senior Project Manager with GZA GeoEnvironmental, Inc. He earned his B.S. degree in Civil Engineering from the University of Massachusetts-Lowell. He lives in Londonderry, New Hampshire with his wife, Chrissy and his children Andy and Lindsey.

Late September
/Early October

OCEA Presentation – Eversource



TFM

MSC
A division of TFMoran, Inc.

Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

Voted **BEST** NH Engineering Firm 3 Years Running!!!

BEST OF BUSINESS 2015 BOB AWARDS NH BUSINESS REVIEW

About TFMoran

The Company was founded in 1968 as a civil engineering and land surveying firm serving clients in New Hampshire. TFMoran is now a regionally recognized land surveying; land planning; civil, structural and traffic engineering; and landscape architectural firm with over forty-five years of continuous service.

TFMoran is proud to have been voted the best engineering firm in New Hampshire for the past three years by the readers of the NH Business Review. The Company is at the forefront of developing and introducing cost-effective and environmentally sustainable development techniques into all of the professional services we offer.

We are also pleased to announce that **MSC Engineers**, one the leading engineering firms in the Seacoast region, has become a division of TFMoran. With the addition of MSC, TFMoran now has offices in Bedford and Portsmouth, which allows the Company to locally serve all of Southern NH, Northern Massachusetts, and Southern Maine.

Available Positions

STORMWATER / CONSTRUCTION INSPECTOR

Position immediately available for a full-time, or part-time, experienced General Construction and Stormwater Inspector. The position involves on-site construction and stormwater inspections, client and contractor coordination, and preparation of State and Town permit applications. Job Details: Position is based out of TFMoran's Bedford and Portsmouth, NH offices. Prior experience in general construction or stormwater inspection is required. Applicant must be familiar with the principles of civil engineering site design. Applicant must be detail oriented and have good oral and written communication skills. Familiarity with Stormwater Pollution Prevention Plans (SWPPP) is preferred. PE or CPESC (Certified Professional in Erosion and Sediment Control) is preferred.

CIVIL ENGINEERING PROJECT ENGINEER

Position available for a full-time Civil Engineering Project Engineer in our Bedford, NH office. Position requires 1-3 years of project engineering experience in civil engineering with land development projects that require local, state, and federal permitting. Proficiency in AutoCAD and HydroCad necessary. BS in Civil Engineering and EIT preferred.

SURVEY CREW CHIEF

Position immediately available for an experienced Crew Chief (3 years minimum) needed for full time position in our Bedford, NH office. Experience with Total Stations and Electronic Data Collection, GPS and Robotic Instruments is required. Experience with ACAD Land Desktop and Civil 3D is a plus. This position may include office work as well as field work.

TFMoran offers very competitive salaries and benefits. EOE

Please respond with cover letter and resume to: Maryanne Murray, Human Resources mmurray@tfmoran.com

CONTACT: Robert Duval, PE, LEED AP, President *or* **Jeffrey Kevan**, Civil Project Supervisor

TFMORAN, INC. 48 CONSTITUTION DRIVE, BEDFORD, NH **(603) 472-4488 www.tfmoran.com**

MSC a division of TFMORAN, INC. 170 Commerce Way-Ste 102, Portsmouth, NH 03801 **(603) 431-2222**

BOARD MEMBER OF THE MONTH

Nicholas Golon, P.E.
NH-ASCE Treasurer

Taking over for our long tenured Treasurer who recently stepped down from the Board is not going to be easy but I am looking forward to the challenge after serving the last two years as Secretary. As Treasurer, I am responsible to receive, control and disburse Section funds and I have the great joy of preparing and maintaining financial records for the Section. Although there is a fair amount of work in balancing the budget, I have thus far enjoyed the process of managing the Section's assets and keeping us on budget!

I joined ASCE as a freshman at Wentworth Institute of Technology to meet like-minded engineers who "wanted to build something, then see what happens when you destroyed it", but have stayed involved in an effort to better education of today's youth about the joys of the Engineering profession and to show others how they can best get involved. For my fellow engineers who are interested in donating some time, there are a great many events out there to consider such as New Hampshire Construction Career Days, the New Hampshire Science & Engineering Expo and regional college competitions like the ASCE/AISC Steel Bridge and Concrete Canoe to name a few. I have enjoyed participating in all of these, but the bridge competition has always been one of my favorites, where this coming year's event will mark my 10th year as a judge for the New England Region.

