The In-Betweens: Hyper-local Ecologies in Street Corridors

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Abstract

In Columbus, Ohio, recent tree-planting initiatives led by municipal and state administrations, institutions, and nonprofit organizations have made significant strides toward urban green infrastructures. These initiatives, often collaborative and funded publicly, prioritize planting native shade trees and large specimen trees in areas with low canopy cover. While commendable, these efforts are constrained by regulatory codes that limit planting on public and private land, particularly in underprivileged neighborhoods like the Columbus' Southside. Here, spatial challenges—such as narrow front yards, treeless tree lawns, empty or paved-over tree pits, and overhead powerlines—hinder tree planting. This neglect of the public-private interface between streets and residential properties exacerbates disparities in canopy cover and urban greening across communities.

Despite the city's robust tree-planting programs, the complexities of these spaces, coupled with the social context of the Southside, and the political landscape, have made meaningful progress difficult. This reinforces inequities in urban shade and environmental benefits at the local scale. To address these challenges, *Trees for All People* advocates for a paradigm shift: prioritizing site-specific design over rigid regulatory adherence. This approach begins with the premise that every site holds potential, regardless of its constraints. By focusing on the unique conditions of each site, this method fosters new urban ecologies in the transitional space between streets and residential properties.

This design-driven approach yields multi-scalar benefits: enhancing the spatial and experiential quality of streetscapes and neighborhoods, improving residents' mental and physical well-being, and advancing urban shade, biodiversity, and hydrological functions (Eisenman et al. 2024). By reorienting decision-making around design rather than regulation, urban greening efforts can build stronger social and cultural identities (Dümpelmann 2019) while addressing environmental inequities.

Introduction

Context

The underprivileged Columbus Southside is historically an immigrant neighborhood with a redlined past and home to roughly 50% black and brown communities. It is typical of a neighborhood with higher percentages of impervious surfaces, higher temperatures, and lower canopy cover (Hoffman et al. 2020). In stark contrast, German Village, an affluent, predominantly white neighborhood lies immediately to the west. Infrastructural arteries, such as Parsons and Livingston Avenues cross the neighborhood and serve as economic corridors. Public transportation consists of a by Cota operated bus network that connects the Southside with downtown across the highway I-70 corridor that separates the neighborhood. To alleviate congestion, the 2024 elections

passed a levy meant to improves rapid bus lines. Nationwide Children's Hospital, one of the largest and most comprehensive pediatric hospitals and research institutions in the United States, is rapidly expanding its main campus on the north side of the neighborhood and contributes to higher property prices in the already rapidly gentrifying Southside.

Social Vulnerability is described by the Centers for Disease Control and Prevention as the degree to which a community exhibits social conditions, including high poverty, low percentage of vehicle access, or crowded households, that may affect its ability to prevent human suffering and financial loss in the event of disaster. Social Vulnerability Index scores range from 0, lowest vulnerability, to 1, highest vulnerability. In the Southside, most census blocks east and southwest of Parsons Ave are rated as high vulnerability with scores in the 0.85 range and one of 0.94. In comparison, Franklin County, which encompasses most of the Columbus metropolitan area, has an overall Social Vulnerability Index Score of 0.51. The United Methodist Church for All People is an important community center along Parsons Avenue. With the United Methodist Community Development for All People, it offers many social services and develops affordable housing to keep residents in the neighborhood.

The tree canopy cover of Columbus, ranges from 9% in hardscaped, lower income, and/or black neighborhoods to 41% in white, wealthier, and higher educated communities (Figure 1). This correlation is consistent with the largest cities in the Midwest: Chicago, Detroit, Indianapolis and Milwaukee (Ohio State 2021). The Columbus Urban Forestry Masterplan, approved in 2021 by the Mayor's Office, City Council and Columbus Recreation and Parks Commission, has as mission to increase canopy cover city-wide to 40%. Nine social equity factors influenced the analysis and action plan of Columbus's canopy cover: asthma prevalence, chronic obstructive pulmonary disease, mental health, non-white populations, high school graduation rate, median household income, family poverty, property crime, and violent crime. These factors were mapped against canopy cover and led to designating areas in need of improvement. Many census blocks in the Southside have a canopy cover ranging from 7% to 19%, much lower than the city's average of 22%, and the masterplan defines a large area central to the Southside with highest needs for canopy cover improvement (Columbus 2021).

