Social Impact through Design: Experiments in Urban Agriculture

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ABSTRACT - *This paper describes the work of students at the School of Architecture and the Department of Landscape Architecture at Clemson University with a local, non-profit organization - the Feed & Seed - in creating alternatives to the current threads that affect the urban area of West Greenville, South Carolina. Starting on the definition of Food Desert as an area without access to fresh and whole foods, students address issues of economic equity, community building and social justice by developing urban agriculture solutions that focus on food hub and food cycle, promote education and foster social cohesion. With the gaps between the haves and have-nots apparently widening each and every year students perceive, challenge, and test the role that designers have in the decision making processes that constitute possible solutions of fractured neighborhoods, cities and regions.*

Keywords: urban farming, food desert, health deficiencies, food cycle, building construction cycle

This paper details the ongoing studio design efforts within the School of Architecture and the Department of Landscape Architecture at Clemson University with a local, non-profit organization, the Feed & Seed, whose mission includes addressing the social inequities present within the disenfranchised, and predominantly, African American neighborhoods located in West Greenville, South Carolina. The Feed & Seed provides affordable, nutritious, and locally grown foodstuffs to these neighborhoods,

and has engaged us as educators to conduct a series of collaborative design studios focused on providing a holistic and systematic rethinking of food production within the City of Greenville. These civic interventions and productive community landscapes were meant to also create compelling spaces and places, and were to be perceived as valuable, civic assets within the communities themselves.

We believe as the educators and investigators behind these studio projects that we are engaging a potentially new model of design practice, born out of the understanding that at the most basic level, architects, landscape architects, planners and designers are fundamentally critical thinkers and creative problem solvers. Our students can offer the communities of West Greenville with real and viable alternatives to the existing conditions that challenge the area as a Food Desert. The studios encouraged and utilized the passion of millennial students to engage in meaningful and thoughtful debate concerning issues of economic equity, community building and social justice. In addition, the Feed & Seed is not only a nexus concerning food production, but also provides an educational primer regarding the best current practices of urban agriculture, nutritional meal planning and cooking sessions, and needed vocational training for the residents.

Ultimately, it appears that the design projects that have the greatest social utility address the issues of sustainability and resiliency of entire communities. Instead of focusing on the products or outcomes that are usually generated by a design studio by students for practicing professional, this utilitarian perspective of sustainability and resiliency offered more credence to the design disciplines understanding of the measure of our impact as practitioners and activists. Design that has social impact and utility does not have predetermined, professional audience, but instead, almost by necessity it weaves itself through communities creating real change that affects the lives of all citizens.

FOOD DESERTS AND THEIR IMPACT ON COMMUNITY HEALTH

This project is based within the city of Greenville located in the “Upstate” region of South Carolina. While Greenville is one of the fastest growing areas in the country in terms of population, there are many existing communities that are being disenfranchised from the economic benefits from such growth.¹ This is not an unusual occurrence within South Carolina, and is a common problem in many cities and regions throughout the rest of the United States. These communities are often the home of the most vulnerable and at risk citizens, and are often so called Food Deserts. A Food Desert is defined by the United States Department of Agriculture (USDA) as an area that does not have access to fresh and whole foods.² Food Deserts are often linked to areas of significant poverty, and when the two factors coexist, the obesity rate with affected communities typically increases. According to the *American Journal of Preventative Medicine*,

adults who have neighborhood access to stores that sell fresh foods have a 21% obesity rate, compared with 32-40% for those living in neighborhoods with no such access.³

According to a recent South Carolina Community Loan Fund study, one million South Carolinians are without adequate access to grocery stores that sell perishable goods, geographically removed from fresh food markets or lack accessibility to affordable and convenient transportation networks to get to such critical places.⁴ These disturbing statistics are not limited to South Carolina, as the USDA estimates that 23.5 million people, including 6.5 million children, live within Food Deserts in the United States.⁵ These statistics contribute to an obesity rate of adults in the South Carolina Upstate that is 67.9%.⁶

THE COMMUNITY

These community design projects all occur in the neighborhoods of West Greenville which possess qualitative characteristics that indicate that they are either existing Food Deserts or are very susceptible to become a Food

Figure 1. The neighborhoods in the western section of Greenville, South Carolina, tend to be predominantly African American, and have lower than average median incomes and lower rates of post secondary education than Greenville City.

