



BALTIMORE URBAN FORESTRY WORKFORCE TRAINING PROGRAM

A post assessment review of this summer's workforce pilot program

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Hixon Fellowship Paper

Background

This past summer while working under the supervision of the United States Forest Service (USFS) and in conjunction with the Stillmeadow Community Fellowship church in Baltimore, MD, United States, I supervised an eight-week pilot Urban Forestry Workforce training program. Located in the southwestern



Figure 1 - Stillmeadow Community fellowship on a Sunday Morning before service

corner of Baltimore County (see Figure 2), Stillmeadow is a tight knit congregation headed by Pastor Michael Martin, who has a passion for fostering connections between community members regardless of faith. To this end, Stillmeadow has ~10 acres of urban forest land that Pastor Michael is working towards turning into a Peace Park for recreation, education, expressions of faith, and the development of a community stewardship ethic. To achieve this, the church is partnered with the USFS, the Smithsonian, the University of Delaware, and various Baltimore based greenspace groups.

The goal of this program was to provide interested young adults between the ages of 19 and 26 years old, with hands on training and work experience in skills relevant to the field of Urban Forestry as well as general networking and workplace conduct skills. The trainees were all young men from the Washington D.C., Maryland, and Virginia (DMV) area, and came into the program with greenspace work experience ranging from no experience at all to some trail and tree maintenance. As for educational background, the trainees ranged from current enrolled

rising sophomore students and incoming first-year student to students who had begun college at the beginning of the pandemic in 2020 but stopped due to different life events not within their control. Adding to this variety in educational backgrounds, the trainees began the program with a mix in work experiences ranging from music production to nursing home health aides, with several of them maintaining their other jobs throughout the duration of the training. At the end of this program, it was our goal for each trainee to stand out as candidates for green space and urban forestry positions in and around Baltimore or for them to pursue undergraduate and advanced degrees in forestry, environmental management, or environmental communication.