I love what I do for a living. Being able to improve other people's lives through a balance of conservation and creating new development, I am always excited to see an idea go from a paper plan to the construction of an office, a hotel, or another need within the Community. We Civil Engineers are tasked with the design, construction and maintenance of the physical and naturally built environment. Although perhaps trivial to some, all of these items serve an integral purpose in modern day life and the part an engineer plays is ever so important. So, let's enjoy improving the world around us!

Nick has over 15 years of experience in the civil engineering field and serves as a Senior Project Manager in the Bedford office for TFMoran, Inc. His engineering background includes a diverse cross-section of projects ranging from the residential and the commercial market to industrial and energy applications. He has experience in the intricacies associated with complex regulatory process and the refined ability to communicate a project message to public perception. Nick is a registered professional engineer in New Hampshire and Maine and graduated from Wentworth Institute of Technology with a BS in Civil Engineering Technology. Nick lives in Manchester with his girlfriend Lee and daughters Elise and Adeline where he is also an Officer for the Conservation Commission.

RAISING
NEW HAMPSHIRE

Raising New Hampshire is a state-wide building and development conference which will bring national speakers to New Hampshire to talk about how development affects every part of our lives. The conference is scheduled for Saturday, September 26 at the Peterborough town house, 1 Grove Street, Peterborough NH

Charles Marohn of StrongTowns.org is our keynote speaker. Chuck is a national leader in the conversation about the financial impacts of development; he also speaks fervently and frequently about the social costs of bad development.

John Anderson will talk about incremental improvements at the conference; on Sunday, September 27 he will lead a one-day rookie developers' bootcamp for those who are itching to try good development on their own.

Kevin Klinkenberg, Rick Chellman and Dan Bartman are also scheduled to speak on ways to make good places better.

Our website is www.Raisingnh.org

The day begins with registration at 8 a.m. and speakers begin promptly at 9 a.m. and continue until 4:30 p.m. Lunch will be available on-site from local vendors .

Registration for the conference is being handled by Plan NH and will be available by late July. Single entrance for the full day is $65; $40 for elected town officials; $25 for students.

Email raisingnh@gmail.com to get on the mailing list and receive notification when registration is live.

ASCE-NH Student Member Selected as 2015 Eno Fellow

2015 Eno Fellows with U.S. Secretary of Transportation Anthony Foxx

Andrew Wells (far left), an ASCE-NH Student Member, was selected to attend the 2015 Eno Future Leaders Development Conference in Washington, D.C. in June, hosted the Eno Center for Transportation. The Eno Center for Transportation is a non-partisan transportation policy think-tank in Washington, D.C. As an Eno Fellow, Andrew met with leaders from across all modes of transportation (including Secretary Foxx as shown above) to discuss the challenges facing the nation's infrastructure and transportation policy in specific. Additionally, he got a behind the scenes look at the operations of both DC Union Station and Reagan National Airport.

Andrew has been actively involved in ASCE-NH since his junior year at UNH (2013). Despite attending graduate school at the University of Delaware, Andrew has remained active in ASCE-NH, working on the NH Report Card and advocating for infrastructure investment with the NH delegation in D.C. Here, he shares his experience at the Eno Center's Future Leaders Development Conference in his own words.

In June, I had the honor of attending the 2015 Future Leaders Development Conference, organized by the Eno Center for Transportation. Along with 19 other transportation/civil engineering graduate students from across the country, I had the opportunity to interact with industry, government, and policy leaders on a wide array of topics.

Continued page 7

Andrew Wells … continued from page 6

The format of the conference was such that each day we would travel to various locations and offices around the Capitol to meet with panels of transportation experts, often times in their own conference rooms. Each day had a different theme. Monday focused on transportation policy making and funding challenges. Among others, we met with policy experts from AASHTO, ASCE's own Brian Pallasch, and Congressional staff members. On Tuesday we traveled to the USDOT to talk with agency heads, even hearing Secretary Foxx who spoke for half an hour and answered questions. In the afternoon we learned about rail and transit and received a behind the scenes tour of DC Union Station. All sessions on Wednesday were held at Reagan National Airport where we spoke with experts on air and freight policy, even getting a tarmac side tour of the facilities.

Thursday, the last day, centered on professional development. Besides talking with officials from TRB about ways to stay involved with the profession, we had the opportunity to speak with Board of Directors of Eno. Members include past Secretaries of the USDOT, directors of various port authorities, and senior associates of large consulting firms.