Desert in the near future. The selected neighborhoods have less than half the median income of the City of Greenville, are 50% - 83% African American, have larger number of residents per average household, and have less formal education than their more affluent counterparts.⁷ All of these factors contribute to the likelihood of obesity of the residents and the absence of a local neighborhood grocery store with fresh food and produce only compounds the problem.

FEED & SEED

The Feed & Seed organization is attempting to address the community issues of obesity, health, and food access from a regional perspective. The USDA defines a food hub as a regional business or organization that actively manages the aggregation, distribution, and marketing of source-identified food products primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail, and institutional demand. In turn, food hubs are a “scaling up” strategy that allows an expanded reach into communities for locally grown and produced food.⁸ Currently, South Carolina only has one existing food hub, Grow Food Carolina, located in Charleston and approximately two hundreds of miles away from Greenville. Charleston, and the adjacent coastal areas of the state provide ideal for growing conditions for vegetables and other consumable crops while Greenville and other areas located in the Upstate are environments better suited for livestock production. Grow Food Carolina and the Feed & Seed envision working together across the entire state to maximize as much South Carolinian grown and raised food as possible. The Feed & Seed will provide a large warehouse facility that will meet the wholesale demand for foodstuffs, while also providing access to everyday family dietary requirements the form of a market with fresh produce, meats, dairy, and baked items. The organization also intends to educate the community and farming community in the advantages and processes of sustainable agriculture, and therefore will have an educational urban farm in the surrounding landscape of the facility. Finally, food distribution locations will be located throughout the region in order to get the fresh food items into the community and to lessen the effects of existing Food Deserts. The following projects identify and address concepts including; the food hub, the urban farm, and the Food Desert distribution locations.

FEED & SEED STUDIO: FOOD HUB

The first interdisciplinary studio course entitled “Feed & Seed Studio: Reconnecting Farms, Markets, and Tables” was completed in Fall 2014, and provided a holistic approach to address food access issues as well as social, economic, and environmental concerns in order to generate a greener, sustainable, and healthier city. The studio evaluated and assessed existing farm to market conditions and looked for opportunities to increase effectiveness and efficiencies within the local food system.

The studio also sought to answer the question that many students asked, namely “What role does architecture play in the local food community?” The purpose of the studio was to generate financially viable alternative conditions for the non-profit Feed & Seed which would allow it to function in areas where traditional groceries saw little chance of profit, while also gaining critical information regarding how these neighborhoods functioned as a community network. Such information included, but was not limited to, understanding the broader potential impact that the Feed & Seed could have on the existing communities, site strategies, programmatic development ideas, as well as ideas for how the building and site themselves could become a civic asset. The students quickly realized through their research that the failure rate of food hubs in the United States is actually quite high. Successful food hubs are ones where they are fully embraced and utilized regularly by the majority of the residents of a community, not just a select few interested citizens.

Figure 2. Plan view of the Proposed Food Hub, by Kathleen Peek and Aaron Peter.

The students realized that in order for the Feed & Seed to be successful it would need to become an integral and needed part of the community; therefore the students sought out ways to create meaningful spaces for the community as well as researching the outreach programs that were most needed within the community. Three basic strategies arose from the studio; create an extension of the Swamp Rabbit Trail recreational corridor and connect it with a major transportation and leisure corridor in the city of Greenville; integrate an understanding of the site as a former mill and integrate the mill's history with that of the neighborhood; and to create a building and site strategy which reveals all of the necessary cycles associated with farming, in order to educate the community about the processes and requirements of urban agriculture.

