

# The Land Development Design Initiative (LDDI) 2015 Annual Report



LAND DEVELOPMENT  
DESIGN INITIATIVE



## Program Coordinator's Message

Welcome to the 2015 edition of the Land Development Design Initiative's Annual Report. This report provides us with a wonderful opportunity to pause and reflect on the achievements of our unique program. I would be remiss to go any further in celebrating these achievements without first extending my sincerest gratitude to the people who make them possible. In particular, I want to thank our Advisory Board members for giving so freely of their time, talents, and resources. Earlier this year, our Advisory Board welcomed seven new members, bringing current membership to 28, including our Life Members. I would also like to thank LDDI Assistant Coordinator Kevin Young, and congratulate him on receiving a College of Engineering Certificate of Teaching Excellence earlier this year. This recognition is a great testament to Kevin's efforts in teaching LDDI courses, and puts him in rare company as only four of these certificates are awarded each year in the entire College of Engineering! Finally, I want to thank all of the land development professionals who over the past year have given so generously of their time as mentors, guest lecturers, field trip leaders, course instructors, and in countless other ways, all of which continue to allow Virginia Tech to claim ownership of the most comprehensive undergraduate land development design curriculum in the entire country. As you read this report, I hope you will feel the pride and excitement that we all feel!



Now entering its ninth year, LDDI continues to evolve and further refine its niche inside of the Virginia Tech CEE curriculum and beyond. If there's one word that applies across all of the different facets of LDDI, it would be *collaboration*. Whether it's the Advisory Board arriving at a collaborative vision on a "big picture" issue or collaboration among individuals from multiple consulting firms to teach an LDDI course, this philosophy has enabled the continued growth and improvement that the program has enjoyed. LDDI now boasts a general membership of nearly *700 individuals!* This membership is comprised of a diverse mix of consultants, developers, municipal engineers, home builders, service and product vendors, and other professionals with ties to the land development industry.

Within this report, you'll learn about LDDI events and activities over the past year. While our focus will always remain on undergraduate education, we are particularly excited to share with you the advances made over the past year by our Research and Development Committee. These research efforts provide LDDI with visibility in the industry and help to ensure that the technical material delivered to students in the classroom is timely and applicable in a rapidly changing industry. The past academic year saw a total of six LDDI course offerings, with a combined enrollment of over 330 students!

I hope that as you read this report you'll consider getting involved with LDDI if you are not already. Within the report, we've detailed numerous ways to get involved and make a difference!

Best regards,

A handwritten signature in black ink that reads "Randy Zorn".

## Table of Contents

Program Coordinator’s Message .....	1
Diamond and Platinum Corporate Sponsors .....	3
2014-2015 General Membership Meetings .....	6
LDDI Welcomes New Advisory Board Members .....	6
2014-2015 Financial Summary .....	8
Endowment and Long Term Program Sustainability .....	9
Curriculum and Course Enhancement.....	9
Student Impressions of the LDDI Program .....	12
LDDI Assistant Coordinator Receives Award .....	12
Practitioner Involvement.....	14
LDDI Students Recognized.....	14
Research Committee Update .....	14
Outreach Committee Update.....	18
How to Get Involved with LDDI .....	20
Special Thanks .....	21

## Diamond and Platinum Corporate Sponsors

In our 2014-15 fiscal year, Diamond and Platinum Corporate Sponsors contributed over \$65,000 to LDDI. The following section highlights each of these corporate sponsors and their involvement with LDDI.

### Diamond Level:

#### **Bohler Engineering**

Bohler Engineering was founded in 1981 with a small office in New Jersey. Today, they have 20 offices and over 500 employees along the east coast. They offer land development consulting services including Civil Engineering, Landscape Architecture, Land Surveying, and LEED & LID Civil Design Consulting. Bohler has been ranked as one of

the best places to work in the DC Metro Area and New Jersey by the Washington Business Journal and NJBIZ. Bohler Engineering has been a sponsor of LDDI since 2007. Ginger Greunke, Director of Recruiting and Charlie Yowell, a Project Manager from the Warrenton, VA office serve as Outreach Committee Co-Chairs on the LDDI Advisory Board.



#### **Bowman Consulting**

Bowman Consulting was founded in 1995 with 5 people in Fairfax, VA. Since that time, the firm has been recognized as one of the fastest-growing consulting firms with 33 offices distributed across the United States.

They offer services in Civil Engineering, Planning, Landscape Architecture, Surveying, Environmental Consulting, Transportation, and more. Bowman Consulting has been a sponsor of LDDI since 2007. Roy Waugh, Principal from the Chantilly, VA office, currently serves on the LDDI Advisory Board and served as the Board's Chair during 2014.

### Platinum Level:

#### **AES Consulting Engineers**

AES Consulting Engineers was founded in 1980, and has since grown to have four offices in central and eastern Virginia. They offer services in Civil Site Design, Landscape Architecture, Surveying, Land Planning, and Public Utilities Design.

