



January 2017

Volume 11, Issue 1

In this issue:

- LDDI's public relations campaign (p. 1)
- Redevelopments in DC and Fairfax County (p. 2)
- A new skate park comes to Leesburg, and an innovative parking strategy comes to Red Bank, NJ (p. 3)
- A recent graduate reflects on the past and present (p. 4)
- How to become an individual sponsor (p. 4)

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

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New Year's greetings from the campus of Virginia Tech! I hope this message finds you and your organization enjoying a wonderful start to 2017. Blacksburg is in the midst of a quiet winter calm right now, but in just over a week our small town will be electric with the excitement of a new semester. This spring, LDDI is proud to be offering three courses and a total of four course sections. LDDI Assistant Coordinator Kevin Young will handle two of the four sections, teaching both the junior-level Introduction to Land Development course (CEE 3274) and our senior Land Development Design course (CEE 4274). New VT CEE faculty member Claire White will teach an additional section of CEE 3274, while teams of practitioners from Bohler Engineering, Draper Aden Associates, and Kimley-Horn and Associates are lined up to teach our Advanced Land Development course (CEE 4284). It is only through the continuing support of our corporate sponsors and individual donors that LDDI can provide Virginia Tech students with the most robust undergraduate land development design curriculum in the entire country. The LDDI Advisory Board, our students, and I thank you for this support!

As LDDI enters its second decade of existence, I wish to thank all of those who have contributed to our success, and offer you best wishes for a fantastic 2017! I hope that you will enjoy reading this newsletter, and I welcome any feedback you have on how we can continue to improve the LDDI program.

Dr. Randy Dymond, PE, VT LDDI Coordinator

LDDI Makes PR Push

Recently, articles about LDDI have appeared in two magazines as part of a publicity campaign coordinated by PR Firm Commonwealth Partnerships out of Richmond. The January 2017 edition of *Valley Business Front* includes a commentary piece by LDDI Advisory Board member and Draper Aden Associates CEO/President Jeff Lighthiser. The piece discusses the industry's need for well-prepared entry level land development engineers and the role that LDDI plays in filling this need. It also describes the relationship between academia and the land development industry's private sector, as well as efforts on LDDI's research front. The January 2017 edition of *Valley Business Front* can be found here: <http://www.vbfront.com>. The January 2017 edition of *Civil & Structural Engineer* magazine features a comprehensive article on LDDI's impact on both engineering firms and individual graduates of the program. The article also frames LDDI's role within the ever-evolving regulatory landscape of the land development industry. The *Civil & Structural Engineer* magazine article can be accessed here: <http://csengineermag.com/article/preparing-students-for-land-development-and-design/>.

These recent publications are part of an ongoing, larger effort by LDDI that also includes the formation of an advocacy group comprised of influential members of the land development industry. These efforts are intended to improve awareness and understanding of LDDI, both inside and outside of the university, with the goal of funding an endowment that provides sustainable, long-term support for instructional resources and other program needs. To find out more about these efforts and/or to become involved, please contact LDDI Advisory Board member and President Emeritus of Jansen Land Consulting, Bob Jansen (bjansen@jansenland.com).

by Kevin Young



Jeff Lighthiser's piece in Valley Business Front magazine.



A vacant portion of the Specialty Hospital of Washington is transforming into a luxury apartment residence.

GORDON Helps Transform Historic Hospital into Luxury Apartments

edited by Kelly Shayne Young

GORDON provided civil engineering, surveying, and landscape architectural services for the renovation and redevelopment of the vacant portion of the historic Specialty Hospital of Washington. Located at 700 Constitution Avenue in the heart of Capitol Hill, this underutilized building occupying approximately one acre is currently being transformed into a 147-unit luxury apartment residence to include a below-grade parking garage, rooftop terrace and amenity space, enhanced building and streetscape landscaping, and rear courtyard with water feature. A historic drop-off to the once Eastern Dispensary and Casualty Hospital was discovered in the conceptual design process and was subsequently used to inspire the layout of the new prominent entrance to the complex. GORDON continues to provide stormwater inspection services for the project.