FOOD HUB DESIGN SOLUTION 1 - FOOD CYCLE (TRANSPORTATION)

Students: Brianne Burdy, Yue Ren, Sarah Stumpo

The first project recognized that the surrounding community lacked not only access to fresh foods, but also suffered from an insufficient transportation nexus with the other parts of Greenville. The team discovered that one in five African American households did not own a car; and that bike used by African Americans doubled from 2001 to 2009 and was continuing to expand at a rate five times faster than cycling among whites.⁹ The students also discovered that the Greenville bike share program was more affordable and more accessible than the current public transportation (bus) system. The economic investment was startling in its contrast - the price of the bike share program is \$0.16/day while the cost of a bus ride is \$1.35/day. The bike share program is

Figure 3. Section of the active Food Hub, by Kathleen Peek and Aaron Peter.

accessible from 5 am to 11 pm everyday of the week, while the bus suffers from limited hours of operation; 5:30 am - 7:30 pm Monday through Friday, and 8:30 am - 6:30 pm on Saturday. No rider services are offered on Sunday.¹⁰

The student's design proposed a synergistic relationship between the existing and rapidly growing bike share program with Greenville's Swamp Rabbit Trail. The addition of bike share stops at the food hub and urban farm offered the local community more flexibility and more affordable transportation opportunities than the current bus network. In addition, such service allowed better access and connectivity to the other parts of the city, enabling community members to take advantage and participate within Greenville's growing economy. The connection with the Swamp Rabbit trail allowed the community to take advantage of one of Greenville's most valued active recreation assets, which are scarce in the West Greenville neighborhoods. The synergy between increasing access to fresh food and the availability to live an active lifestyle addresses the health issues found in at-risk communities from a holistic and common sense perspective.

FOOD HUB DESIGN SOLUTION 2 - EXPOSURE (EDUCATION)

Students: Kathleen Peek and Aaron Peter

The second design team realized that most Americans know very little about the cycles of food production and food processing, as well as little idea of what was involved with the construction, maintenance and reinvestment cycles of buildings and site infrastructure systems. Up to 72% of Americans know little concerning farming or food production.¹¹ This lack of basic understanding of how food is grown, handled, processed, stored and transported lead to uninformed choices, which can often lead to poor and unhealthy individual decisions when it came to healthier food options. Chronic diseases linked to diet account for 75% of healthcare costs, which could be saved if diets of Americans were changed.¹² The team understood that while poor food choices contributed to poor health, poor building designs and wasteful infrastructure decisions also lead to negative impacts on the environment and economic systems.

The students design solution revealed shared commonalities between the cycles of farming and building construction by using transparent materials and the weaving of public space throughout the food hub facility and urban farm. No part of the production systems was hidden from public view and, in turn, such visibility encouraged the community to watch and engage with the processes of each. The studio realized that architecture's role in the local food community was more than simply creating usable spaces for the selling of fresh food products, rather architecture and landscape architecture offered unique opportunities to integrate local food systems back into the community. By understanding the programmatic needs of the communities in question, and by revealing key moments in what is otherwise and

“invisible” and “closed system” (such as the handling and sanitization of produce, or the expense incurred for engaging long distance transportation systems) the designers ensured that these newly visible spaces were meaningful to the surrounding communities.

FOOD DESERT

The Food Desert component of the Feed & Seed proposed a collaboration with a private, locally owned, gas station chain, known as Spinx. The Spinx convenience stores are located throughout the region, many times being situated within Food Deserts. These stations already have an established system for distribution and delivery of material goods, and are often the closest place where low-income residents can spend their Snap dollars on approved food items. In addition, the Spinx company owns many undeveloped land parcels adjacent to their existing stores. Therefore, the distribution strategy offered by the Feed & Seed sought to place their fresh food products within the Spinx convenience stores and to extend the idea of the urban farm into community gardens by inhabiting the adjacent parcels of open properties owned by Spinx.

This project was performed in collaboration with the Communications Department at Clemson University, by offering a collaborative creative inquiry course that presented a service learning opportunity at the intersection of global issues and local communities. Using ethnographic interviews and focus groups, as well regional historical research, students identified and researched key audience segments adjacent to intersections of community, identity, and culture (e.g., German Expatriates, Latino Youth, Low-income Whites). The concluding project included the content and design of the physical spaces as well as opportunities to communicate the message of the Feed & Seed to the community as a whole. It was necessary that each of these design interventions be appropriate to the specific communities that they were to be located, as the communities were vastly different in terms of ethnicity, food culture, educational levels and disposable income. It was imperative that these designed spaces be accepted as being part of the surrounding community in order for the members and stakeholders of the neighborhood to take active ownership of the community gardens and actually purchase the fresh food items available for sale within the Spinx convenience store.