AES Consulting Engineers has been a sponsor of LDDI since 2007. Firm President Arch Marston currently serves as the Practitioner Involvement Committee Chair on the LDDI Advisory Board.



### christopher consultants

christopher consultants, ltd.(christopher) was founded in 1982 and is a full service civil engineering, land planning, surveying and landscape architecture firm headquartered in Fairfax, Virginia and serving the Washington DC metropolitan region. In their 33 year history, christopher has had the opportunity to work on many high-profile and award-winning projects in the region and has completed projects throughout the Mid-Atlantic, across the U.S. and around the world. christopher is a designated small business under Virginia's SWaM program. christopher consultants has been a proud sponsor of LDDI since 2007.



### Clark Nexsen

During the more than eight decades since its inception, Clark Nexsen has planned and designed a wide variety of projects. With 10 offices located in four states and the District of Columbia, the firm offers complete architectural and engineering services from project commencement through completion of construction. The firm is committed to designing highly efficient buildings and systems. Clark Nexsen has been a sponsor of LDDI since 2011. Greg Deubler, Senior Civil Engineer in the Virginia Beach, VA office, currently serves on the LDDI Advisory Board and is the Chair of LDDI's Curriculum and Course Enhancement Committee.



### Dewberry

Dewberry is a leading, market-facing firm with a proven history of providing professional services to a wide variety of public- and private-sector clients. Established in 1956, Dewberry is headquartered in Fairfax, Virginia, with more than 40 locations and 2,000 professionals nationwide. Dewberry has been a sponsor of LDDI since 2007. Robert "Skip" Notte, Vice President and Business Unit Manager of the Charlotte, NC office, served as the Chair of the LDDI Advisory Board during the 2013-14 year and remains an active member of the Board.



### Draper Aden Associates

Draper Aden Associates was founded in 1972 with an office in Blacksburg, Virginia and now has six offices located across Virginia and North Carolina. They are a full service consulting engineering firm offering services in site planning and engineering, sustainable design, utilities engineering, and more.

Draper Aden Associates has been a sponsor of LDDI since 2007. Firm president and CEO Jeff Lighthiser is a previous Chair of the LDDI Advisory Board and is a Life Member of the Board.



### Jansen Land Consulting, LLC

Jansen Land Consulting, LLC was founded in 2008 with an office located in McLean, Virginia. They provide development management services for land acquisition due diligence, land entitlement, land development, and bond release for communities throughout the Washington Metropolitan area.



Jansen Land Consulting has been a sponsor of LDDI since 2010. Bob Jansen, President, is a Life Member on the LDDI Advisory Board.

### J2 Engineers

J2 Engineers, Inc. provides high quality professional engineering services on a wide range of design projects, with emphasis on developing creative, cost-effective and environmentally sensitive solutions. Founded in 2007, the firm has built an extraordinary track record of providing distinctive and integrated design solutions for civil engineering, transportation, site design, land planning and surveying assignments. With two offices in Northern Virginia, J2 Engineers is a Virginia Small Business and a certified business in West Virginia. The firm touts a multi-disciplinary and team-oriented approach to manage complex assignments.



J2 Engineers has been a sponsor of LDDI since 2007, and Principal Jeff Gilliland is a former Chair and Life Member of the LDDI Advisory Board.

### **Kimley-Horn and Associates, Inc.**

Kimley-Horn and Associates, Inc. was founded in 1967 in North Carolina, and over the past 46 years has grown to include over 70 offices in 18 states. The firm has been repeatedly recognized as a top place to work over the years. They provide an array of engineering and land planning service including transportation, water resources, land development, and more. Kimley-Horn and Associates has been a sponsor of LDDI since 2007. Derrick Cave, Principal and Senior Vice President from the Vero Beach, FL office is a Life Member on the LDDI Advisory Board.



### **Maser Consulting**

Maser Consulting P. A. is a privately owned, multi-discipline engineering firm with a unique balance of public and private sector experience. Committed to customer service and accountability, Maser Consulting's experienced staff of licensed engineers, planners, surveyors, landscape architects and environmental scientists have a proven ability to add value



to the community by delivering quality services and strategies needed to meet its clients' undertakings.

Established in 1984, the firm has offices nationwide and has consistently been recognized by Engineering News Record as one of its Top 500 Design Firms, and ranks on The Zweig Group's Hot Firm List of fastest growing companies and Zweig's Best Place to Work For list. Maser Consulting has been a proud sponsor of LDDI since 2012.

### **2014-2015 General Meetings**

Over the past year, LDDI hosted two General meetings. These meetings provide an opportunity to bring our industry partners up to speed on the status of the LDDI program, campus activities inside and outside of the classroom, and immediate and long-term visions for the program. Recent meetings have also provided attendees with continuing education credit, as the meetings have featured a number of guest speakers talking about important issues in the industry. Continuing a recent tradition, and in an effort to reach out to professionals, both of this year's meetings were held off campus, one in Richmond and one in Northern Virginia.