One of my personal highlights of the conference was the high caliber of the other fellows. Throughout the entire conference, I don't think a single discussion stayed within its allotted time. Each fellow was actively engaged asking serious and oftentimes complex questions. More than that, the group was extremely gracious and willing to learn from one another. Despite coming from a wide variety of political and research backgrounds we were able to discuss difficult issues in an edifying way. As a result, I was forced to think and learn in ways that I would not have otherwise.

One of the other aspects that enjoyed was the genuine interest that the panel members took in me and the other fellows. Not only were they happy to speak at the conference, but they were willing to be resources in the future as well. In no other place can I imagine having a past Secretary of the USDOT give me their card and say, "Seriously, contact me if you ever need anything."

Overall, this was a great experience. I would recommend that any graduate student interested in transportation policy apply. Not only did it expose me to new ideas, but to people who are moving transportation issues forward. As my career progresses, I know that I will be able to look back on this conference and see its fruits—in fact I already am.

-Andrew Wells

"Regulatory Development in Use of Drones"

Written and Submitted by Christopher D. Hawkins, Esq.

Unmanned aerial systems ("UAS") offer a dramatic opportunity for property owners, contractors, engineers, surveyors, and government agencies to gather critical information and approve the efficiency of operatives. The potential commercial and civil uses include surveying and mapping; construction observation; obtaining information for public hearings; inspecting pipelines, railroad tracks, water towers, bridges, and power lines; mapping landfills; urban planning; wildlife monitoring; enhancing security at sensitive installations such as power plants and ports; agricultural operations; and supporting search and rescue efforts. The commercial possibilities are nearly endless, and, according to a report published in 2013 by the Association for Unmanned Vehicle Systems International, this new market will create an economic impact of more than $13 billion dollars in the United States.

There are many different types of unmanned aerial systems on the market today, and more are sure to proliferate in the near future. The systems range from fairly simple fixed-wing aircraft, to sophisticated multi-rotor helicopters, vertical takeoff and landing craft. The prices for these vehicles range from a few hundred to hundreds of thousands of dollars. These vehicles are capable of carrying simple and complex cameras, infrared scanning technology, LiDAR, or any combination of technologies.

With these opportunities, however, come significant challenges to safety and privacy. Proliferation of unmanned aerial systems increases the risk of danger of harm to persons and property. The prospect of drones carrying cameras also increases opportunities for surveillance by public or private operators of these systems. These challenges are significant and will be much discussed in the coming months and years.

The purpose of this article is to discuss the current state of regulation and provide a brief preview of the future of the regulatory system for these systems.

Under current law, commercial users of UAS must apply for an exemption under Section 333 of the FAA Modernization Act of 2012, in which Congress required the FAA to develop rules integrate UAS by September 30, 2015. This process permits expedited approval of low-risk commercial operations. To qualify for a Section 333 exemption, the vehicle must be operated only at altitudes no higher than 200 feet, during daylight hours, with visual line of sight, and, most importantly, by a licensed pilot. The latter requirement significantly limits the number of smaller firms that can use these systems. For the past several years, the FAA has developed a backlog of Section 333 applications. More recently, however, the FAA has streamlined the approval process and some applications are being approved in as little as 90 days. The duration of the approval process depends on several factors, such as the population density in the area where the vehicle will be operated, and the proximity to airports and other sensitive installations.

The FAA has issued a proposed set of regulations to allow routine use of certain small UAS systems. The proposed rules would permit use of vehicles weighing no more than 55 pounds, flying under 500 feet during daylight hours and with line of sight. Most significantly, the proposed regulations call for a knowledge-based certification system for operators that would eliminate the need for the operator to be a licensed pilot. The public comment period on the proposed regulations closed on April 28, 2015, and it is hoped that new regulations will take effect by the summer of 2016, if not sooner.

The increasing sophistication of UAS technology and a regulatory environment friendlier to its use should create exciting commercial opportunities for engineers, surveyors, developers, utility owners, and planners.

News from around the engineering community ….

SFC WELCOMES ERIC R. KIZAK, P.E.

SFC Engineering Partnership, Inc. (SFC) of Auburn, NH recently welcomed Eric R. Kizak,P.E. to manage their Structural Engineering Division in July of 2015.

Mr. Kizak will be working as the Senior Structural Engineer for SFC. He received his Bachelor of Science in Civil Engineering with a certificate in Structural Engineering from the University of Pittsburg in 1994. Last year, Eric received his Master of Real Estate Development from Auburn University.