Stillmeadow Location

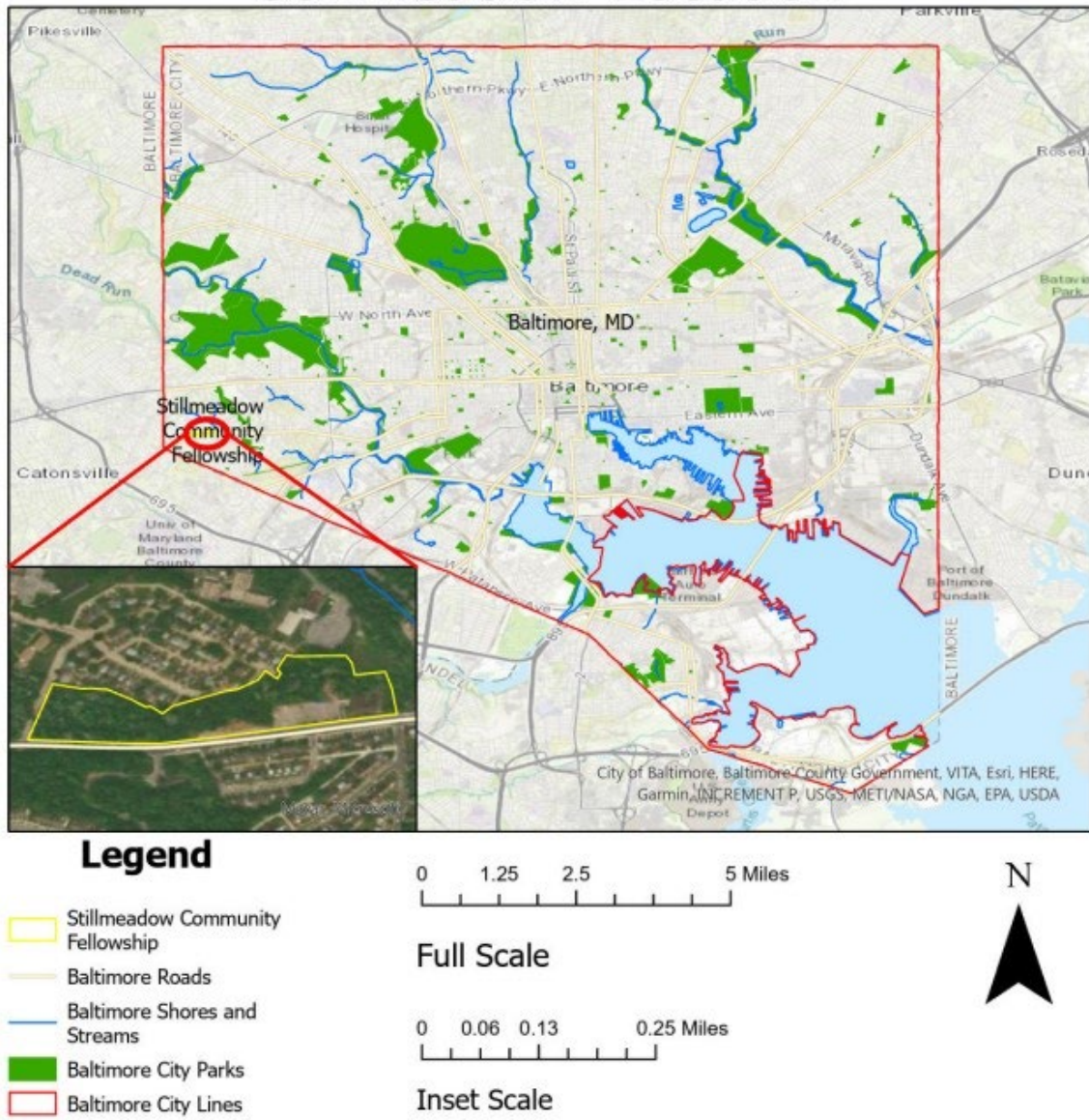


Figure 2 - Map displaying the City of Baltimore with an inset showing the Location of Stillmeadow Community Fellowship Church

Table 1 - Outline of the coursework and training modules administered to trainees during this program

Course outline		
Week	Module	Goals
1	Intro to urban Forestry, Outlining program goals	Introduce trainees to why we do this work and what roles trees, forests, and ecosystem services mean for urban areas
2	Plant Identification, Urban Forest Health, and Threats (Social and Ecological)	Teach trainees basic plant identification to trainees via reading dichotomous keys and using apps like iNaturalist. Introducing biological and threats to trainees such as invasive pests and opposition to tree planting from residents and politicians
3	Planting and Pruning	Walking trainees through how to plant and care for street trees with Baltimore Tree Trust and Tree Baltimore
4	Social needs and challenges	What do communities gain from having access to green spaces and increasing the Urban canopy around them
5	Tree Measurements	How do we measure trees? What are the tools used and units of measurement? Trainees are instructed in the proper use of clinometers, calipers, Biltmore sticks, and dbh tape
6	Orienteering	Trainees will learn how to use compasses to identify cardinal directions and create rudimentary maps by hand
7	Urban Forest Measurements	How do we research urban forests, what is that data used for, and who does it benefit?
8	Forests are more than trees	Trainees learn about soil identification and measurements as well as insect identification

Daily Programming

Stillmeadow Research Plots

Over the course of the program, trainees primarily worked on urban forestry management and research projects centered in and around Stillmeadow Community Fellowship. This included the maintenance of five urban forest regeneration plots with planted willow (*Salix* spp.) and poplar (*Populus*) trees spread across