On Friday, July 18<sup>th</sup>, 2014 LDDI hosted a meeting at the Virginia Housing Center at Innsbrook. A diverse mix of consultants, local government officials, developers, and students were in attendance. The agenda included student presentations, an LDDI update, and the featured topic of the meeting – DEQ’s implementation and rollout of new stormwater management regulations in Virginia. The meeting’s guest speaker, Fred Cunningham – Director, Virginia Department of Environmental Quality/Office of Water Permits & Compliance Assistance, delivered a talk that discussed the catalyst behind and evolution of the new regulations, as well as the anticipated implementation and challenges of those regulations during their first year as the “law of the land.” Following Mr. Cunningham’s presentation, Dr. Randy Dymond and Kevin Young stepped attendees through a case study application of the new regulations, focusing on the Runoff Reduction Method (RRM). Meeting attendees were awarded two PDH credits.

On the frigid morning of January 9<sup>th</sup>, 2015, LDDI hosted its annual winter meeting at the Virginia Tech Executive Briefing Center in Arlington. As we’ve come to expect, CEE 4274 students kicked off the meeting by wowing attendees with presentations of their semester-long design projects. Following an LDDI update delivered by Dr. Randy Dymond, with help from several Advisory Board Members, a panel of guest speakers discussed the challenges of redevelopment in a densely populated urban area such as northern Virginia. This panel was assembled to provide attendees with a diversity of perspectives on the subject topic, and featured Robert Gibson (Arlington County Department of Environmental Services), Brian Scull (The Shooshan Company), and Terry Simon (Clark Construction). As with the summer meeting, attendees were awarded two PDH credits.



*Brian Scull (The Shooshan Company) talks at the 2015 LDDI winter meeting*

### **LDDI Welcomes New Advisory Board Members**

Since its inception in 2006, LDDI has embraced an organic, “grass roots” model for growth. At its core, this model relies on a steady, unrelenting expansion of our network of professionals in all corners of the land development industry. It is the ideas, unique talents and perspectives, energy, and resources of the people comprising this network that enable Virginia Tech to stake claim to the most comprehensive undergraduate land development design curriculum in the country. A key constituency of LDDI’s overall membership is its Advisory Board. The Board maintains LDDI’s strategic plan, manages its annual budget, conducts its annual sponsorship drive, steers practitioner involvement inside and outside of the classroom, and performs countless other

important tasks. In April, LDDI expanded its Board membership to include several new faces. I hope you will join us in welcoming the following individuals:

Alisa Cowen – Owner, Cowen Design Group LLC  
Bob Hubbell – President, Brookfield Residential, Washington  
Jon Jolley – Principal Associate, Maser Consulting P.A.  
Bill Junda – C.O.O., Gordon  
Kevin Murray – Owner, Tri-Tek Engineering  
John Neel – President, Gay & Neel, Inc.  
Sue Wolford – Virginia Regional Vice President, Pennoni Associates Inc.

## 2014-2015 Financial Summary

During the 2014-2015 fiscal year, LDDI collected revenue of approximately \$140,000 through its corporate sponsorship program and individual donor campaign. This figure is greater than revenue collected during our previous fiscal year, and reflects the support of 39 corporate sponsors – our greatest number to date. These funds were used to directly support LDDI activities inside and outside of the classroom. The following describes some of LDDI’s major expense categories to which this revenue was directed.

*Instructor Compensation:* Of the six LDDI course-sections offered each year at Virginia Tech, the University provides financial support for only two. Private donations to LDDI provide instructor compensation for the remaining four.

*Endowment:* In an ongoing effort to ensure the long-term sustainability the LDDI Program, the Advisory Board has ramped up efforts to endow the program, including the hiring of a consultant to help identify and approach potential donors to the LDDI endowment.

*Program Expenses:* Program expenses include support for LDDI’s student club, including field trips, travel to service project locations, and social gatherings. This expense category also includes event catering for LDDI general and outreach meetings, publication of the *LDDI Bridges* quarterly newsletter, and past funding of the LDDI student internship program.

*Operations Expenses:* Operations expenses include general overhead costs such as postage, printing and copying, website development and maintenance, telecommunications, and University Foundation fees.

*Travel and Meetings:* LDDI has traditionally hosted two general membership meetings each year. Outreach efforts such as these comprise a critical part of LDDI’s efforts to ensure continued practitioner participation in the program.

*Student Support:* Though none were awarded this past academic year, to date, LDDI has administered a total of ten \$2,000 scholarships. Eligibility for these scholarships is restricted to students who have completed or are enrolled in certain LDDI courses. This expense category also includes maintenance for a total of 10 high performance “loaner” computers that are made available to student design teams in CEE 4274 – Land Development Design.