At the onset of this project, the District Department of Energy and the Environment

(DOEE) had recently implemented new stormwater management regulations, and 700 Constitution Avenue was scheduled to be one of the first applications subject to them, which posed challenges for both the design team and the DOEE review staff. In working closely with DOEE as well as the existing site conditions, GORDON was able to meet and exceed the stormwater requirements by installing a green roof and permeable pavement, and most notably, converting an abandoned 8,000 cubic foot concrete vault that previously housed a 10,000-gallon diesel fuel tank into an underground storage and infiltration facility.

The success of this project is due in part to the coordination with DOEE and the Historic Preservation Review Board (HPRB), and continuous outreach to the community and Advisory Neighborhood Commission (ANC) of Capitol Hill.



The Hilltop Village Center is a redeveloped landfill site in Fairfax County that integrates 350,000 SF of retail, restaurants, and office space.

Dewberry Provides Services for Mixed-Use Hilltop Village Center

edited by Kelly Shayne Young

The intersection of Telegraph Road and Beulah Street in Fairfax County, Virginia, is a bustling location centered between Fort Belvoir, a major U.S. Army installation, and the residential communities of Kingstown and Hayfield. Seeking to capitalize on the vibrancy of this neighborhood, a joint venture of Weingarten Realty and Hilltop Sand and Gravel, Inc. redeveloped an existing construction and demolition debris landfill into the 350,000 SF mixed-use Hilltop Village Center. By repurposing this previously developed property, impacts to natural features, habitats, and forested areas were minimized. The land area created on the capped landfill will also be used as a county park with athletic fields and recreational facilities.

Building on its thirty-year land development experience with Hilltop Sand and Gravel, Inc. properties, Dewberry provided land planning, civil engineering,

landscape architecture, and surveying services to support the site's redevelopment into a retail destination. 3-D modeling was used to avoid utility conflicts, coordinate with landfill cap systems, and create an inviting landscape for the village center. Renderings based on the firm's engineering models were used for public involvement and to communicate the project vision to review agencies and stakeholders.

Hilltop Village Center was designed with the community's experience in mind. The development includes on-street bike lanes, bicycle parking, and multi-purpose trails, as well as landscaped plazas and courtyards with historical markers describing the property's history.

The mixed-use Hilltop Village Center is a modern shopping destination that also provides hundreds of jobs within the community.

ATCS Aids in the Development of Leesburg Skate Park

edited by Kelly Shayne Young

ATCS assisted the Town of Leesburg, Virginia by providing site/civil engineering services for the development of the Town's new 12,000 SF lighted skate park, in collaboration with Spohn Ranch, the project designer and builder. ATCS' engineering team provided a variety of consulting services including site layout, grading, zoning compliance, parking, storm drainage, storm water management design, water quality calculations, and design for sediment & erosion control measures to be installed during construction activities.

The subgrade and foundation design incorporated findings made by subsurface reconnaissance, which included conventional soil borings (standard penetration tests), air-track drilling, and electrical resistivity imaging. Major design challenges were encountered with the site civil constraints (topography, storm drainage, and subsurface conditions), which

were a significant factor to the final skate park orientation and feature layout, as well as a demolished waste water treatment plant that was decommissioned decades earlier.

The skate park structure layout, ancillary site features, grading, and landscaping were carefully designed to work in harmony with the adjacent properties, including future expansion of an adjacent county fire and rescue squad facility, and regulated major floodplain on the property. This project successfully met the public needs through design development that involved coordination with various Town/County agencies.

This collaboration presented a unique opportunity for creativity in helping the community and advancing the revitalization of the Catoctin Skate Park for the Town of Leesburg.



Revitalization of the Catoctin Skate Park for the Town of Leesburg, Virginia (3D rendering designed by Spohn Ranch).

Maser Consulting Employs Innovative Parking Strategy in Red Bank, NJ, and Beyond

edited by Kelly Shayne Young

Redevelopment in urban areas is a growing trend, but commercial and residential areas are often constrained by both local parking requirements and space. Complying with these parking standards has proven, in most cases, to be expensive and environmentally objectionable. In Red Bank, NJ, a large borough with a small city vibe, parking is so insufficient that it is hurting both retailer and resident, and vertical parking that satisfies requirements has been cost prohibitive.

