

BUILDING A NEW CENTRAL PARK THROUGH CIVIC ENGAGEMENT AND SERVICE LEARNING: FALLING RUN GREENSPACE, MORGANTOWN, WEST VIRGINIA

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1 ABSTRACT

Service learning, university-community partnerships and volunteers' civic engagement activities created a new urban forest park, Falling Run Greenspace, from sixty acres of steeply forested university property in downtown Morgantown, West Virginia. Developing the master plan involved a complex process of administrative approvals and committees for engagement of a diverse group of stakeholders. The project catalyzed greenspace partnerships between the University and the community, and promoted civic engagement among students. This paper reports on the collaborative process through which this new park was created. Landscape architecture majors at West Virginia University participated in site analysis and master planning through service learning in class assignments typically over two semesters; community members and students, staff and faculty volunteered to construct trails. The University provided a construction budget for bridges and a universally accessible trail. In 2016, Falling Run was the first Welcome Week trail-building project and attracted 495 incoming freshmen who volunteered to clear brush and build trails. Falling Run's volunteer structure hinged on a handful of experienced trail crew leaders providing training sessions, and a dedicated volunteer coordinator. Within eighteen months, volunteers built 2.4 miles of trail, utilizing 4,693 worker-hours. A West Virginia Land Trust representative called this project "the most important development for Morgantown green space since the Rail Trail." With few new large parks being established in central urban areas today, the service learning and volunteer organization strategies used to establish Falling Run provide useful planning insights for universities working within the constraints of limited design and construction budgets, and for landscape architecture programs considering multi-year service learning design-build projects.

1.1 Keywords

Service Learning, Urban Parks, Trail Planning, Appalachia, Volunteers

2 INTRODUCTION

Morgantown, West Virginia lies within the ecologically diverse Appalachian Plateau, which is characterized by a mild climate and broad vegetative diversity resulting from a lack of glaciation and microclimate pockets created by topography. Falling Run Greenspace was originally conceived to complement the existing West Virginia University Core Arboretum, expanding opportunities for outdoor education through its different microclimates. Falling Run's sheltered cove topography, rich in ferns and with both south-and north-facing slopes, contributes to its potential to support northern hardwood forest and wet prairie meadow demonstration areas – in contrast to Core Arboretum's exposed, southwest-facing hill slope, which supports mostly mixed oak-hickory and maple-beech forests.

Falling Run valley's steep side slopes (with an average gradient of around 30%) protected the site from development. By September 2018, volunteers constructed 2.7 miles of trail (with an additional 1.5 miles planned), improving access to the Falling Run stream, characterized by a mostly rural watershed (see Figure 1) -- in stark contrast to adjacent watersheds impaired by acid mine drainage and urban stormwater runoff. Falling Run Greenspace's educational potential from its vegetative diversity and clean watershed offer educational value to both the University and the surrounding community; Falling Run is easily accessed by a short walk from WVU's main campus and center city residential neighborhoods.

