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**LDDI Bridges**

is a publication of Virginia Tech's Land Development Design Initiative

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Greetings from the Virginia Tech campus where we are rapidly approaching the finish line of the 2016 spring semester. Graduation is right around the corner, and the warm weather has students a bit distracted and looking forward to summer! However, life is hectic for our seniors, as they seek to find balance between securing a job, taking the FE exam, and completing finals, all while preparing for that well-deserved walk across the graduation stage. Life is also busy for LDDI faculty, as we currently have three courses underway: CEE 3274 – Introduction to Land Development Design, CEE 4254 – Municipal Engineering, and CEE 4274 – Land Development Design. As another academic year winds to a close, it provides the perfect opportunity to recognize individual achievements, reflect on this semester's student activities, and showcase the individuals and organizations that continue to make LDDI the premier undergraduate land development design program in the country.

I hope you will enjoy reading this newsletter and learning more about some of the people involved with LDDI and the interesting projects being undertaken by our sponsoring firms. Best wishes for the spring season of growth and new beginnings!

Dr. Randy Dymond, PE, VT LDDI Coordinator

## SLDC Enjoys an Exciting Year

by Kevin Young

The Sustainable Land Development Club (SLDC) brings together students with a common interest in sustainability as it relates to land development design. Graduating senior Meghan Hekl served as the club's president this year, and was joined by Estela Beatriz Cruz Velasquez and Dylan Hale who served as the club's Service Project Coordinators. LDDI wishes to thank these students for their efforts, and we wish them the best of luck as they graduate and transition into the next phases of their lives!

The 2015-16 academic year was a busy one for the SLDC. During the fall and spring semesters, LDDI and the SLDC continued their tradition of hosting a "Land Development Career Night" on the eve of the Civil & Environmental Engineering



*A team of students competes during the 2016 LDDI Design Charrette and Competition.*

career fair. During the fall semester, the SLDC also hosted a football viewing party for its members. In March, LDDI Assistant Coordinator Kevin Young led a group of SLDC students on a field trip to Northern Virginia where they toured various complex, urban development projects. The site visits were arranged and hosted by Tri-Tek Engineering and Bowman Consulting. In April, for the fourth consecutive year, SLDC members provided stakeout surveying of the track for Virginia Tech's annual Relay for Life Event – the largest collegiate Relay event in the entire world! SLDC members closed out the month of April by competing in an LDDI-sponsored Design Charrette and Competition led by Dewberry's Skip Notte.

The past year also found the SLDC continuing its partnership with the FloydFest music festival. In past years, SLDC members developed a series of site maps to assist festival organizers with site layout, shuttling of patrons into and out of the festival grounds, and public safety issues. During the 2015-16 academic year, the SLDC continued working with FloydFest organizers on the FloydFest site as well as other festivals including the Vintage Virginia Wine Festival and the Elmwood Park Roanoke concert series.



*Kevin Murray (Tri-Tek Engineering) reviews a plan set with students prior to touring the site.*



Rendering by Stantec Architecture

*The Academies of Loudoun will combine science, technology, engineering, mathematics (STEM) and career and technical education (CTE) into one integrated facility intended to serve 2,500 students.*

## **Bowman Consulting Helps Realize Unique STEM Academy for Loudoun County Public Schools**

*edited by Kelly Shayne Young*

Loudoun County Public Schools (LCPS) is one of the fastest growing public school districts in the country, serving more than 76,000 students with a projected 3.1 percent increase next year. Flexible and modern education programs are required to accommodate the needs of a burgeoning population, and Bowman Consulting has helped LCPS realize its projects for more than a decade. The latest project, Academies of Loudoun, is a one-of-a-kind facility combining science, technology, engineering, mathematics (STEM) and career and technical education (CTE) into one integrated facility intended to serve 2,500 students.

Uniquely designed to blend the curriculums of two existing academies, the Academy of Science and the Monroe Advanced Technical Academy, and a newly created Academy of Engineering and Technology, the program is focused on workforce development. The Academies of Loudoun, spanning 300,000 square feet, will offer several multi-year programs ranging from biotechnology and cyber security to construction and digital animation in a highly collaborative environment. In an expanded effort to provide learning opportunities to the

greater Loudoun community, it may also offer adult education, professional development, and internships.

LCPS selected the Construction Management at Risk (CMAR) delivery method for this complicated project. The team, consisting of Bowman Consulting Group, Stantec, Holder Construction Group, and LCPS, was tasked with meshing the building, site improvements, ponds, and entrance road with the geology of the site, surrounding forest, and wetland areas to minimize impact and cost, as well as provide outdoor education opportunities to students. To prevent potential impact to seasonal threatened and endangered species, key construction activities, including tree clearing and culvert installation, were accelerated to avoid seasonal time restrictions from Federal agencies. Holder was brought in during the design phase in order to streamline and expedite construction through the CM-at risk delivery method -- a first for LCPS. Site improvements began in February 2016 after nearly a decade of conceptualization. When the Academies of Loudoun opens for the 2018-2019 academic year, it will place LCPS at the forefront of STEM and CTE education.