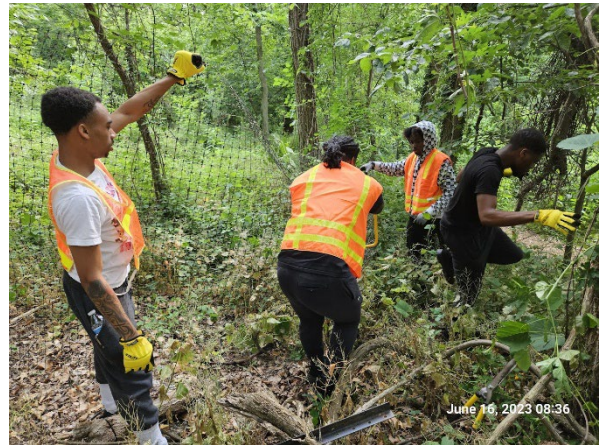


Figure 3 - Trainees removing old and damaged fencing at Stillmeadow

the church’s land. In and around these plots, the trainees were responsible for replacing the existing deer fencing, cutting back overgrown ground story vines and shrubs weighing down the fencing, and cataloging survivorship rates under the supervision of researchers Drs. Max Piana, Nancy Sonti, Rich Hallet, Tara Trammell, and Morgan Grove. Work in these plots was conducted for the duration of the summer in addition to training in tool usage and basic forest ecology. These plots were maintained with the goal of improving their longevity through the installation of high-tension wire deer fencing and cutting back overgrown trail edges. The skills that our trainees received direction and training in, included but were not limited to:

Table 2 - Skills developed during the pilot program

Forestry and Ecological Management Skills	Professional Development Skills
Plant Identification	Canvassing
Street Tree Pruning	Community engagement and outreach
Trail Maintenance	Career advancement
Deer Fence Construction	Resume Building
Insect Identification	Workplace Communication

Forestry and Ecological Management Skills	Professional Development Skills
Tree Felling	Workplace conduct and responsibility
Tree Removal	CPR and Emergency Response Training
Street Tree Planting	CERT (Community Emergency Response Teams) Training
Handsaw usage	Personal and Professional Conflict Resolution
Chainsaw Operation	
Ecological Data collection	

Cylburn Arboretum

The daily work at Stillmeadow was complemented by frequent collaborations and trainings with community partners around Baltimore who were invested in the professional development of our trainees and the future success of this pilot program. One of our frequent partners throughout the summer was the Cylburn Arboretum.



Figure 4 - Brent Figlestahler providing the trainees, Dr. Nancy Sontini, and myself with a tour of Cylburn's Gardens

Cylburn is a 200 acre arboretum (a botanical collection where trees and various plant species are



Figure 5 - Trainees Installing Marker Stakes at Cylburn Arboretum

grown for the purpose of research and education) and educational center that is part of the Baltimore City Park system. Although Cylburn is a part of the city park system it has no athletic fields or recreation fixtures beyond garden and forest trails. Boasting a collection of 2000 woody plants, eleven curated gardens, and

ten interconnected trails throughout the property, Cylburn served as amazing compliment to the program's horticultural training. When working at Cylburn our primary point of contact was the arboretum's head gardener Brent Figlestahler, who provided the trainees with some training in plant identification, tool usage, and the removal of non-native invasive species. Within Cylburn is one of several long-term research plots focused on collecting data about the survivorship rates of white and chestnut oak trees from different regions of the United States in response to climate change (see Figure 5). The trainees and I were responsible to the maintenance of this research plot via de-vining the fencing, the removal of non-native invasives growing around the saplings, watering each sapling, and applying mulch around each sapling to increase moisture retention and reduce the volume of non-native invasives growing around them. This was repeated as needed throughout the summer as necessary or as scheduling permitted until the last week of the program.

Certifications and Training

Early in the program, the trainees completed several training modules that rewarded them with certifications relevant to greenspace related jobs that could be added to their resumes. These programs were selected given their focus on practical and experiential learning that our trainees could immediately practice seeing how the skill could be applied in realistic, non-ideal settings. A list of the certifications and partner organizations are included in the following table.

Table 3 - Organizations and Certifications

Certification	Organization	Description
Baltimore Weed Warriors	Tree Baltimore	A city-wide program with the goal of maintaining the health of Baltimore's urban forests, with certified

Certification	Organization	Description
		trainees being recognized as environmental stewards trained in non-native invasive plant removal
Tree Keepers	Tree Baltimore	A city-wide program open to anyone interested in advocating and caring for Baltimore’s trees
CPR	Kaynat Health Solutions as approved by the American Red Cross	Basic training in CPR (cardiopulmonary resuscitation) and emergency bystander response
CERT	FEMA	CERT or Community Emergency Response Team training teaches volunteers about the hazards and dangers that can occur in their region then provides them with an organizational framework of harm reduction in disaster events.
Turnaround Tuesday Employment Preparedness	Turnaround Tuesday	Turnaround Tuesday is a Baltimore based non-profit organization focused on training young adults on how to positively conduct themselves in workplace settings and connecting participants with community resources and
*No Certification Associated	Baltimore Greenspace	Baltimore Greenspace is a non-profit organization focused on bringing community gardeners and stakeholders together via programing centered