TIGHE & BOND OPENS NEW WESTWOOD OFFICE

Tighe & Bond, a New England leader in civil and environmental engineering/consulting, opened its doors this month to a new eastern Massachusetts office in Westwood. The 4,800 square foot workplace on One University Avenue provides a strong base of operation to better serve the company's Greater Boston Area clients. Staffed initially with a team of approximately 10, Tighe & Bond plans to expand its workforce at this office to approximately 20 employees.

Director of Business Development, F. Adam Yanulis, and Senior Project Manager, Benjamin Levesque, P.E., BCEE, are providing leadership for the upstart of Tighe & Bond's newest office. A resident of Duxbury, Yanulis has more than 30 years of providing leadership to the public sector engineering and construction industry in eastern Massachusetts. Levesque, a resident of North Attleborough, is a civil and environmental engineer and senior project manager with more than 16 years of experience in the municipal water and wastewater industry.

Tighe & Bond's other office locations include Pocasset, Westfield, and Worcester, Massachusetts; Middletown and Shelton, Connecticut; and Portsmouth, New Hampshire. Westfield serves as the firm's corporate headquarters.

Registration is open, keynote named for first ASCE Convention

Civil engineers from across the country and around the world will converge on New York City in October for the first ASCE Convention. Explore the state of the industry and profession via a thought-provoking, multidisciplinary program that can earn you as many as 24 PDHs. You'll be inspired by opening keynote speaker Luke Williams, an authority on business innovation leadership. Registration is open; sign up now and save as much as $200. Get details on the inaugural ASCE Convention.

RIDE WITH US

SUPPORT CITY-WIDE ENVIRONMENTAL PROJECTS AND LAND CONSERVATION

MANCHESTER BIKE TOUR

SUNDAY

September 13, 2015

REGISTER ONLINE AT:

http://bit.ly/2015mhtbiketour

Cost of registration is $25 per person and $10 for children 6-13

The Conservation Fund was established by the Manchester Conservation Commission, stewards of Manchester's Natural Resources. The fund will provide support for citywide environmental projects including education, conservation, and restoration of our natural resources.

ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS

Develop valuable career skills in less than an hour.

Our **eLearning webinars** cover a wide range of topics; and for a limited time we've made two of our most popular sessions available for everyone to access.

Path to Professional Licensure
You'll learn the step-by-step process, why it is important for your career, and the recent changes to the F.E. and P.E. examination.
View Webinar

Understanding Engineers' Professional Liability Insurance
You'll learn how it works, why you need it, and how to navigate the application process to help you recognize what impacts the premium quotation.
View Webinar

Interested in more eLearning topics? Check out the entire library **our members** can access from anywhere, anytime.

See full list of eLearning webinars

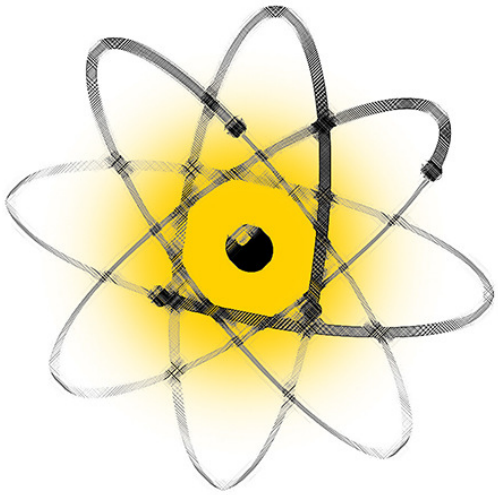
RESEARCH SHOWS PROMISE OF PRECOLLEGE STEM PROGRAMS

By Kevin Wilcox

Researchers at Michigan State University find that participants in a successful summer STEM program are eight times more likely to pursue a STEM education in college.

Each year, thousands of high school students participate in precollege summer programs designed to ignite their passion for study and an eventual career in science, technology, engineering, and math (STEM). Anecdotally, these programs collect reams of positive feedback and student declarations that they intend to pursue a STEM education. But what, exactly, is their impact?

Researchers at Michigan State University recently addressed that question to better gauge the effectiveness of their precollege program Physics of Atomic Nuclei (PAN). They found that students who go through the PAN program are eight times more likely to pursue a STEM career and education than similar peers who did not.



Researchers at Michigan State University found that students like those who studied the physics of atomic nuclei in a precollege program are eight times more likely to pursue higher education in a science, technology, engineering, or mathematics (STEM) subject, and to continue on to a STEM career, than similar peers who do not engage in such early outreach programs.