*The Shores Club provides first-class recreational and social facilities for area residents and visitors.*

## **J2 Engineers Provides Services to Shores Club Development**

*edited by Kelly Shayne Young*

Located approximately 30 miles from DC along the Potomac River, the Shores Club at Potomac Shores provides something for everyone and activities for residents and visitors of all ages. With entry from Potomac Shores Parkway, it is conveniently located within the Potomac Shores mixed-use development and functions as a recreational and social center. The Club includes both a family pool and lap pool, as well as the Pool Barn situated between the pools, which offers a refreshment area and changing rooms and will serve as a hub for summertime gatherings. The Tiered Lawn, located adjacent to the lap pool, incorporates seat walls on a sloping lawn to accommodate friends and family who come to watch swim meets. The Fitness Barn houses a state-of-the-art exercise facility, while the Social Barn provides a large space where residents can celebrate special occasions, complete with a kitchen and indoor and outdoor eating areas. This facility is great for special events such as graduation celebrations and wedding receptions. Adjacent to the Social and Fitness

Barns is the Event Lawn, the perfect place for an outdoor wedding ceremony. The Shores Club also has a Community Garden and Greenhouse where residents can plant, pick, and enjoy the fruits of their labor.

The engineering challenges associated with the design of the site were significant. J2 Engineers worked with the developer, Argent Management, to balance the grading on a site with elevations varying by 100 feet from one end to the other. The vision that the developer and architect, Hart Howerton, had for the site included very specific design parameters to integrate all of the uses on the site and to give meaningful purpose to each area. Developing the Shores Club on a flat site would have been challenging, but the significant topography added substantial complexities throughout the design process. Though the site is still under construction, the developer has created a visualization that provides an extensive look at the innovative, first-class design: <http://potomacshores.com/lifestyle/shores-club/>.

## LDDI Graduates in the Industry: Jessie Berg

*GORDON Director of DC Land Development*

*by Kelly Shayne Young*

With seven years under her professional belt, Jessie Berg is no stranger to the challenges faced by entry level engineers striving for success in the land development industry. She has conquered many of those challenges and earned the new rank of GORDON's Director of DC Land Development, working in the firm's Chantilly, VA office.

While a student at Virginia Tech, Berg struggled with uncertainty, as many Hokies do, and needed a push in the right direction. This breakthrough came during a summer internship at GORDON, where she was first exposed to the land development industry. The following semester, Berg sought out the only land development course offered at the time. "CEE 4274 (Land Development Design) was the best class I took at VT, and no other class better prepared me for the full-time position that was offered to me at GORDON," explains Berg. "It is a rigorous, time consuming course that challenges students' time management skills, and it was the only course that exposed me to every facet of the professional world – time management, team building, patience,

communication, and of course, design."

Berg has worked on numerous projects over the past seven years at GORDON. Whether it's the 360-acre mixed-use development of One Loudoun, which has quickly become the "new downtown" of Loudoun County, or the transformation of an historic hospital into approximately 140 luxury apartments in the District of Columbia, Jessie has used her experiences to hone the skills she deems most vital to her success as a land development engineer: the willingness to learn, adapt, and take on new responsibilities. "By taking the initiative to learn all components of a design plan set, taking on additional responsibilities outside of what was expected of me at the time, and bringing new ideas and job opportunities to the GORDON table, I was able to accelerate my growth as an engineer and professional."

When she is not at work, Berg enjoys spending time with her husband, Jeremy (also a Hokie!); the two enjoy cooking, going to live music events, and cheering on the Hokies.



*"Employers in the land development industry take VT's LDDI program very seriously and know that its graduates are lightyears ahead of all other candidates from VT or any other school. No other curriculum will better prepare them for a full-time position in the land development field." - Jessie Berg, GORDON Director of DC Land Development*

## Kevin Young Wins Virginia Tech College of Engineering Sporn Award

*by Kelly Shayne Young*

Recently, LDDI Assistant Coordinator Kevin Young was honored with the 2016 College of Engineering Sporn Award. The winner of the Sporn award is selected by the Student Engineers' Council from over 300 faculty members in the college. It is given annually to an engineering faculty member who demonstrates excellence in undergraduate instruction.