## Endowment and Long Term Program Sustainability

Perhaps the single biggest, immediate need of the LDDI program is to establish an endowment. The primary reason to establish such an endowment is to ensure the long-term sustainability of the program. LDDI has achieved remarkable results since its inception, funded solely by the financial contributions of our generous corporate sponsors and individual donors. While this approach has been successful to date, the time and effort required to meet fundraising goals each year is substantial and detracts from our mission of producing a better and more prepared entry level land development professional. Further, the fluid and uncertain nature of the economy make this a risky organizational model for long-term sustainability. The establishment of an endowment will assure necessary operating capital in both strong and weakened economic times.

The program's current goal is to establish an endowment of \$5 million. At a yield rate of 5%, this will provide \$250,000 operating revenue annually to the program. Such funds could be used to provide scholarships, endow a professorship within the program, supplement the operating costs of the program, and enable the program to more aggressively pursue research opportunities within the field of land development. Regardless of how the funds may be used in one or multiple areas, the endowment would entrench the program solidly within the Via Department of Civil and Environmental Engineering at Virginia Tech.

Continuing efforts which started over two years ago, the past year saw an increased effort to endow the program. LDDI Advisory Board member Jeff Lighthiser (Draper Aden Associates) said of the campaign, "This past year, LDDI hired a consultant to guide us through the process of establishing an endowment and to provide assistance in navigating potential pitfalls. This effort coincided with multiple on-campus meetings among LDDI Advisory Board members and important University administration, including Dean of the College of Engineering, Dr. Richard Benson and CEE Department Head, Dr. Sam Easterling." We welcome input and ideas also from you, the general membership of LDDI.

## Curriculum and Course Enhancement

Prior to creation of LDDI, students at Virginia Tech had only one land development design course offering available to them (CEE 4274, Land Development Design). Today, LDDI funding supports a total of five individual courses focused on Land Development design. These five courses comprise the most comprehensive undergraduate land development design curriculum in the entire country. As a direct result of LDDI's efforts over the past nine years, the 2015 Virginia Tech CEE graduates have the best foundation for a career in land development design of any students Virginia Tech has ever produced. Of the six land development course-sections offered at Virginia Tech each year, the University provides financial support for only two. The remaining courses are funded through LDDI's corporate sponsorship program and individual donations to the program.

A "victim of our own success," the popularity of the LDDI program has increased to the point where we now have overcrowded classes. Our Land Development Design course (CEE 4274) is limited to 40 students per semester and the prerequisite junior-level course (CEE 3274) is

limited to 65 students. For the Fall 2015 semester, 99 students have already requested the junior level class, meaning that 34 students, to date, have been turned away. We already offer both classes for the fall and spring semesters; however, we presently do not have the manpower to offer another section of the course. It is important to note that we face similar challenges in other LDDI supported courses - Sustainable Land Development (CEE 4264 ) is offered once per year and always has a large waiting list, CEE4254 (Municipal Engineering) and CEE 4284 (Advanced Land Development) are offered once every other spring, but student interest suggests that we could fill these courses every year if we had the manpower. Further magnifying this issue, Virginia Tech is expanding enrollment this fall; the College of Engineering is admitting approximately 400 additional freshmen, increasing enrollment to approximately 1,800 students. For the next five years, the enrollment is anticipated to increase by 250 students each year. We expect student interest in the LDDI class offerings will continue to grow too, further emphasizing the need for more manpower and teaching support.

We are extremely proud of the work we have done to create a program that is vital to the land development industry, and on behalf of the students benefitting from these courses, LDDI wishes to thank all of our business partners and individual donors without whom our program and curriculum would simply not exist!

The following section briefly summarizes the courses comprising the LDDI curriculum.

### **Introduction to Land Development (CEE 3274)**

During the 2014-15 academic year, CEE 3274 was offered during both the fall and spring semesters. In total, the two offerings saw a combined enrollment of 213 students!

The course is intended to introduce CEE students to a wide range of topics in the field of land development design. These topics include governmental roles and basic engineering principles underlying the land development process. Students get an overview of transportation, hydrology, utility design, and erosion and sediment control as it relates to a land development project. In conjunction with these topics, students are exposed to GIS and Civil 3D as tools to communicate and facilitate design. Additionally, the course covers a diversity of non-engineering topics including population growth, planning, landscapes, neighborhood dynamics, finance, and sustainability.



*CEE 3274 students working on an in-class  
Civil 3D exercise.*

### **Land Development Design (CEE 4274)**

CEE 4274 remains tremendously popular and the spring 2014 semester saw the course at its maximum enrollment of 40 students for only the second time since 2007! Beginning in the fall 2006 semester, and facilitated through LDDI, students taking CEE 4274 have been paired with a

professional engineer who serves as their mentor throughout the entirety of a semester long design project. LDDI would like to thank the following firms for their time and energy to serve as mentors to CEE 4274 students during the 2014-15 academic year:

AES Consulting Engineers  
Balzer & Associates  
Bohler Engineering  
Bowman Consulting  
christopher consultants  
Clark Nexsen  
Dewberry

Draper Aden Associates  
GORDON  
J2 Engineers  
Kimley-Horn & Associates  
Maser Consulting  
Pennoni Associates  
Rinker Design Associates