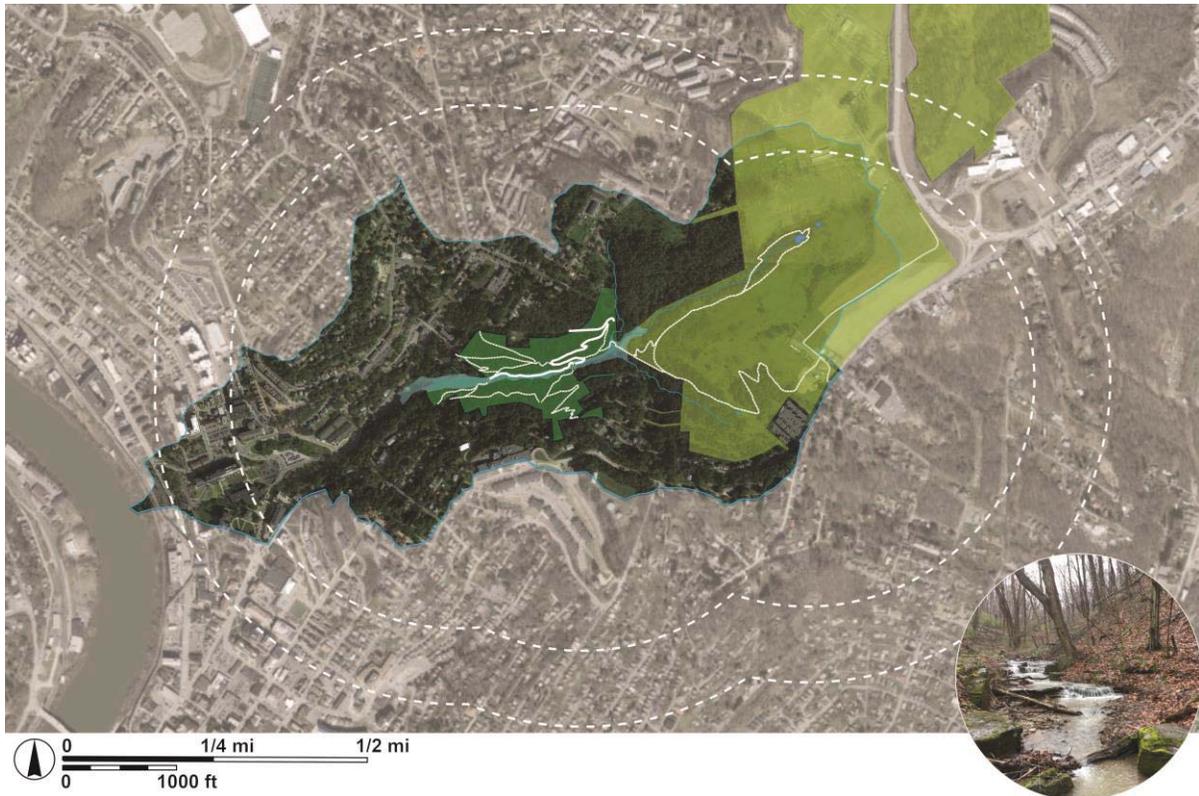


Figure 1. Trails (as built, September 2018) improve access to the Falling Run stream, which has a largely rural watershed of 283-acres (color aerial). Light green denotes WVU farms; Kelly green Falling Run Greenspace, dashed white lines neighborhoods within 0.625 to 0.75 miles of entrances (a 10- to 15-minute walk). Diagram by author

While the Greenspace itself has become an educational resource, its design and implementation through service-learning built ties to the community and benefited students, especially those in landscape architecture, over several semesters. The design and implementation process also strengthened partnerships between university and community greenspace advocates. This paper reports on the collaborative process through which this new park was created.

The paper is organized into several sections. The rest of this section provides a brief background to the study, while Section 3 discusses the study approach. Section 4 is organized around the major study components: outline and evaluation of the structure of the multi-year community-driven design process through which Falling Run Greenspace was established on University property (Section 4.1); a description of the learning outcomes and civic engagement that resulted from service-learning during the design process (Section 4.2); a summary of the volunteer structure for the project (Section 4.3); and a description of community benefits and enhanced partnerships (Section 4.4). The paper concludes with lessons learned (Section 5) and conclusion (Section 6).

2.1 Benefits of Service Learning

Service learning has been found to have benefits for students academically, personally and socially, while promoting civic engagement (Conway, Amel & Gerwien, 2009). Service learning in urban woodlands has been found to improve team skills, build awareness of biodiversity and promote environmental stewardship (Knachmuths, Farmers and Reynolds, 2017; McFall, 2012).

For landscape architecture students, involvement in service learning is likely to have additional specific benefits, important to them in their future professional and civic roles. It offers an opportunity to apply knowledge gained in a classroom setting to the outdoors. According to Beaverford, student involvement in meaningful service projects “provides a venue for design educators to connect students to the humane, political, and practical aspects that are often overlooked in studio education” (2011, p. 533). Winterbottom found “Students are ... challenged to work as a team, to plan and communicate design responsively” (2017 film). Design-build work at the University of Washington evoked an emotional response from one project client (filmed in Winterbottom 2017) regarding the long-term benefits for all involved:

“I’ve never seen a group of students – or anybody – work as hard as these kids. My life, and their life, will never be the same because of what they’re doing out there.... That space is going to be healing people long after we’re gone.”

-Cyril Miller, Board President, Veterans and Friends of Puget Sound.

2.2 Community-Driven Design

In addition to expanding outdoor educational opportunities and benefiting students engaged in service-learning, Falling Run Greenspace offers an example of a community-driven design process. This is in stark contrast to a client-driven design process, for which schools of landscape architecture typically prepare their students. While a landscape architect suggested a vision for the space at the request of two university deans, university stakeholders, students, and community members were extensively involved in modifying and implementing that vision.

Community-driven design contrasts with the traditional model of participatory design. Hou and Rio caution against participatory design’s “pitfall of emphasis on the binary interaction between designers and users” (2003, p. 26).

3 STUDY APPROACH

This paper is based upon a case study of the design-build project Falling Run Greenspace in Morgantown, West Virginia. Case studies are increasingly common in landscape architecture research because they offer valuable details and insights about innovation and consequently help to advance the body of knowledge in the field. According to Francis, “A case study is a well-documented and systematic examination of the process, decision-making and outcomes of a project, which is undertaken for the purpose of informing future practice, policy, theory, and/or education.” (2001, p. 16).

This paper’s description of the community-driven design process draws from the concept of ‘biography of landscape’ (Samuels 1979), which has influenced case studies of human-land interactions, cultural geography, ecology, and archaeology. Researchers of landscape biographies are encouraged to explore the landscape’s designers, social context, and temporal transformations, and contributions of planning and design; as well as the “rich interrelationships between the social and natural dimensions of landscapes” (Kolen and Renes 2015, p. 23).

Learning outcomes and benefits to individual landscape architecture students are measured through: student evaluations, interviews with students by campus and local reporters, students’

statements for the Falling Run Master Plan, and anticipated future opportunities for learning created by Falling Run Greenspace. Civic engagement is measured through time-keeping records during various phases of trail construction, which provide additional insights for planning and phasing similar projects. Finally, the benefits to the community are measured in statements of community impact provided by local and university leaders (in press, and in letters of support included in the Falling Run Master Plan).

4 STUDY COMPONENTS

4.1 Morgantown’s planning context and Falling Run’s design process

Despite Morgantown’s steep topography, early city planners imposed a predominantly rectangular street grid, resulting in downtown streets of up to 32% slope. The street grid is broken regularly by difficult-to-develop wooded draws, known locally as hollows (“hollers”), limiting connections to the oldest streets, which tend to flow with an organic alignment around topographic obstacles. The juxtaposition of gridded and organic street networks provides opportunities for greenspace connectivity. The interrupted street grid also contributes to rush-hour gridlock: when a traffic jam occurs, there are few ways around it. According to one former mayor, Morgantown is “a small town with big-city traffic.”