Certification	Organization	Description
		around urban forestry, wildlife ecology, greenspace revitalization, environmental education, invasive species mitigation, and trail maintenance. Trainees gained experience with canvassing and tabling for events
*No Certification Associated	Stihl Forestry Company	Trainees were guided and trained in the safe usage and operation of chainsaws and power tools by representatives from Stihl



Figure 6 - Trainees being instructed on the operation of heavy machinery and lumber processing at Camp Small by Maurice Ashby (green shirt) of Tree Baltimore and Camp Small

In each of these programs, the trainees were provided with practical experiential learning opportunities that not only expanding their understand of urban ecology but also their ability to learn, work, and adapt to unfamiliar and non-ideal circumstances while still using pertinent best management practices. Non-

ideal workplace circumstances can be defined as factors outside of the individual’s or team’s control such as inclement weather, unforeseen tool complications, and managing the needs and wants of multiple stakeholders. It must be added that non-ideal circumstances do not refer to avoidable workplace hazards and ignoring the accommodations of employees.

Turnaround Tuesday

This focus on adapting to non-ideal work situations served the purpose of fostering a solution-oriented mindset rather than focusing on any obstacles or stalls they will encounter in their careers. To achieve workplace readiness, the trainees took part in Turnaround Tuesdays weekly sessions on job



Figure 7 – The trainees and community members attending a Turnaround Tuesday session at Stillmeadow Community Fellowship

preparedness (see Figure 7). These sessions focused on resume building, civic engagement, and career advancement for individuals who have been out of the workforce for some time due to life circumstances such as incarceration and substance abuse or for young adults entering the workforce for the first time. Initially some of the trainees did not see the value in Turnaround Tuesday sessions, and it took them some time to both understand and put into practice the skills they were learning. However, in my observation all five trainees had become much more adept at self-regulation, achieving personal & workplace goals, and holding each other accountable in a respectful manor by the end of the summer. In our conversations at the end of the program, trainees reflected on what they gained from attending the turnaround Tuesday sessions and they described it as a great component of the program which, served the following roles:

- 1) Teaching them patience in adverse situations
- 2) Served as a therapeutic escape from the stressed of their everyday lives via the small group discussions and life coach speakers
- 3) Provided them with practical conflict resolution skills that they were able to apply to their everyday lives and relationships

With the trainees growing to see the value in Turnaround Tuesday for their own personal and professional development, and my own observations of trainees becoming more mature and independent over the course of the program, I would recommend it remain as a long-term partnership with our program.

Community and Urban Forestry Training

Looking at more of their applied urban forestry training, working with groups such as Baltimore Tree Trust, Tree Baltimore, and Baltimore Greenspace, the trainees gained direct experience with the reality of urban greenspace and forest management. Beginning with their Weed Warriors certification, the trainees received a hybrid training in non-native invasive species identification and management (see **Error! Reference source not found.**). Lead by urban foresters with the Baltimore City parks Department on site at Stillmeadow, trainees were shown how to identify common invasive species such as tree of heaven (*Ailanthus altissima*), porcelain berry (*Ampelopsis brevipedunculata*), and Bittersweet (*Celastrus orbiculatus*) and how to effectively remove them through uprooting or using window cuts (cutting upper and lower segments of the vine, leaving a “window” like gap in the vine) on vines.

In their Tree Keepers certification training, the trainees were walked through how to care for a street tree at every stage of its life, starting at the nursery and ending at the safe removal of snags (standing dead trees). This weeklong training took place across Baltimore and had the trainees interacting with facets of their community that they had previously never given much thought to. For the trainees, this was great for framing the actual duties of urban foresters and what they could expect if this is a career they choose to pursue after the completion of the program. This ranged from collaborating with community stakeholders who were happy to see

and interact with people planting trees to stakeholders who may not be excited to see a tree being planted near their parked car.