### **Municipal Engineering (CEE 4254)**

CEE 4254 – Municipal Engineering is offered during the spring semester of alternating years, and was last taught during the spring 2014 semester. The course was taught by Meredith Jones (Virginia Tech Adjunct Instructional Professor and Owner of MJ Services, Inc.). Meredith was assisted in course organization and design by James Patteson (Fairfax County Director of Public Works and Environmental Services) and Dr. Randy Dymond (LDDI Coordinator). The course focused on familiarizing students with the role of the municipal engineer, and the important relationship that exists between municipal engineers and the land development industry. The course included 15 guest speakers and 12 municipal engineering mentors who worked directly with students on projects. Municipal Engineering will next be offered in the spring of 2016.

### **Sustainable Land Development (CEE 4264)**

Sustainable Land Development was first offered during the spring 2008 semester as a one credit seminar and was expanded to a three credit course shortly afterwards. The course continues to be very popular with students and Dr. Dymond had 49 students take the class during the fall 2014 semester. While enrollment in the course is restricted to only those students with senior standing, students from *any* major may enroll. This arrangement introduces various perspectives to classroom discussion and better prepares students for their careers where they will inevitably cross paths with professionals from a myriad of academic backgrounds. The Sustainable Land Development course focuses on the developed site's long term sustainability and preservation of the pre-development quality of its environment. Specific topics include site selection and linkage; neighborhood pattern and design, development impacts on water, air, and soil; microclimate; industrial ecology and materials; energy; and incentive driven sustainability efforts. The course also introduces students to third party site evaluation methods including Leadership in Energy and Environmental Design for Neighborhood Development (LEED ND) and Earthcraft Communities. Students visit development projects employing innovative, sustainable design features and a number of outside guest speakers give interesting presentations.

### **Advanced Land Development Design (CEE 4284)**

With the development and continual improvement of CEE 3274 over the past five years, much of the fundamental material necessary for students to become successful land development

engineers is now being introduced during their junior year. This has had a “ripple effect” throughout the LDDI curriculum, allowing instructors to now introduce new and more advanced subject matter in CEE 4274 and Advanced Land Development Design – CEE 4284. When the course was first developed, CEE 4284 focused on site grading and ADA requirements, storm sewer design and basin routing, and erosion and sediment control. Students are now being introduced to these subjects in CEE 3274 and again, in the context of a design project, in CEE 4274. Through the growth and evolution of the LDDI curriculum, in CEE 4284 we are now able to address the following topics:

- Stormwater quantity issues, including channel velocity/energy requirements set forth in the new Virginia DEQ regulations
- Stormwater quality treatment, including
  - Low Impact Development strategies and design of structural BMPs
  - Selection and installation of proprietary BMPs
  - Virginia’s “Runoff Reduction Method”
- Site selection, due diligence and project entitlements
- The design-build process
- Infill development and development challenges in urban environments
- Security issues in certain developments

CEE 4284 is one of the most unique courses in the entire College of Engineering in that it is not only taught by adjunct instructors, but by teams of instructors from THREE different consulting firms. Additionally, the class meets at the non-traditional time of Friday evenings and Saturday mornings. The spring 2015 offering of CEE 4284 had an enrollment of 10 students, and LDDI would like to thank Kimley-Horn & Associates, Balzer & Associates, and Draper Aden Associates for their efforts in leading the course!

### Student Impressions of the LDDI Program

The core mission of LDDI is to produce civil and environmental engineering graduates who are not only aware of the career opportunities in land development, but prepared to hit the ground running in this exciting field. The following are testimonials from both current and former students in the LDDI curriculum.

*“After my experience with three of the five LDDI courses, I believe they have truly prepared me for working in the land development field. The design course, specifically, helped transition all the learning and knowledge from the classroom to a real world example, all while being guided by a professional mentor who would help us out with tips and perspectives from outside of the classroom. It was challenging, demanding and often tiring but I feel like no other classes have prepared me as well as these have. I think it is really cool that the companies that sponsor the LDDI program are investing in the education and training of their future employees. Overall, I believe it is a very successful program that has helped me as well as a lot of other students.” - Lauren Cetin, CEE '16, intern with LDDI 2015 Gold Sponsor Gay & Neel, Inc..*

*“LDDI courses require a high level of commitment and motivation in order to produce the quality of work needed to be successful. Professors of LDDI courses demand a high quality deliverable*

*from students, while providing all of the necessary guidance and resources to attain that final product. Dr. Dymond and Mr. Young truly care about student success, both present and future. This program afforded me the opportunity to consider job offers from multiple companies that otherwise I would not have been qualified for, and it has prepared me to transition from Virginia Tech Student to Practicing Engineer!" - Joe Whartenby, CEE '15, Engineer with LDDI 2015 Platinum Sponsor Dewberry*