Initially, university decision makers were not sure if it was reasonable, given Falling Run hollow’s steep slopes, to designate the property as greenspace. West Virginia University acquired the property in 2012, after a settlement with a bankrupt developer. “I don’t think it was until about 2013 or 2014 that we really realized what a wonderful asset that we have,” said Narvel Weese, WVU Vice President of Finance (LeRose, 2017). Morgantown’s Mayor Jenny Selin was instrumental in accelerating the development of the Falling Run Greenspace in Spring 2014 by connecting the first visionaries for the project (deans of the Eberly College of Arts and Sciences and Davis College of Agriculture, Natural Resources, and Design) with a landscape architecture faculty member (the author) to analyze the project’s feasibility. The two deans invited the author to analyze the property’s potential as greenspace over Summer 2014.

To facilitate stakeholder engagement but maintain a streamlined planning process, two committees formed for Falling Run’s master planning: a larger WVU Greenspace Committee for stakeholder feedback and a smaller Steering Committee for decision making. In all, 64 people informed the planning of Falling Run, including 13 university administrative units and 18 community partners (see Figure 2). Leadership for the project was provided by:

- the Dean of Davis College of Agriculture, Natural Resources, and Design,
- three successive Deans of the Eberly College of Arts & Sciences,
- the Vice President of Finance, and (after administrative restructuring) by
- the Vice President of Strategic Initiatives.



Figure 2. Stakeholders (n=64) engaged during Falling Run’s master planning. Diagram by author

In Fall 2014, university facilities staff proposed a conceptual design (with trail slopes of up to 34%) that would increase parking at the WVU Organic Farm, assuming commuters would walk 20-minutes to campus through Falling Run. A service-learning exercise demonstrated this would not be viable: in multiple landscape architecture classes over several semesters, students talked to peers about their

commuting patterns to the University's Evansdale campus (one of three WVU campus locations within Morgantown) and found most students willing to walk no more than 0.625 mile. The average commute time (all modes) was 18.5 minutes (see Table 1). Polled travel times include walking to the Personal Rapid Transit (PRT) stations, which connect downtown Morgantown with Main Campus, Evansdale Campus, dorms, and Health Sciences.

Driving was preferred and only 7% of 101 students polled were active commuters (6% walking, 1% skateboarding). This estimate of active commuting rates in Morgantown is consistent with other research: the 2011 American Community Survey found Morgantown having a walking commuter rate of 6.0% (cited by Pedestrian and Bicycle Center, 2018). This student assignment helped to establish walkability and neighborhood connectivity in the vision for Falling Run Greenspace, and to prevent adding paved parking lots at the Organic Farm.

Table 1. For a class assignment, students asked peers (n = 101) about preferred commuting mode and usual travel time, including parking or walking to the Personal Rapid Transit (PRT) rail station, and to identify the closest intersection to commuters' starting points. Data from students' 2014-2016 mapping exercises, compiled by author.

Commuting mode to campus					Average commuting time (minutes)				
	Distance	active	drive	bus	PRT	active	drive	bus	PRT
<0.625 mi	6	2	0	0	0	9.3	7.5	-	-
0.625-1.25 mi	1	26	3	3	3	15.0	12.9	21.0	16.7
1.25-1.75 mi	0	25	1	29	29	-	16.9	20.0	25.3
1.75-2.25 mi	0	1	1	3	3	-	15.0	20.0	40.0
Totals	7	54	5	35	35				

By Spring 2015, leadership and funding for the Falling Run Greenspace project were uncertain, but encouragement within the community was clear. Realizing that a site analysis had less potential to catalyze action than a preliminary master plan, the author continued developing a conceptual design, involving students in service learning to help craft a master plan document to advocate for the project. In Spring 2015, landscape architecture students (in a classroom exercise) helped write the vision for the Falling Run Greenspace Master Plan:

*Falling Run Greenspace will be an accessible, vibrant **urban oasis** with the potential to become a **central park** for the **heart of Morgantown**, forging a connection between the Organic Farm and Main Campus of West Virginia University. Ultimately, the long-term vision is to provide a connection for bicyclists and pedestrians between east Morgantown's Mileground and central campus.*

The author refined the master plan repeatedly through collaborative dialogue and regular meetings with a broad range of policymakers and stakeholders. Organizational change researchers (Stouten, Rousseau and De Cramer 2018: 776) found, "Change agent efficacy derives not only from personal skills but also from the network ties the individual has." The informal style of engaging stakeholders paralleled the community-driven design model recommended by Hou & Rios, who state (2003: 20):

"communities are developing both approaches that necessitate new relationships between different sectors and forms of decision making that are more collaborative and informal in nature... These changing relationships and conditions reaffirm the understanding of city as both a physical space and an expression of social relations."

Falling Run's master plan document added transparency and provided a record of the many planning conversations across administrative units, and was crucial in advocating for the continuation of the project. In Spring 2016, the two Deans agreed to continue to pursue the project and WVU's Vice President of Finance allocated \$140,700 for construction – approved by the University Planning Commission.