With the removal of standing dead trees, the trainees even had the opportunity to gain some experience through Camp Small's work in turning snags into artisan timber. Located in central



Figure 8 - Megan Carr, urban forester with the Baltimore Parks department, leading the classroom segment of Weed Warriors in Stillmeadow's Oasis room

Baltimore, Camp Small is as a zero-waste initiative under the Baltimore City department of Recreation and Parks, focused on processing downed and removed park & street trees that would have otherwise been turned into woodchips and composted. Some of the products they produce include: firewood, mulch, compost, furniture, lumber, raised garden beds, and play spaces for parks and individual families. Through Camp Small, the trainees had an opportunity to operate some of the machinery used to process a whole log into benches and lumber boards (see Figure



Figure 9 - Stihl representative guiding a trainee in the safe operation of a gas-powered chainsaw

6). In a similar vein, through the working relationship with Dr. Rich Hallet, we were able to have a chainsaw training seminar with the Stihl forestry equipment company. Two representatives came out to Stillmeadow and held a daylong safety and operations training for the trainees and other interested community members (see **Error! Reference source not found.**).

Finally, the trainees worked frequently with Baltimore Greenspace (BGS), a non-profit organization within the city

focused on bringing community gardeners and stakeholders together via organizing programming centered around urban forestry, wildlife ecology, greenspace revitalization, environmental education, invasive species mitigation, and trail maintenance. With them the trainees worked with Katie Lautar and Eric Fishel (executive director and forest manager of BGS, respectively) on community programming around banding birds with Dr. Ela-Sita Carpenter at Fairwood Forest (see Figure 10), and on invasive species removal in Springfield Woods. Both Fairwood Forest and Springfield Woods are sizable greenspaces located within Baltimore. In both events, the trainees were responsible for canvassing before the event to inform the community about programming details, tabling the day of the event, and partially leading the days' events. For the trainees this

was their first real experience with the community aspect of urban forestry, where they had to be able to effectively communicate the various management practices they learned in a manner accessible to a population who, may not have the background knowledge or



Figure 10 - Trainees building bird houses with Dr. Ela-Sita Carpenter, Eric Fishel, and volunteers from Baltimore Greenspace

understanding of jargon that they now possessed.

Assessment of Program

In my assessment of the pilot program, based on the skills that the trainees were able to gain and the connections they made, I would describe it as an overall success. The trainees received assorted trainings in urban forestry, urban ecology, and community engagement as well as professional development that is cross applicable to any career they choose to pursue in the

future. Due to the training that they completed, most of the trainees managed to successfully pivot from their previous employment and career goals into working in urban forestry positions such as full-time employment at Baltimore Tree Trust or in continuing education at Community College of Baltimore County Dundalk’s hybrid learn as you earn Sustainable Horticulture program. At the time of writing this document, the trainees’ employment and education statuses are as follows:

Table 4 - Breakdown of current employment and education status of trainees

Percent of Trainees	Employment type	Organization	Position
60%	Full Time	Baltimore tree trust	Apprentice Urban Forester
20%	Part-time + Student	CCBC Dundalk	Part time student in a learn as you earn program
20%	Student	Frostburg University	Student pursuing a degree in communications

Looking at our relationship with Stillmeadow and the wider urban forestry community in Baltimore, I would add that this program would not have been as effective without all their support. On the days we were not working at Stillmeadow, we were welcomed by the Baltimore community with open arms to teach and train us which elevated the program above any expectations I had going into it.

Thinking about the differences between what was planned for the program but not included due to time constraints or the availability of participants, we managed to accomplish the majority of what we had planned. Some aspects like a proposed tree of the day/week segment

were cut due to daily time constraints. The tree of the day segment would have had trainees giving quick (~ <5 minutes) morning presentations on a random tree that could be found growing in Baltimore after completing some brief research on it the day prior. However, our daily schedule required the trainees to work from 8 am to 4 pm. So between training taking place at Stillmeadow, driving around Baltimore to work and train with our community partners, and participants having job commitments outside of this program, there just was not enough time to include activities that were not part of our training schedule. While this segment would have been great for getting the trainees familiar with trees that they would have encountered in their training, it turned out to be more effective to periodically quiz them on tree identification while we were out in the field. These in the field quizzes allowed the trainees to not only work on their recall, but also provided them with firsthand practice with using dichotomous keys and recognizing shared characteristics between different tree species.