FOOD DESERT DESIGN SOLUTION 1 - OUR BACKYARD (LEISURE)

Students: Colin Bland, Sally Dunaway, Taylor King, Sana Mirza, Josh Rowell

“Our Backyard” identified the need and provided an area for three neighborhoods - West Greenville, West End, and Sterling - to come together to play, grow, and relax. The student design team worked to develop playful, creative, and appealing signage, messaging, and architectural designs that would engage the elderly, children, parents, families, and other members of the community as a whole. The particular

focus was on developing strategies that would encourage children to play, adults to relax and yet still supervise their children, as well as the elderly to feel as a vital part of an intergenerational community. The intention was also to allow everyone to grow through shared activities while also enhancing a social bond across all three communities, and encouraging overall healthier and more active lifestyles.

The design team discovered that communities with lower income levels and lower formal education have reduced access to parks and other recreational spaces, as well as having less quality leisure time.¹³ By blending recreational spaces into the community garden, the garden reconnects the community with active food production while also providing areas where the community can remedy its lack of public park and open space.

FOOD DESERT DESIGN SOLUTION 2 - CREATE GREENVILLE (HISTORY)

Students: Hannah Harrison, Amanda Hill, Taylor Shank, Lindsay Wehmeier, Logan White

“Create Greenville” aimed to create a new community hub for West Greenville by drawing upon its rich history and the active members of the neighborhood to maintain the original community character and culture while still updating and reinvesting in the neighborhood. Greenville is a constantly changing and expanding city; with the downtown and immediately adjacent areas surrounding areas undergoing the most radical and intense transformation. This project provided the neighborhood with a strategy to allow their culture and identity to be preserved, even in the face of the ever-changing development of the city.

Figure 4. Interior perspective of the Food Hub, by Kathleen Peek and Aaron Peter.

Figure 5. Create Greenville, proposed to install equipment normally associated with playgrounds which could also be adapted to allow and encourage food production to also occur.

“Create Greenville” found that the surrounding neighborhoods to the downtown were the most historically significant, and engaged African American communities. The first African American high school in Greenville County was located in the area, as well as some of the oldest traditional black churches.¹⁴ This rich history is important for the community to recognize while looking ahead to future opportunities. The community garden design provided tells the story of the history of the neighborhoods while simultaneously addressing the lack of fresh food availability.

Welborn Street Site - The Urban Farm. Located in the neighborhood of West Greenville, along the banks of the Reedy River and adjacent to the popular civic asset and greenway of the Swamp Rabbit Trail, the Feed & Seed has purchased a portion of an abandoned storage facility and adjacent property to use as an additional location to counter the effects of the Food Desert in the area. Part of the Feed & Seed mandate to serve the public good is the sustained commitment to provide educational classes regarding the growth of organic produce, safe food handling procedures, seasonal planting strategies along with the best practices of

Figure 6. Create Greenville, recognized that embracing and celebrating the African American experience and their contributions to the neighborhood was essential in recognizing community buy in to the project.

companion plantings - a technique that associates different produce types to be grown in close proximity to one another allowing the effects of one produce type causes beneficial conditions for another kind of produce. In addition, informational cooking classes and primers on how to start small scale restaurant and other food focused businesses are planned.

Essential to having this site operate achieve its mission, the Feed & Seed facility on Welborn Street is the ability to grow produce on site for educational purposes, but also to have a reliable and local source of nutritious produce that will also provide a partial source for the intended restaurant. Unfortunately, this site, like many other former storage facilities located on the urban fringe of urban areas, suffers from a host of environmental maladies. The site used to serve as a storage facility to a once active rail line, and in turn, has multiple locations of hazardous and toxic pollutants on site, with the most pervasive being the presence of coal ash. Coal ash is a common term for the waste produced through the burning of coal for industrial purposes, leaving such toxins as mercury, lead, arsenic and other heavy metals as a by-product. The remediation

Figure 7. The calculations performed to understand the economic capital and logistics to make the Welborn Street facility a viable, urban agricultural facility. Graphic by Austin Allen.

of sites that contain coal ash can often be a laborious and expensive endeavor, and must adhere to the Environmental Protection Agency's (EPA) significant regulations with regards to proper storage and approved mitigation strategies. While the Welborn Street facility has only slight traces of coal ash on site while compared to other sites, it effectively removed the possibility for the existing land and soil to be used a medium for the growth of produce for consumption.