Networking relationships, as well as the City's permission to utilize unbuilt rights of way ("paper streets"), were key to building several of the Falling Run trails, as paper streets connected WVU property to surrounding neighborhoods. In February 2017, the Campus Neighborhoods Revitalization Corporation

voted unanimously to support the development of city paper streets in the Falling Run hollow as trails, supported by the advocacy of the Mayor and City Manager, and the necessary legal agreements between the University and City were prepared. Mayor Jenny Selin expressed support for the Falling Run Master Plan, stating the author “and her students provide practical, well-thought data and landscape plans that help communities use their public space in an elegant way” (Luna, 2017). The Falling Run Master Plan proposed schematic designs for trails and bridges, with limits of disturbances, estimated total construction costs, proposed phasing, restoration strategies, and a planting palette of suitable native species. In late 2015, West Virginia Botanic Gardens launched a \$50,000 fundraiser to support their own initial master plan, demonstrating local market cost of a similar effort.

At Falling Run, “The development of the large scale plan, along with community input, was essential in creating a vision and energy around the effort,” according to Judith Wasserman, Director of the School of Design and Community Development (letter, November 2016).

Time-keeping records suggest an ongoing need for a designated ‘change driver’ for similar greenspace master planning projects. As the design lead, the author dedicated 1,414 hours to Falling Run’s master planning and early implementation from April 2014 to May 2017.

This was double the time funded by the Deans, but about fifth of the total time dedicated by others during the same interval (see Figure 3). This demonstrates how the time investment of a ‘change driver’ can catalyze civic service, and yet also how “collaboration, community outreach, and coordination... translate into additional time, energy, and cost” (Hou & Rios 2003: 26). Much of the design lead’s time on the project went toward “sustaining the momentum of change implementation” (Whelan-Berry & Somerville (2010: 179). Phasing became an iterative master planning process; volunteer trail building crews worked much faster than the Steering Committee had anticipated, leading to several updates to phasing plans and construction documents required for obtaining permits. A part-time volunteer coordinator and a designated project manager provided construction management, and regular construction meetings continued for the Steering Committee into late 2018.

4.2 Landscape Architecture Student Contributions and Outcomes

Students’ course-based service-learning projects contributing to Falling Run’s master planning were tailored to fit their course curricula; some of the larger analytical tasks (like a tree canopy survey) spanned several cohorts of students. Students were involved in the project in at least two courses over two semesters, from Fall 2014 to Fall 2018, and as third-year undergraduate or as graduate students:

LARC 350: *Landscape Architecture Design II*

- diagrammed steep slopes, aspect and other site analysis factors (using GIS)

LARC 360: *Natural Systems Design* and LARC 593c: *Environmental Design Studio*

- identified scenic views and other key destinations for trail network
- contributed to a survey of tree canopy dominants
- surveyed baseline understory vegetation with plots
- prepared preliminary vegetation restoration plans and invasive species management strategies
- began removing invasive shrubs from the understory
- began restoration planting, reintroducing a broader range native shrubs and trees in canopy gaps
- monitored the stream and ongoing restoration plantings after construction disturbance

LARC 331: *Landscape Architectural Construction II* / LARC 531: *Construction: Materials, Methods and Stormwater Management*

- calculated peak stormwater runoff volumes to determine suitable bridge heights and locations
- helped flag trails at Falling Run, measuring slope and making field adjustments
- surveying peers’ commuting patterns (with travel time, and preferred mode)

In all, 112 landscape architecture students contributed an estimated 2,280 hours to Falling Run through course-based service learning in the author’s classes from Spring 2014 – Fall 2018. (This estimate is based on a review of assignments’ value to course grade.) In Fall 2014, nineteen of these students also worked on the GIS site analysis of Falling Run, contributing around 380 hours. Course-based service learning projects for Falling Run were not limited to landscape architecture majors; students in other classes conducted environmental assessments, surveyed park perceptions, and contributed to building trails.

Winterbottom (2002) evaluated success of design-build studios through comparing responses in student evaluation surveys to goals outlined by eight landscape architecture program chairs. That service-learning was effective for learning, in the author’s courses which were most involved in Falling Run, is indicated by responses collected during regular student evaluations. Survey questions varied from year to year, and were designed to evaluate instructors; however, three questions measured course learning outcomes.

In Fall 2015 for LARC 360, 86% of students (n=12) responded to the question “*I learned more in this course than in similar courses*”, giving a mean rating of 4.56 (where 5 = always, 4 = frequently, 3 = usually, 2 = seldom, 1 = rarely). The question “*This course helped me develop new skills / gave me skills that will be directly applicable to my career*” earned a mean rating of 4.61 in three courses (LARC 360 and LARC 331, n=64, same scale as above). The results for an overall learning outcomes question, consistently included on student evaluations for lectures and labs, are provided in Table 2. In these courses, on average 29% of the course grade was based on service learning assignments. Results suggest positive learning outcomes in these courses.

Table 2. Students’ ratings of overall learning (n=237); data from author’s student evaluations. Percent of course grade based on service-learning is drawn from author’s review of assignments. Overall, my learning in this course was: / I would rate my learning in this course as:” (5 = excellent, 4 = good, 3 = satisfactory, 2 = fair, 1 = poor),

	Fall (LARC 360)					Spring (LARC 331/593c)				
	2013	2014	2015	2016	2017	2014	2015	2016	2017	2018
response rate	79%	82%	86%	21%*	95%	90%	83%	59%	79%	84%
mean rating	4.06	4.77	4.59	4.17	3.67	4.47	4.18	4.63	3.95	4.00
Assignments:										
Svc. learning**	0%	35%	24%	33%	29%	22%	32%	36%	30%	34%
Falling Run	0%	20%	14%	2%	0%	13%	23%	13%	5%	4%

*The low response rate in Fall 2016 was due to switch to electronic evaluations.