The West Side Lofts, a new luxury rental apartment community in Red Bank, are within walking distance to a vibrant array of restaurants, shopping, and entertainment and conveniently located one block from the NJ Transit Train Station, with direct service to New York City. Maser Consulting provided civil/site engineering, geotechnical investigations, land survey, permitting, and construction administration for this development. Car-sharing, an economically feasible solution that increases land-use density while reducing parking supply, was introduced as part of the plan application for these units.

Car-sharing offers a sensible alternative, particularly in supplementing areas that

already have public transportation, because it provides subscribers the convenience of both long- and short- travel options without having to own a car. The proposed plan provided short-term access to a car for an hourly rate and covered all expenses including gas. Users can reserve a car online or by phone, and the car could be picked-up and returned to a specific location or dropped off within a defined perimeter.

Car-sharing programs have been reported to significantly reduce trips and parking needs. In published reports, the number of vehicles removed from the transportation network per car-sharing vehicle is **20** for the Zipcar national program and **10.8** for the Philadelphia PhillyCarShare program. In the same studies, it was found that approximately 30% of participants sold their vehicle. In terms of parking credits, published data supports reducing the parking supply by 10 spaces for every car-sharing vehicle. These findings highlight the benefits derived from these innovative programs and provide the basis for an encouraging and viable trend.



Car-sharing can provide "part-time" personal transportation, where one vehicle can address the mobility needs of several individuals, lowering the current overwhelming dependency on the automobile.

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LDDI Bridges January 2017

LDDI Graduates in the Industry: Disha Parikh Cowen Design Group Civil Engineer

by Kelly Shayne Young

Disha Parikh completed her academic career in May 2014, graduating from Virginia Tech with a B.S. in civil engineering. After spending a year in the contracting field, she began her design career with Cowen Design Group in May 2015; she now serves as a civil engineer in the firm's McLean, VA office.

While a student, Disha took advantage of LDDI's course offerings, namely Land Development Design and Sustainable Land Development. "The land development design course is exactly what I get paid for doing now, and I am so thankful for how much I learned," she explains. "I can directly relate parts of my engineering practice to things I learned in that class, from utilities layout to grading to report writing." Parikh feels that LDDI's curriculum is the program's greatest strength, enabling students to gain an understanding of all aspects of the design industry. She believes that "the LDDI classes at Tech were some of the most applicable courses I had throughout my experience at the university."

Already several years removed from the classroom, Disha has realized that the learning never stops. Whether she's developing a site, preparing computations, or conducting research to ensure the best possible methods and materials are being used, Parikh takes advantage of those with more experience and, if necessary, asks questions, listens, and learns. "One of the biggest realizations I've had since graduating was accepting the fact that the learning aspect of engineering is never over," she says. "I graduated almost 3 years ago and I'm still learning so much about this field!"

While Disha misses the sense of community that comes with being a Hokie on the Virginia Tech campus, she is thriving in Northern Virginia and still cheers on the Hokies any chance she gets. In her free time, Disha enjoys rock climbing, hiking, reading, skiing, and listening to live music.



"I would encourage students interested in this field to take the land development design course, ask as many questions as you can, and take advantage of the resources the LDDI program has to offer." - Disha Parikh, Cowen Design Group Civil Engineer

Support LDDI at the Individual Level!

by Kevin Young

Over the past decade, the LDDI program has achieved its success through an organic, "grass roots" organizational model that is critically dependent on the investment time, professional expertise, and money by those who believe in and support the program. No amount is too small, and if you would like to financially support our ongoing efforts, you may do so by making a donation through the Virginia Tech Foundation, Inc., a 501(c)(3) nonprofit, nonstock corporation. Donors are strongly encouraged to follow the guidelines described below to ensure proper crediting of their donation.

Option 1: Checks may be made payable to "The Virginia Tech Foundation, Inc." In the memo of the check, please include "**Fund # 873889 – LDDI**" Checks may be mailed to: Via Dept. of Civil & Environmental Engineering ATTN: Kevin Young 750 Drillfield Drive – 200 Patton Hall Blacksburg, VA 24061.

Option 2: Donations may be made via credit or debit card by clicking here: webapps.es.vt.edu/givingto/academic/gift

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