*"The Virginia Tech LDDI program provides students with a competitive edge in early career development as well as an opportunity to engage industry professionals in a way not commonly implemented by other universities. Most notably, the Land Development Design class promotes leadership opportunities while collaborating with key design companies in the industry. Ultimately, my personal experience in this program gave me the ability to apply fundamental knowledge with practices and principles towards my chosen career in land development." - Eric Lemieux, CEE '15, Engineer with Land Design, Charlotte, NC.*

### **LDDI Assistant Coordinator Receives Award**

This year, LDDI Assistant Coordinator Kevin Young was awarded a College of Engineering Certificate of Teaching Excellence. Each year, this award is given to only four faculty members in the entire College of Engineering. Currently, Kevin teaches three courses: CEE 2814 – Civil Engineering Measurements, CEE 3274 – Introduction to Land

Development Design, and CEE 4274 – Land

Development Design. Receipt of the prestigious Certificate of Teaching Excellence is a testament to Kevin's commitment to his students in these courses. Of his teaching, former student and Sustainable Land Development Club Vice President Julie Trumpoldt said, "Kevin is one of the best instructors I've had at Tech hands down. I believe he needs to be acknowledged for the work he puts into the Land Development program at Virginia Tech. He has great respect for all students and you can tell he wants them to succeed in not just his classroom, but in the engineering profession." Please join all of us affiliated with LDDI in congratulating Kevin!



*Young, far right, with other CEE faculty and student at the 2015 College of Engineering Award Ceremony*

## Practitioner Involvement Committee Update

The major objective of LDDI's Practitioner Involvement Committee (PIC) is to develop a strong and sustainable relationship between all sectors of the land development profession and the students within the Via Department of Civil and Environmental Engineering. This involvement is to help students prepare for a career in the land development design profession. The following describes some of the PIC-supported activities during the 2014-15 academic year.

### Student Club Activities

With the aid of faculty advisor Kevin Young and Randy Dymond, and working closely with the LDDI Advisory Board, the Sustainable Land Development Club (SLDC) brings together students with a common interest in sustainability as it relates to land development design. Graduating senior Michael Roselius served as the club's president this year, and was joined by officers Meghan Hekl who served as Vice President, and Dylan Hale who served as the club's Service Project Coordinator.

The 2014-15 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 career fair. During the fall semester, the SLDC also hosted a football viewing party for its members. The spring semester was particularly eventful for the club. In March, SLDC members participated in LDDI's third annual Design Charrette Competition. In April, 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!

The past year also found the SLDC continuing its partnership with the FloydFest music festival. From relatively modest beginnings in 2002, the festival has grown considerably over the past decade. With its rapid growth, festival organizers have encountered numerous challenges, including site layout, shuttling of patrons into and out of the festival grounds, and public safety issues. In past years, SLDC members developed a series of site maps to help festival organizers address these issues. In the spring of 2015, the SLDC continued working with FloydFest to help with the layout of various attractions and public facilities such as vendor tents, food facilities, and parking lots.

### Career Nights

This year, LDDI and the Sustainable Land Development Club (SLDC) continued their tradition of hosting a “Land Development Career Night” on the eve of the Civil & Environmental Engineering career fairs. This was the 15th and 16th consecutive semesters that a student-practitioner mixer of this type has been held by LDDI. The event was very well attended in both the fall and spring semesters with a good ratio of students to representatives from various LDDI sponsoring firms. These career nights are beneficial for both the students and practitioners for numerous reasons. It allows the students to learn more about various roles and career opportunities in the land development field. The event also provides an opportunity for students to meet and mingle with prospective employers in a relaxed atmosphere prior to the potentially stressful atmosphere of the career fair. The casual setting of the Hokie House, a local restaurant and bar in Blacksburg, provides opportunities not only for career networking, but for practitioners to reminisce on their time as a student at Virginia Tech.



*LDDI Advisory Board Member Jeff Gilliland (J2 Engineers) chats with a group of students at the spring 2015 LDDI Career Night*

### Football Viewing Party

During the fall 2014 semester, LDDI and the SLDC hosted its fourth annual football viewing party. Those in the the Virginia Tech community know that when fall rolls around, football takes center stage. While the Hokies came up short against the Pitt Panthers, spirits remained high and a good time was had by both student and practitioner attendees. The event was held at PK’s restaurant in Blacksburg and a similar event will held on Thursday, November 12<sup>th</sup>, 2015 when the Hokies travel south to Atlanta to play Georgia Tech.

### Design Charrette and Competition

In March, LDDI hosted its third annual Design Charrette and Competition. In total, six student teams competed for the top prize of a \$100 gift card to Buffalo Wild Wings. Skip Notte (Dewberry) served as the event’s organizer for the second time, and made the trip to Blacksburg from Charlotte to lead the event. Following Skip’s introduction to the site and development objectives, student teams were given one hour to work on their designs. Scott Kroll (formerly Draper Aden Associates) and Clay Hodges (AHV, Inc.) served as judges for the event along with

Skip. The winning team was made up of Casey Heron and Bryant Inge, both of whom completed CEE 4274 – Land Development Design this past spring. Of the event, Casey commented, "Participating in the Design Charrette was definitely one of my better decisions this year. The event was challenging, but also extremely rewarding, fun, and a valuable learning experience." Skip commented, "I have enjoyed my involvement with LDDI over the past five years, including the opportunity to give back to my Alma Mater and engage with the students on a regular basis. In addition to offering my input and professional knowledge and opinions, I find that I am constantly learning from the outstanding students that are attracted to this amazing program!"