"I was surprised to see the effect was that high. It was very gratifying," says Zachary Constan, Ph.D., the outreach coordinator for the National Superconducting Cyclotron Laboratory and the Joint Institute for Nuclear Astrophysics (JINA) at MSU, a National Science Foundation Physics Frontiers Center that runs PAN at MSU and at the University of Notre Dame. The team recently published its findings, " Maximizing Future Potential in Physics and STEM: Evaluating a Summer Program through a Partnership Between Science Outreach and Education Research," in the *Journal of Higher Education Outreach and Engagement* .

"In the end, the real point of this project was to show what can be done," Constan says. "We treat it as a case study, to some extent, because I'm sure there are lots and lots of great programs out there that really struggle with showing statistically how their work is important. There is very little [published research] out there. We feel there is a clear need."

To make the crucial case for PAN, Constan engaged in collaboration with the College of Education and Justina Judy Spicer, Ph.D., then a graduate student at MSU. A review of published research turned up very little comparable work; it has been difficult to track the same group of students from high school through college and then into their careers.

To accomplish this, the team utilized data from the Education Longitudinal Study of 2002 (ELS). The ELS, a project of the U.S. Department of Education's National Center for Education Statistics, followed a group of 10 th - and 12 th -graders through postsecondary education and into the workforce, concluding in 2013.

continued page 13

continued from page 12

By duplicating a series of questions from the ELS about math, reading, and future college plans in Constan's survey of students completing PAN, the researchers were able to identify a pool of 38 students from among the 15,000 participants in ELS who are similar to the students who typically participate in PAN. The researchers then developed models to compare the outcomes of the ELS students with the likely outcomes of the PAN participants.

Although the paper focuses on a specific physics program, Constan believes results would be similar in many well-run summer programs across the STEM disciplines, including engineering. The authors hypothesize that precollege programs might serve to patch some of the "leaks" in the STEM pipeline in which students initially interested in STEM education and careers move away during high school and beyond.

"Students have a general idea of what sciences are out there. They say, I'm going to take biology, chemistry, and physics," Constan says. "They don't know anything about the kinds of careers that are involved. That is a big part of the PAN program. We are going to put you in the role of a nuclear researcher for a week and see how you like it. If they come out of it saying, 'You know what? That's not for me,' then we have done something. We've shown them something. But a lot of them come out and are really turned on, and say, 'I want to do that.'"

This immersion enables students to move beyond STEM as an abstract concept and see career possibilities. By interacting with faculty, staff, and students at MSU, the PAN participants receive valuable insight into pursuing STEM from a variety of perspectives. This is especially helpful for students whose families don't understand the breadth of STEM careers available or who may have false assumptions about the coursework required for a STEM degree.

Not only does the research validate such summer STEM programs, Constan says it also demonstrates the value of any STEM precollege program developing a collaboration with a university's education school or college. "There are people who do education research and they would be very interested in working the data with you," he says. "That's the message that we wanted to get across."

Constan hopes to do further research into the long-term career paths of his PAN participants to gauge if they are ultimately more satisfied in their STEM careers than peers who didn't participate in such a program, "because they went into it with their eyes open." He also hopes to research ways to improve diversity in STEM fields through summer programs.

CORPORATE SPONSOR OF THE MONTH

What is a *Corporate Sponsor of the Month?* This could be YOUR company! For $250.00, you will receive a 8" x ½" Front Page Banner Advertisement featuring your company. The ASCE-NH homepage will show your company logo, linked to your firm's homepage. In addition, a full page of our newsletter will be yours -- available for you to tell our readers anything you want about your company – maybe you've recently acquired some new talent you want to boast about; or perhaps you just completed a very special project, or even reached a milestone anniversary year! The choice is yours - any topic that would be of interest to your colleagues in the engineering industry – You may use the space for photos, narrative, whatever way you decide to put your company's name – literally – in the headlines!