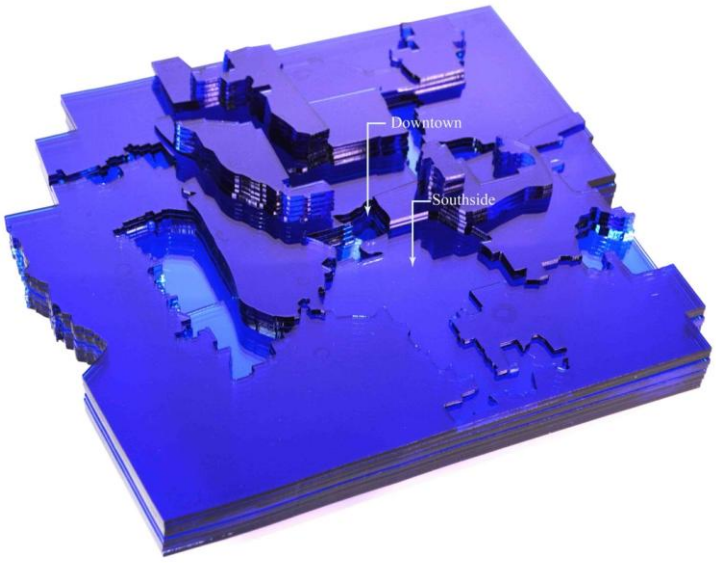

Figure 1. Model representing Franklin County's Canopy Cover. Lower areas correspond with lower canopy cover. Model: Harshat Verma

With the Columbus Department of Parks and Recreation many initiatives and collaborations improve (knowledge of) the city's canopy cover, such as a neighborhood tree analysis, changes in the public tree code, the planting of large caliper trees in parks, and the replacement of trees along streets. The non-profit organization Green Columbus developed two nurseries on abandoned house lots in Linden and Hilltop and offers tree give-away programs in the fall. This organization purchases trees in Michigan as one-year-old bare-root trees, they then grown them in pots for one growing season and distributes these trees in the Linden, Hilltop and the Southside communities. Friends of the Lower Olentangy Rivershed is another major player and non-profit organization in Columbus which improves stream bed areas with tree planting but does not operate in the Southside. Both non-profits rely on volunteers and funding is provided by multiple sources. Similarly, Franklin Soil and Water Conservation District works with tree planting initiatives that address hydrological improvements. The Ohio State University collaborates on tree planting efforts at the interface between the campus and the surrounding neighborhoods. Recent Ohio Environmental Protection Agency grants garnered interest in tree planting initiatives from a variety of local organizations.

The relation between climate change, canopy cover, and equity, is deeply rooted in a history of systemic racism and is specific to the United States (Rothstein 2017, Hoffman et al. 2020). While people have appreciated urban trees during health, climate, and political crises (Dümpelmann 2020), the relation between canopy cover and equity is not part of contemporary discourse in urban development in other places, such as Europe, and little literature is found here on this topic. Moreover, Senate Bill 1 on higher education, sponsored by Jerry Cirino, passed by the Ohio House of Representatives on March 19, 2025 (Ohio House), outlines "controversial belief or policy" including "climate policies," and "diversity, equity, and inclusion programs," further complicating productive improvements in the quality of life of residents (Senate Bill No. 1).

Articulating In-Betweens

Improving and greening the public-private zone between public streets and private yards have long been neglected in the Southside, and, until 2021, no organized tree planting initiatives have taken place here. These urban interstitial spaces have a variety of material and legislative characteristics that lead to ambiguous understanding of ownership and care, often invisible or absent. The in-between spaces consist of empty or paved over tree pits, treeless tree lawns, or tree lawns with tree stumps. Southside front yards are often shallow, typically 15' or 20' deep, which allows for a denser neighborhood and urban quality, but often prohibits planting of shade trees that require a clearance of 15'-20' from building facades. Although the Southside is relatively flat, it grades down to the Scioto River to the west and Alum Creek to the east which leads to grade changes between the level of the street and building entrances. These are solved through a gentle slope, but more often engineered by a berm located in the street's right-of-way but in the front yard; this is the narrow space between the (invisible) property's edge and the street's hardscape, leading to a grade change between 12"-30" and steps in pathways leading to buildings (Figure 2). This microtopography renders a unique spatial quality to the streetscapes in this neighborhood but complicates planting. Often, these spaces are covered with lawn and, while owned by the city, they are maintained by property owners. In the Southside, there are quite a few streets without sidewalks, so while space for future sidewalks is reserved, the right-of-way and property edges are invisible. In alleyways and in streets, powerlines crisscross the neighborhood, and overhead lines connect buildings and light poles, all limiting tree planting: the city asks for 25' clearance from powerlines. Underground utilities, their location invisible to owners, further complicate planting.