** Courses included other service learning projects, in addition to Falling Run.

4.3 Volunteer Training and Recruitment

In August 2016, volunteer involvement at Falling Run began with an intense push of 2,103 volunteer hours and 495 (about 10% of) incoming freshman volunteers during Welcome Week (see Table 4). Equipment was donated (tools from Adventure WV and hard hats from Lowe’s). To facilitate access to tools, crews stored equipment on site in a locked trailer borrowed from Adventure WV. University facilities staff cleared and gravel-paved a former access road in July of 2016, to provide vehicular access and a gathering area for up to 200 volunteers at once.

One potential obstacle to implementation identified early by the Steering Committee was the challenge of supervising so many untrained volunteers at the same time. We recruited four experienced trail crew leaders willing to conduct trail crew safety training sessions during Summer 2016, in advance of Welcome Week. These crew leaders in turn trained 48 new crew leaders over multiple training sessions during that summer (see Figure 3) -- communicating how to build trails, and especially how to keep crews safe (safe distances between trail crew members, required safety equipment, and potential hazards). Crew leader training sessions lasted about three hours, during which novice crews built sections of trail at Falling Run to gain comfort with the tools and safety procedures. Crew leaders then discussed these same safety guidelines with their crews before each trail-building shift.

Of the August 2016 trail crew leaders (n=48), 16 participants (33%) were recruited from the landscape architecture program, including fourteen LARC students and two LARC faculty. Only 0.36% of all WVU-Morgantown students were landscape architecture majors in 2016, but LARC majors led 34.8% of Falling Run trail crews in Fall 2016 (see Table 5). The active participation of landscape architecture students shows the efficacy of course-based service learning projects for promoting civic engagement and an interest in leadership. Women students were particularly involved. In Fall 2016, 31 students were female landscape architecture majors, undergraduate or graduate, at WVU-Morgantown (0.10% of the student body), but female LARC majors led 15.2% of Falling Run trail crews from August to November 2016. This

project thus offered important leadership opportunities to women studying landscape architecture.

Many trail crew leaders served on the Greenspace Committee or Steering Committee during the planning process, or were interested members of the community. A substitute teacher for Eastwood Elementary School led eleven trail crews in the first three months, to benefit her own students by improving access to the WVU Organic Farm and Falling Run woods (personal communication, August 2016). During Welcome Week 2016, the design lead, project coordinator, and volunteer coordinator worked to help orient, support and direct trail crews as needed. Crews of three to eleven students worked under crew leaders to clear brush and build trails; most crew leaders led crews during multiple shifts to keep crews small and effectively supervised.

WVU's Greek Community of sororities and fraternities has its own service requirements, and the Volunteer Coordinator successfully recruited many Greek participants during the school year. By February 2018, crew leaders had led an additional 138 crew shifts, bringing total hours at that time to 4,693 (see Table 4).

Table 4. Volunteer involvement during trail construction at Falling Run Greenspace. Data from Falling Run Volunteer Coordinator Kate Bolyard (February 2018); used with permission.

	Crew leaders		Crew members		Running total
	Shifts	Hours	Shifts	Hours	Hours
Aug-16	103	618.0	495	1485.0	2103.0
Dec-16	50	151.0	232	669.0	2923.0
Apr-17	37	111.0	216	648.0	3682.0
Jul-17	9	20.3	34	76.5	3778.8
Aug-17	9	31.5	41	123.0	3933.3
Dec-17	31	94.0	193	586.0	4613.3
Feb-18	2	41.0	13	39.0	4693.3
<i>totals:</i>		1066.8		3626.5	

Over time, crews continued to involve a mixture of students, faculty, staff and community participants, further building university-community partnerships. Trail construction at Falling Run is ongoing; in the first two weeks of the Fall 2018 semester, over 100 volunteers signed up for trail-building shifts (personal communication, second Falling Run Volunteer Coordinator Travis Rawson, September 2018).