In post event assessment discussions that were had after the completion of the program between Morgan Grove, Max Piana, and myself the idea of having the trainees work in a nearby National Forest like Elk Neck State Forest to expose them to forestry work outside of urban settings. In theory I think this would be amazing for the trainees. After working in Baltimore and getting acquainted with urban forestry, they would get the opportunity to apply what they have learned in the context of traditional forestry. Doing this, they would get the chance to see if they would enjoy working in a state park and see if it were a career route they would like to pursue. In practice however, this would require state park training to either be limited to day trip or a series of overnight stays which would not have fit into the schedules of our trainees this past summer and may face the same issue in future iterations of this program without narrowing our trainee

selection down to applicants with no other current employment. Restricting our trainee selection in this way would reduce the number of applicants who would stand to benefit most from this training.

Considering what made days run the smoothest for myself and the trainees, I would say that those days were novel, impactful, and transformative for all involved. Trainees reported feeling best about the training when they had clear goals that they could see progress on. This was most evident in their installation of the deer fencing at Stillmeadow since they would immediately know if they were doing it properly and where they needed to improve. Finally, thinking about my role as the coordinator of this pilot program, my roles and responsibilities included the following:

- 1) Shuttling trainees to and from training sites around Baltimore
- 2) Guiding trainees through urban forestry curriculum including
 - a. Plant Identification
 - b. Tree Planting
 - c. Interpreting a forested landscape
 - d. Measuring the height and diameter at breast height (DBH) of trees
- 3) Communicating with community stakeholders and education partners
- 4) Working with Stillmeadow on some of their projects that would also help trainees build their skills
- 5) Managing the training schedule for any unforeseen or sudden changes so that the education of the trainees was not stalled
- 6) Tailoring communication and education strategies for the specific learning needs of individual trainees, such as altering the amount of supervision and independence given to trainees when out in the field
- 7) Organizing equipment so that we could minimize the amount of time spent switching between tasks

With all of that in mind and thinking of ways to improve the flow of operations, especially if the number of trainees is expanded, I would recommend having two coordinators to share the responsibilities. There were multiple points this summer in which keeping the program running

smoothly became overwhelming. A second coordinator would be able allow for the needs of trainees and stakeholders to be met in a timely manner. It would also allow trainees to work in groups on different projects throughout the summer such as alternating groups working between Stillmeadow, Cylburn, and Baltimore Greenspace.

Acknowledgements

I would like to say thank you to all the Baltimore based community partners that came together to make this program possible. Thank you to the trainees Larry, Xavier, Jahzeel, Jayden, and Shamaal for showing up and giving everyday your best this summer. I know it wasn't easy, and I am more proud of you all than I could ever express in words. Thank you to pastor Michael, Yorell, and everyone who worked with us at Stillmeadow, doing things like buying me and the trainees breakfast on mornings we had to drive across the city for Turnaround Tuesday sessions or for providing us with suggestions on how we could improve the Peace Park. Thank you to Fig and the folks at Cylburn Arboretum who trusted us to care for the research plots there and welcomed us into your classroom spaces. Thank you to Katy and Eric at Baltimore Greenspaces for really giving the trainees the chance to display what they learned to the wider Baltimore community. Thank you to Megan, Fred, Simon, Mxali and everyone from Tree Baltimore, the Department of Recreation & Parks, Baltimore Tree Trust, and Camp Small that showed me and the guys what urban forestry really looks like in Baltimore and for being patient in showing how much time and effort you've all poured into this community. Thank you to Rich, Quinn, Max, Nancy, Morgan, Tara, Vince, and the United States Forest Service for all the organizational work you put into this program. All of you dedicated your time to seeing the trainees get the most out of this program and acting as people who the crew and I could really look up to in the field of



Figure 11 - Workforce trainees with Baltimore Tree Trust employees

urban forestry. Finally, thank you to Maurice Ashby for showing up for me and the trainees and putting your heart and soul into this program in ways I am so thankful for.