Figure 2. Typical Southside Front Yard. Source: Google Street View

In Columbus, currently, the common agreed upon strategy is to prioritize the planting of trees, not of understory or herbaceous vegetation, and not in combination thereof. The consensus among stakeholder organizations is also to plant a) native species, b) shade trees only, and c) as large a tree as possible. These methods improve urban canopy cover but limit the development of ecological networks and biodiversity. Most importantly, they limit the improvement of canopy cover in underprivileged neighborhoods, such as the Southside, where it is most needed.

The inherent complexities of these sites combined with the social context of this neighborhood has proven too challenging to be addressed by municipal improvement efforts, or by non-profit organizations who rely on simple actions and unified directions to volunteers. Similarly, the Urban Forestry Masterplan identified privately owned land as the greatest potential for canopy cover improvements, but the city has no jurisdiction over private land. So, it develops incentives for improvements or collaborates with partner organizations. When public funds are used on private land, strict adherence to regulations and code must be demonstrated through paperwork and contracts, which can be a restriction to success. In summary, the complex parameters of these spatial, invisible, and regulatory conditions resist solutions that can be generalized and activated by engaged stakeholders and partner organizations.

Rather, by considering the qualities of each in-between space, and developing site specific solutions, in collaboration with residents, an ecological system can occur in parallel with street and public trees. This is a question of site design, rather than a rules-based solution. This strategy would also require that the status quo of 'best practice' of planting large native shade trees be revisited.

Literature Review

Natural spaces are inextricably linked to cultural identity. How we think about land is connected to how we see ourselves as a community emphasizing a cultural connection to the spaces we inhabit that contributes to identity (Kemmis 1990). The acknowledgement of cultural identity as related to the natural environment is multi-scalar and happens at the scale of a nation (Singapore), a state (Montana), a city, a neighborhood, and a street. The City of Bexley, which is part of Franklin County where Columbus is located, calls itself Bexley Arboretum, highlighting the diversity of its 14,000 street trees.

Trees are integrated in the cultural identity of a place and can form a fundamental component of the spatial quality of neighborhoods or a specific place in the city. Even the lack of trees can define communities or spaces; downtown Columbus is defined by impervious surfaces of buildings, roads, and parking lots, and has 8% canopy cover. Tree planting has always been as much about humans as trees emphasizing the entanglements between urban trees and the social, cultural, and political life of cities (Dümpelmann 2019). Residential streets in Clintonville, a neighborhood in Columbus, are lined with a variety of trees, and its canopy cover of 40% formed the precedent for Columbus' Urban Forestry Masterplan's goal of 40%.

The current discourse of assigning legal rights to natural spaces is also related to trees, further highlighting the ideological and legal conservation methods of the protection of nature. At the start of this discourse during the environmental movement in the 1970s, it was raised that trees could have legal rights as natural objects (Stone 1972).

Similarly, the lawn has played an essential part in the development of our national identity, and the role of the lawn in American life is related to cultural identity, nation building, symbolically tied to our notions of community and civic responsibility, serving in the process as one of the foundations of democracy (Teyssot 1999). Yet, as much of the spaces intersecting the street and residential yards are either paved or covered in lawn, they are also devoid of life, and actions must be undertaken to benefit residents (Tallamy 2019). Transforming hard and lawn spaces in

biodiverse havens, is by no means an easy task, as resources are limited (Eisenman et al. 2024). The concept of "making oddkin," defined as "we require each other in unexpected collaborations and combinations, in hot compost piles" underscores the need for creative collaboration in this transformation and the need to stay with it, against all odds (Haraway 2016).

Method and Data

The Trees for All People program at The Ohio State University's Landscape Architecture section, developed in 2020, examines environmental disparities in socioeconomically diverse neighborhoods and develops methods of creating green infrastructures and urban forests that can help rectify this. Its MyTree Southside program seeks to empower Southside residents to engage with trees through tree planting on private land and education. This people-based strategy aims at greater socio-environmental equity and a higher quality of life with and for underprivileged residents. Its focus on the street experience leads to improving the immediate space of a resident, the quality of the street and therefore the neighborhood.

Trees for All People collaborates with the United Methodist Church for All People and its Community Development for All People from where its name stems. This is a central organization located along Parson's Avenue and have developed relationship neighborhood residents through our engagement with this organization. Other community partners are Green Columbus, Franklin Soil and Water Conservation, and the Interfaith Association of Central Ohio. Integrating education in our efforts is a fundamental part of our efforts, not only with students in landscape architecture, but also with high school students.