*A student team works on their design during the 2015 LDDI Design Charrette*

### **LDDI Students are Recognized**

Those of us involved with LDDI have a hard time hiding the pride that we feel when our students succeed in the classroom (and beyond!). In April, and for the first time, the LDDI Advisory Board decided to recognize some of the truly outstanding students in the program. On the last day of spring semester classes, Dr. Randy Dymond and Kevin Young presented the following student awards.

**Hokie Stone Award:** This award will be given annually to the LDDI student who is as solid as its namesake – a team player whose leadership and personality elevated the performance of all those around him. Joe Whartenby was integral to the success of a 4274 team mentored by Balzer & Associates during the fall 2014 semester. Joe also performed exceptionally well in a number of other LDDI courses. Joe graduated this semester, and is now working for Dewberry in their Lanham, Maryland office.

**Hokie Spirit Award:** This award will be given annually to an LDDI student whose pride in Virginia Tech knows no bounds. While juggling a demanding CEE course load, Gwen Elwood has served two years as Drum Major for the Marching Virginians, as the Director of Relations for the Student Engineers' Council, and is a student ambassador for the College of Engineering. This spring, Gwen also completed CEE 4274 and is a member of one student group who will be presenting at our General Meeting in July. This summer, Gwen is working as an intern with Bohler Engineering in their Sterling, Virginia office.



*Dr. Randy Dymond presents Gwen Elwood with the 2015 LDDI Hokie Spirit Award*

**Leadership in Sustainability:** The Leadership in Sustainability award will be given annually to recognize an LDDI student with a commitment to sustainability as it relates to land development design. For the past year, Mike Roselius served as the President of the Sustainable Land Development Club. During his time guiding the SLDC, he worked extensively on the club's various service projects. During the 2014-15 academic year, Mike also served on the Drillfield Improvement Committee to investigate sustainable alternatives to the unsightly paths that now cover the Drillfield. Inside the classroom, we believe Mike to be the first student to complete every single LDDI course offering. Mike graduated this semester, and is now working for GORDON in their Chantilly, Virginia office.

**Ut Prosim Award:** The Ut Prosim award will be given annually to an LDDI student who embodies the Virginia Tech motto "That I May Serve." Over the past year, Dylan Hale has worked countless hours in his role as SLDC Service Project Coordinator. During this time, Dylan has worked hard to maintain the SLDC's relationship with FloydFest and to continue improving the experience at southwest Virginia's largest annual music festival. Dylan has also been successful in recruiting other students to participate in the SLDC's various service projects. Dylan is interning this summer for Dewberry in their Orlando, Florida office.

**CEE 4274 Female Student of the Year:** This award will be given annually to the exceptional female student in the fall and spring offerings of CEE 4274. For Lauren Cetin, handling one demanding LDDI course at a time was simply not enough. During the spring semester, Lauren took CEE 4274 and 4284 (Advanced LD) simultaneously, and excelled in both courses. In CEE 4274, Lauren was mentored by Skip Notte of Dewberry, who said the following of her performance in the course, "Lauren has been a pleasure to work with this year in the design class. She has always shown dedication and persistence on each challenge, with a strong attitude

for learning. She has worked well with her team and took feedback/comments/criticism in stride with the goal of better understanding and professional development.” Lauren is interning with Gay & Neel this summer in their Christiansburg, Virginia office.

**CEE 4274 Male Student of the Year:** This award will be given annually to the exceptional male student in the fall and spring offerings of CEE 4274. During the fall 2014 semester, Eric Lemieux was a member of a student design team mentored by Chuck Fitzgerald of Bowman Consulting. From early on in the course, the design team set the pace for the rest of the class due in no small part to the leadership skills demonstrated by Eric. Chuck said of Eric, “Eric was a great team leader in the Land Development Design (4274) course I mentored last fall. He stepped up and helped his design group create a site plan and presentation that they could be proud of. Congratulations to Eric for being selected as an outstanding 4274 student, and good luck as you begin your career in the Land Development industry.” Eric graduated this semester, and has just begun his career with Land Design in their Charlotte, North Carolina office.

At this year’s award ceremony, we also recognized Jessie Hekl, who over the past two years has served as a GTA in multiple LDDI courses, as well as serving as the student representative to the LDDI Advisory Board. This spring, Jessie successfully defended her Master’s thesis, and is set to begin her career with Bowman Consulting in their Denver, Colorado office.