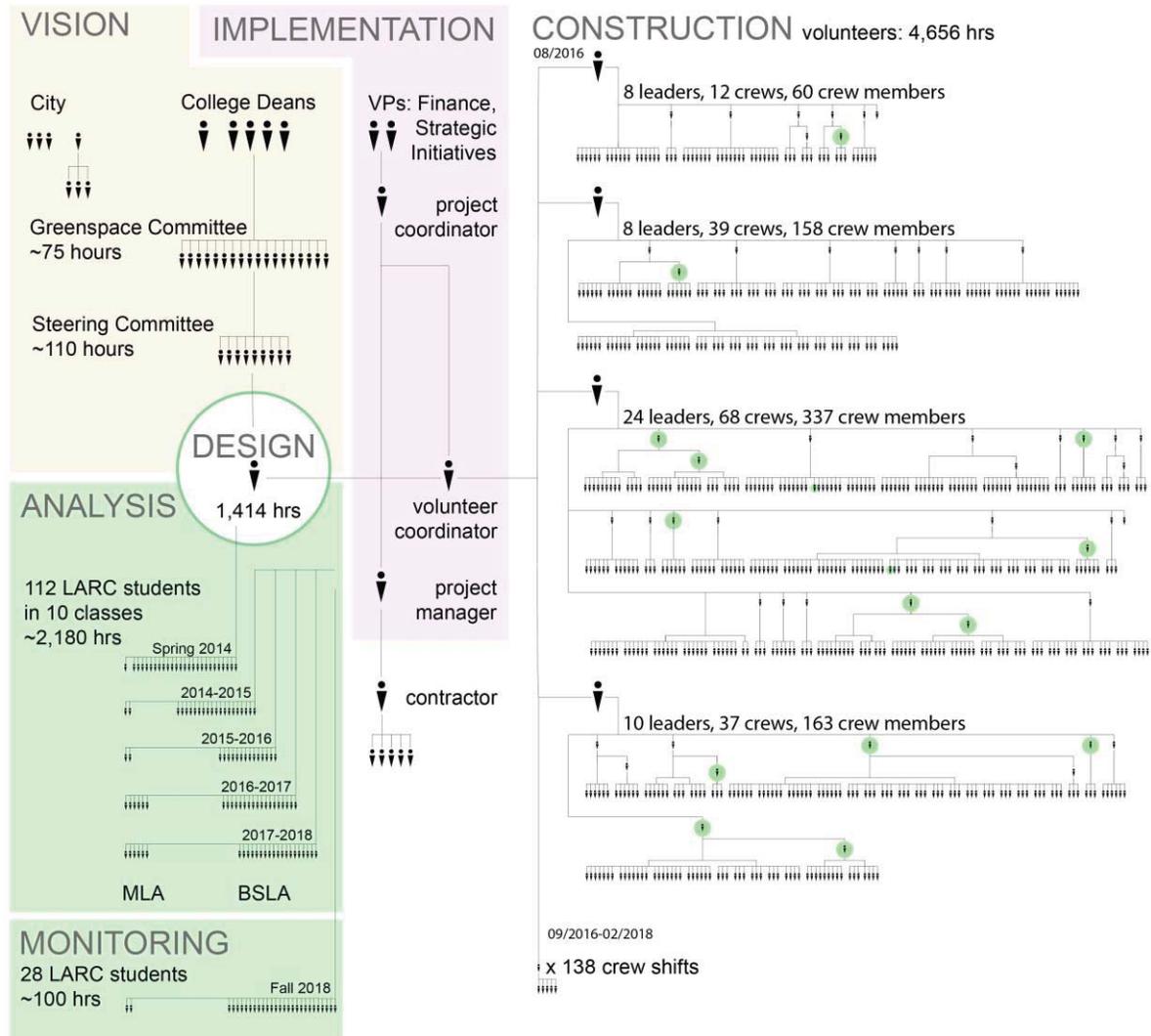


Figure 3. Falling Run’s implementation hinged on the leadership of key individuals. Green highlights the landscape architecture program’s involvement during site analysis and master planning, and as volunteer crew leaders during trail construction. Diagram by author

Table 5. Demographics of crew leadership during trail construction in Fall 2016 at Falling Run. Data for leaders of 158 trail crews, based on Volunteer Coordinator’s rosters (November 2016); used with permission.

Crews led by:	Aug. (#)	Aug. (%)	Sept. (#)	Sept. (%)	Oct. (#)	Oct. (%)	Nov. (#)	Nov. (%)	2016
male	84	77%	11	73%	13	68%	8	53%	73.4%
female	25	23%	4	27%	6	32%	7	47%	26.6%
LARC students	33	30%	4	27%	11	58%	7	47%	34.8%
LARC female	13	12%	3	20%	3	16%	5	33%	15.2%
LARC male	20	18%	1	7%	8	42%	2	13%	19.6%
<i># crews total</i>	<i>109</i>		<i>15</i>		<i>19</i>		<i>15</i>		

4.4 Community Benefits and Enhanced Partnerships

4.4.1 Benefits for Student Volunteers

Previous research suggests that projects like Falling Run would be likely to have several types of positive outcomes for students, whether they were involved in implementation and trail building or the project planning process. Students reflected on the benefits of service learning in press interviews. The development of the Falling Run Greenspace generated 23 news stories after the official opening and ribbon-cutting ceremony in April 2017. One Associated Press article (May 2, 2017) covering the opening ran in thirteen outlets and four states. The involvement of the University's public relations staff was key in generating the considerable volume of positive press, which attracted public attention to Falling Run Greenspace as a new community asset.

Nine colleges within West Virginia University require service as part of coursework for majors, part of a larger initiative to build a 'culture of service' at WVU. West Virginia University encourages service learning in four categories, according to the Academic Service Learning Coordinator Lindsey Rhineheart (2018 bulletin): 1) individual / group service learning projects fit within course objectives; 2) action projects solve a specific community problem; 3) for instructor-led projects, the entire class works with a community partner; 4) for civic engagement, students are involved in community service at a broader scale. Falling Run Greenspace engaged students in service learning at all of these scales, to some extent, but particularly at the broader scales (entire classes, civic engagement).

The Falling Run Volunteer Coordinator Kate Bolyard said in an interview (*Connect Bridgeport News* 2017): "[Volunteers] will be able to come back 25 years from now and tell their kids that they helped build these trails." Local TV news captured the pitch of volunteer energy from regular crew leader and landscape architecture student, Morgan Southall (Valente, 2017):

"It's completely different when you see the trails built out and you see people using it, and they're bringing their dogs and kids through, and you're like 'this is a place and I helped make it, and it's so cool!"

In late 2016, I asked the fourteen landscape architecture majors who had volunteered as trail crew leaders in August 2016 to provide a short statement answering two questions, 'What motivated you to volunteer your time outside class to lead trail crews at Falling Run?' and 'What benefits did volunteering at Falling Run provide to you, personally?' Of this group, five responded, providing statements describing their experience that were included in the *Falling Run Greenspace Master Plan*; several mention place-making, or connection to the outdoors.