Since 2021, to engage citizens, Trees for All People and its community partners held multiple presentations to the community, which took place at church services, in the church's community center, and at the Barack Community Center. Community engagement is integrated in the undergraduate program in landscape architecture through a design studio with the same name and students have direct contact with the Southside organizations and residents and conduct interviews. Since 2023, Trees for All People also collaborates with the Interfaith Association of Central Ohio and community member collaborates with Church for All People. Since 2024 it engages with residents through door-to-door visits.

The residential signup is central to the process; it is helpful for understanding the geographical distribution and local specificities and contributes to the advancement of knowledge. Site specificity is verified through street views, ownership details are clarified through the Franklin County Auditor's website identifying each potential location and follow up phone calls and site visits contribute to resident engagement. In advance of planting, underground utilities are marked by the Ohio Utilities Protection Service. Trees are distributed to the residents with the offer of planting the trees with or for them and are distributed with a rain-rechargeable watering mat, mulch and stakes.

The exchange of knowledge is fundamental in all parts of the process where science and state of the art knowledge is shared across partners, residents and students, and vice versa, neighborhood needs contribute to goals and outcomes. A fluid and dynamic contextual understanding and exchange is always part of discussions, engagements, and planting.

The 2022 list resulted in 41 signups for a front yard tree including 4 residents living outside of the Southside and were therefore ineligible (Figure 3). 32 front yards had less than 20' clearance from building facades; later this clearance was changed to 15' clearance, per ODNR, which led to additional planting opportunities. Meanwhile 10 residents had already purchased a tree elsewhere or had moved. Through the 2022 Southside MyTree program 32 shade trees were planted on 24 properties. In 2024 collaboration with a landowner and renters led to planting on rental properties, near and under powerlines and overhead cables (Figure 4). Careful site analysis and tailored planting increases canopy cover in this neighborhood. Ongoing outreach efforts in 2024 and 2025 are geared to further engaging underrepresented and low-income residents and with an attention to planting on (rental) properties interfacing the street, especially on sites that others deemed unplantable for shade trees (near/under powerlines, small yards, etc.). Going door-to-door in streets with higher social vulnerability is central to this effort. As the 2022 efforts were concentrated on shade trees, the current efforts are focused on resident engagement and site specificity that leads to a tailored plant palette. Residents have shown an engagement with and care for their trees and shrubs especially during the extremely dry late summer of 2024.