## Research Committee Update

While undergraduate education will always remain the priority of the LDDI program, over the past year and a half, LDDI as an organization has become increasingly involved in research activities. LDDI’s research efforts help to provide exposure to the program as a whole, provide funding for master’s and Ph.D. students, and help to advance our undergraduate education mission by keeping our finger on the pulse of a very dynamic industry. LDDI Advisory Board Members James Patteson (Fairfax County) and Clay Hodges (Altizer, Hodges, Varney, Inc.) provide steering for the Research and Development Committee, and drafted its mission statement during the summer of 2013.

Thus far, a majority of LDDI’s research activities have been in the realm of urban stormwater. With Virginia adopting new stormwater management regulations in July 2014 – regulations that greatly impact the land development industry - this research focus compliments LDDI’s overriding goal of improving land development education. Currently, LDDI, through the Via Department of Civil & Environmental Engineering, holds funded research contracts with the Town of Blacksburg, the City of Roanoke, and the Virginia Department of Transportation (VDOT). Ongoing work with the Town of Blacksburg and the City of Roanoke involves developing innovative technologies and strategies to assist the localities in better managing their assets, complying with Municipal Separate Storm Sewer System (MS4) and other legislative requirements, and developing watershed master plans. Previous and ongoing efforts with VDOT will yield a BMP Manual of Practice tailored specifically to linear projects, accompanied by BMP selection software. Regarding the VDOT work, Hodges states, “VDOT continues to stay ahead of the curve by spending research dollars on projects that will increase the understanding of today’s issues and meet regulatory targets in the most environmentally conscious and cost

efficient manner. Current research includes a recent draft of stormwater BMP design specifications specific to VDOT projects, as well as development of a software decision support tool that will integrate the Virginia Runoff Reduction Method with optimization functions to allow designers to select the most efficient BMP for particular sites. These tools will be highly beneficial to the consulting community as it serves VDOT on projects throughout the Commonwealth."

Another emerging research area within LDDI is that of laboratory evaluation of remote flow sensing devices deployed in field applications. Well-informed infrastructure management decisions are largely dependent on the quality of hydrologic and hydraulic measurements, and while numerous technologies for flow quantification are available, information on their general applicability for stormwater measurements is frequently lacking. This spring, two master's level student completed unfunded research projects dealing with stormwater impacts of "McMansionization" in Fairfax County and a national study of stormwater utilities in conjunction with Western Kentucky University.

### Outreach Committee Update

The major objectives of LDDI's Outreach Committee are: 1) to promote the field of land development engineering to students and encourage their participation and support; and 2) to promote the Land Development Design Initiative to land development professionals and encourage their participation and support of the program. The committee has been active this year serving as the primary organizer for general meetings and the annual spring sponsorship drive. The Outreach Committee also maintains LDDI's online presence, one of which is the LDDI website. The website serves as a portal for students to easily find information about LDDI courses, upcoming events, career opportunities, and interesting land development projects. Diamond, Platinum, and Gold level sponsors of LDDI may access a student resume bank on the new website, as well as showcase projects that their firms have worked on. We hope you'll visit the LDDI website at <http://www.lddi.cee.vt.edu>. The committee also maintains several social media sites such as Facebook, LinkedIn, and Twitter. "Liking" LDDI on Facebook, joining our group on LinkedIn, and following our Twitter account are all great ways to stay up to speed on recent happenings and upcoming events.



Search "Virginia Tech Land Development Design Initiative (LDDI)"



Search "LDDI-Virginia Tech CEE Land Development Students and Alumni"



Search "LDDI" or "@VTLDDI"

## How to Get Involved with LDDI

To continue the success and sustainability of the Land Development Design Initiative, both time and money is needed from the industry. You and your company can get involved by becoming a sponsor, becoming a general member, or donating your time by serving on a committee or helping with course offerings.

### Corporate Sponsorship and Individual Giving

LDDI currently has 37 corporate sponsors and an additional 34 individual donors. There are four levels of annual corporate sponsorship which afford varying levels of student/corporate interaction and exposure. For more information, please contact Kevin Young or Randy Dymond. If you wish to support the program as an individual, you may donate to the Virginia Tech Foundation and earmark the donation to LDDI (fund number 873889).

### General Membership

Since its earliest beginnings LDDI has depended heavily on the volunteer efforts of its general membership to achieve program goals. The past eight years have seen LDDI grow to become a nationally recognized leader in undergraduate land development design education. Despite the program's rapid growth, LDDI continues to embrace an organic, grass roots operational model. This model relies on the participation of industry professionals who sincerely believe in LDDI's mission. There are currently nearly 700 general members of LDDI, many of whom attend semi-annual meetings, both on-campus and at locations across the state. During these meetings, these general members contribute ideas for practitioner involvement, courses, and other aspects of the program.

*For more information on how to get involved with LDDI, please contact:*

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## Special Thanks

The sponsorships of our business partners and individual donors are an essential component to the success of LDDI. We thank the following Firms and individuals for their generous support during our 2013-14 fiscal year:

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