"It's a really... satisfying experience to be able to be involved in a project where you work through the issues theoretically, and then physically help bring that project to life, and see it have such a positive impact on the local community and environment. This is something that will be here for years and years to come... I helped create this opportunity for people and for the species that call this place home. I had an impact on this environment for the better."

"Working with freshman students was the most enjoyable experience for me... All of them had an incredible sense of accomplishment in the fact that they played a role in improving the community.... It will be great to see the final outcome of the project and be able to tell people I was involved in the first stages."

"What motivated me to volunteer was mostly the fact that I love the outdoors... this directly pertained to the kind of work I want to do after I graduate (stormwater management, erosion control, safe circulation, etc)."

"An opportunity to spend more time outdoors motivated me. Volunteering at Falling Run bonded me to that place, I have more connection and personal memories in Falling Run."

"[Falling Run] has been one of the most rewarding projects I have encountered while in the program at WVU... Being a part of project like this has truly made my time in this program one of a kind."

Building connections to community and nature are other themes that emerged in other interviews as well. The Director of the School of Design and Community Development Judith Wasserman observed, “This work and commitment goes well beyond the classroom, and stretches far into the community” (letter, November 2016). Project Coordinator Julie Robison stated in an interview for a WVU Davis College Newsletter article (Willey, 2017):

“When all is said and done, this will be a place where you can really go and get away and experience a very pristine nature close to campus. I think that all people need that. They need to be rejuvenated by nature, and this will be a beautiful place for that...”

A graduate student in landscape architecture, Arathy Gowda, made Falling Run the topic of her (2017) capstone project. Gowda interviewed several volunteers among trail crews and found being introduced to West Virginia’s ‘wild and wonderful’ terrain through the directed activity of trail crew participation was sometimes transformative, providing a whole new experience of nature – particularly for international students from dense urban areas. For example, she interviewed a student from Bahrain, who said, before his experience of volunteering:

“I would not go to Falling Run to walk on the trail. My friend asked me to volunteer for trail building, and I agreed. I was not expecting to like being out here. After spending all morning building trail, I feel more connected to this place. I would like to come back.”

The WVU Service Learning Operations Coordinator Leah Cunningham observed that service connected incoming freshman to Morgantown (WVU Today, 2016):

“By doing service, we’re exposing them to the larger Morgantown community very early on, so that they take ownership... they feel they’re not only a West Virginian and a Mountaineer, but they’re a Morgantown resident as well.”

In his statement during Falling Run’s ribbon-cutting ceremony, the student body vice president Blake Humphrey emphasized the project’s contribution to developing a more cohesive university and a collaborative relationship with the community (LeRose 2017):

“One thing that struck me about this is it is a legacy project for WVU... This is going to be something that, not only students, but community members can benefit from... I think that the collaborative aspect of this — the fact of working in teams, coming up with solutions, producing a product — that is really the heart of ONE West Virginia University.”

4.4.2 Recognitions of Service

In researching ‘genuine participation,’ Segalowitz and Chamorra-Koc found “intrinsic motivation, participation self-efficacy and positive group effect can serve as reliable metrics for measuring the quality of participation experience.” (2019, p. 199). One measure of opportunities for ‘genuine participation’ during Falling Run’s design and implementation is awards; several key individuals were recognized for their leadership and service. Landscape architecture student Morgan Southall was recognized with the President’s Volunteer Service Award after leading thirteen trail crews in three months. Another landscape architecture major, Dan Wilson, led eleven crews in six months and was recognized with WVU’s Student Award for Excellence in Civic Engagement. The Falling Run Volunteer Coordinator Kate Bolyard, a master’s student in Health Sciences, was likewise recognized by WVU with the Kenneth Gray Leadership Award for student engagement. The author was recognized by the Davis College School of Design and Community Development Outstanding Service Award twice (2016, 2017), and by the Council of Educators in Landscape Architecture (CELA) Service Learning Award, Junior Level (2017).

4.4.3 Benefits to the Landscape Architecture Program

Program Chair Charlie Yuill called attention to the benefits of service learning for the Landscape Architecture Program, in terms of visibility and engagement (letter, November 2016):

“This visibility has taken many forms, including project specific community engagements working with stakeholder groups, student involvements from throughout the University, and in the case of the Falling Run project multi-college cooperation and collaborations. These engagements have been... acknowledged in various University and Community media outlets... [contributing to] the Program’s continuing commitment to service learning and civic engagement – particularly within the context of the landscape of the Central Appalachians.”

4.4.4 Benefits to Greenspace and Accessibility

Offering Falling Run trail-building as a service opportunity during Welcome Week 2016 assured greenspace a position in WVU’s growing ‘culture of service’. According to the Service and Learning Center, WVU students recorded 10,236 service hours in the Spring 2017 semester. Of these hours, only 6% were at Falling Run Greenspace, demonstrating the scale of students’ service contributions within the community.

The volunteer effort at Falling Run Greenspace inspired WVU’s Core Arboretum director Zach Fowler to engage volunteers more actively; volunteers logged over 1,000 hours at the Arboretum in 2017, mostly during ‘Workday Wednesdays’ (personal communication, December 2017). The WVU Organic Farm adjacent to Falling Run now offers Volunteer Tuesdays. Various organizations have borrowed Falling Run’s trail crew tool trailer (stocked to equip 200 volunteers at once) to construct trails; there were fifteen such trail projects around Morgantown during Welcome Week of 2017. In 2018, Morgantown’s Board of Parks and Recreation (BOPARC) began to consider expanding volunteer opportunities at parks near campus.