Many students noted Young's commitment to teaching excellence, but another common theme expressed by students was his mentoring and willingness to help them succeed both inside and outside of the classroom. 2015-16 CEE 4274 Student of the Year Lauren Cetin stated, "I can't think of a professor more deserving of this award than Kevin. He is extremely committed to making sure his students succeed both academically and professionally. He teaches clearly and concisely, integrating real world applications into lessons while also making students excited about the material. I believe I speak for many of my peers when I say that Kevin

is one of the best professors I have had at Virginia Tech."

Young is a Virginia Tech alumnus, earning his B.S. in Civil and Environmental Engineering in 2000 and an M.S. in Hydrosystems Engineering in 2006. Since 2007, he has served alongside fellow CEE faculty member Dr. Randy Dymond as the Assistant Coordinator of LDDI. Of Young's award, Dymond stated, "We're very fortunate to have Kevin associated with LDDI and I'm personally very proud of his accomplishments and very happy to have such a wonderful colleague to work with every day."

This isn't the first time that Young has received awards for his teaching excellence. In 2015, he was awarded with a College of Engineering Certificate of Teaching Excellence. In 2013, he was honored with the G.V. Loganathan Faculty Achievement Award.

The Sporn Awards are made possible by gifts from Dr. and Mrs. Philip J. Sporn and the alumni of the university.



*LDDI Assistant Coordinator Kevin Young receives the 2016 College of Engineering Sporn Award.*

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## LDDI Bridges April 2016

### VT Program in Real Estate Recognizes Dr. Randy Dymond

by Kevin Young



LDDI Coordinator Randy Dymond is recognized by the Virginia Tech Program in Real Estate.

The Virginia Tech Program in Real Estate is a comprehensive, interdisciplinary academic program that spans across six colleges. The major offers courses that integrate material related to construction, engineering, business, entrepreneurship, the environment, law, planning, and property management. The stated mission of the Program is “to prepare students to enter and succeed in the wide variety of professions that encompass the Real Estate industry, to engage in life-long learning, and to understand ways in which Real Estate professionals contribute to society.” The program was approved by the State Council of Higher Education in May 2013.

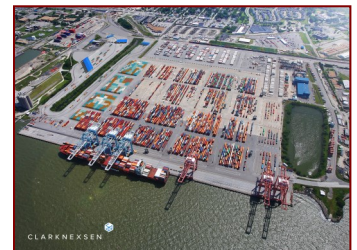
In 2011, LDDI Coordinator Dr. Randy Dymond first began serving on a university task force made of members from six Colleges at VT to establish an interdisciplinary undergraduate Program in Real Estate. Since its inception in the Fall of 2013, the Program has grown quickly and now has more than 150

students majoring or double majoring in Real Estate. His energy, ideas, and organizational skills have been major factors in elevating the Program to the prominence it now enjoys. Dymond’s contributions were recently recognized during the Program’s annual Advisory Board banquet, where he was given the inaugural Outstanding Faculty Service Award! Louis Genuario, President of Genuario Properties and Wakefield Homes, said of Randy’s service on the Board, “As a member of the Real Estate Program’s Executive Board, Randy has contributed his invaluable experience and wisdom to its formation and progress. The Program is better because of his input.”

### Clark Nexsen Provides State-of-the-Art Gate Design for Norfolk International Terminals

edited by Kelly Shayne Young

Clark Nexsen was selected in 2014 by the Virginia Port Authority to hold a civil engineering annual services contract. One of its task orders was the Norfolk International Terminal (NIT) North Gate improvements that are currently under construction in Norfolk, Virginia. The North Gate complex spans approximately 22 acres and consists primarily of a semi-automated truck gate, heavy-duty paving, and five new buildings including a 16-lane inbound canopy, a 10-lane outbound canopy, inbound and outbound OCR (optical character recognition) portals, and a driver assistance facility. The buildings will include state-of-the-art scanning capabilities, weigh-in-motion and stationary truck scales, and automated signs. The truck gate facilities will directly connect NIT to the proposed I-564 intermodal connector, which will allow direct access for containerized import/export cargo via trucks to the United States Interstate Highway System.



The Norfolk International Terminal North Gate improvements encompass a semi-automated truck gate, heavy-duty paving, and five new buildings.

The expansion of the North Container Yard includes an approximately 1300-foot-long steel sheet pile retaining wall with concrete cap. The retaining wall is tied back to steel sheet pile deadmen and is designed to support truck traffic and stacked containers. The expansion of the container yard covers approximately eight acres and includes heavy-duty roller compacted concrete.

The new personally-owned vehicle gate for terminal personnel consists of a canopy and booth for security, which will improve safety for personnel by eliminating the need to mix container truck traffic and personally owned vehicles at the truck entrance. The project also included extensive erosion and sediment control, demolition, grading, excavation and off-site disposal of excess material from surcharge drainage, storm drainage, cement-treated aggregate, pavement striping, signage, pavement markings, and site utilities, as well as electrical improvements involving new high-mast lighting, power, and communications.