One of the primary focus of the undergraduate landscape site design studio held in the Spring of 2016 was to assess and to explore the feasibility of the installation of a combination of movable and permanent, above grade, planting areas to provide a clean and safe growing media

Figure 8. Plan view of a proposed design scheme that reconnects disrupted ecological niches back into a comprehensive whole. Graphic by Allison Chan.

for the necessary produce to be grown. The Welborn Street facility has an additional and significant issue beyond the presence of coal ash, as part of the facility is located within the 100 year floodplain of the Reedy River, and the water quality of the river itself contains a high percentage of fecal matter from a yet to be determined source upstream to cause the site to be continually monitored for its water quality. It was this consideration of the potential of a significant portion of the land to be submerged in a flood event, and the presence of human excrement within the water necessitated the need for mobile planters to be investigated as a design solution.

One student became preoccupied with the logistics and the requirements to test to see whether the Feed & Seed could be a viable entity based

upon these substantial limitations. Austin Allen discovered that the clean soil required to use as a growth medium would be one of the Feed & Seed's largest capital expenses. Based upon projected estimates by the Feed & Seed, an acre of land would be required to grow the fresh produce needed for the facility. It was this thorough attention to the specific requirements of the facility that reinforced the value of soil to the students, who often took access to clean soil for granted.

Allison Chan's project used the idea of *Kintsugi*, a form of Japanese pottery that uses a gold lacquer to hold the fragments together as a parallel of repairing a broken food system within Greenville. Chan's thoughtful investigation of how to reveal the past assumptions and erroneous farming practices to indicate how the land was mistreated, and in turn, how such neglected and fallow land could be transformed into a product civic asset in the form of Urban Agriculture.

BENEFITS FOR COMMUNITY

There are multiple benefits for the communities that these projects are based that extend beyond the design product being proposed. While the design work is important for the Feed & Seed as they are counting on the successful production of urban agriculture foodstuffs, and since they are working within extremely tight budgets with a small, but dedicated staff, we also witnessed the transformative power of the design process for the organization, the students, and the community. The benefits included:

1. The Feed & Seed was assisted to understand the project's process rather than being provided the finished and finalized design product. This process educates them about the use of design investigations but also assists them in understanding the scope of work, indicates the limits of professional responsibility, and provides a primer in how to obtain professional expertise. In this particular case, it provided a grounding of the finances that would be required before hiring a professional architect. In the "Food Hub" projects the student developed the working program for the facility, and in turn, the executive director of the Feed & Seed was able to use that student work to obtain realistic bids from builders.
2. The community centered projects allowed for the non-profit organization to reach out to the larger community and start a conversation addressing persistent and serious issues. Community members were open and friendly with the students, and these projects allowed the community to take part in the project much more organically from a "grassroots" perspective, rather than having the organization, or the city solicit opinions from a skeptical community. This also benefited the non-profit as it

built a degree of trust and familiarity and community buy in that is required for a successful endeavor.

3. This engagement also allowed for the establishment of trust to be developed within otherwise disparate social groups and neighborhoods where trust did not exist before. Not only were the student presentations new ways to hear about community concerns, they also provided a new opportunity for the organization to build trust and relationships.
4. The project descriptions and operational sites can be leveraged to reuse and to assist non-profits, non-governmental agencies, and community groups to increase and expand the level of critical engagement of their physical site over time.

CONCLUSION

The projects detailed beforehand address issues of social justice that are invaluable tools in the context of a design school, as it allows us as educators to inform our students to become engaged and socially empathic citizens. This understanding of how designers operate, being more than just the creators of useful products or places, positions designers as integral to the decision making processes that constitute of neighborhoods, cities, and regions. Designers bring useful skills that can expand the discussion and the dialogue concerning economic equity, issues of community building and how to create social just spaces. With the gaps between the haves and have-nots apparently widening each and every year, we need to be attuned, concerned and engaged regarding the political and economic decisions being made to ensure our cities are not contributing to or accelerating this disparity. This is the real value we are giving the society - educating future designers to become engaged citizens and knowledgeable about how their decisions and impacts can affect others.

Notes

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