As of September 2018, Falling Run’s 2.7 miles of built trail averaged 7.5% slope despite the site’s steep topography. The primary trail was graded in at 5% to meet Americans with Disabilities Act (ADA) standards, providing universal access to the site’s key features (stream and falls). Secondary trails at Falling Run typically feature a 10% maximum longitudinal slope, except where they utilize historic logging roads. In contrast, trails at the 91-acre WVU Core Arboretum present barriers for universal access, with maximum slopes over 22% on the easiest trail connection to the Rail-Trail, and with stretches on Cliff Trail exceeding 59% (Falling Run Master Plan, 2018). Falling Run’s gently sloped trails provide access to recreation and urban woods for people of all mobility levels. West Virginia Land Trust’s Rick Landenberger applauded Falling Run’s inclusivity, calling the work of the author and students “precisely the type of efforts we so desperately need in West Virginia, where safe, easy access to public outdoor recreation is limited” (letter of support, November 2016). Falling Run is significant because few central urban woodland parks are being established today, and few parks in the steep terrain of West Virginia feature accessible trails.

4.4.5 Enhanced University-Community Partnerships

Falling Run is a ‘legacy project’ not only for generating civic engagement, and improving greenway connectivity and universal greenspace access in Morgantown, but also for contributing to the connectivity of key players in Morgantown’s planning. The successful implementation of the project resulted from ‘buy-in’ from key players at critical steps of the master planning process. At Falling Run, this stage epitomized an inclusive community-driven design process; ongoing dialogue with stakeholders informed decisions at multiple stages.

Networking during Falling Run has contributed to several additional community and university greenspace projects. The author and her students in Spring 2018 began working with the Core Arboretum director on an analysis for preliminary master planning at Core Arboretum, which was established in 1948, but has never had a master plan. Landscape architecture students took the lead, conducting site analysis, participating in design charettes with alumni, and interfacing with the public and press. Landscape architecture students’ 2016 course-based contributions to public greenspace planning helped West Virginia Land Trust win over \$125,000 for Guyandotte River Trail access points. North of Morgantown, Star City’s riverfront revitalization stakeholder charettes, public meetings, and grant applications were similarly bolstered by LARC students’ work in 2018.

5 LESSONS LEARNED

Field learning or experiential learning is essential for landscape architecture students. At Falling Run, field learning offered LARC students opportunities to provide feedback and suggest changes to proposed trails and wayfinding, involving them directly in the design process (see Figure 4) – consistent with service learning efforts at other universities (Winterbottom, 2002).

Service-learning based greenspace master planning offers opportunities for leadership that augment students' learning outcomes. The role of a professor is to guide students in the design process, even if the scale of the project requires multiple semesters and the input of several cohorts of students -- rather than attempt to single-handedly catalyze the larger design process.

Recommendations for similar service-learning projects are as follows:

- Accept a longer time frame for the master planning process. To leverage student effort in design-build work, the design process may need to span multiple semesters.

- Let students benefit from tackling separate portions of a master plan in different classes, to keep service-learning projects closely tied to curricula and course objectives.



Figure 4: Students measuring slope (with a clinometer) while flagging trails at Falling Run in 2016 compared to the nearly the same area as built in Sept. 2018. Photographs by author; students completed a media release.

6 CONCLUSION

Falling Run Greenspace has the potential to become Morgantown's central park, as well as an educational complement to WVU Core Arboretum. This paper outlined how, for landscape architecture faculty with a background of professional practice, Falling Run's community-driven design and volunteer-based implementation required a different process of practice, inasmuch as the design lead had to serve as the 'change driver' to keep the project's momentum going, as well as to advocate for the vision that change was needed. According to organizational change theorists Whelan-Berry & Somerville (2010: 177), "there are change drivers that facilitate the implementation of change... [and] drivers of the necessity for a change." The key element throughout Falling Run's master planning and implementation was effective social mobilization. The community-driven design process used in this project required considerable time for networking, by the landscape architecture faculty design lead for the project. While administration supported 705 faculty hours specifically for the project's master planning from 2014 to 2017, the project's design and early implementation required more than twice that amount of time. Organizational research has found that successful change requires an effort to "work with social networks and tap their influence" (Stouten, Rousseau and De Cramer 2018, p. 776).

Landscape architecture students developed important field skills through direct experience with planning and restoration work at Falling Run, with assignments involving ecological restoration, stormwater calculations, bridge siting, and analysis of commuting patterns. Students further developed skills in native plant identification, invasive species management, and working with topographic slopes to minimize disturbance. The active participation of Landscape Architecture students as trail crew leaders shows the efficacy of course-based service learning projects for promoting civic engagement. Service-

learning coursework gave landscape architecture students an investment in the greenspace before construction began.

Intense volunteer involvement and student design work further contributed to the cultural sustainability of the project and civic engagement. The mobilization of incoming freshman volunteers in small trail crews during of Welcome Week in August 2016 set a powerful precedent for civic engagement of the WVU student body, initiating the framework for rapid implementation of additional greenspace planning projects in Morgantown.

The sense of ownership fostered by volunteer and student involvement at Falling Run is a legacy for Morgantown and West Virginia University: Falling Run created its own stewards through the energy of thousands of volunteer hours during the project's first years of implementation, further strengthening university and community relationships. As Shandas and Messer found in Portland (2008, p. 416), "By taking part in stewardship, community members can begin to reestablish the connection between their actions and the health of the environment."

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