December 2012	CDR Maguire
January 2013	GZA GeoEnvironmental, Inc.
February 2013	Fay, Spofford, & Thorndike
March 2013	Tighe & Bond
April 2013	International Erosion Control Systems, Inc.
May 2013	S.W. Cole Engineering, Inc.
June/July 2013	Nobis Engineering
August/September 2013	International Erosion Control Systems, Inc.
October, 2013	JTC, Inc.
November, 2013	VHB
December 2013	Fay, Spofford & Thorndike
January 2014	Hoyle, Tanner & Associates, Inc.
February 2014	Kleinfelder
March, 2014	ADS
April, 2014	Kleinfelder
May, 2014	Dubois & King
June/July 2014	TFMoran
August/September 2014	S.W. Cole Engineering, Inc.
October, 2014	Tighe & Bond
November, 2014	
December, 2014	Shea Concrete Products
January 2015	VHB
February 2015	S.W. Cole Engineering, Inc.
March 2015	*Golder Associates*
April 2015	*Parsons Brinckerhoff*
May 2015	To be announced!
June/July 2015	BETA
August/September 2015	TFMoran

Thank you to our past Sponsors of the Month for showing support for the ASCE's New Hampshire Section! Please consider signing up for sponsorship of future editions of The New Hampshire Civil Engineer. Remember, all proceeds go directly to the Scholarship Fund!!

Now reserving space for Fall/Winter and beyond!

To reserve space or learn more, contact fweaver@hoyletanner.com!

Of course, our regular classified advertising section is still available. See page 2 for more information.

Cranium Challenge

August and September 2015

Congratulations to **Nicole Nazzaro at Hoyle, Tanner & Associates**, the only correct answer for the May challenge!

The answer for the May challenge:

Often presented as the "locker problem" with a hundred lockers and a hundred students (or really any number), the method to determine how many books (or lockers) are left open is the same. In order for a book to be left open, it must have been interacted with an odd number of times – or in other words the book number must have an odd number of factors.

If we go through this exercise to demonstrate this, in your first ten passes, you'd find that books number 1, 4, and 9 are left open. These books will never be touched again after that tenth pass. After twenty passes, book 16 is now left open. There's a pattern emerging: all of these numbers have an odd number of factors – they are perfect squares!

So how do we find the number of perfect squares between 1 and 1000? The brute-force method would be to pick a number close to 1000 that you recognize as a square – 900 is an easy one. $\sqrt{900} = 30$, so we know there are at least 30 squares. Increasing that integer and checking it shows that $31^2 = 961$ and $32^2 = 1024$. There we go – 31 perfect squares between 1 and 1000. Therefore, 31 books will be left open.

Of course, the faster method is to just take the square root of 1000 and round down to the nearest integer.

The August/September Puzzle is as follows:

In a new subdivision there are 25 building lots. Ten of these lots have less than six trees on them. Another ten lots have more than seven trees on them. Four lots have more than eight trees. What is the total number of building lots with either six, seven, or eight trees?

Send your solutions by email to Justin Lowe at JstnLowe@gmail.com.
Correct responses received by **October 10, 2015** will be recognized in a future issue of "The New Hampshire Civil Engineer".

DO YOU ENJOY THE CRANIUM CHALLENGE? DO YOU THINK YOU'VE GOT SOME PUZZLES OF YOUR OWN YOU'D LIKE TO SHARE? WE ARE NOW LOOKING FOR A NEW CRANIUM CHALLENGE PROVIDER. IF YOU THINK YOU'D LIKE TO TRY TO STUMP OUR ENGINEERING COMMUNITY WITH A GREAT PUZZLE EVERY ISSUE, CONTACT THE NEWSLETTER EDITOR: FWEAVER@HOYLETANNER.COM.

CLASSIFIED ADVERTISEMENTS

Have a job opening you'd like to share?
We still accept print advertisements at the rate of $15 per column inch in the newsletter.
E-mail fweaver@hoyletanner.com and ask about pricing.

OR, if you prefer …..

NEW – NEW – NEW

Get your classified ad posted to the "Careers" tab without the accompanying printed ad.
E-mail your posting to fweaver@hoyletanner.com and request the "WEBSITE ONLY"
Classified rate of $50.00

Visit us on Facebook (www.facebook.com/ascenh) and
Linkedin (www.linkedin.com/grp/home?gid=4868478)

PROFESSIONAL DIRECTORY

ASCE
NEW HAMPSHIRE SECTION

New Hampshire Section
P.O. Box 4953
Manchester, NH 03108

Address Correction?
1-800-548-ASCE or
www.asce.org/myprofile

Planning Calendar

Visit the ASCE-NH Website (www.ascenh.org) for up to date details for upcoming meetings and events.

Stay tuned to www.ascenh.org for information on Fall happenings!

View the unified engineering calendar at www.nhecal.org .
Contact Jay Hodkinson (jay.hodkinson@gza.com)
for details on upcoming meetings.