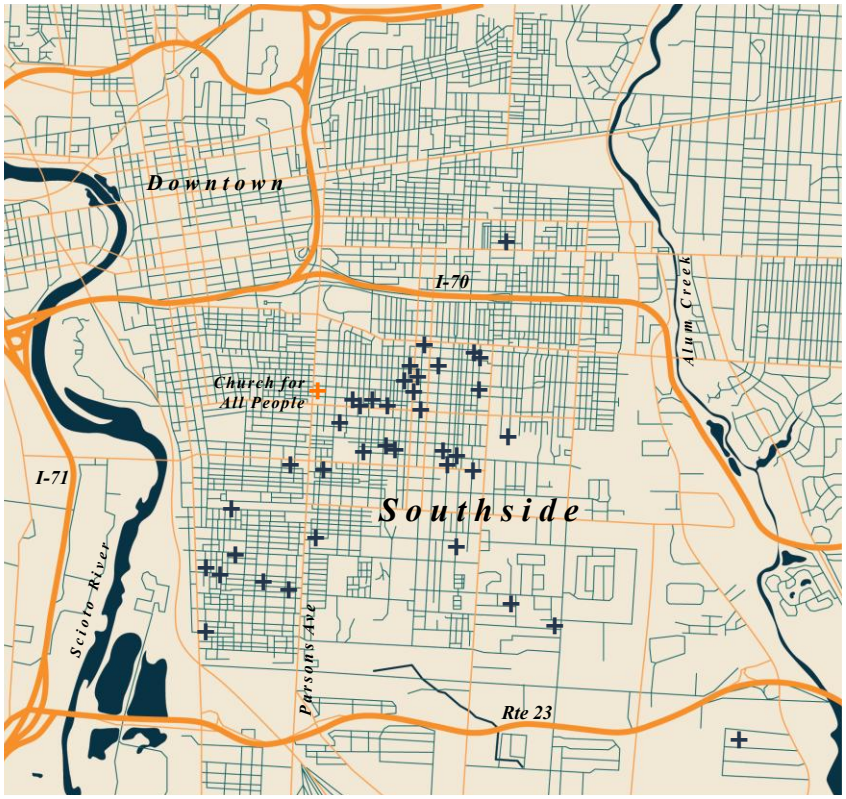

Figure 3. Tree Signup. Source: Trees for All People, 2022

Figure 4. Planting Under Powerlines. Source: Trees for All People, 2024

Findings

Documented interviews with residents and business owners show an engagement with the quality of their neighbourhood, a concern with gentrification, and an interest in a tree planting program. Residents' interest goes beyond improving the quality of their property and they are concerned with the spatial and ecological qualities of their street.

The City of Columbus, while implementing the Urban Forestry Masterplan and working closely with community partners acknowledges the need for tree planting on private land through community participation. Although the city cannot take leadership in either implementing or managing tree planting on private property, they can support this, as evidenced by their continued and valued involvement and support.

In discussion with stakeholder partners, distance from building facades has changed from 20' to 15' which allows for more planting opportunities. By acknowledging height constraints of overhead lines, smaller or multi-stem (flowering) tree species can be planted that contribute to biodiversity and aesthetic appreciation. The door-to-door outreach has been effective as residents share their experience with neighbours. Conversations with residents by going door-to-door are opportunities for sharing contextual and environmental considerations. They lead to positive responses–people are excited about this initiative–but also to more resistant responses, as one resident shouted, "Get off my porch!" We find door-to-door an inclusive approach for community outreach; it is a productive method to understand the varied positions on green infrastructures. So far, we focused on trees, moving forward, we will look for opportunities to include an herbaceous and shrub layer in the plant palette (Eisenman et al. 2024).

MyTree is an individual and site-specific program: it pairs selected trees with each resident and location. As evidenced here, it inspires appreciation and shows challenges:

> *A resident of over 90 years old, living alone, had signed up for a tree through her church. This woman is not on social media, does not communicate through email, and does not always pick up the phone, so we could not confirm and organize the details of tree planting with her. Despite this lack of communication, we had OUPS mark the underground utilities in her yard and had purchased a tree for her. So, at the end of the day when we were distributing and planting trees in the neighborhood, we tried one more time to contact her and rang the doorbell. We waited a while, to no affect, and as courtesy, I called her again. She unexpectedly picked up the phone; she had been in the basement, so she had not heard the doorbell. Yes, she did want a tree; she mentioned that no one had ever planted a tree in her yard before, so she was excited about this. So, with students, we planted this tree for her. This interaction underscored the effectiveness of the work that we were doing in the neighborhood.*

> *A resident who signed up for a tree, and from her work in public health supports the tree planting program and wished to have a tree in her yard. She welcomed a second, flowering tree as well. Earlier that season, the city had planted a tree in the public space in her front yard, and she did not like that tree and wanted it removed, showing the non-linear/inconsistent response to tree initiatives.*

Conclusion: Enhancing the Spatial Quality of the Lived Environment

To strengthen a culture of care and environmental engagement, it is essential to reimagine street corridors. The following three recommendations outline steps to achieve this:

Hyper-Local Scale and Identity

The intersection of public and private domains in street corridors holds ecological promise, especially when addressed at a hyper-local level. Street corridors, particularly in areas like the Southside, illustrate this potential. The spatial characteristics of this neighborhood—such as front yard dimensions, tree lawns, sidewalks, berms, and powerlines—combine with the social

dynamics of its diverse and rapidly gentrifying community. Black, brown, and white residents, long-term locals, newcomers, and individuals in affordable housing collectively shape the neighborhood's identity. Highlighting this social identity through an environmental lens can enhance its ecological and cultural significance.

Beyond Tree Planting—Creating Resilient Urban Ecosystems

Establishing resilient ecological systems is a complex endeavor that requires moving beyond "object-oriented" initiatives, such as tree planting campaigns. While Columbus's tree-planting programs emphasize planting as many large trees as resources allow, urban reclamation demands a more holistic approach. Prioritizing unpaved over paved surfaces, creating interconnected soil networks, and designing multilayered planting systems are essential steps. This transformation necessitates reimagining urban surfaces to accommodate greater ecological complexity and may require altering street layouts and changing automotive access.

Design Solutions

Developing ecological potential on private properties calls for a site-specific design approach. In communication with the resident and property owner, each site should be evaluated individually to create customized solutions that address their unique conditions and needs.

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Figures: